

For Immediate Release

**SENIOR MINISTER OF STATE CHEE HONG TAT AT THE
37TH ASEAN MINISTERS ON ENERGY MEETING IN BANGKOK, THAILAND**

1. Senior Minister of State for Trade & Industry and Education Chee Hong Tat was in Bangkok, Thailand on 4 September for the 37th ASEAN Ministers on Energy Meeting (AMEM).
2. The theme for this year's AMEM was "Advancing Energy Transition through Partnership and Innovation". Ministers from the 10 ASEAN member states exchanged views on key issues such as the importance of enhancing connectivity, sustainability, and the ways in which ASEAN member states could partner the international community to overcome energy challenges. They were joined by their key energy dialogue partners, namely Australia, China, India, Japan, South Korea, New Zealand, Russia, the United States, the International Energy Association (IEA) and the International Renewable Energy Agency (IRENA).
3. At the meeting, Mr Chee thanked the ASEAN Member States for their strong support of Singapore's Chairmanship last year. Mr Chee highlighted that energy collaborations were deepened among Member States, as well as with dialogue partners and International Organisations. New initiatives were also endorsed to strengthen regional energy partnerships and build capability to meet ASEAN's growing energy demand in a sustainable manner. Mr Chee noted that ASEAN has been made good progress under Phase I of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 and that the recommendations for Green Building Codes in ASEAN endorsed at the 36th AMEM will help ASEAN achieve its target of reducing energy intensity by 30% by 2025 based on 2005 levels.
4. On the renewables front, Mr Chee underscored the need for more efforts for ASEAN to reach the target of 23% share of renewables in the energy mix by 2025. Mr Chee highlighted that capacity building activities conducted under the ASEAN-IRENA Memorandum of Understanding (MOU) will help bring ASEAN closer to the target. Activities held under the Capacity Building Roadmap on Energy Investment and Financing in ASEAN will also help to facilitate knowledge exchange and training in the region to attract investments in energy and develop sustainable financing models. Mr Chee also expressed support for Thailand's ASEAN Chairmanship this year.
5. SMS Chee said "ASEAN must continue to encourage new technologies and attract energy investments. We have made good progress over the years. Together, we can realise our shared goals of energy security, accessibility and environmental sustainability."

6. The ASEAN Energy Awards 2019 Ceremony was also held during the AMEM. The annual awards aim to promote regional cooperation on energy efficiency and profile the efforts of the private sector in energy management. This year, eight organisations from Singapore received awards for implementing best practices in energy efficiency and renewable energy. (Refer to Annex A for the list of awardees.)

7. On the sidelines of the AMEM, SMS Chee also met with his counterparts to reaffirm bilateral ties and explore opportunities for collaborations. Mr Chee was accompanied by officials from the Ministry of Trade and Industry and the Energy Market Authority.

Ministry of Trade and Industry
5 September 2019

Annex A: Singapore winners of the ASEAN Energy Awards 2019

Annex B: Photo and Caption

Annex C: Opening remarks by SMS Chee at 37th AMEM

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Singapore Winners of the ASEAN Energy Awards 2019

Category	Award Recipients	Key Highlights
Energy Efficient Awards		
Green Buildings – Large	Winner: Kampung Admiralty	<ul style="list-style-type: none"> • Shading devices along the building facade and double glazing low-emissivity glass¹ reduce the intensity of sunlight entering the building, thereby lowering the amount of heat absorbed. • All lifts in Kampung Admiralty have regenerative drives where lift movements generate energy to power the lift lights and fans. During non-peak operation periods, the lift lights and ventilation fans will automatically shut off when not in use. • Green plot ratio of 4.5, green spaces (e.g. green roof) reduces ambient temperature. • A rainwater harvesting system collects and cleans storm-water runoff before the water is channelled to various water features. Some of the water is also used for irrigation within the development, saving about 4.1 million litres of tap water each year. • Solar panels installed on the rooftops of the housing blocks help power the common services. • Kampung Admiralty uses an integrated building management system to track the use of energy and water in the development.

¹ Low-emissivity glass limits the amount of direct solar heat entering the building.

