

STRICTLY EMBARGOED TILL 29 AUGUST 2019, 7.30PM



**WORLD
ENGINEERS
SUMMIT
2019**

**28 – 30 August 2019,
Suntec Singapore Convention
& Exhibition Centre**

29 August 2019

Media Release

Innovative Engineers Won Top Honours for Outstanding Contributions to Mitigating Climate Change and Enhancing Singapore's Liveability

Dr Amy Khor, Senior Minister of State, Ministry of the Environment & Water Resources and Ministry of Health presented the IES Prestigious Engineering Achievement Awards 2019 at the World Engineers Summit (WES) 2019 Conference Dinner

Thursday, 29 August 2019 – The Institution of Engineers, Singapore (IES) today announced the six winning projects of the IES Prestigious Engineering Achievement Awards 2019, recognising the outstanding contributions of local engineers to advancing engineering and enhancing quality of life of Singaporeans.

Dr Amy Khor, Senior Minister of State, Ministry of the Environment & Water Resources and Ministry of Health, presented the awards to the winning teams at the World Engineers Summit (WES) 2019 Conference Dinner today as the event guest-of-honour. More than 800 engineers, industry professionals, business leaders, academia and policy makers from **12** countries were in attendance.

This year's winning projects have demonstrated excellence in tackling pressing issues of climate change and urbanisation, with technological innovations to reduce carbon emissions; enhance energy and water resilience; and improve waste management efficiency.

For delivering distinctive impact to the well-being of people and communities, these winners emerged from 16 project submissions that entered into an intensive round of evaluation by a judging panel comprising industry experts. The judges accorded the highest ratings to these teams for resourcefulness in the planning and solving of design problems; pioneering use of materials and methods; innovations in planning, design and construction; and unique aspects and aesthetic values.

"Engineering is the backbone of Singapore's urban transformation. This year's winners represent the most remarkable engineering achievements in sustainable urban development in the private, public and academic sectors. IES hopes that the recognition will inspire more local engineers to create an even more sustainable and liveable city for our people," said Prof Yeoh Lean Weng, President of IES.

The 2019 winning teams are:

Technology Innovation

- Development of floating platform for use in reservoir and coastal marine conditions by *Housing & Development Board*
- Next generation of hybrid air conditioners for tropics – cooling with heat by *Ecoline Solar Pte Ltd*

Engineering Project

- Demonstration plant for Tuas WRP at Ulu Pandan by *Black & Veatch and AECOM*
- Implementation of Pneumatic Waste Conveyance System (PWCS) at Yuhua by *Housing & Development Board*

Applied Research and Development

- EWaT – Electrochemical treatment targeted at "hard-to-treat" industrial wastewater by *National University of Singapore*
- Integrated multi-physics approach for urban microclimate modelling by *Housing & Development Board and Agency for Science, Technology and Research (A*STAR)*

Please refer to the Annex for project descriptions.

Two projects out of this year's winning teams will be selected for the ASEAN Outstanding Engineering Achievement Awards 2019 and receive their awards during the 37th Conference of

ASEAN Federation of Engineering Organisations (CAFEO) to be held from September 11 to 14 in Jakarta, Indonesia.

The WES 2019 Conference Dinner marked the second day of the biennial summit held from 27 to 30 August 2019. Themed 'Engineering Future Cities – Harnessing and Managing Technologies to Improve Quality of Life', the conference has provided a platform for the exchange of ideas and knowledge amongst the world's engineers to build smarter and more sustainable cities for the world's rapidly growing urban population.

For more information, please visit www.wes-ies.org.

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Notes to Media:

1. Annex

IES Prestigious Engineering Achievement Awards 2019 Winners & Project Descriptions

2. Chinese Glossary

English Terms	Chinese Terms
The Institution of Engineers, Singapore (IES)	新加坡工程师学会
IES Prestigious Engineering Achievement Awards	新加坡工程师学会卓越工程成就奖
World Engineers Summit (WES)	世界工程师峰会
Prof Yeoh Lean Weng, President of IES	杨联文博士, 新加坡工程师学会会长

About World Engineers Summit

Launched in 2013, the biennial World Engineers Summit (WES) is a premier platform that focuses on addressing global challenges arising from the impact of climate change by gathering influential thought leaders, policy makers, specialists, business leaders, multi-disciplinary engineers and leading academics from across the globe, to exchange expert opinion and present sound engineering solutions for the future. The WES is organised by The Institution of Engineers, Singapore (IES), the heart and voice of engineers in Singapore.

For more information, visit www.wes-ies.org.

About The Institution of Engineers, Singapore (IES)

The Institution of Engineers, Singapore (IES) was formally established in July 1966 as the national society of engineers in Singapore. IES is the premier engineering institution in Singapore and is called upon by the Government to provide feedback on professional engineering matters.

IES is well represented among the faculty members of the major engineering institutions of higher learning in Singapore. Through close collaboration with the local universities and polytechnics, IES organises courses, seminars and talks for engineers and IES members to advance the continuous development of engineers.

