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能源及環境學院 SCHOOL OF ENERGY AND ENVIRONMENT

energy institute Hong Kong

6th International Conference

- Meeting the challenges of energy transition through multi-disciplinary collaboration

13-14 September 2018 | Wong Cheung Lo Hui Yuet Hall, City University of Hong Kong

Co-organizers

aee The Association of Energy Engineers Hong Kong Chapter

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6th International Conference

- Meeting the challenges of energy transition through multi-disciplinary collaboration

13 September 2018 (Thursday) [Day 1]

8:30 - 9:00	**REGISTRATION**
9:00 - 9:05	**Welcome Speech** • Prof Way KUO, JP, President and University Distinguished Professor, City University of Hong Kong
9:05 - 9:35	**Keynote Address** • Mr TSE Chin Wan, BBS, JP, Acting Secretary for the Environment, HKSAR Government, Hong Kong
9:35 - 10:05	**Keynote Speech: Global Megatrends and the Energy Transition** • Mr Malcolm BRINDED, CBE, FREng, FEI, President, Energy Institute, UK
10:05 - 10:10	**Gratitude Speech** • Ir Edmund LEUNG, SBS, OBE, JP, Chairman, Conference Steering Committee, Hong Kong
10:10 - 10:20	**Group Photo Taking**
10:20 - 10:50	**TEA BREAK**
Keynote Session: Energy Transition - Leading Change in the Supply Industry	
10:50 - 11:15	**A Complete Transition of Fuel Mix for Cleaner Air and Better Environment** • Ir CT WAN, Managing Director, The Hongkong Electric Co., Ltd.
11:15 - 11:40	**LNG Applications for Land and Marine Vehicles** • Ir Alfred WK CHAN, BBS, Managing Director, The Hong Kong and China Gas Company Limited
11:40 - 12:05	**Powering Hong Kong towards a Lower Carbon City** • Ir TK CHIANG, Managing Director, CLP Power Hong Kong Limited
12:05 - 12:30	**Development Post Paris Agreement - The Leading Role of China in Carbon Reduction** • Ir Dr Otto POON, BBS, OBE, Co-founder and Past Chairman, Hong Kong Climate Change Forum / Honorary Fellow, Energy Institute
12:30 - 12:55	**Challenges and the Future of Distributed Energy System in China** • Dr WANG Dongrong, Director, Policy Research Center, China Power International Holding Limited / China Power International Development Limited
12:55 - 14:25	**LUNCH**
Theme: Energy Transition - Energy in Society **Moderator: Ir Colin CHUNG, WSP (Asia) Limited / Past Chairman, Energy Institute Hong Kong**	
14:25 - 14:50	**Session Keynote: Moving Ahead with MTR for a Better Environment** • Dr Tony LEE, Chief of Operations Engineering, MTR Corporation
14:50 - 15:15	**Energy and the Circular Economy** • Mr Peter GODFREY, Managing Director, Energy Institute Singapore Branch
15:15 - 15:40	**Accelerate the World's Transition to Sustainable Energy** • Ms Isabel FAN, Regional Director, Tesla
15:40 - 16:10	**TEA BREAK**
Theme: Energy Transition - Policy and Action **Moderator: Ir Prof Michael LEUNG, City University of Hong Kong /** **Past Chairman, Energy Institute Hong Kong**	
16:10 - 16:35	**Policies and Actions for Climate Change in China** • Mr LI Jun Feng, First Director and Chairman of Academic Committee of National Center for Climate Change Strategy and International Cooperation
16:35 - 17:00	**Utilities' Responses to a Low Carbon Economy** • Ir TSAI Chao Chung, Charles, Chief Executive Officer, Power Assets Holdings Limited
17:00 - 17:30	Q&A session & Souvenir Presentation

14 September 2018 (Friday) [Day 2]

8:30 - 9:00	**REGISTRATION**
Theme: Energy Transition - Multi-Disciplinary Collaboration **Moderator: Ir Dr HF CHAN, Cinotech Consultants Limited / Honorary Fellow, Energy Institute**	
9:00 - 9:20	**Knowledge, Skills and Good Practice to Meet the Carbon Challenge** • Ms Louise KINGHAM, OBE FEI, Chief Executive, Energy Institute, UK
9:20 - 9:40	**Co-creating a Sustainable City** • Ir POON Kwok Ying, Raymond, Assistant Director / Electricity & Energy Efficiency, Electrical and Mechanical Services Department, HKSAR Government
9:40 - 10:00	**Experience with Sustainable Construction Projects in Asia** • Ms Anne JACOBS, Senior Expert, Sustainable Construction, BASF East Asia Regional Headquarters Limited
10:00 - 10:30	**TEA BREAK**
10:30 - 10:50	**Carbon Capture, Utilization and Storage: Global Opportunities and Challenges** • Ir Prof Dennis LEUNG, Professor and Associate Head, Department of Mechanical Engineering, the University of Hong Kong
10:50 - 11:10	**Innovative Use of Biogas** • Ir Dr Patrick LEE, Associate Professor, Associate Dean (Undergraduate Studies), School of Energy and Environment, City University of Hong Kong
11:10 - 12:30	**Discussion Forum**
12:30 - 14:00	**Closing & Networking Reception**

Subject to changes without prior notice.

