

# The 3<sup>rd</sup> Asian Energy Conference:

## Diversity in Urban Energy Transitions in Asia:

## Trajectories, Governance and Policy Innovations

3<sup>rd</sup> July 2019

Mrs Padma Harilela

Lecture Theatre (WLB 104),  
Hong Kong Baptist University



### Lead Organiser



### Co-Organisers

#### 地理系

Department of Geography  
Hong Kong Baptist University



David C. Lam Institute for  
East-West Studies (LEWI)  
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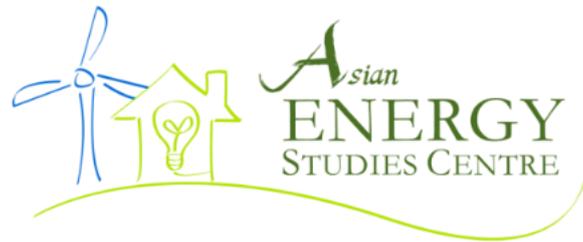


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# Acknowledgements

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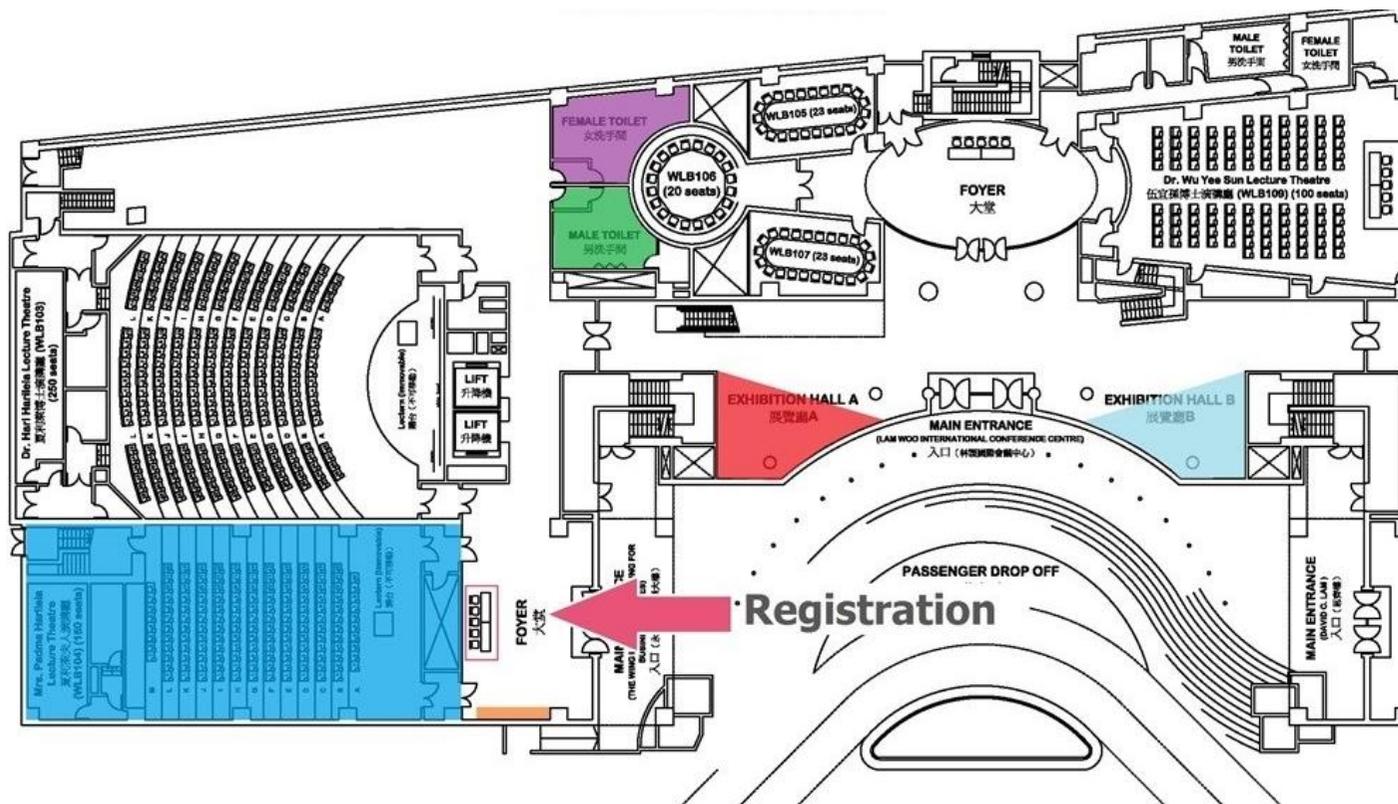