The Institution maintains close links with professional organisations of engineers regionally and throughout the world. These include organisations in Australia, China, Japan, United Kingdom and the United States. The Institution also represents Singapore in the ASEAN Federation of Engineering Organisations (AFEO) and the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) in promoting goodwill and fellowship among all engineers in ASEAN and the Asia-Pacific region.

Through its Engineering Accreditation Board (EAB), IES obtained full signatory status in the Washington Accord (WA) in June 2006. The entry grants IES the authority to represent Singapore, the first country within the ASEAN region which has obtained full signatory status in the WA, to vet education systems under the WA mutual recognition framework.

For more information, visit www.ies.org.sg.

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Annex A

IES Prestigious Engineering Achievement Awards 2019 Winners & Project Descriptions

Technology Innovation

1. Development of floating platform for use in reservoir and coastal marine conditions Winner: Housing & Development Board (HDB)

During the development of the Floating Solar System (FSS), HDB has developed and filed for patent for a new, strong, durable, compact, cost-effective and lightweight modular system where the corrugated surface of the floating module increases the strength and reduces the deformation to ensure that there is no lock-in to other proprietary design.

In May 2018, HDB pilot implemented a 100 Kilowatt Peak (KWp) FSS in Tengeh Reservoir in Tuas. The first locally-designed FSS being deployed, this FSS is estimated to generate about 120 MWh of electricity and reduce carbon emissions by 60 tonnes annually. HDB is currently working with its partner to scale up deployment to 5MWp off the coast of Woodlands, where the FSS covers an area of approximately 50,000m² and is estimated to generate about 6,000 MWh of electricity and reduce carbon emissions by 3,000 tonnes annually. HDB is also exploring with eight enterprises to scale up the implementation of the FSS in both reservoir and coastal marine conditions for both overseas and local projects.

The Floating Solar System has won the Construction Innovation Category of the Institution of Structural Engineers, Singapore Awards 2018 and the Small Projects Category of the American Environmental Sustainability Honor Award for Excellence in Environmental Engineering and Science™ Competition 2019, in recognition of its engineering innovation.

2. Next generation of hybrid air conditioners for tropics – cooling with heat Winner: Ecoline Solar Pte Ltd

A game-changing solar thermal air conditioner that has been proven through numerous project installations to be extremely effective in significantly reducing its compressor's energy consumption and trimming greenhouse emissions, due to its innovative way of harvesting and storing solar heat and exhaust waste heat from the condensing unit.

Thousands of units of these air conditioners have been installed in several countries,

enabling buildings (residential/commercial/industrial) such as Nanyang Technological University hostels to achieve the Platinum Green Mark Award from the Building and Construction Authority (BCA) for proven energy savings.

The air-conditioning approach to incorporate thermal solar air has been demonstrated through many commercial/industrial applications to lower overall energy consumption by more than 30% to 50% with general Return of Investment spanning one to two years.

Engineering Project

3. Demonstration plant for Tuas WRP at Ulu Pandan

Winner: Black & Veatch and AECOM

A state-of-the-art advanced water reclamation plant (WRP), the Tuas WRP, is being designed to produce high-grade reclaimed waters from used water, as part of the Phase 2 Deep Tunnel Sewerage System (DTSS) in Singapore, a monumental project undertaken by PUB Singapore. The selected treatment concept was validated in a 12,500 m³/d demonstration (DEMO) plant. The DEMO plant won the Water/Wastewater Project of the Year Award at the 2018 Global Water Awards.

4. Implementation of Pneumatic Waste Conveyance System (PWCS) at Yuhua

Winner: Housing & Development Board

Implementation of an automated waste collection system known as PWCS to help to enhance the living environment and reduce manual labour for transporting waste from point to point.

Applied Research and Development

5. EWaT – Electrochemical treatment targeted at “hard-to-treat” industrial wastewater

Winner: National University of Singapore

A never-before-seen way of efficiently (>95%) harnessing electricity from rising and falling of tides in a clean and effective manner.

With a mechanism capable of harnessing energy without any input energy, it is a very low-cost deployment that generates electricity. This electricity can be connected to the

grid and sold at current electricity prices with almost zero cost of production, making it extremely profitable and environmentally-friendly.

6. Integrated multi-physics approach for urban microclimate modelling

Winner: Housing & Development Board, Institute of High Performance Computing and Institute for Infocomm Research of the Agency for Science, Technology & Research (A*STAR)

To address rising and new challenges of climate change, rising population and urban complexity, HDB and A*STAR have developed an urban microclimate modelling tool using an integrated multi-physics approach.

The first-of-its-kind modelling tool is able to couple multiple urban physics models and study the inter-dependencies between each urban environmental factor, as well as their combined effects on new urban plans and development.

This allows building professionals like urban planners, architects and engineers to visualise environmental impacts and make informed decisions to mitigate such impacts upfront either through design strategies or implementation of technologies with greater certainty.