TABLE of CONTENT

Global Megatrends and the Energy Transition

Mr Malcolm Brinded, CBE, FREng, FEI
President
Energy Institute, UK

Biography

Malcolm Brinded, 65, was a main Board Director of Royal Dutch Shell plc for a decade until retirement in 2012. In a 38-year Shell career he was Executive Director for Upstream International, Executive Director for global Exploration and Production from 2004, a Managing Director of Royal Dutch from 2002, and Shell UK Chairman from 1999. Prior to that he worked in the UK, Netherlands, Oman and Brunei.

He is President of the Energy Institute, Chair of Engineering UK, a Trustee of the Shell Foundation, and Head Judge of the Royal Academy of Engineering Africa Prize for Engineering Innovation.

Malcolm graduated in Engineering from Cambridge University. He is a Fellow of the Royal Academy of Engineering, a Fellow of the Energy Institute and of the Institution of Civil Engineering, and an Honorary Fellow of the Institution of Mechanical Engineering. He has Honorary Doctorates from Aberdeen and Robert Gordon Universities. In 2002, he was appointed CBE for services to the UK oil and gas industry, and in 2011, HM the Sultan of Brunei made him Dato Seri Leila Jasa.

Previous roles include: UK Prime Minister's Business Ambassador; Member of the China Council for International Cooperation on Environment and Development; Member of Shanghai International Business Leaders' Advisory Council; Trustee of the International Business Leaders' Forum; Non-Executive Director and Chair of Board Committees at BHP, CH2M and Network Rail.

Abstract

The world's population is expected to hit ten billion in the second half of this century, up from 7.5 billion today. More than two thirds of the global population will live in urban centres by 2050, up from just over half today. And global average temperature could increase by 4+ degrees Celsius without major action to reduce emissions.

Population growth, mass urbanisation and climate change - global megatrends are shaping the world in which we live, with unprecedented implications for governments, industries and wider society.

How do we turn these global challenges into opportunities and build a world in which everyone, irrespective of where they live, has access to affordable, reliable and sustainable energy?

It calls for tremendous ingenuity across the global energy system, not least in Asia – home to two thirds of the human race, and some of the most promising technological solutions and capabilities.

Malcolm Brinded will draw on more than four decades of personal and professional experiences in Asia and elsewhere, together with his perspective at the helm of Energy Institute, to explore how these megatrends are driving the global energy transition.

A Complete Transition of Fuel Mix for Cleaner Air and Better Environment

Ir CT WAN
Managing Director
The Hong Kong Electric Co., Ltd.

Biography

CT Wan is the Managing Director of The Hongkong Electric Co., Ltd. He is also the Chief Executive Officer and an Executive Director of HK Electric Investments as well as an Executive Director of Power Assets Holdings Ltd.

He is a professional engineer and business executive in the power industry for more than 40 years. He had served as Chief Executive Officer of Powercor Australia Ltd and CitiPower Pty., two electricity distribution businesses in Australia in the period of 2000-2003. Apart from businesses in Hong Kong he is also director of a number of energy businesses in the UK, Mainland China, Australia and New Zealand.

Abstract

With the global consensus getting momentum after the Paris COP 21 Conference to combat climate change, power companies relying on coal generation around the world are shouldering heavier responsibility and taking faster pace to move to cleaner fuel. While there are many successful stories of two main types of renewable energy – wind and solar, the geographical constraints and severe land shortage have hindered their large scale development in Hong Kong.

HK Electric first introduced natural gas generation in 2006 via a 93-km submarine pipeline connected to an LNG Receiving Terminal in Shenzhen. Since then, the gas generation has been increased to over 30% bringing substantial environmental benefits of reductions in SO2, NOx and RSP emissions. To support the HKSAR Government's Climate Action Plan, HK Electric is constructing two CCGT generating units to further increase the gas generation to 50% in 2020 and 55% in 2022 respectively.

Following the progressive retirement of the remaining coal-fired units and their replacement by new gas units in the coming decade, the contributions to local air quality improvement and lower carbon emission will be significant. However, the increasing reliance on gas generation is not without concern. To maintain our world class electricity supply service and affordable tariff for our customers, ensuring fuel supply security and competitive gas price will be the challenges ahead.

LNG Applications for Land and Marine Vehicles

Ir Alfred WK CHAN, BBS
Managing Director
The Hong Kong and China Gas Company Limited

Biography

Mr Alfred Chan joined Towngas in 1992 as General Manager-Marketing, and became Managing Director in 1997. Since then, Mr Chan has expanded the scope of piped-gas market in Hong Kong as well as led the extensive business growth in mainland China, including utilities, new energy and telecommunications. Today, Towngas has over 240 project entities spreading over 26 provincial regions on the mainland, with a focus on clean energy and environment.

Mr Chan is also Chairman of Towngas China Company Limited, a public listed subsidiary of Towngas.

Before starting his career with Towngas, Mr Chan had 14-year experiences in manufacturing industry in Hong Kong and overseas.