# Conference Programme

Time	Topics <i>Speakers</i>
9:15- 9:30 a.m.	<b>Registration</b>
9:30- 9:40 a.m.	<b>Opening Remarks</b> <i>Prof. BAILEY, Adrian J., Dean, Faculty of Social Sciences; Chair Professor of Geography; Fellow, Academy of Social Sciences (FACSS)</i>
	<b>Keynote Speech</b>
9:40- 10:20 a.m.	<b>New energy for new cities: Challenges and solutions to building sustainable cities</b> <i>Dr. BYRNE, John, Chairman and President, Foundation for Renewable Energy &amp; Environment; Director &amp; Distinguished Professor of Energy &amp; Climate Policy, Center for Energy &amp; Environmental Policy, University of Delaware</i>
	<b>Session 1: Socially Enabled Urban Energy Transition</b> <i>Chair: Dr. SIU, Alice, Associate Director, Center for Deliberative Democracy, Stanford University</i>
10:20- 10:40 a.m.	<b>Smart energy transition scenario development from a trust, social learning, and deliberative participation perspective: A preliminary framework and research agenda in the contexts of Japan and South Korea</b> <i>Dr. MAH, Ngai-yin Daphne, Director, Asian Energy Studies Centre; Assistant Professor, Department of Geography, Hong Kong Baptist University</i> <i>Dr. SIU, Alice, Associate Director, Center for Deliberative Democracy, Stanford University</i>
10:40- 11:00 a.m.	<b>Shifting environmental and social burdens and benefits of clean energy transitions</b> <i>Dr. McLELLAN, Benjamin, Associate Professor, Graduate School of Energy Science, Kyoto University</i>
11:00- 11:20 a.m.	<b>Smart island energy transition</b> <i>Dr. LEE, Taedong, Associate Professor, Department of Political Science and International Studies, Yonsei University</i>
11:20- 11:40 a.m.	<b>European pathways towards market based support schemes for renewables</b> <i>Dr. LEPESANT, Gilles, Senior Researcher, French National Centre for Scientific Research (CNRS) / Centre Marc Bloch Berlin</i>
11:40- 11:55 a.m.	<b>Tea Break</b>
	<b>Session 2: Interdisciplinary Approaches for Energy Policy Innovations</b> <i>Chair: Dr. CHUN, Kwok Pan, Assistant Professor, Department of Geography, Hong Kong Baptist University</i>
11:55 a.m.- 12:15 p.m.	<b>Modelling household energy consumption using climatic and demographic variables in Hong Lok Yuen and Fairview Park, Hong Kong</b> <i>Dr. CHUN, Kwok Pan, Assistant Professor, Department of Geography, Hong Kong Baptist University</i> <i>Ms. FAN, Pingyu Rita, PhD Candidate, Department of Geography, Hong Kong Baptist University</i>
12:15- 12:35 p.m.	<b>An interdisciplinary approach to examine Singapore's drive towards energy efficiency: Policies for a low carbon future</b> <i>Ms. LOW, Melissa, Research Fellow, Energy Studies Institute, National University of Singapore</i>
12:35- 12:55 p.m.	<b>"Solar cities": Municipal opportunity for strategic infrastructure-scale photovoltaic development incorporating market, finance, and policy conditions</b> <i>Dr. TAMINIAU, Job, Research Principal, Foundation for Renewable Energy &amp; Environment</i>
	<b>Morning Panel Discussion</b>
12:55- 1:15 p.m.	<b>The Asian perspective and the global relevance</b> <i>Moderator: Prof. HILLS, Peter, Professor Emeritus, University of Hong Kong</i>
1:15- 2:30 p.m.	<b>Lunch</b>

	<p><b>Session 3: Governance Innovation for Low-carbon China</b>  <i>Chair: Dr. LO, Tek Sheng, Kevin, Assistant Professor, Department of Geography, Hong Kong Baptist University</i></p>
2:30- 2:50 p.m.	<p><b>Socio-technical and political economy perspectives in the Chinese energy transition</b>  <i>Dr. MORI, Akihisa, Associate Professor, Graduate School of Global Environmental Studies, Kyoto University</i></p>
2:50- 3:10 p.m.	<p><b>Varieties of local governance and environmental policy innovations in China</b>  <i>Dr. SHIN, Kyoung Marvin, Assistant Professor, Institute of Technology Management, National Tsing Hua University</i></p>
3:10- 3:30 p.m.	<p><b>Climate experimentation and the limits of top-down control: Local variation of climate pilots in China</b>  <i>Dr. LO, Tek Sheng, Kevin, Assistant Professor, Department of Geography, Hong Kong Baptist University</i></p>
3:30- 3:50 p.m.	<p><b>Revisiting multi-level governance theory: Politics and innovation in the urban climate transition in Rizhao, China</b>  <i>Dr. WESTMAN, Linda, Postdoctoral Research Associate, Urban Institute, University of Sheffield</i>  <i>Prof. CASTAN BROTO, Vanesa, Professional Fellow, Urban Institute, University of Sheffield</i>  <i>Dr. HUANG, Ping, Postdoctoral Scholar, Center for International Environment and Resource Policy, Tufts University</i></p>
3:50- 4:10 p.m.	<p><b>Tea Break</b></p>
	<p><b>Session 4: Just and Social Perspective of Energy Transitions</b>  <i>Chair: Prof. HILLS, Peter, Professor Emeritus, University of Hong Kong</i></p>
4:10- 4:30 p.m.	<p><b>Energy poverty and just energy transition in Japan</b>  <i>Dr. OKUSHIMA, Shinichiro, Associate Professor, Faculty of Engineering, Information and Systems, University of Tsukuba</i></p>
4:30- 4:50 p.m.	<p><b>Territorial equity in energy transitions: Reflections on the Yellow Jackets Movement in France</b>  <i>Prof. BALME, Richard, University Professor, Paris School of International Affairs;</i>  <i>Research Fellow, Center for European Studies, Sciences Po</i></p>
4:50- 5:10 p.m.	<p><b>Actors in cooperation: A case study of low-carbon energy governance in Hong Kong</b>  <i>Ms. CHEUNG, Tracy Ting Ting, Joint PhD Researcher, Institute of Geography, Universität Hamburg;</i>  <i>Department of Geography and Planning, Macquarie University</i>  <i>Dr. FULLER, Sara, Senior Lecturer in Sustainability and Development, Department of Geography and Planning, Macquarie University</i></p>
	<p><b>Afternoon Panel Discussion</b></p>
5:10- 5:40 p.m.	<p><b>The Asian perspective and the global relevance</b>  <i>Moderator: Prof. BALME, Richard, University Professor, Paris School of International Affairs;</i>  <i>Research Fellow, Center for European Studies and comparative politics, Sciences Po</i></p>
5:40- 5:50 p.m.	<p><b>Closing Remarks and End of Conference</b></p>

