

professional engineers board singapore

PEB SYMPOSIUM 2022

Engineering a Sustainable, Green and Innovative Singapore

31 August 2022

**Marina Bay Sands, Sands Expo and Convention Centre
Singapore**



Dear Engineers and Fellow Practitioners of the Built Industry,

2021 marks the 50th anniversary of Professional Engineers Board (PEB) since its formation in 1971. In conjunction with PEB's 50th Anniversary celebration, PEB is organising a 1-day Symposium on "Engineering a Sustainable, Green and Innovative Singapore" this year to commemorate the milestone and to inspire and empower engineers to shape the next phase of Singapore's transformation.

2 On behalf of the Board, we cordially invite you to join us at the **PEB Symposium 2022 on 31 August 2022, at Marina Bay Sands, Sands Expo and Convention Centre, Level 3, Cassia Main Ballroom, from 9.00am to 6.00pm** (registration starts at 8.00am). Gracing our event as the Guest-of-Honour is Mr Tan Kiat How, Senior Minister of State, Ministry of Communications and Information & Ministry of National Development. Details of our programme and speakers information are enclosed below.

3 Seats are priced at \$150 nett per person and reserved on a first-come first-served basis upon receipt of payment. Please click [here](#) to register your interest. Closing date for registration is 29 July 2022 or when registration is full.

4 For further enquiries, please contact registrar@peb.gov.sg. Thank you.

Rgds

Foo Siang Jeok

Registrar

professional engineers board singapore

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**Professional Engineers Board
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<p>Speaker's Name</p>	<p align="center">Er. Lee Chuan Seng Emeritus Chairman, Beca Asia Holdings Pte Ltd Chairman, National Environment Agency</p>	
<p>Brief Biography</p>	<p>Er. Lee Chuan Seng is currently Emeritus Chairman, Beca Asia Holdings Pte Ltd and Chairman, National Environment Agency.</p> <p>He is an Honorary Advisor of the Singapore Green Building Council and was its founding President (2009-2011). He was Chairman, BCA Green Mark Advisory Committee (2005 to 2019).</p> <p>He is also the Scientific Advisor to the Ministry of National Development; Member, Committee of Government Scientific Advisors; Chairman, Technical Advisory Workgroup and Member, Exco, Urban Solutions and Sustainability, National Research Foundation Singapore (2018 to present).</p> <p>Some of his awards are the ACES Outstanding Consulting Engineer Award 2007; the Public Service Medal 2010 for his services to the engineering profession and the Public Service Star 2018 for his service to sustainability and the environment by the Singapore Government; the inaugural Green Visionary Award in 2015 by BCA-SGBC for his contributions to green buildings and sustainability; the BCA iBuildSG Distinguished Fellow 2020 and the PEB Distinguished Professional Engineer 2020.</p>	
<p>Presentation Title</p>	<p>Towards Zero Waste and A Circular Economy</p>	
<p>Abstract</p>	<p>Reduce, Reuse, Recycle is an increasingly familiar concept in our push towards zero waste and a circular economy. Beyond the 3Rs however, there will be residues and waste from materials that cannot be recycled.</p> <p>In Singapore, these ashes and residues left after incineration or chemical treatment is sent to the Semakau Landfill. Under current usage rates, Semakau is projected to be filled up by 2035. We are now looking into interventions and solutions at the landfill end – to study the technology and feasibility to use already landfilled materials at Semakau for land reclamation under carefully controlled conditions.</p> <p>If successful, this would significantly extend Semakau's lifespan. Our ambition is to rethink and reorganize Semakau as a Landfill to be a Transit Storage Facility instead, where residue waste could be stored in segregated stockpiles for appropriate treatment to be used and also for when new applications emerge due to research.</p>	