Abstract

Natural gas is today a readily available energy resource and a preferred choice of the transformation to a sustainable energy future by virtue of its low carbon intensity and its role in enabling large-scale deployment of renewable energy. Liquefied natural gas (LNG), a liquid form of natural gas that is more cost efficient to transport through road tankers to markets where pipelines access is not available. As exhaust gas coming from petrol or diesel vehicles is also a major source of pollutants and green-house gas, natural gas vehicles are thus widely promoted in the transportation sector to reduce such emissions. Today, there are about 5 million natural gas vehicles in China, of which 200,000 are LNG heavy-duty trucks. While the number of LNG refilling stations and supply infrastructures are increasing, more natural gas vehicles especially LNG trucks will be put on the road. The use of LNG as a clean transportation fuel also extends to marine applications such as ferries, cruise liners, and even container barges and ships.

A new generation of both land and marine vessels especially LNG ones will be required to meet increasing demand for transport while the world seeks to tackle emissions.

Powering Hong Kong towards a Lower Carbon City

Ir TK CHIANG
Managing Director
CLP Power Hong Kong Limited

Biography

Ir Chiang is the Managing Director of CLP Power Hong Kong Limited and holds the overall responsibility for the operations of the Hong Kong business of the CLP Group, which includes a vertically integrated electricity utility serving 6 million people in Kowloon, the New Territories and Lantau Island.

Ir Chiang holds a Bachelor of Science in Electrical & Electronic Engineering from the University of Hong Kong, a Master of Science in Electrical Engineering from the Hong Kong Polytechnic University and a Master of Business Administration from the Chinese University of Hong Kong.

Ir Chiang has over 10 years of experience in various senior management positions in CLP Power. He has extensive experience in the electricity supply industry including asset management, corporate planning and regulatory strategy. Ir Chiang was the Chief Operating Officer in CLP Power before taking up his current position in June 2017. Ir Chiang is also a Director of various subsidiary companies and affiliated companies of the CLP Group.

Abstract

In response to climate change, the Government released its Climate Action Plan 2030+ calling for a reduction in Hong Kong's carbon intensity by 65% to 70% by 2030 through both supply and demand measures such as increasing use of natural gas for electricity generation, setting energy intensity reduction targets and formulating energy saving plan.

Since 1990s, CLP has been playing an active role in powering Hong Kong towards a lower carbon city. We will continue to support the Government's low carbon target by increasing the use of natural gas through additional new gas-fired generation capacity at Black Point Power Station and bringing in new gas supplies through a new offshore LNG Floating Storage Regasification Unit.

To encourage local renewable energy development, CLP will launch the Feed-in-Tariff Scheme and Renewable Energy Certificates under the new Scheme of Control Agreement in October. We will also set up two funds to promote energy efficiency and conservation in Hong Kong in order to engage the wider community to participate in the drive towards a lower carbon economy in Hong Kong.

Achieving the collective goal for a low carbon city would require joint efforts from the community. CLP will continue to step up our efforts and work with the society at large towards this goal.

Development Post Paris Agreement
- The Leading Role of China in Carbon Reduction

Ir Dr Otto POON, BBS OBE FHKIE FHKEng
Co-founder and Past Chairman, Hong Kong Climate Change Forum
Honorary Fellow, Energy Institute

Biography

Otto is the Founder and Chairman of ATAL Engineering Group, and a Co-founder and Past Chairman of Hong Kong Climate Change Forum.

Over the years, he served in various government advisory bodies including Energy Advisory Committee, Advisory Council on the Environment and Council for Sustainable Development. He is the Past President of Hong Kong Institution of Engineers and Life President of Hong Kong Federation of Electrical and Mechanical Contractors.

Currently he serves as the Chairperson of Lift and Escalator Safety Advisory Committee and the Chairman of Advisory Committee of School of Energy and Environment of City University of Hong Kong.

Otto is an Honorary Fellow of Energy Institute, Honorary Member of The Chinese Mechanical Engineering Society and a Fellow of the Hong Kong Academy of Engineering Sciences.

Abstract

Kyoto Protocol under UNFCCC in 2005 mandated developed countries to reduce their carbon emission by 5 percent from 2005-2012 and a further 18 percent by 2013-2020. Clean Development Mechanism (CDM) was the main tool to achieve these goals.

CDM under Kyoto Protocol is a top down approach and it failed due to arbitrary setting of cap and dispensing of quota, fraud, and collapse of carbon market.

Paris Agreement promulgated at COP 21 (Conference of the Parties) in 2015 is a bottom up approach encouraging countries to declare their INDC (Intended Nationally Determined Contribution) on carbon reduction. The aim is to voluntarily limit the global atmospheric temperature to 2 deg C. Paris Agreement was signed by almost all countries including the US under the Obama administration on 12 December 2015 and had come into effect in 2016. INDCs will be reviewed in 2020 for the countries to further increase their ambition.

President Trump came into power with "America First" policy in late 2017. US retreated and Paris Agreement is stalling due mainly to lack of fund for the Finance Mechanism on Loss and Damage; or funding for climate change developing countries can no longer adapt to.

This paper tracks the development on the recent COPs since 2010; and China's measures to reduce carbon emission and how China exercises leadership in the global climate change scene.