# Venue Floor Plan (Lam Woo International Conference Centre)



## Legend

- Registration Desk
- Female Toilet
- Male Toilet
- Dining Area
- Dining Area
- Coffee Tables
- Conference Room

# Keynote Speaker



## Dr. BYRNE, John

Chairman and President,  
Foundation for Renewable Energy & Environment;  
Director & Distinguished Professor,  
Energy & Climate Policy,  
Center for Energy & Environmental Policy,  
University of Delaware



### **New energy for new cities: Challenges and solutions to building sustainable cities**

A scan of nightfall across the planet reveals a human triumph and, at the same time, a developmental and environmental dilemma. On the one hand, led by modern cities, humanity has built a world of wealth in just 100 years that exceeds anything in history. At the same time, the triumph of modern life is so extensive and sophisticated that balances in global ecosystems are being exceeded by human activity as the carbon released from our economic success triggers climate change, the environmental threat that only modernity could create. And there is an accompanying social dilemma: invented over a century ago, electric light remains an experience only for the socially privileged, as two billion human beings—almost one-third of the planet's population—cannot afford or reliably access this energy option.

How might we change the energy sector to respond effectively to climate change and energy poverty? How can we make the major changes needed to reverse the social conquest of the atmosphere? What are the elements of a new agenda to act on our problems? These questions will be considered in the talk.

### **Profile**

John Byrne is president of the Foundation for Renewable Energy and Environment and a contributor since 1992 to the Intergovernmental Panel on Climate Change (which was awarded the 2007 Nobel Peace Prize). He is Director and Distinguished Professor of Energy and Climate Policy at the Center for Energy and Environmental Policy, University of Delaware; a visiting scholar at the School of Advanced International Studies, Johns Hopkins University; a visiting faculty member at Lawrence Berkeley National Laboratory; and serves on the Committee of Chairpersons of the World Council for Renewable Energy.

He conceived the Sustainable Energy Utility (SEU) model and co-chaired the nation's first SEU (created in Delaware) during 2007-2012. He is the architect of its innovative sustainable energy finance program which executed its first tax-exempt bond sale in 2011 with a rating of AA+. The SEU has received U.S. government recognition as part of the country's Better Buildings Challenge, is recommended by the Asia Development Bank to members for affordable green energy development, and was recognized for its innovation in green energy investment by the International Energy Agency (2016 edition of its Energy Technology Perspectives).

His work has been funded by the World Bank, UNDP, UNEP, the W. Alton Jones Foundation, the Asia Foundation, the Blue Moon Fund, the National Science Foundation, the U.S. Department of Energy, the National Renewable Energy Laboratory, and the U.S. Environmental Protection Agency, among others. Dr. Byrne is co-editor in chief of the invitation-only journal, WIREs Energy and Environment, a reference work published by Wiley & Sons. Since 1983, he has been the editor of the book series Energy and Environmental Policy, published by Routledge. His recent books include: Green Energy Economies, an assessment of the prospects for and barriers to a paradigm shift in the energy economy; Energy and Environment: The Policy Challenge, which addresses the global warming debate; Environmental Justice, which examines international linkages between social and environmental inequality; Transforming Power, which explores the prospects for significant change in the world energy system; and Rethinking Environmentalism: Linking Justice, Sustainability, and Diversity (2018, MIT Press), in which he collaborated with Sharachandra Lele, Joan Martinez-Alier, Robert Bullard, Eduardo Brondizio, Georgina Mace and other leading environmental scholars in assessing key challenges to the field's future. He has published 19 books and over 170 research articles.

He is an advisor to the Seoul Metropolitan Government for its ambitious 1 GWp solar initiative.

## ***Morning Panel Session Moderator***



**Prof. HILLS, Peter**  
**(Morning Panel Moderator and Session 4 Chair)**

Professor Emeritus  
University of Hong Kong

### **Profile**

Professor Peter Hills is an Emeritus Professor at the University of Hong Kong where he worked from 1982-2016. Prior to 1982 he worked at the University of Aston in Birmingham and the University of Nottingham in the United Kingdom. He joined the then Centre of Urban Studies and Urban Planning at University of Hong Kong in August 1982. In January 1992, he was appointed Director of the renamed Centre of Urban Planning and Environmental Management (CUPEM) and he held this post until 30 June 2008 when, following the reorganization of CUPEM, he was appointed Director of the new-established Kadoorie Institute until 30 June 2012. He was a part-time Chair Professor in the Institute from 2012-2016.

Most of his academic work - both research and teaching - have focused on the relationship between energy, environmental and sustainability issues and the policy-making process. More recently he has been working with Dr. Daphne Mah on studies of smart grids. He has served on many of the Hong Kong government's advisory bodies in the energy and environmental fields including the Energy Advisory Committee and the Advisory Council on the Environment. He has also served as a consultant to various international bodies including the Asian Development Bank, UN-ESCAP and UNDP.

## *Afternoon Panel Session Moderator*



### **Prof. BALME, Richard**

**(Afternoon Panel Moderator and Session 4 Speaker)**

University Professor

Paris School of International Affairs;

Research Fellow, Center for European Studies,

Sciences Po

### **Profile**

Richard Balme is professor of political science at Sciences Po. He teaches public policy analysis, comparative politics, environmental politics and governance, and international relations. His recent research is focused on environmental and climate governance.

