



# JOINT ESI-ISAS WORKSHOP

## SOUTH ASIA'S CHALLENGES AND OPPORTUNITIES IN SUSTAINABLE ENERGY TRANSITIONS

UNDP Auditorium, Level 8 (Block A) 29 Heng Mui Keng Terrace  
Monday, 27 November 2017 | Singapore

### SYNOPSIS

The South Asian developing countries, with India being the largest, are entering their most energy-intensive phase of economic growth. No South Asian country will be able to fully meet its energy demand domestically. The governments in South Asia realise the importance of ensuring sufficient energy supply as a key criteria for national development, while their populations have growing expectations with regard to access to modern energy services and better quality of life.

Meanwhile, major factors — such as energy technological advancements (renewables, energy-efficient systems, energy storage, electric vehicles and the digitisation of the energy sector, among others), climate change considerations, the growing realisation on the importance of sustainable energy policies, the call for greater intra- and inter-regional collaboration and connectivity, and international politics — are expected to shape the energy landscapes of the individual countries and South Asia as a whole. This workshop brings together experts to examine the challenges and opportunities for South Asian governments as they embark on the path of sustainable energy transition.

### PROGRAMME

8.30am      **REGISTRATION**

9.00am      **WELCOME REMARKS**  
**Professor Ang Beng Wah**  
Executive Director  
Energy Studies Institute, NUS

#### **KEYNOTE ADDRESS**

**Regional Integration through Energy Connectivity: The Low Hanging Fruit for South Asia**

**Professor Syed Munir Khasru**  
Chairman  
Institute for Policy, Advocacy and Governance (IPAG)

#### **QUESTION-AND-ANSWER SESSION**

9.55am      Coffee/Tea Break

10.15am

**SESSION 1: ENERGY TRANSITION: FROM FOSSIL FUEL TO RENEWABLES**

Chairperson

**Dr Christopher Len**

Senior Research Fellow

Energy Studies Institute, NUS

Speakers

**India's Unique Energy Leap – Traditional Energy to Sustainable Energy**

**Mr Karthik Ganesan**

Research Fellow

Council on Energy, Environment and Water, India

**India's Belated Transitions: Prospects for Leap Frogging to Low Carbon Energy**

**Ms Lydia Powell**

Head, Centre for Resources Management

Observer Research Foundation, India

Discussant

**Dr Liu Yang**

Senior Research Fellow

Energy Studies Institute, NUS

**Question-and-Answer Session**

11.45am

**SESSION 2: POLITICAL ECONOMY**

Chairperson

**Dr Amitendu Palit**

Senior Research Fellow and Research Lead (Trade & Economics)

Institute of South Asian Studies, NUS

Speakers

**External Factors affecting South Asia's Energy Outlook**

**Dr Christopher Len**

Senior Research Fellow

Energy Studies Institute, NUS

**South Asia – Energy Options and Policies**

**Dr S Narayan**

Visiting Senior Research Fellow

Institute of South Asian Studies, NUS; and

Former Economic Adviser to the Prime Minister of India

Discussant

**Ms Vandana Hari**

Founder and Chief Executive Officer

Vanda Insights; and

Former Asia Editorial Director, S & P Global Platts

### **Question-and-Answer Session**

1.15pm Lunch Reception

### **SESSION 3: CLIMATE CHANGE**

#### Chairperson

**Dr Liu Yang**

Senior Research Fellow  
Energy Studies Institute, NUS

#### Speakers

#### **Transitioning to Low Carbon Economy in South Asia**

**Mr Jiwan Acharya**

Senior Energy Specialist, South Asia Department  
Asian Development Bank

#### **Climate and Energy Transition in South Asia: The Role of Regional Cooperation**

**Dr Nitya Nanda**

Fellow, Centre for Resource Efficiency and Governance –  
Integrated Policy Analysis Division, and  
Editor, Journal of Resources, Energy and Development  
The Energy and Resources Institute, India