Challenges and the Future of Distributed Energy Systems in China

Dr WANG Dongrong
Director
Policy Research Center, China Power International Holding Limited /
China Power International Development Limited

Biography

Dr. Wang Dongrong is currently the director of the International Policy Research Office of CLP, researcher of the Policy Research Center of the China Energy Research Association, member of the Energy Internet Experts Group of the China Energy Research Association, and deputy leader of the Electricity Price Experts Group of the China Price Association. His main research areas: electricity market, demand response, energy services and energy internet. Dr Wang is the first person to introduce demand response theory and related empirical system into electricity market in China.

Abstract

1. **Understanding distributed energy systems (DES).** This part will introduce connotation and extension of DES, the relationship between DES and power market reform, gas market reform, multi-energy complementarity system, energy internet, etc., and significance of DESs in the energy transformation and revolution.

2. **Challenges in development of distributed energy systems in mainland China.** Institutional challenges, technical challenges and economic challenges will be analyzed.

3. **Breakthroughs and the future of distributed energy system in mainland China.** This part will include Institutional breakthroughs, technological breakthroughs and economical breakthroughs.

Moving Ahead with MTR for a Better Environment

Dr Tony LEE Kar-yun
Chief of Operations Engineering
MTR Corporation

Biography

Ir Dr Lee Kar Yun is currently the Chief of Operations Engineering responsible for directing all engineering services in enhancing asset worth to business and ensuring that whole life-cycle asset management and renewal meets safety, business and customer requirements. He has over 32 years of railway systems maintenance, design and engineering experience, and is also an active railway system researcher, particularly on using sensors to monitor performance of equipment. He is now the Co-investigator of the "Smart Railway Sensor Networks" research project run by the Hong Kong Polytechnic University, and holds several patents on fiber optic sensor inventions for railway applications. He is specialized in Foresight-Driven Asset Management, Systems & Operation Assurance, Smart Railway Development and Predictive & Prescriptive Maintenance using Big Data Analytics.

Abstract

MTR Corporation (the Corporation) has been contributing to a greener environment by implementing many energy-saving initiatives to reduce energy and resource consumption in all areas of business throughout the life cycle of railway operations as well as projects including new line extensions and major asset renewal, with the adoption of a variety of the latest applicable technologies and industrial best practices in a continuous and globally sustainable manner.

In Hong Kong, the electricity market has recently become more complex since the introduction of the new Scheme of Control Agreements for the power companies in 2018 with due regard to the four energy policy objectives (i.e., safety, reliability, environmental protection and affordability) set by the Hong Kong Special Administrative Region Government. The Corporation hence needs to pave the way to cope with future electricity demand and to achieve environmental targets.

This paper outlines the future probable ways that the Corporation can achieve mutual social benefit in response to the changing energy supply and energy consumption pattern under the transformation in the electricity market. With many success stories in the past, the Corporation still requires further support from energy providers and the government to meet the energy transition challenges ahead. It is believed that more effort is essential to overcome these tremendous challenges. As a concluding remark, the Corporation highlights its wish to contribute in promoting energy efficiency with the multi-disciplinary professionals, by inviting all stakeholders to participate in a joint effort to embrace a brighter future.

Energy and the Circular Economy

Mr Peter GODFREY
Managing Director
Energy Institute Singapore Branch

Biography

Peter is the chief representative of the Energy Institute in South East Asia. In addition to his work with the EI, Peter provides customised executive advisory services through his own company Merlenergy Pte ltd. He has gained an international reputation as a leading independent energy strategy and business development consultant with an executive-level international client-base that has included the world's leading national and international energy and mineral resource companies as well as a number of governments and regulatory agencies.

Most of Peter's career has been spent in the Oil and Gas industry, mainly with BP. In more recent years in Singapore Peter was Head of Oil & Gas in Standard Chartered Bank's principal finance team and prior to that, he was a member of Arrow Energy's executive leadership team.

His interests have now extended into renewable and alternative energy development and addressing issues related to the energy industry transition towards a lower carbon, greener and cleaner future.

Abstract

In the face of the significant economic volatility increases that we face today across all global economies, proliferating signs of resource depletion and environmental stress, the call for new ways of looking at what constitutes value is getting louder.

Peter's presentation will promote a case for the how the energy sector and related systems could be re-designed by using the principles of the "**Circular Economy**".

Today, our industrial economy has hardly moved beyond one fundamental characteristic established in the early days of industrialization some 100+ years ago: a linear model of resource consumption that follows a "take-make-dispose" pattern with relatively short supply chains. Companies harvest and extract resources and materials, use them to manufacture a product, and sell the product to a consumer, who then discards it when it no longer serves its purpose.

The circular economy provides a basis upon which we can begin to construct more restorative or regenerative systems that are both more efficient and sustainable by nature and have the potential to revolutionise the way we live in the future.

Accelerate the World's Transition to Sustainable Energy

Ms Isabel FAN
Regional Director
Tesla

Biography

Ms. Isabel Fan is focused on driving Tesla's business growth with delightful customer experiences in Hong Kong, Macau and Taiwan. Her career includes nearly thirty years at major corporations in the U.S. and Asia Pacific. During this time, Isabel spent nearly 20 years working for Apple Inc. in Asia Pacific with extensive experience in channel retail development and enterprise and education market development. She has strong expertise in strategic planning, partnership management, sales operations with an emphasis on improving efficiency and productivity to drive results.