Balme is scientific director for the Master in International Public Management at the Paris School of International Affairs (PSIA), director of the executive master in Development Policy and Management "Potentiel Afrique", and senior fellow at the Centre for European Studies and Comparative Politics. He coordinates the Atelier Interdisciplinaire de Recherche sur l'Environnement [AIRE] (Interdisciplinary Research Workshop on the Environment) at Sciences Po.

Richard Balme taught at the School of Public Policy and Management at Tsinghua University in Beijing, and at the School of International and Public Affairs at Columbia University in the City of New York. He was appointed member of the Conseil Economique, Social et de l'Environnement, in France, 2012-2014. He is also Fellow at the Asian Energy Studies Centre of the Honk Kong Baptist University and associate with China Policy in Beijing. He is a member of the Council of Sciences Po.

# *Session 1*

## *Socially Enabled Urban Energy Transition*



**Dr. SIU, Alice**  
**(Session 1 Chair and Speaker)**

Associate Director  
Center for Deliberative Democracy,  
Stanford University

### **Profile**

Dr. Alice Siu has advised policymakers and political leaders around the world, at various levels of government, including leaders in China, Brazil, and Argentina. Her research interests in deliberative democracy include what happens inside deliberation, such as examining the effects of socio-economic class in deliberation, the quality of deliberation, and the quality of arguments in deliberation.



## **Dr. MAH, Ngar-yin Daphne**

Director,  
Asian Energy Studies Centre;  
Assistant Professor,  
Department of Geography,  
Hong Kong Baptist University

### **Smart energy transition scenario development from a trust, social learning, and deliberative participation perspective: A preliminary framework and research agenda in the contexts of Japan and South Korea (Co-Author: Dr. SIU, Alice)**

Scenario approach is widely used to envision the possible trajectories in sustainable energy transition. While most studies focus on the techno-economic aspects in energy scenario building, few studies consider the social and governance aspects of future energy scenarios. Advancing the multi-level perspective of energy transitions studies, this study proposes a framework for smart energy scenarios in envisioning energy transitions with a focus on the applications of smart grid-enabled solar photovoltaic (PV) in the residential sector. Our proposed scenario framework comprises three dimensions, namely techno-economic aspects, socio-technical aspects, and governance aspects – in particular trust and social learning. The framework is applied to Japan and South Korea to illustrate how smart energy scenarios could be developed. A research agenda is suggested that specific governance issues of trust and social learning are critical to the smart energy scenario choices.

#### **Profile**

Dr. Daphne Mah is currently Director of the Asian Energy Studies Centre, and an Assistant Professor at Department of Geography of Hong Kong Baptist University (HKBU). Dr. Mah obtained her MSc in Environmental Management from the University of Nottingham in the UK, and completed her PhD study in 2010 at University of Hong Kong, investigating the role of local states, policy capacity and the development of wind energy policies in Xinjiang, Shanghai and Guangdong. Dr. Mah's research and teaching focuses on three broad domains: sustainable energy, energy governance, and comparative policy-making, mainly in the Asian, Chinese and Hong Kong contexts. She was awarded the Chevening Scholarship for her studies in the UK. She is a recent recipient of Faculty of Social Sciences' (HKBU) Faculty Award for Early Career Academic (Research) 2014-2015. Before pursuing her academic career, Daphne was a journalist in Ming Pao Daily News, and the head of the campaigns team of Friends of the Earth (Hong Kong).



## **Dr. McLELLAN, Benjamin**

Associate Professor  
Graduate School of Energy Science,  
Kyoto University

### **Shifting environmental and social burdens and benefits of clean energy transitions**

Clean energy transitions at national and global scales have significant upstream implications for the quantity and type of resources required to be extracted in order to provide materials for the desired technologies. Ultimately, these changing resource requirements have significant local implications for socio-economic and environmental impacts and benefits. This presentation will discuss the evaluation of this “consequential transition” that flows from the target transition of clean energy. The Australian resources and energy sectors are used as a source of data and a case study.

### **Profile**

Ben has been an Associate Professor at Kyoto University teaching in energy science since 2010, prior to which he worked at the Sustainable Minerals Institute of the University of Queensland on sustainable design and assessment processes within the minerals and industrial processing industries. His PhD and undergraduate studies were in Chemical Engineering – also at the University of Queensland. He is currently involved in research around transitions in energy systems and minerals production / consumption, including deep ocean minerals life cycle sustainability impacts, stakeholder engagement, and more broadly in the minerals-energy nexus.



## **Dr. LEE, Taedong**

Associate Professor  
Department of Political Science and  
International Studies, Yonsei University

### **Smart island energy transition**

Islands share the common characteristic of having isolated energy systems and a historical reliance on energy imports, predominantly fossil fuels, for their electricity and transportation needs. Such reliance on imported fossil fuels has not come without significant economic and environmental consequences and difficulties. The urgency to address climate change, energy security and reliability, and price volatility are the stimulus for rapid and transformational socio-technical changes. This study offers insight on Hawaii's policy and deployment progress in transitioning its island energy system. By applying sustainable transition management and niche-level innovation theories, we conceptualize island energy transition as a multilevel and purposive policy-driven sustainability and self-sufficiency socio-technical intervention using available renewable energy sources, improved and smart grids, and efficient energy storage and consumption. To apply this analytic framework, this study examines the governance model in Hawaii employed from the inception of the Hawaii Clean Energy Initiative, a comprehensive island energy transition, to the present day. Based on document analysis, and in-depth interviews with energy stakeholders, we assess progress on Hawaii's energy system transformation and subsequent socio-technical innovation as it develops the long-term pathway to achieve its ambitious energy policy objectives. In particular, we probe into the source and level of change, and how policies have stimulated actions at the niche level to overcome significant policy and technological hurdles and achieve record levels of indigenous distributed energy resources in the electricity sector. This research contributes to energy policy literature by providing (1) a conceptual framework of island energy transition; (2) a review of policy and technology solutions at the local level to support change; (3) a case study of a first-of-its kind demonstration project between Japan and the State of Hawaii; and (4) policy implications for other countries' island energy transition efforts.