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<p>Speaker's Name</p>	<p align="center">Er. Vincent Tong Managing Director, Mechanical & Electrical Engineering, Infrastructure Surbana Jurong Consultants Pte Ltd</p>	
<p>Brief Biography</p>	<p>Er. Vincent Tong is currently Managing Director responsible for the Mechanical & Electrical Engineering team of Surbana Jurong's infrastructure business.</p> <p>With over 37 years of experience as an engineering professional, Er. Tong has been involved in many prestigious and mega projects in Singapore, Southeast Asia, the Middle East and China. These projects include Changi Airport Terminals 1 and 5; Singapore North-South Expressway; Singapore Mass Rapid Transit from Woodlands to Johor; Circle Line/Thomson Line/Cross Island Line MRT; Jakarta, HCM and Klang Valley MRT; Dubai Mall in the United Arab Emirates; Capital Plaza in Abu Dhabi; Suntec City, Marina Bay Financial Centre and Resort World Sentosa in Singapore.</p> <p>Er. Tong has been appointed by several government agencies and professional institutions to share his insights and experience in advancing the development of the building and fire engineering industry. He currently serves as a member of the Singapore Transit Fire Code Review Committee and the Fire Safety Appeal Advisory Panel of the Singapore Civil Defence Force. He is a past Board member of the Professional Engineers Board and Board of Architects. Er. Tong also served as a member of the Building and Construction Authority (BCA)'s Green Mark Advisory Committee and he was on the BCA Academy Advisory Panel. He was a past President of ASHRAE Singapore Chapter; a council member of the Association of Consulting Engineers Singapore; and a member of the Mechanical and Engineering Review Panel for the National Art Gallery Singapore.</p> <p>Er. Tong has a Bachelor of Science degree in Mechanical Engineering (First Class Honours) from the University of Hong Kong, a Master of Science in Building Science from the National University of Singapore and a Master of Fire Safety Engineering from the University of Western Sydney. He is currently a registered Professional Mechanical Engineer, Fire Safety Engineer and ASEAN Chartered Professional Engineer as well as a Senior Member of the Institution of Engineers, Singapore</p>	
<p>Presentation Title</p>	<p>Surbana Jurong Campus – Overcoming the Challenges of Super Low Energy Building</p>	
<p>Abstract</p>	<p>Surbana Jurong's motto 'Building Cities, Shaping Lives' reflects its belief that development is more than just steel and concrete. Surbana Jurong creates spaces and designs infrastructure where people live, work and play, shaping cities into homes with sustainable jobs where communities and businesses can flourish.</p> <p>It is no different that Surbana Jurong applies the same belief in rigor when designing its own new global headquarter – Surbana Jurong Campus. The Campus will be located at the new Jurong Innovation District, an area earmarked by the government to be the future of innovation for enterprise, learning and living. When completed by 2022, the 68,915 sqm development will serve to demonstrate what a sustainable, maintainable and people-centric and future-ready workplace would like.</p> <p>This presentation will discuss the sustainable and green building design of Surbana Jurong Campus employing a whole building approach with climatic building response, high performance building systems, smart building controls, recycling and renewal energy measures to achieve a 40% annual energy reduction turning the Campus into a Super Low Energy Building.</p>	

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Speaker's Name	Er. Yvonne Soh Executive Director, Singapore Green Building Council	
Brief Biography	<p>Er. Yvonne Soh is the Executive Director of the Singapore Green Building Council (SGBC), an industry organization founded on a strong public - private partnership to drive the transformation of Singapore's built environment.</p> <p>Her work experience spans across the public, private and non-profit sectors, including management roles in the Building and Construction Authority (BCA), establishing the Waste Management & Recycling Association of Singapore as its first Executive Director, and as an engineer with a multi-disciplinary professional consulting firm. During her time with the BCA, she headed the Centre for Sustainable Buildings and also managed portfolios in policy development, regulatory control, industry promotion, and research & development.</p> <p>Er. Soh is a registered Professional Engineer (Civil) and Green Mark Accredited Professional. She is a member of the Singapore Accreditation Council, as well as the Singapore Standards Council Committees on Building & Construction and Environment & Resources.</p>	
Presentation Title	Green Building Materials for a Low Carbon Built Environment	
Abstract	<p>To deliver the ambitions of the Paris Agreement and keep global average temperature rise well below 2°C, all sectors of the economy must decarbonize, with the pace and scope of decarbonization efforts stepped up rapidly. The built environment sector has a vital role to play in responding to this challenge and it will require collaboration across the whole construction value chain to achieve the scale of change needed.</p> <p>This presentation will provide insights on the role of the engineering profession in addressing the carbon emissions of building and construction activities, with a special focus on building materials and the ways in which engineers can seek out environmentally preferred options and influence action across the building materials supply chain.</p>	