Isabel has devoted her passion in technology and how it works to enhance people's life.

Abstract

Ms. Fan's presentation will provide an overview of Tesla business including how Tesla is to accelerate the world's transition to sustainable energy – so that we can have a better future. There are three key components that can help address climate change and have a positive impact on the world: sustainable energy generation, batteries and electric cars. These solutions already exist independently, but when combined, they become even more powerful – that's the future we want.

Today, Tesla builds all-electric vehicles and continue to make products accessible and affordable to more and more people, ultimately accelerating the advent of clean transport. Tesla also infinitely scalable clean energy generation and storage products to create an entire sustainable energy ecosystem. Tesla believes the faster the world stops relying on fossil fuels and moves towards a zero-emission future, the better.

Engineering with passion

ATAL Engineering Group (ATAL), founded in 1977, is a leading electrical & mechanical (E&M) engineering group in Hong Kong, serving customers in Greater China and around the world. We provide multi-disciplinary and integrated E&M engineering and technology services from design, manufacturing, installation, operation to maintenance. We endeavour to attain total customer satisfaction through engineering excellence, professionalism and quality service.

Our Business Scope

- Building Services, Data Centre, Infrastructure & Healthcare Facilities Projects
- Environmental Engineering
- Information, Communications & Building Technologies
- Lifts & Escalators

ATAL Engineering Group

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Energy for Life

CLP 中電

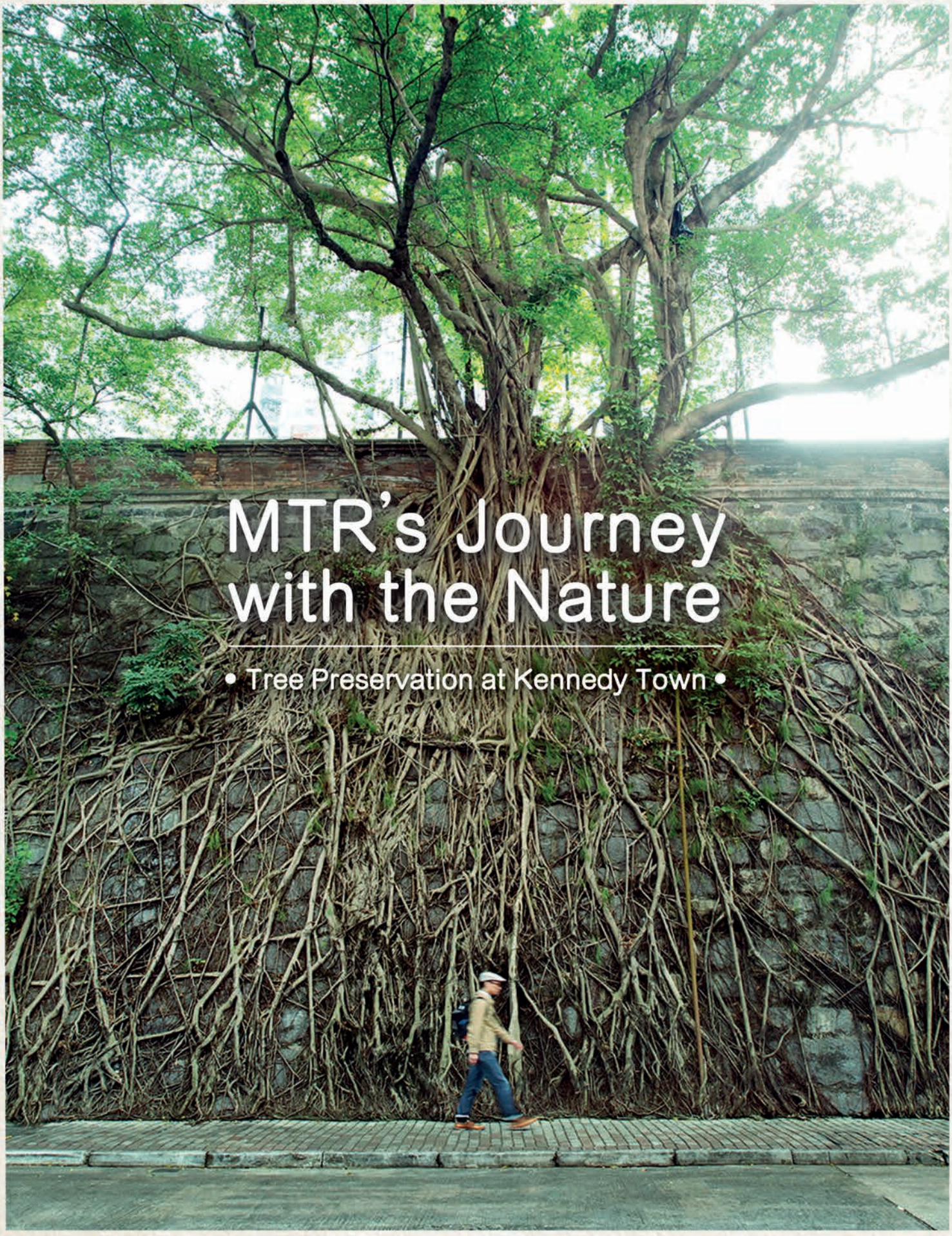
Pioneering Sustainability

**We conduct our business with environmental responsibility in mind –
for a greener future, for our younger generations.**

As Hong Kong's oldest energy utility, our pioneering green initiatives date as far back as the early 70s, when we began using naphtha rather than heavy oil and coal to produce town gas. In 2006, we took another significant step forward, when we introduced natural gas as a feedstock in addition to naphtha. To foster the use of renewable energy, landfill gas currently constitutes around 5 per cent of our energy mix for local gas production. Looking forward, we are committed to the ongoing exploration and supply of clean energy to ensure a green and sustainable future for our young people and the generations to come.