### **Profile**

Taedong Lee is associate professor at the Department of Political Science and International Studies and the director of Environment, Energy and Human Resource Development Center in Yonsei University, Seoul. His areas of research include global and sub-national environmental politics and policy, NGO and civic politics. Professor Lee recently published his monograph, *Global Cities and Climate Change: Translocal Relations of Environmental Governance* (Routledge, 2015), *Village Community Politics* (2017, in Korean) and *Debates in Environment and Energy Politics* (2017, in Korean), and *Politics that We Make: Actions for Neighborhood Democracy* (2018, in Korean). His articles have appeared in journals including *Policy Sciences*, *Nonprofit and Voluntary Sector Quarterly*, *Review of Policy Research*, *Policy Studies Journal*, *Energy Policy*, *International Environmental Agreements*, *Environmental and Planning C*, *Global Environmental Politics* and other Korean and international peer-reviewed journals.



## **Dr. LEPESANT, Gilles**

Senior Researcher

French National Centre for Scientific Research (CNRS) /

Centre Marc Bloch Berlin

### **European pathways towards market based support schemes for renewables**

The EU has over the last 20 years enjoyed a strong growth of renewable energy production and has adopted a supportive legislation setting targets for the share of renewables in the energy mix by 2020 and by 2030 (respectively 20% and 32%). Although the implementation of this policy differs from one Member State to another, more than 30% of electricity consumption was based on renewables in 13 out of 28 Member States in 2017. Faced with a sharp increase of costs, Member states have however agreed to reform their support schemes and to introduce market-based schemes in order to reap the benefits of decreasing costs of technologies in the wind and solar sectors. Thus, auctioning has become the new normal. Volume-driven support schemes have been substituted to price-based support schemes. The move has proved to be successful since projects costs have sharply decreased, even in offshore wind where zero-subsidy schemes have emerged. New concerns need to be addressed though, starting with social acceptance, land-use conflicts, spatial distribution of installations as well as financing of small-scale projects that are instrumental to enhance the role of solar in urban areas.

### **Profile**

Gilles Lepesant is Senior researcher at CNRS (Centre National de la Recherche Scientifique/National Center for Scientific Research) in geography and Associate Fellow at the Asian Energy Studies Centre (Hong Kong Baptist University). He is currently based in Berlin (Centre Marc Bloch). He is Lecturer at CIFE (Centre international de formation européenne - Master in Global Energy Transition and Governance - Nice/Berlin) and at Sciences-Po Paris. His research investigates the spatial dimension of the energy transition in Europe induced by the uptake of renewables.

## *Session 2*

### *Interdisciplinary Approaches for Energy Policy Innovations*



**Dr. CHUN, Kwok Pan**  
(Session 2 Chair and Speaker)

Assistant Professor  
Department of Geography,  
Hong Kong Baptist University

**Modelling household energy consumption using climatic and demographic variables in Hong Lok Yuen and Fairview Park, Hong Kong (Co-Author: Ms. FAN, Pingyu Rita)**

Household energy consumption management promotes the resilience of cities. For managing household energy demand, quantifying how climate variations and demographic variables affect energy pattern is useful. By establishing energy and climate relationships, adaptive energy-saving solutions based on climatic conditions and household environments can be developed. In this study, a pilot study was undertaken in 58 households from Hong Lok Yuen and Fairview Park. Electric bills from the households were collected for providing energy consumption pattern information. A nonparametric regression approach was used to explore nonlinear relationships between climate variables and energy consumption patterns. Based on results of these households, the general energy consumption patterns related to climate variables was found to be likely driven by thermal comfort. Therefore, we propose nature-based solutions to use a setting of nature for increasing indoor thermal comfort and reducing energy demand at home. Moreover, different households respond to climate variables change differently, and we suggest options of household specific solutions based on demographic variables. Using these pilot study results, we design an energy demand management framework for integrating communication systems and utility supply systems. We also discuss the potential applications of this framework for building energy resilience in smart cities.

**Profile**

Dr. Chun is an assistant professor in Hong Kong Baptist University. His main research interest is using climate information for environmental applications. He develops new stochastic and multiscalar approaches for investigating nonstationary earth systems. His works aim to provide environmental management insights into the water, energy and food nexus, for achieving the Sustainable Development Goals, in Eurasia and America.



## **Ms. LOW, Melissa**

Research Fellow  
Energy Studies Institute,  
National University of Singapore

### **An interdisciplinary approach to examine Singapore's drive towards energy efficiency: Policies for a low carbon future**

Under the Paris Agreement, countries need to ratchet up their climate targets every 5 years. Singapore's first NDC to reduce its emissions intensity by 36% from 2005 levels and stabilize its emissions with the aim of peaking around 2030 will need to be updated by 2025 and become more ambitious. Presently, a number of legislative and fiscal measures exist to drive energy efficiency in Singapore. These include the Energy Conservation Act, carbon tax of S\$5/ton from 2019-2023 and a number of energy efficiency grants now consolidated under the Energy Efficiency Fund. However, key challenges including the low penetration of renewable energy, slow take-up of energy efficiency grants and huge untapped potential of green financing remain. This presentation will examine Singapore's emissions trajectory, climate and energy governance and policy interactions relating to its drive to create a low carbon future. It will also propose an interdisciplinary approach to examining these policies.