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Speaker's Name	Ms Hazel Khoo Director, Coastal Protection Department PUB, The National Water Agency	
Brief Biography	<p>Ms Hazel Khoo is responsible for leading whole-of-nation efforts to safeguard Singapore from the threats of sea level rise. As Director of the Coastal Protection Department, she is in charge of the key tasks of setting up a regulatory framework for coastal protection and building Singapore's capability in this area. She has developed strategies for coastal protection and established principles to guide adaptation planning tailored for Singapore's diverse and urban setting. She also oversees the development of an advanced inland and coastal hydrodynamic model, to holistically assess flood risks from the combined effects of rainfall, tides, sea level rise, and coastal surges.</p> <p>Prior to her current role, Ms Khoo was involved in reviewing strategies under the Water Master Plan to ensure resilient, sustainable, and holistic management of the water supply and used water systems in Singapore, drainage planning, as well as the management of Deep Tunnel Sewerage System 1 and sewer rehabilitation projects.</p>	
Presentation Title	Coastal Protection for Singapore	
Abstract	<p>Sea level rise poses an existential threat for a low-lying island nation like Singapore. With mean sea level projected to rise by up to 1m by 2100, sea levels could reach as high as 4 to 5 metres when high tides coincide with extreme storm surges. This is high enough to potentially flood one-third of Singapore.</p> <p>In April 2020, PUB took on the role as Singapore's coastal protection agency, to lead and coordinate Whole-of-Nation efforts to protect Singapore from the threat of rising sea levels. PUB will approach this mission by considering inland and coastal flood risks holistically, adopting an adaptive approach, and applying integrated planning.</p> <p>Coastal protection solutions will need to be tailored for Singapore's tropical climate and coastal conditions, as well as our urban and dense land use context. We regard this as an opportunity to devise creative ways to shape Singapore's coastal spaces to overcome our challenges and optimize value beyond coastal protection. PUB looks forward to partner professionals across various disciplines, including engineers, who will play a pivotal role in contributing to this mission in the years and decades ahead.</p>	

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Speaker's Name	Er. Jee Yi Yng Country Representative AECOM Singapore Pte Ltd	
Brief Biography	<p>As Country Representative at AECOM Singapore Pte Ltd (NYSE: ACM), Er. Jee Yi Yng (YY) leads a diverse team of close to 600 professionals, charting strategic growth for the firm across all sectors including transportation, water, building, environment, energy, cost management, urban planning and design.</p> <p>Over career spanning more than 22 years, Er. Jee worked in planning, design, project management and construction supervision of large-scale infrastructure projects that involved multi-disciplines deliveries in deep excavation, tunnelling and land reclamation.</p> <p>She possesses B.Eng (2000) and MSc. (2008) in Civil Engineering from NTU and NUS respectively. She has won the PEB Gold Medal in 2008 for her MSc. course. She is a registered PE in Civil and Geotechnical Engineering.</p> <p>She is currently serving as a Board Member at the PEB, Appointed Council Member for the Association of Consulting Engineers Singapore (ACES) and Committee Member for the Tunnelling & underground construction Society Singapore (TUCSS).</p>	
Presentation Title	Engineering Shaped Singapore and What's Next?	
Abstract	Engineering played a vital role for the development of basic infrastructures during the early years of nation building of Singapore. Engineering continues to drive future readiness and resilience of the country against threats like climate change, scarcity of land and natural resources. This presentation shares how Engineering has shaped Singapore, and how engineering would continue to evolve to deliver its purpose.	

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Speaker's Name

Mr Ou Guojian
Deputy Vice-President for Sustainable Solutions
Mandai Wildlife Group



Brief Biography

Mr Ou Guojian oversees sustainability strategies for the precinct of Mandai Wildlife Reserve where development and rejuvenation efforts are underway. He works with an interdisciplinary team from Mandai Wildlife Group to shepherd the precinct towards carbon neutrality.

An engineer by training, Mr Ou has combined his technical expertise and his experience in public policy to launch initiatives to reduce the Group's carbon emissions. These include the establishment of one of Singapore's largest public electric-vehicle charging locations and the installation of solar panels. He also oversees a team that audits the precinct's environmental management plans to ensure that the projects are developed in an environmentally responsibly fashion while meeting quality and timeliness standards. In a previous role with the Group, Mr Ou worked on cross-cutting strategy issues including the management of enterprise risk, and represented the company in negotiations with stakeholders.

Mr Ou started his career at PUB (Singapore's National Water Agency), overseeing operations at the country's largest wastewater treatment plant. He has also had policy experience in flood management and drainage improvement.

Presentation Title

Building with Nature: Mandai Wildlife Reserve

Abstract

Mandai Wildlife Group is driving an exciting rejuvenation plan at Mandai Wildlife Reserve in northern Singapore that will integrate five wildlife parks with distinctive nature-based experiences, green public spaces, and an eco-friendly resort. With the rejuvenation works happening adjacent to the Central Catchment Nature Reserve, engineers and planners have to work hand in hand to implement design strategies and innovative solutions which ensure the construction of the new features is sensitive to the surrounding flora and fauna.