Greening up your life

煤氣 Towngas



MTR cares about our community; together we are working to protect and conserve our environment.

caring for life's journeys | MTR

港燈 HK Electric

香港背後的動力
The Power behind Hong Kong
125

Excellence, Always, for Hong Kong

For more than a century, HK Electric has been the power behind Hong Kong. We have continuously improved our services, modernised our facilities and expanded our services as we strive for excellence in supporting the development of Hong Kong.

Today, our dedication to quality has made us a global leader in supply reliability, maintaining a world-class record of over 99.999% while caring for the community and contributing to the sustainable future of Hong Kong.

www.hkelectric.com

Policies and Actions for Climate Change in China

Mr LI Jun Feng
First Director and Chairman of Academic Committee of National Center for Climate Change Strategy and International Cooperation

Biography

Mr. Li Junfeng is the First Director general of National Center for Climate Change Strategy and International Cooperation and he currently serving as the Chairman of academic committee of NCSC. He wins Ninth Annual Zayed Future Energy Prize Lifetime Achievement Award in January of the year 2017. He also is a member of National Energy Advisory Council, a member of Expert-committee of National High-tech Program, a member of National Environmental Scientific Committee, a member of Expert-committee of National Energy Administration Energy Internet, etc. And, he also serves as a consultant of low carbon development for Beijing, Shanghai and Shanxi Provincial People's Government. Meanwhile, he is invited to be the professor and doctoral supervisor by Peking University and Renmin University of China and other colleges and universities of China.

Abstract

Renewable energy was developed very rapidly after the implantation of Renewable Energy Law was issues in February 28 of 2005. In 2105, Chinese government made some commitments, including 20% of non-fossil fuel by 2030. After 13 years rapid development in China, renewable energy has played very import role both for energy security and environmental improvement, especially for climate change. However, in the recent years, renewable energy has faced some new challenges and opportunities. This paper presents the new challenges and new opportunities of renewable energy development and indicates the future outlook of renewable energy in China.

The paper consists of four parts: part one is the renewable energy development review in the past 13 year, part two presents the challenges faced of renewable energy development both in past and future, part three will indicates the opportunities of renewable energy development in nest 10 to 15 years and final part will present the role of international cooperation for renewable development under the climate framework.

Keyword. Renewable energy, development, energy security, climate framework.

Utilities' Responses to a Low Carbon Economy

Ir TSAI Chao Chung, Charles
Chief Executive Officer
Power Assets Holdings Limited

Biography

Aged 60. Appointed to the Board and Chief Executive Officer in January 2014. He has been with the Group since June 1987. Mr. Tsai is the General Manager of Power Assets Investments Limited, a wholly-owned subsidiary of the Company. He is also a Director or Alternate Director of most of the subsidiaries and certain joint ventures of the Company. Mr. Tsai has been responsible for the Group's investments outside Hong Kong since 1997. He holds a Bachelor of Applied Science Degree in Mechanical Engineering, and is a Registered Professional Engineer and a Chartered Engineer.

Abstract

The challenges presented by climate change contributions cannot achieved without an integrated approach. The electricity, gas and transport sectors should collaborate to seek a common energy solution.
Power Assets' primary investment focus is in the energy sector, electricity, gas and oil transport. Globally, our various de-carbonization ventures include:

- Reducing, converting 19% of coal-fired facilities from 11,772MW installed capacity
- CCU, Cabon capture, pressurize and transport CO2 to greenhouses in The Netherlands.
- Off-grid hybrid generation with wind, solar and battery storage system in Coober Pedy, Australia enabling 70% of renewable energy penetration in the remote township
- Electrolyser in South Australia to capture and store otherwise curtailed wind power
- Injection of bio-methane green-gas into existing natural gas supply lines in Wales
- Established Integrated Transport, Electricity and Gas laboratory, InTEGrel, in Leeds
- H21 Project aiming to inject hydrogen into the existing natural gas networks for storage and utilization with an ultimate goal of replacing natural gas by Hydrogen for heating, transport and green electricity

To meet COP21 targets, mere reduction in carbon emission for heating and power generation will not be sufficient. To forcefully cut down carbon emission, we should embrace hydrogen as a medium and adopt a whole energy approach integrating the needs of industries, transport, gas and electricity into one energy solution – Hydrogen in the 21st century.

Knowledge, Skills and Good Practice to Meet the Carbon Challenge

Ms Louise KINGHAM, OBE FEI
Chief Executive
Energy Institute, UK

Biography

Louise Kingham OBE FEI is Chief Executive of the Energy Institute (EI), the chartered professional membership body bringing global energy expertise together. The EI gathers and shares essential knowledge about energy, the skills that are helping us use it more wisely, and the good practice that keeps it safe and secure.