#### Discussant

**Mr Sandeep Chamling Rai**

Senior Advisor- Global Climate Adaptation Policy  
WWF Singapore

### **Question-and-Answer Session**

3.45pm Coffee/Tea Break

### **SESSION 4: POWER AND ELECTRIFICATION**

#### Chairperson

**Professor Anthony D Owen**

Principal Fellow and Head of Energy Economics Division, Energy Studies  
Institute, NUS; and Emeritus Professor of UCL School of Energy and Resources,  
Adelaide, Australia

#### Speakers

#### **Cross Border Energy Trade in South Asia**

**Mr Riasat Noor**

Senior Research Associate  
Institute for Policy, Advocacy and Governance (IPAG)

**Progression of Renewable Energy Development for Electricity in South Asia  
– Drivers and Challenges**

**Dr Thusitha Sugathapala**

Senior Lecturer in Mechanical Engineering  
University of Moratuwa, Sri Lanka

Discussants

**Dr Per Christer Lund**

Science and Technology Counsellor  
Norwegian Embassy/Innovation Norway  
Singapore

**Mr Hari MP**

Research Associate  
Energy Studies Institute, NUS

**Question-and-Answer Session**

5.40pm

**Closing: The Way Forward**

**Dr Amitendu Palit**

Senior Research Fellow and Research Lead (Trade & Economics)  
Institute of South Asian Studies, NUS

5.50pm

**Networking Tea Session**

6.15pm

End of Workshop

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## JOINT ESI-ISAS WORKSHOP

### SOUTH ASIA'S CHALLENGES AND OPPORTUNITIES IN SUSTAINABLE ENERGY TRANSITIONS

27 NOVEMBER 2017 | SINGAPORE

Biography (In Order of Appearance)

#### Professor Ang Beng Wah

Executive Director

Energy Studies Institute, NUS



Professor Ang Beng Wah is the Executive Director of the Energy Studies Institute. He is also Professor of Industrial Systems Engineering and Management at the National University of Singapore. His primary research interests are systems modelling and analysis, and energy economics and policy. He has been very active in energy demand analysis, and has made important contributions to the development of the technique of Index Decomposition Analysis. The decomposition technique he proposed has been widely used by researchers and national and international energy organisations to study factors affecting national energy consumption and carbon emissions, as well as to monitor sectoral and economy-wide energy efficiency trends. Professor Ang is a Co-Editor of *Energy Economics*, and a member of the editorial boards of several other international energy journals including *Energy Policy* and *Energy*.

#### Professor Syed Munir Khasru

Chairman

Institute for Policy, Advocacy and Governance (IPAG)



Professor Syed Munir Khasru holds an MBA from the Wharton School of Business, University of Pennsylvania. He heads the international think tank, the Institute for Policy, Advocacy and Governance (IPAG). His expertise includes international relations and strategic affairs, regional connectivity and trade, energy and power. Professor Khasru is experienced in multi-stakeholder dialogue in international platforms, including the World Economic Forum and G20. He provides policy recommendations to government and multilateral agencies. In the energy sector, Professor Khasru is a well-respected strategic thinker and policy analyst. Among recent events, he was invited by the Asian Development Bank in Manila on 8 June 2017 to speak at the Roundtable for the Energy Leaders of Asia. For the 10<sup>th</sup> South Asia Economic Summit from 14-16 November 2017 in Kathmandu, Nepal, he was invited to speak on "Issues in Energy Cooperation" for "Deepening Economic Integration for Inclusive and Sustainable Development in South Asia." He writes for leading international media outlets which include Project Syndicate, Straits Times (Singapore), Nikkei Asian Review (Japan), South China Morning Post (Hong Kong) and the Times of India & Hindu.