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<p>Speaker's Name</p>	<p align="center">Mr Tan Sze Tiong Group Director, Building & Research Institute Housing & Development Board</p>	
<p>Brief Biography</p>	<p>As the Group Director of Building & Research Institute (BRI), a research set-up under the Housing & Development Board (HDB) of Singapore, Mr Tan Sze Tiong is responsible for leading HDB's efforts in spearheading innovative, cost effective solutions and technologies to create a better living environment and achieve greater sustainability.</p> <p>Mr Tan is responsible for promoting Smart and sustainable development initiatives in HDB buildings and estates. Some of the initiatives which he spearheaded included the development of the HDB Smart Town framework to map out the deployment of Smart initiatives, deployment of solar energy systems in public housing, Smart Integrated Construction and 3D concrete printing for enhanced construction productivity, and integrated environmental modelling for optimising thermal comfort. Mr Tan is driving the holistic and comprehensive sustainable development framework to guide the development of new towns like Punggol Eco-Town in achieving sustainability goals including reducing carbon footprint and water usage, and enhancing greenery and biodiversity. In driving Singapore's Smart Nation agenda, HDB is championing the Smart Urban Habitat Domain and Mr Tan co-chairs an inter-agency working committee to spearhead the Smart town efforts, which aims to leverage smart technologies to make towns and estates more liveable, efficient, safe and sustainable.</p>	
<p>Presentation Title</p>	<p>Possibilities Unlimited – The Next Frontier for Housing</p>	
<p>Abstract</p>	<p>With over 80% of the population living in public housing, the Housing and Development Board (HDB) has constructed close to 1 million flats since 1960. In the process, HDB has consistently leveraged on research to adopt latest technological trends in its housing development, with the aim of providing affordable, quality housing and a great living environment for communities to thrive. As Singapore matures as a nation, many challenges have also emerged – including climate change, ageing infrastructure, manpower constraints and changes in the social fabric. To overcome these challenges, HDB will continue to research and deploy cost effective technologies, and re-engineer work processes to drive the next wave of transformation for the Build Environment sector. This presentation will share on HDB's latest efforts in research, and adoption of innovation and digitalization across the entire development process – from planning, design, construction to maintenance.</p>	

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Speaker's Name	<p>Mr James Tan Director, Smart District Division JTC Corporation</p>	 A portrait of Mr James Tan, a man with short dark hair, wearing a dark blue jacket over a dark shirt, sitting on a wooden bench and smiling.
Brief Biography	<p>In his capacity as the Director of the Smart District Division at JTC Corporation, Mr James Tan oversees the planning, development and deployment of Smart Systems in JTC estates.</p> <p>Mr Tan has more than 20 years of experience working in both the private and public sector. Prior to his current appointment, he was involved in several Smart Nation Initiatives at the Government Technology Agency (GovTech) and has diverse experience and expertise in ICT, IoT and Robotics systems. Currently, Mr Tan and his teammates are working with GovTech and ST Engineering to develop the Open Digital Platform (ODP) for Singapore's first smart district, Punggol Digital District. The ODP is a Smart District Operating System that allows Smart Systems such as Building Management Systems, District Cooling, Pneumatic Waste Management, Smart Carparks and EV Chargers to interoperate and be managed centrally by a 3D Digital Twin.</p>	
Presentation Title	Building A Smart Operating System for the Built Environment	
Abstract	<p>With digitalisation and sustainability set to transform the way we design, build and operate buildings, how can we leverage data and technology to monitor, rectify and refine operational issues to ensure optimal efficiency and efficacy? Learn how JTC, in collaboration with GovTech and ST Engineering, is building an Open Digital Platform that will integrate various smart technologies to not only optimise building management and resources, but also create a living lab for experimentation and innovation.</p>	