	<p>Second Runner-Up: Temasek Polytechnic - Block 25 A and 28 A</p>	<ul style="list-style-type: none"> • The Temasek Polytechnic Block 25A (Engineering School) & Blk 28A (Design School) are located at the west part of the campus. There is extensive natural ventilation in Block 28A's common areas and green energy generation of 73 kWp via solar photovoltaic (PV) panels located on Block 25A's roof. • The blocks' atriums, corridors, staircases are naturally ventilated. Glass facade are made up of double glazing glass to minimise heat transmission and solar heat gain into the rooms. • Motion sensors are installed in stairwells and toilets, turning on lights as needed and reducing electricity use. Energy efficient fixtures such as T5 fluorescent lamps and LEDs are used.
<p>New and existing buildings</p>	<p>Winner: South Beach</p>	<ul style="list-style-type: none"> • South Beach's key feature is the signature large microclimate wave-like canopy which covers the whole development. It provides users with a high level of atmospheric comfort throughout the day with the naturally ventilated shelter by drawing in natural light and providing shelter against the sun and rain. • The canopy is also a channel for rainwater harvesting and irrigation purposes. The structure filters out heat and converts solar glare into electricity through the PV cells while encouraging airflow within the spaces below, achieving optimal thermal comfort for users.

		<ul style="list-style-type: none"> • The 285 kWp Grid-Tied Solar System consisting of 1,650 pieces of solar panels installed on the roof of the canopy produces sufficient energy to supplement the Main Supply and offset part of the energy usage. The solar energy generated was 212,198 kWh for 2018. • The building's design was optimised to minimise exposure to direct sunlight. South Beach achieved 35% lower heat gain as compared to most conventional buildings. • South Beach achieved a 40% reduction in annual water consumption (or the equivalent of up to 98 Olympic-sized swimming pools) by using water efficient fittings, NEWater top-ups, irrigation systems and rainwater harvesting system. • South Beach's sky gardens and terraces act as natural cooling agents which help to reduce ambient temperatures and provide a "living lung" that absorbs carbon dioxide and produces oxygen.
Retrofitted Buildings	Winner: Sheraton Towers	<ul style="list-style-type: none"> • Sheraton Towers Singapore Hotel implemented active and passive design features during the recent retrofit that have led to significant reductions in both energy and water usage. • Three new high-efficiency centrifugal chillers, sized appropriately to meet the building's cooling load profile were installed in the chiller system. Variable Speed Drives (VSDs) are utilised to modulate the chilled water pumps, condenser water pumps and cooling towers to run at various loads, allowing the new chiller plant system

		<p>to run at an improved average efficiency of 0.60kW/RT.</p> <ul style="list-style-type: none"> • Its 28 highly efficient Pre-Cooled Air Handling Units¹ (PAHUs) and Air Handling Units (AHUs) installed have been equipped with VSDs to allow greater flexibility in maintaining thermal comfort. Fitting the AHUs with CO₂ sensors allows for better control in the mixing of return and fresh air. All new AHUs have been fitted with high-efficiency Minimum Efficiency Reporting Value (MERV) 13 filters. The new PAHUs are also equipped with heat pipes to aid in pre-cooling and dehumidification of fresh air. • A new Energy Management System (EMS) has also been installed, to improve system response and eliminate single point failures. • The lighting system has been retrofitted with high efficiency LEDs to reduce energy consumption without compromising light levels. Motion sensors for staircases and toilets as well as carbon monoxide sensors at carpark have been installed to operate the ventilation fans only when necessary. • The central hot water system has been converted from a boiler-based system to a heat pump system, resulting in significant reductions in diesel usage.
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¹ An air handling unit is a device used to regulate and circulate air as part of a heating, ventilating, or air-conditioning system.