#### Dr Christopher Len

Senior Research Fellow

Energy Studies Institute, NUS



Dr Christopher Len is a Senior Research Fellow at the Energy Studies Institute (ESI) of the National University of Singapore. He was previously a Research Fellow at the Stockholm-based Institute for Security and Development Policy where he was responsible for the Energy and Security in Asia Project. Dr Len was also a Visiting Associate under the Energy Programme of the Institute of Southeast Asian Studies in Singapore between 2006 and 2012. Christopher is in charge of the Maritime Energy Futures Programme at ESI. His research focuses on Asian energy and maritime security issues, regional infrastructure connectivity, the growing political and economic linkages between the various Asian sub-regions, as well as sustainable energy access in the Arctic. He obtained his PhD from the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee in Scotland. He also has degrees from the University of Edinburgh, Scotland and Uppsala University, Sweden.

**Mr Karthik Ganesan**

Research Fellow

Council on Energy, Environment and Water, India



Mr Karthik Ganesan is a Research Fellow at the Council on Energy, Environment and Water in India. His research focus includes the development of long-term energy scenarios for India and energy efficiency improvements in the industrial sector in India. He also leads an independent effort to assess GHG emissions from the industrial sector and improving transparency in reporting. In addition, he supports on-going work in the areas of power sector performance and reform and energy access indicators for rural Indian households. He also carried out a first-of-a-kind evaluation of the impact of industrial policies on the RE sector in India. His published works include Resurgence of Nuclear Power – Challenges and Opportunities for Asia (Springer, Book Chapter), Factors Affecting household satisfaction with electricity supply in India (Nature Energy), Energising India – Towards a Resilient and Equitable Energy System (SAGE, book), Rethink India's Energy Strategy (Nature), Co-location opportunities for RE and agriculture in North-western India: Trade-offs and Synergies (Applied Energy), Valuation of health impact of air pollution from thermal power plants (Asian Development Bank [ADB]), Technical feasibility of metropolitan siting of nuclear power plants (National University of Singapore [NUS]), Prospects for Carbon Capture and Storage in Southeast Asia (ADB). Dr Ganesan has a Master in Public Policy from the Lee Kuan Yew School of Public Policy at NUS. His prior educational training resulted in an MTech in Infrastructure Engineering and a BTech in Civil Engineering from IIT Madras.

**Ms Lydia Powell**

Head, Centre for Resources Management

Observer Research Foundation, India



Ms Lydia Powell has been with the Observer Research Foundation for over 16 years working on policy issues in energy, water and the environment in the Indian context. Her current interests include energy security, energy access, carbon constraints and its impact on India's energy security, clean coal for energy and environmental security, regional cooperation for environmental security (India and Bangladesh) and Federalism and its impact on Indian energy policy. She contributes commentary and analysis on the Indian energy sector regularly. Her most recent paper was a book chapter on India's Energy Transitions. Ms Powell has also worked for Norsk Hydro and for Orkla, two of Norway's largest conglomerates whose interests include energy. Ms Powell has three Post Graduate Degrees – two on Energy from Norway and one in Solid State Physics from India.

**Dr Liu Yang**

Senior Research Fellow

Energy Studies Institute, NUS



Dr Liu Yang is a Senior Research Fellow in Energy Studies Institute, National University of Singapore. His research area involves energy efficiency, smart energy systems and climate finance. Prior to this position, He was an Energy Specialist at the International Energy Agency (IEA), where he focused on monitoring of energy efficiency trends and impacts in emerging economies, as well as providing technical assistance to governments and businesses. Dr Liu has a blend of operational and academic experience in clean energy, public policy, and sustainability strategy. Over the last few years, he has published widely on the topics of energy efficiency, renewable energy and policy evaluation in well-recognised journals including Energy Journal and Energy Economics, and he has co-authored the 2015 and 2016 IEA Global Energy Efficiency Market Reports. He earned his PhD in Energy Economics from the Ecole Polytechnique of France.