Louise has spent the past 25 years working with energy professionals around the world. Prior to her appointment at the head of the EI in 2003, Louise was Director General of the Institute of Petroleum and Chief Executive of The Institute of Energy.

Louise is currently a Council member of the All Party Parliamentary Group for Energy Studies and a Board member of the POWERful Women initiative. She is a former President of the Energy Industries Club, Advisory member of the Energy Policy Board at the University of Birmingham and judge for HM Queen's Prize for Higher and Further Education.

In 2006, she received a Global Leadership in Energy Award and in 2011, an OBE from HM The Queen for services to the energy industry. In 2017 she was awarded an Honorary Science Doctorate from the University of Bath.

Abstract

The Energy Institute is about the people in energy. People who keep the lights on, the gas flowing, the forecourts full of petrol and – increasingly – who develop the energy technologies that will help us tackle climate change and provide energy to all.

Energy is crucial to our economic prosperity and social wellbeing. It defines modern life and lights, heats and cools our businesses and homes, it gets us from A to B.

As the energy transition gathers pace and the role of carbon intensive forms of energy reduces, what will the global energy future look like, what role will Hong Kong and China play, and what will it take to support this energy revolution?

Drawing on more than two decades of professional experience as chief executive, Louise will outline the unique position of the Energy Institute as a professional membership body and developer of globally used technical guidance covering the whole energy system.

A modern, diverse energy system calls for a workforce that attracts the best new talent to deliver solutions and builds a culture of inclusion – ensuring the people aspects of our industry are fit for purpose.

Louise will chart the energy transition underway and outline what is needed to support the ingenious men and women facilitating the global energy transition.

Co-creating a Sustainable City

Ir POON Kwok Ying, Raymond
Assistant Director / Electricity & Energy Efficiency,
Electrical and Mechanical Services Department, HKSAR Government

Biography

Ir Raymond KY POON is the Assistant Director of the Electrical and Mechanical Services Department. He is overseeing the enforcement of regulatory functions and the implementation of initiatives of the Electricity Legislation Division and Energy Efficiency Office. He has been working in the government for over 25 years, with wide spectrum of professional and managerial roles in the areas of electronics and biomedical engineering services, project management, business development as well as regulatory enforcement. Ir POON received his Bachelor of Engineering degree in Electrical and Electronics Engineering and Master of Science degree in Environmental Management from the University of Hong Kong. He is a fellow member of the Hong Kong Institution of Engineers and is now serving HKIE as the Chairman of the Biomedical Discipline Advisory Panel and also a Council Member.

Abstract

Last year, the Environment Bureau unveiled the Climate Action Plan 2030+, which sets for Hong Kong the 65 to 70 per cent carbon intensity reduction target by 2030 (using 2005 as the base) and stresses the 40 per cent energy intensity reduction target by 2025. To combat climate change, the Action Plan covers an extensive range of initiatives, such as out-performing building energy code in the design of new buildings, retro-commissioning / retrofitting of existing buildings, wider adoption of renewable energy and encouraging behavioural change in energy use and management, etc. Climate change is a cross-sector and cross-domain subject. All of us, including the Government, energy professionals overseeing multi-disciplinary activities in built environment, the trades and community at large are the key players to implement these initiatives so as to achieve the saving targets.

EMSD, as the department with continuous efforts on promoting energy efficiency and renewable energy, would like to share what and how we can contribute to achieve those ambitious targets for building our sustainable city. Our experience on implementation of energy saving projects in government premises has also brought along with a lot of rewarding benefits. We look forward to the concerted efforts of the Government, the energy professionals in the building sector, and the public in promoting energy saving and co-creating a sustainable environment in Hong Kong.

Experience with Sustainable Construction Projects in Asia

Ms Anne JACOBS
Senior Expert, Sustainable Construction
BASF East Asia Regional Headquarters Limited

Biography

I am heading the Industry Team Construction of BASF for Asia Pacific and I am working with customers around the region to support their sustainable construction projects. With more than 15 years of experience in this field, I am permanently expanding my knowledge of local and traditional as well as innovative construction methods, materials of the future and new ways of collaboration.

Abstract

Worldwide, buildings account for 40% of global energy use and for about one third of energy-related GHG emissions [Unep.org]. Much of the recent rise in energy use by buildings can be attributed to increased demand for cooling and heating. This is a worldwide trend: with advancing urbanization, comfort levels are rising, too.

However, examples show, that high comfort levels are not automatically resulting in high energy demand and GHG emissions.

Passive House Projects around Asia are leading the way and are providing improved comfort with very low energy demand. The technical concept includes an optimized building envelope paired with efficient building services and is applicable to nearly all climate zones in Asia.

This presentation will share insights and lessons learned from several different sustainable construction projects around the region.