### **Profile**

Ms. Low holds a Master of Laws (LLM) in Climate Change Law and Policy (with distinction) from the University of Strathclyde and a Master of Science in Environmental Management from the National University of Singapore (NUS). For her NUS Master thesis on past and contemporary proposals on equity and differentiation in shaping the 2015 climate agreement, Melissa was awarded the Shell Best Dissertation Award 2013.

She received her Bachelor of Social Sciences in Geography degree (with Honors) and a minor in Urban Studies from the National University of Singapore in 2010. Melissa has participated in the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) talks since December 2009 and is the Designated Contact Point for NUS's accreditation to the UNFCCC. Her current research areas are on the implications of the Paris Agreement and countries' progress in meeting their climate pledges.



## **Dr. TAMINIAU, Job**

Research Principal

Foundation for Renewable Energy & Environment

### **“Solar cities”: Municipal opportunity for strategic infrastructure-scale photovoltaic development incorporating market, finance, and policy conditions**

To achieve substantial energy transition, reconsideration of finance-policy-market interactions is required and is contemplated here by positioning the build-out of city-wide photovoltaic (PV) as a commitment to infrastructure-scale development. A so-called “solar city” strategy is analyzed in which large-scale deployment of PV throughout the urban fabric essentially constructs an urban renewable energy power plant by using the vast rooftop real estate available in all cities. Practical implementation of the “solar city” concept is explored in six case study cities - Amsterdam, London, Munich, New York City, Seoul and Tokyo. The substantial potential of the solar city concept is evaluated for each location and combined with a financing strategy to realize the potential. The work presented finds that infrastructure-scale development represents a promising means to attracting city-wide, cost-effective, sustainable energy investment.

### **Profile**

Dr. Job Taminiau is the Research Principal of the Foundation for Renewable Energy & Environment (FREE, <http://freefutures.org/>), a non-profit, international organization established to promote a better future. He manages and conducts research in collaboration with FREE's research teams to explore innovative ideas to advance energy efficiency, renewable energy, and sustainable livelihoods for public sector clients in and beyond the United States. Before devoting his work fulltime to FREE, he completed his doctorate on climate change policy and economics at the Center for Energy and Environmental Policy (CEEP, University of Delaware, USA). Job has published work on subjects including energy finance, renewable energy and energy efficiency technology, (global) carbon markets, climate change policy, innovation diffusion, transition management, and community utility development.

## *Session 3*

### *Governance Innovation for Low-carbon China*



**Dr. LO, Tek Sheng, Kevin**  
(Session 3 Chair and Speaker)

Assistant Professor  
Department of Geography,  
Hong Kong Baptist University

#### **Climate experimentation and the limits of top-down control:**

##### **Local variation of climate pilots in China**

The Low-Carbon Pilot (LCP) program in China is an important national initiative aiming to facilitate climate experimentation. Thus far, 87 local governments have become climate pilots and are tasked with developing innovative climate solutions with the hope that these innovations can be applied nationally. The LCP adopts a uniquely Chinese approach to policymaking that is characterized by both bottom-up experimentation and top-down control and has been described as a success in the official discourse. However, using two case studies from Guangdong and Jilin, we show that there could be significant variation in performance and willingness to conduct experimentation among the climate pilots. The presence of variation suggests that the top-down steering mechanisms of the LCP are not conducive to climate experimentation and have the unintended consequences of encouraging risk-averse behaviors. We further show that local factors—leadership support, communities of practice, and alignment of interests—are important factors enabling success.

##### **Profile**

Dr. Lo is a human geographer focusing on understanding the transition to sustainable energy systems from spatial, regional, and governance perspectives. He is also interested in China's rural and urban studies, such as resettlement, urbanization, rural restructuring, and poverty alleviation. He has published in many leading journals, including *Renewable and Sustainable Energy Reviews*, *Energy Policy*, *Energy for Sustainable Development*, *Energies*, *Environmental Science & Policy*, *Cities*, *Habitat International*, and *Journal of Rural Studies*.



## **Dr. MORI, Akihisa**

Associate Professor  
Graduate School of Global Environmental Studies,  
Kyoto University

### **Socio-technical and political economy perspectives in the Chinese energy transition**

Electricity systems are so strongly path dependent and deeply embedded in society that vertically integrated monopolistic or oligopolistic supply are justified. However, over-incentivize for capacity investment, excess dependency on fossil fuel, inefficient supply, and lack of customized services, accountability and participation raise dissatisfaction with the prevailing system, urging system transition. Given high potential of renewable energy in breaking the lock-in and generating positive feedback effects, this paper aims to explore how niche innovators and incumbents capitalize on their resources and power to create, augment or weaken prevailing political path-dependencies and lock-in of the prevailing electricity supply system to prospect a future energy transition, taking China as a case. Main findings are: (a) renewable energy has generated feedback effects in China; (b) regime actors have capitalized on their resources and power to organize alliances to be consistent with the government policy orientation while blocking institutional reforms for energy transition; and (c) their resources and power are derived from the monopolistic or oligopolistic electricity supply system and the government price control, both of which are justified for the sake of energy security and economic stabilization.

### **Profile**

Akihisa Mori is an Associate Professor of Global Environmental Economics at Kyoto University, Japan. He has also served as a director and the secretary general of the East Asian Association of Environmental and Resource Economics since 2010 when it was established.

He conducts research in the field of environmental aid and climate finance, environmental, climate and energy policy in Asia, China's BRI, and socio-technical transition of infrastructure system toward sustainable development.