### **Dr Amitendu Palit**

Senior Research Fellow and Research Lead (Trade & Economics)  
Institute of South Asian Studies, NUS



Dr Amitendu Palit is Senior Research Fellow and Research Lead (Trade and Economic Policy) at the Institute of South Asian Studies (ISAS) in the National University of Singapore (NUS). He is an economist specializing in international trade policies, regional economic developments, comparative economic studies and political economy of public policies. He worked with the Government of India for several years with his longest span being in the Department of Economic Affairs in the Ministry of Finance, India. Prior to joining ISAS in April 2008, he was with the Indian Council for Research on International Economic Relations (ICRIER), a leading economic policy research institute and think-tank in Delhi. His current research focuses on economic and political implications of India's integration with the Asia-Pacific region, impact of mega-regional trade agreements, and various determinants of external trade and integration policies of China and India. His books include *The Trans Pacific Partnership, China and India: Economic and Political Implications* (2014; Routledge UK), *China India Economics: Challenges, Competition and Collaboration* (2011; Routledge) and *Special Economic Zones in India: Myths and Realities* (2008; Anthem Press; Co-authored). He has also edited several books and published in peer-reviewed academic journals. He is a columnist for India's well known financial daily, Financial Express and a regular contributor for the China Daily. He appears regularly as an expert on the BBC, Bloomberg, Channel News Asia, CNBC, Australian Broadcasting Corporation (ABC), Doordarshan (India) and All-India Radio.

### **Dr S Narayan**

Visiting Senior Research Fellow  
Institute of South Asian Studies, NUS; and  
Former Economic Adviser to the Prime Minister of India



Dr S Narayan (IAS, 1965 batch), with nearly four decades (1965 to 2004) in Public Service in the State and Central Governments, in Development Administration, was the Economic Adviser to the Prime Minister during 2003-04. Prior to this assignment, Dr Narayan served the Government of India as Finance and Economic Affairs Secretary, Secretary in the Departments of Revenue, Petroleum and Industrial Development. As Secretary, Petroleum and Natural Gas, he was responsible for policy formulation and implementation in the hydrocarbon sector. Between 2000 and 2003, in the Ministry of Finance, his responsibilities included formulation of macroeconomic policy for the Government, tariff and taxation policies as well as initiatives for modernising the capital markets. His special interests include public finance, energy policy, governance issues and international trade. Dr Narayan obtained his PhD from the Indian Institute of Technology in New Delhi. He has an MPhil (Development Economics) from Cambridge University and Master of Business Management (Finance) from the University of Adelaide. He graduated with an MSc (Physics) from the University of Madras (Madras Christian College). Dr Narayan has single authored one book, edited two books and written numerous policy papers, reports and book chapters. He also writes regularly in newspapers, both locally and internationally on issues relating to Public Policy, Governance, Public Finance, Trade and Energy. Dr Narayan has been a Visiting Senior Research Fellow at the Institute of South Asian Studies (ISAS), National University of Singapore since 2005. After nine successful years as Head of Research at ISAS, Dr Narayan handed over the portfolio in mid-2014. He is a chair professor at the India Gandhi Open National University, New Delhi. The Center for Asia Studies a think tank based in Chennai, and Athena Infonomics Ltd, a Chennai-based research and consulting firm, are his other initiatives.

**Ms Vandana Hari**

Founder and Chief Executive Officer  
Vanda Insights; and  
Former Asia Editorial Director at S & P Global Platts



Ms Vandana Hari is Founder and Chief Executive of Vanda Insights, a Singapore-based oil and gas markets analysis and research company. She has 22 years of experience providing intelligence on the global energy markets to stakeholders in the industry, related sectors, government officials, and asset managers. Before launching her own venture in September 2016, Ms Vandana served as Asia Editorial Director at S&P Global Platts, a leading information provider on the global energy, petrochemicals, metals and agricultural markets. In that role, she oversaw the regional commodities news and pricing operations and led the company's business strategy and external engagements. Ms Vandana has experience assessing spot crude and refined product prices as well as writing and managing news, analysis and research. Ms Vandana has a bachelor's degree in science from India's MD University and post-graduate diplomas in communication and social journalism. She is extensively quoted in the business press around the globe and is a regular commentator on TV and radio channels including Bloomberg, CNBC, BBC, and Singapore's Channel News Asia.