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Speaker's Name	Mr Laurence Liew Director, AI Innovation AI Singapore	
Brief Biography	<p>Mr Laurence Liew is the Director for AI Innovation at AI Singapore (AISG). He drives the adoption of AI by Singapore's ecosystem through the 100 Experiments, AI Apprenticeship programmes and various AI Makerspace initiatives.</p> <p>A visionary and serial technopreneur, he identified and introduced Singapore's enterprises to:</p> <ul style="list-style-type: none">• Linux and open source in 1999 - first RED HAT partner and authorized training centre in Asia Pacific• High Performance Computing (HPC) Cluster in 2001 – built A-STAR's IHPC first compute cluster• Grid Computing in 2003 – built and operated Singapore's first Grid platform (IDA's National Grid Pilot Platform)• Cloud Computing in 2007 - architected both Cloud business and technology for then Singapore Computer Systems' Alatum Cloud• Data Science with R in 2011 - built Revolution Analytics Inc business in Asia and R&D team in Singapore <p>Mr Liew graduated from the National University of Singapore (NUS) with First Class Honours in Engineering and holds a Masters in Knowledge Engineering from NUS.</p>	
Presentation Title	No Talent, No Talk	
Abstract	Mr Liew will cover the challenges engineering companies face embarking on their AI journey. He will discuss AISG's programmes that can help companies kickstart the process, including strategies to overcome AI talent competition from FAAG (Facebook Amazon Apple and Google).	

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<p>Speaker's Name</p>	<p align="center">Prof Lui Pao Chuen Temasek Defence Professor National University of Singapore</p>	
<p>Brief Biography</p>	<p>Prof Lui Pao Chuen retired in 2008 after 41 serving years in MINDEF. He graduated from the University of Singapore in 1965 in Physics and enlisted as Captain in MID. In 1971, he was awarded MINDEF's first postgraduate fellowship and graduated with MSc in Operations Research from the US Naval Postgraduate School. He served as Special Projects Director for 11 years and as Chief Defence Scientist for 22 years.</p> <p>Prof Lui teaches classes in Large Scale Systems Engineering. He participates in committees of government agencies, universities, and corporations. He is a member of the Tuas Port Steering Committee and the Changi Airport Executive Committee for Airport Development and the Technology and Systems Committee. Prof Lui also chairs the MOF Development Projects Advisory Panel, the Maritime Innovation and Technology (MINT) Fund Steering Committee, the board of Sembcorp Specialised Construction and the board of Singapore Nuclear Research and Safety Initiative (SNRSI).</p>	
<p>Presentation Title</p>	<p>Triple Integration of Technologies, Organizations and Over Time with Digital Twins</p>	
<p>Abstract</p>	<p>Advances in technology has enabled Model Based Systems Engineering (MBSE) to be used in the planning, design, implementation and operation and maintenance of complex large-scale projects. The ability of engineers from different disciplines to understand the impact of their decisions will improve the quality of their design. Integration over time enables engineers to understand the reasons for the decisions taken in the past and will help in decisions that will affect the future. Our competitive advantage is therefore in integration over disciplines, between organizations and over time.</p>	

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<p>Speaker's Name</p>	<p align="center">Er. Prof Liew Ah Choy Board Member, Energy Market Authority Emeritus Professor, National University of Singapore</p>	
<p>Brief Biography</p>	<p>Er. Prof Liew Ah Choy received the BE (First Class Honours) and PhD degrees from the University of Queensland, Australia in 1969 and 1972 respectively. He first joined the Electrical Engineering Department of the University of Malaya. From 1979, he was with the National University of Singapore (NUS) where he served as Professor and Head of the Electrical & Computer Engineering Department. He was conferred Emeritus Professor in 2019. He is presently the Director and CEO of EquiVolt Pte Ltd and EquiVolt M Pte Ltd, two consultancy companies specializing in providing design and solutions to lightning protection and electrical engineering problems. He was a member of the Energy System Review Committee set up by the Ministry of Trade & Industry, for the study of the reliability and robustness of the energy system in Singapore. He has served on several Government Boards and is presently on the Board of Energy Market Authority.</p>	
<p>Presentation Title</p>	<p>Future of Energy Sector and the “Energineer”</p>	
<p>Abstract</p>	<p>The Energy Sector is amid exciting times in this Age of Energy. The future of energy sector will encompass the convergence of energy and the latest technology to promote sustainability across the spectrum of energy. With climate change, we are seeing a big push for renewable energy. The energy sector will decentralize, decarbonize, and digitalize. Changes will occur at both the source generation side and the user application side. There will be increase in entire communities that have their own localized renewable energy and storage systems. This allows the community to produce and use their own power without relying on external energy providers. The picture would be even the everyday person will be savvy in the use of and everyday operation of the energy system.</p> <p>This poses challenges and opportunities for the sector. The universities have to up their game to produce the new breed of technical “Energineers” who are able to meet, adapt, innovate and excel through these changing challenges. This talk presents the changes in the University curriculum to provide multidisciplinary and integrative structures and current and emerging topics to meet the fast-changing demands in the energy sector.</p>	