He published one single authored monograph entitled *Environmental Aid: Logic, Strategy and Evaluation of Environmental Aid for Sustainable Development* (in Japanese). In addition, he has published 13 books as editors from Routledge, including: *China's Climate-Energy Policy: Domestic and International Impacts* in 2018, and *Green Growth and Low Carbon Development in East Asia* in 2015 (co-edited with F. Yoshida).



## **Dr. SHIN, Kyoung Marvin**

Assistant Professor  
Institute of Technology Management,  
National Tsing Hua University

### **Varieties of Local Governance and Environmental Policy Innovations in China**

Why and how do local policy innovations in China, particularly those that produce environmental or social benefits, succeed or fail? Although much has been written about various local policy experiments or innovations, most previous studies have focused on only one side of these questions—namely, “success” of Chinese style policy experimentation (i.e., “experimentation under hierarchy”). Policy stagnation or decline have not been studied with the same level of scrutiny or enthusiasm. Using unique evidence gathered through extended ethnography, this paper brings a new level of understanding in two ways. First, it shows that varieties of governance through which environmental policy innovations are enacted exist empirically in local China. Second, I hypothesize that the discrepant policy outcomes are often associated with different kinds of local governance. Contrary to previous studies, efficacy of experimentation under hierarchy seems limited. A number of cases—both across different places and across time in the same places—illustrate how the varying structures, mechanisms, and modalities of governance that are enacted by the protagonists have implications for the actual substantive outcomes on the ground.

### **Profile**

Kyoung is an assistant professor in the Institute of Technology Management at National Tsing Hua University in Taiwan. Prior to joining the current institution, Kyoung was an associate professor in the School of Political Science and Public Administration at Wuhan University in mainland China, and an appointed fellow at Hertie School of Governance in Germany. His broad training is in comparative politics and political economy from political science, economics, and planning perspectives. More specifically, Kyoung is an area specialist on mainland China, with a research focus on its environmental governance, especially at the local level. His previous research has investigated a number of environment- and energy-related issues in China, such as industrial governance of clean energy technology development, nature reserve management, development of energy service companies, local governance of low-carbon cities, and informational governance.



## **Dr. WESTMAN, Linda**

Postdoctoral Research Associate  
Urban Institute,  
University of Sheffield

### **Revisiting multi-level governance theory: Politics and innovation in the urban climate transition in Rizhao, China (Co-Authors: Prof. CASTAN BROTO, Vanesa and Dr. HUANG, Ping)**

Multi-level governance (MLG) theory has become the main explanation for how climate action is realized in polycentric, multi-sector, multi-actor policy landscapes. In this paper, we examine processes of climate change governance in a given city in China, Rizhao, and evaluate how MLG arrangements operate. We do so by examining primary data collected through in-depth interviews with local stakeholders. Our results show that the focus on multi-level – and in particular transnational – interactions obscures the ways in which urban low carbon transitions happen in three ways. First, in spite of Rizhao being a well-known case in environmental politics, there is an absence of international actors and non-governmental organizations operating on the ground. Second, the emphasis on opportunities of local authorities to build political agendas through participation in global networks conceals how structures of power, political-economic coalitions, and technological practices are firmly fixed in a local context. Third, the case study illustrates the enduring authority of formal top-down channels of control in this political system. Based on these results, we caution against the uncritical application of MLG theory to environmental politics in settings where deliberative democracy is lacking and the full benefits of multi-level interactions are unlikely to be achieved.

### **Profile**

Linda is a Postdoctoral Research Associate whose work engages with the governance of sustainability and climate change, urban sustainability transformations, private sector involvement in environmental change, and justice. She joined the Urban Institute in 2019.

During 2017-2018, Linda was based at the University of Waterloo in Canada, where she conducted research on the role of businesses in constructing sustainability pathways in cities. Linda's doctoral research, conducted at University College London, examined urban climate change governance in China.

Prior to her academic work, Linda was employed as a senior analyst at the Science and Innovation Office of the Embassy of Sweden in Beijing. She spent nearly a decade studying and working in China after completing her master's degree in political science at Uppsala University in Sweden.

## *Session 4*

### *Just and Social Perspective of Energy Transitions*



**Prof. HILLS, Peter**

**(Morning Panel Moderator and Session 4 Chair)**

Professor Emeritus  
University of Hong Kong

#### **Profile**

Professor Peter Hills is an Emeritus Professor at the University of Hong Kong where he worked from 1982-2016. Prior to 1982 he worked at the University of Aston in Birmingham and the University of Nottingham in the United Kingdom. He joined the then Centre of Urban Studies and Urban Planning at University of Hong Kong in August 1982. In January 1992, he was appointed Director of the renamed Centre of Urban Planning and Environmental Management (CUPEM) and he held this post until 30 June 2008 when, following the reorganization of CUPEM, he was appointed Director of the new-established Kadoorie Institute until 30 June 2012. He was a part-time Chair Professor in the Institute from 2012-2016.

Most of his academic work - both research and teaching - have focused on the relationship between energy, environmental and sustainability issues and the policy-making process. More recently he has been working with Dr. Daphne Mah on studies of smart grids. He has served on many of the Hong Kong government's advisory bodies in the energy and environmental fields including the Energy Advisory Committee and the Advisory Council on the Environment. He has also served as a consultant to various international bodies including the Asian Development Bank, UN-ESCAP and UNDP.



## **Dr. OKUSHIMA, Shinichiro**

Associate Professor  
Faculty of Engineering, Information and Systems,  
University of Tsukuba

### **Energy Poverty and Just Energy Transition in Japan**

This presentation examines the current situation of energy poverty (EP) in Japan, and sheds light on unsolved issues Japan faces for realizing an inclusive, just energy transition. The level of EP has increased since the Great East Japan Earthquake and Fukushima nuclear accident in 2011. From the regional perspective, the northern part of Japan experiences higher EP levels due to winter heating needs, when evaluated by a type of affordability EP measure. The presentation shows that differences in climate and energy infrastructure have a significant impact on EP outcomes, which relates to the energy justice issue.