**Mr Jiwan Acharya**

Senior Energy Specialist  
South Asia Department  
Asian Development Bank



Mr Jiwan Acharya has been working in the Sector Advisory Service Division in the Regional and Sustainable Development Department of the Asian Development Bank (ADB) since 1 October 2006 and currently holds the position of Senior Climate Change Specialist (Clean Energy). He is a key member of ADB's Climate Change and Clean Energy Team and is responsible for overseeing ADB's several key initiatives including Energy for All, Low Carbon Technology Transfer, Technical Support Facility under the Carbon Market Program. The Energy for All program aims to increase ADB's own investment on access to energy and assist the partners in promoting energy access projects in the region. He also spearheads the Energy for All Partnership which has a target of providing energy access to 100 million people by 2015. Mr Acharya serves as ADB's focal point for Clean Technical Fund and Scaling Up Renewable Energy for Low Income Countries (SREP) under the Climate Investment Funds. Prior to joining ADB, Mr. Acharya was Senior Research Officer in Winrock International in Kathmandu, Nepal covering climate change, CDM, energy access and broader clean energy areas. Mr Acharya, who is a Nepalese national, has a Master of Arts in Economics, Master of Science in Energy Systems and Management and a Bachelor of Science in Electrical Engineering.

**Dr Nitya Nanda**

Fellow, Centre for Resource Efficiency and Governance – Integrated Policy Analysis Division; and  
Editor, Journal of Resources, Energy and Development  
The Energy and Resources Institute, India



Dr Nitya Nanda is a research professional with more than two decades of experience in research, consulting and teaching in international trade, investment, environment and development issues, the political economy and the legal aspects of these in particular. His work covered issues and challenges in India, South Asia but often South-east Asian and African nations as well. He has been involved with about 40 research/consulting projects, and in about half of them as the principal investigator. Currently, he is a Fellow with TERI where he is also the Convenor of the Centre for Resource Efficiency and Governance. He has more than 120 research publications including nine articles in peer-reviewed journals, 30 in other journals, 35 book chapters in edited volumes, 28 monographs/briefing papers, and 12 conference papers. He has authored two books and also edited four volumes. He has written several articles for newspapers and magazines. Currently, he is also the editor of TERI's flagship academic journal, Journal of Resources, Energy and Development.

**Mr Sandeep Chamling Rai**

Senior Advisor- Global Climate Adaptation Policy  
WWF Singapore



Mr Sandeep Chamling Rai is Senior Advisor on Global Climate Adaptation Policy at WWF, based out of Singapore. He leads WWF's global efforts on adaptation and loss and damage policy work within UN Climate Change negotiations process. He has more than fourteen years of working experience on climate change issues ranging from project implementation (adaptation projects, glacial research, renewable energy, CDM) to national and international policy process in particular UNFCCC. He has been participating in the UNFCCC process since 2003 in various capacities as WWF and Nepalese government delegations. He had also served as a board of Director for five consecutive years for Climate Action Network-International (CAN-International), a worldwide network for over 1100 NGO in more than 120 countries, working on climate change issue.

**Professor Anthony D Owen**

Principal Fellow and Head of Energy Economics Division, Energy Studies Institute, NUS; and Emeritus Professor of UCL School of Energy and Resources, Adelaide, Australia



Before joining the Energy Studies Institute, Tony was a Professor at the UCL School of Energy and Resources, Adelaide, Australia, where he held the Santos Chair in Energy Resources. Prior to that, he was Professor of Energy Economics in the Curtin Business School, Curtin University of Technology, Perth, and before that Associate Professor of Economics and Joint Director of the Centre for Energy and Environmental Markets at the University of New South Wales, Sydney. He has a PhD in Econometrics from the University of Kent (UK) and has held visiting appointments at the Universities of British Columbia, Colorado, Leeds, and Exeter, the Organisation for Economic Cooperation and Development (Paris), the UK Department of Energy (Harwell), and the International Energy Agency (Paris). Energy related consulting activities have been undertaken in Australia, China, Denmark, Indonesia, Norway, the Philippines and the UK. Tony is an Emeritus Professor at UCL, a Fellow of the Royal Statistical Society, and Past President (2004) of the International Association for Energy Economics.