Carbon Capture, Utilization and Storage: Global Opportunities and Challenges

Ir Prof Dennis LEUNG
Professor and Associate Head
Department of Mechanical Engineering, the University of Hong Kong

Biography

Prof. Dennis Y.C. Leung received his BEng (1982) and PhD (1988) from the Department of Mechanical Engineering at the University of Hong Kong. He had worked in the power industry for five years heading the air pollution section before joining the University of Hong Kong in 1993. Professor Leung is now a full professor and associate head of the Department of Mechanical Engineering specializing in environmental pollution control and renewable & clean energy development. He has published more than 450 articles in this area including 250+ peer reviewed SCI journal papers. He was invited to publish more than 20 review articles in leading energy and environment related journals. His current h-index is 59 and total citations are more than 13000. He is one of the top 1% highly cited scientists in the world in energy field since 2010 (Essential Science Indicators) and named as a Highly Cited Researcher by Clarivate Analytics. Prof. Leung has delivered more than 50 keynote and invited speeches in many conferences as well as public lectures. Prof. Leung is a chartered engineer, a fellow of the IMechE and Energy Institute. He is also the Past Chairman of the Energy Institute (HK), and serves as an editorial board member of a number of journals including and Applied Energy, Applied Sciences, Progress in Energy and Journal of Power & Energy. He is the Specialty Chief Editor of the Frontiers in Environmental Science since 2014. Professor Leung received numerous awards including the Outstanding Earth Champion Hong Kong award in recognizing his contributions in protecting the environment.

Abstract

Global warming and climate change concerns have triggered global efforts to reduce the concentration of atmospheric carbon dioxide (CO2). Among those available methods, carbon dioxide capture, utilization and storage (CCUS) is considered a crucial strategy for meeting CO2 emission reduction targets. However, there are also challenges in carrying out CCUS in different countries. In this talk, various aspects of CCUS, including the state of the art technologies for CO2 capture, separation, utilization and storage, are discussed. The hurdles to CCUS deployment will be highlighted together with an outline of the current status of the CCUS implemented in the world.

Innovative Use of Biogas

Ir Dr Patrick LEE
Associate Professor
Associate Dean (Undergraduate Studies)
School of Energy and Environment City University of Hong Kong

Biography

Dr. Patrick Lee is an Associate Professor and the Associate Dean for Undergraduate Studies in the School of Energy and Environment at City University of Hong Kong. He received his BS degree in chemical engineering from Queen's University in Canada in 2001, and his MS and PhD degrees in environmental engineering from the University of California, Berkeley in 2002 and 2007, respectively. From 2008 to 2010, he carried out post-doctoral research, also at the University of California, Berkeley. Dr. Lee is the recipient of awards such as the Canadian Natural Sciences and Engineering Research Council Post-doctoral Fellowship, World Cultural Council Special Recognition Award and Bioenergy Society of Singapore Achievement Award. His research group applies biological methods to develop renewable bioenergy and bio-based chemicals.

Abstract

The production of biogas via anaerobic digestion is a mature technology and biogas has a growing importance in the renewable energy portfolio worldwide. Biogas, which is mainly methane, can be used for heat and power purposes in both centralized and decentralized systems. The feedstock for biogas can be any organic materials so anaerobic digestion can also be viewed as a treatment system. In the past, anaerobic digestion is treated as a 'black box' and its operation is viewed as an art than a science because of the complexity of the biological processes. However, we now have many advanced and robust tools to manipulate biological systems with high precision to achieve effective outcomes. In the first part of this talk, recent advances in biological sciences applicable to biogas production will be highlighted. As we strive towards replacing fossil fuels with renewable energy, we also need to seek alternative feedstocks for chemicals. This is because majority of the chemicals currently used in industrial processes are derived from petroleum. One promising alternative to replace petroleum for chemical production is in fact the methane in biogas. However, the technology to convert gas-to-liquid must first be developed. In the second part of this talk, our research efforts to utilize biological methods to catalyze the conversion of biogas to chemicals will be discussed. In the future, biogas will no longer be used only for heat and power purposes but also for manufacturing high-value chemicals.

Notes to delegates

Conference, Tea Breaks, Luncheon & Networking Reception

Date	Time	Venue / Location
13 September 2018, Thursday	08:30 – 09:00	**Registration** Foyer, Wong Cheung Lo Hui Yuet Hall Floor 5, Lau Ming Wai Academic Building City University of Hong Kong*
	09:00 – 17:30	**Conference** Wong Cheung Lo Hui Yuet Hall
	Tea Breaks	
	10:20 – 10:50	Foyer, Wong Cheung Lo Hui Yuet Hall
	15:40 – 16:10	
	Luncheon	
	12:55 – 14:25	City Chinese Restaurant 8/F, Bank of China (Hong Kong) Complex City University of Hong Kong
14 September 2018, Friday	08:30 – 09:00	**Registration** Foyer, Wong Cheung Lo Hui Yuet Hall
	09:00 – 12:30	**Conference** Wong Cheung Lo Hui Yuet Hall
	Tea Breaks	
	10:00 – 10:30	Foyer, Wong Cheung Lo Hui Yuet Hall
	Networking Reception	
	12:30 – 14:00	Foyer, Wong Cheung Lo Hui Yuet Hall

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Please wear your name badge at all times during the event for identification.

Mobile Phone
Please switch off your mobile phone or change to silent mode during the event.

Contact Person
Please contact the persons below if you have any queries or require assistance:

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Event Officer
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*Location map for Wong Cheung Lo Hui Yuet Hall

http://www6.cityu.edu.hk/wayfinder/en/Venue/WCLHYH/

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