This presentation suggests the major problems which stand in the way of an inclusive, just energy transition in Japan. First, the energy poor have a negative attitude toward the ongoing low-carbon energy transition. They cannot reap an economic benefit from the current policy regime, in spite of bearing a substantial burden such as the FIT charges with no exemption. In the context of generating an inclusive, just energy transition in Japan, the highest priority is to redistribute the costs and benefits of renewable energy promotion more progressively, especially in terms of solar energy.

Also, the presentation reveals an “energy poverty premium” (EPP) as the next problem, which means that the energy poor pay more for energy services by unit cost than the non-poor. Finally, it clarifies that EP households generally have higher carbon intensity of their energy service use than the non-poor, with less improvement over time.

### **Profile**

Dr. Okushima obtained his BA, MA, and PhD from the University of Tokyo and specializes in Environmental Economics, Energy Economics, and Policy Analysis. His previous research includes climate change and energy policy in Japan, decomposition methodology, environmental ethics, inequality analysis, and poverty analysis. His current research interests are measurement of energy poverty or energy vulnerability, ecological or energy sufficiency, and inclusive low-carbon energy transition in Japan. He has published many papers on energy-related topics in leading journals such as Energy Economics, Energy Policy, Energy, etc.



**Prof. BALME, Richard**  
**(Afternoon Panel Moderator and Session 4 Speaker)**

University Professor  
Paris School of International Affairs;  
Research Fellow, Center for European Studies,  
Sciences Po

**Territorial Equity in Energy Transitions: Reflections on the Yellow Jackets movement in France**

Energy transitions necessitate important reshuffling in patterns of investment and consumption in order to orient them towards efficient and clean technologies. Taxation provides a major instrument providing behavioral incentives for such a change, as it directly changes the price of technology and access to energy. Carbon pricing, in particular fossil fuel taxation, is usually acknowledged in environmental policy making as a necessary component of energy and ecological transitions. However, governments face important difficulties in designing and implementing fossil fuel taxation. The French government had to withdraw three different projects in this direction under popular protest. In Africa, governments continue to subsidize access to fossil fuels, against all evidence in terms of economic efficiency and environmental protection. This presentation discusses aspects of these policies and tries to identify the reasons for their failure and conditions for potential success.

**Profile**

Richard Balme is professor of political science at Sciences Po. He teaches public policy analysis, comparative politics, environmental politics and governance, and international relations. His recent research is focused on environmental and climate governance.

Balme is scientific director for the Master in International Public Management at the Paris School of International Affairs (PSIA), director of the executive master in Development Policy and Management "Potentiel Afrique", and senior fellow at the Centre for European Studies and Comparative Politics. He coordinates the Atelier Interdisciplinaire de Recherche sur l'Environnement [AIRE] (Interdisciplinary Research Workshop on the Environment) at Sciences Po.

Richard Balme taught at the School of Public Policy and Management at Tsinghua University in Beijing, and at the School of International and Public Affairs at Columbia University in the City of New York. He was appointed member of the Conseil Economique, Social et de l'Environnement, in France, 2012-2014. He is also Fellow at the Asian Energy Studies Centre of the Honk Kong Baptist University and associate with China Policy in Beijing. He is a member of the Council of Sciences Po.



## **Ms. CHEUNG, Tracy Ting Ting**

Joint PhD Researcher

Institute of Geography, Universität Hamburg;

Department of Geography and Planning, Macquarie University

### **Actors in cooperation: A case study of low-carbon energy governance in Hong Kong (Co-Author: Dr. FULLER, Sara)**

There has been increasing recognition of cities as critical arenas for addressing climate change. In this context, many cities have developed their climate agendas around local issues and resources involving a range of actors with various interests. This raises questions about how to ensure a balance of interests and enable a convergence of priorities in order to implement climate initiatives. In this paper, a cooperative governance perspective is used as a starting point for understanding the conditions and factors that facilitate the translation of common ecological goals into collaborative actions. Empirical findings from the case study of Hong Kong are presented, drawing on a policy review and semi-structured interviews. The paper explores the features of cooperative interactions between state and non-state stakeholders, highlighting the consensual dynamics of actors during the recent city's fuel mix consultation, the climate action plan and the newly-launched renewable energy tariff scheme. Overall, it demonstrates how actors engage in deliberate and indirect cooperation and seek compromise and consensus to promote collective interests thus offering insights into the politics of low-carbon energy governance in Hong Kong.

### **Profile**

Tracy Ting Ting Cheung is a joint-PhD scholar at the University of Hamburg (Germany) and Macquarie University (Australia). She belongs to the Graduate School of Integrated Climate System Sciences in Hamburg and the Geography and Planning Department at Macquarie University. Her research interest includes energy-climate policy, urban actors and materiality, and city-regional practices on climate change and energy transitions. She received her M.Sc. in Integrated Climate System Sciences in Germany and her B.Eng. in Mechanical Engineering in Hong Kong. She also worked at the German federal enterprise for international cooperation, for the project "Sino-German Climate Partnership and Cooperation on Renewable Energies" to support bilateral dialogue exchanges between the governments of China and Germany. In her free time, Tracy volunteers at the EU's climate innovation initiative association (Climate-KIC) in organizing local activities for promoting climate entrepreneurship and commits to the world-wide Climate Reality Project in promoting climate communication and social engagement.