**Mr Riasat Noor**

Senior Research Associate  
Institute for Policy, Advocacy, and Governance (IPAG)



Mr Riasat Noor is Senior Research Associate at the Institute for Policy, Advocacy, and Governance (IPAG). He is a research-savvy professional with experience in wide range of power & energy verticals and expertise in quantitative and qualitative analysis. He leads IPAG's power & energy projects, with work in energy value chain, sustainability reporting and investment in the energy sector. Currently, he is developing a 'Power Sector Investability Index' for the Government of Bangladesh as well as potential investors to provide a guidance mechanism on an enabling policy and regulatory framework. A seasoned copy editor, Mr Noor has authored several publications on energy connectivity and digitisation, and appeared in platforms such as UNIDO, GSCASS, and II Eurasian Forum (YES-Forum). He also specializes in market research and multi-country survey and speaks widely on CCS & carbon pricing, CBET, and marine geopolitics, as well as advocates for energy security. Mr Noor has an MBA from the Institute of Business Administration (IBA), University of Dhaka, and has also worked with ILO and Nielsen Bangladesh.

**Dr A G Thusitha Sugathapala**

Senior Lecturer in Mechanical Engineering  
University of Moratuwa  
Sri Lanka



Dr Thusitha Sugathapala is a Senior Lecturer in Mechanical Engineering of the University of Moratuwa; and a Chartered Engineer. Presently he is also performed duties as the Chairman - Intellectual Property Advisory Committee and the Director – Enterprise of the University of Moratuwa. He obtained the BSc Engineering Degree from University of Moratuwa and PhD from University of Cambridge. He served as the Head of the Department of Mechanical Engineering from 2005 to 2008, and the Director General of Sri Lanka Sustainable Energy Authority from 2011 to 2015. Dr Sugathapala’s research areas of interest cover both energy and environment fields, including renewable energy; energy efficiency; and air quality management. He has been involved with development of policies and regulations including Renewable Energy Feed-in Tariff, Energy Efficiency, Clean Air 2025 Action Plan, Fuel Quality Road Map, Vehicle Emission Regulations, Stationary Sources Emission Standards and Nationally Determined Contributions (NDCs) in Power and Transport Sectors. He has also served as consultant to several national and regional programmes of the Asian Development Bank, World Bank, UNDP, and UNEP.

**Dr Per Christer Lund**

Science and Technology Counsellor  
Norwegian Embassy/Innovation Norway  
Singapore



Dr Per Christer Lund is the Science and Technology Counsellor at the Innovation Norway Singapore office. He has been engaged in the energy and environment business in a variety of positions including research, software development and consulting. Per Christer has worked on CCS (Carbon Capture and Storage) as a post-doc in Japan as early as 1993 and as research fellow at the Japanese nuclear reactor “Fugen” in 1997. Afterwards, he worked with development of dynamic and stochastic process modeling and simulation at Institute of Energy Technology (IFE) with application towards the petroleum industry and electricity market over four years. Per Christer has also been involved in design and operation of deregulated electricity markets in North America, India and Europe; as country manager for now NASDAQ OMX in Canada and Vice President at Nord Pool Consulting in Norway. He has more than 11 years of experience from Asia; including 8 years as science and technology counsellor at the Innovation Norway Tokyo office and 1 year at DNV GL in Singapore.

**Mr Hari MP**

Research Associate  
Energy Studies Institute, NUS



Mr Hari MP joined the Energy Studies Institute, National University of Singapore, as a Research Associate in October 2013. He holds an MSc in Financial Engineering from the National University of Singapore, and an MBA from the Faculty of Management Studies at Delhi University. He has published research papers in Energy Policy, Applied Energy journals on Price transition in Asian gas markets, Chinas gas market uncertainty, Impact of lower oil prices on gas markets, Market price development in other commodity markets and Business models for deployment of Electric vehicles. His research interests include gas market modelling, gas market liberalisation, sustainable transportation, solar PV and optimisation related to energy commodities and renewable energy.

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