	<p>Winner: Old Hill Street Police Station (OHSPS)</p>	<ul style="list-style-type: none"> • As a gazetted national monument since 1998, the structure of the OHSPS cannot be changed. The Ministry of Communications and Information (MCI), which is housed in this building, worked around these constraints to make 'hardware' improvements which achieved sustainability and energy efficiencies. • MCI retrofitted the OHSPS's chiller system in 2015 with the installation of a rooftop water-cooled chiller that replaced the former air-cooled chiller system. This air-cooled chiller saved more than 2 GWh of electricity annually (the equivalent annual energy required for 453 four-room HDB flats). The use of NEWater for the chiller's cooling towers also reduced the building's overall water consumption. • Solar panels were installed on the OHSPS's rooftop in 2018. The energy is channelled back into OHSPS. Combined with other enhancements like the installation of energy efficient LED lighting and sensors, and the new air-conditioning system, the OHSPS achieved a total power reduction of 160 MWh/month (or ~34% of electricity consumption). • To effectively monitor the OHSPS's energy consumption, an Energy Efficiency Management System (EEMS) was also installed.
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Tropical Buildings	Winner: JTC Clean Tech Two	<ul style="list-style-type: none"> • JTC CleanTech Two within Jurong Innovation District offers flexible spaces to meet industry demand for offices and dry/wet laboratories for urban solutions and advanced manufacturing including clean-tech-related R&D activities. It is configured to support research and prototyping activities with specific requirements to cater to the growing demand in the industry. • The state-of-the-art clean and green development comprises a basement and six-storeys, with a Gross Floor Area (GFA) of approximately 22,500m². • Sustainability is an integral part of the entire value-chain for JTC CleanTech Two, from master planning, construction, to the integration of sustainable building design. The building is supplemented with climate conscious designs such as good daylighting and reduced direct solar radiation, achieving an unprecedented Envelope Thermal Transfer Value (ETTV¹) of 29.78 W/m². • The air-conditioning central chiller plant is designed to perform efficiently at 0.58 kW/RT with the help of Phase Change Materials (PCM), which helps to balance the building load and maintain constant chiller plant efficiency throughout.
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¹ ETTV is the average of (i) heat conduction through opaque walls, (ii) heat conduction through glass windows, and (iii) solar radiation through glass windows, over the whole envelope area of the building.

		<ul style="list-style-type: none"> • CleanTech Two is also certified under the Water Efficiency Labelling Scheme (WELS). It utilises efficient and effective water fixtures, and a sub-metering and water leak detection system. In addition, more than 95% of make-up water (water supplied to compensate for loss by evaporation and leakage) for the cooling tower uses condensate recovery from the Air Handling Units/Fan Coil Units. • NEWater is used to supplement any further make-up water required for the cooling tower. The greywater from wash basins are also recycled within the building for toilet flushing.
	<p>Winner: Yale-NUS College</p>	<ul style="list-style-type: none"> • Yale-NUS College consists of 3 residential colleges and a central campus flanked by academic and administrative buildings that comprise educational facilities such as a performing theatre/concert hall, library, laboratories and offices, multi-purpose hall and fitness centre. • It is the first in Singapore to achieve the ISO 41001:2018 certification¹ by demonstrating the successful implementation of a facilities management system to ensure building services function efficiently, and guide consistent facility services delivery to mitigate downtime risk. • It was also awarded the Landscape Excellence Assessment Framework (LEAF) Certification by the National Parks Board in 2017, and the Green

¹ This certification was established by the International Organisation for Standardisation in Apr 2018, and is the world's first international standard for Facilities Management.

		<p>Mark Platinum award by the Building and Construction Authority in 2018. Green roofs, pond and sky gardens contribute to passive cooling and reduce the Urban Heat Island Effect.</p> <ul style="list-style-type: none"> • The building leverages technology to conserve and manage energy consumption. Some examples include the: <ul style="list-style-type: none"> ○ Implementation of a centralised building automation system and a standalone energy management system; ○ Installation of smart meters for every residential unit; ○ Deployment of a customised “myInfra” mobile app to encourage our users to report any operational issues.
Renewable Energy Awards		
Special Submission	Winner: Singapore Test Site – Membrane Floating PV at Fish Farm	<ul style="list-style-type: none"> • Ocean Sun AS in Norway and its subsidiary in Singapore: Ocean Sun Pte Ltd, has developed a patented technology platform for scalable, low-cost, robust and increased efficiency floating solar on membranes for world wide deployment, particularly in the equatorial region. • The Ocean Sun Singapore Test Site was deployed Feb 2018 at the local Fish Farm 112 south of Pulau Ubin.

Photo and Caption



Caption: SMS Chee Hong Tat with Thai Minister of Energy Sontirat Sontijirawong.

ANNEX C

OPENING REMARKS BY MR CHEE HONG TAT, SENIOR MINISTER OF STATE (TRADE AND INDUSTRY) AT THE 37TH ASEAN MINISTERS ON ENERGY MEETING, WEDNESDAY, 4 SEPTEMBER 2019

Your Excellencies

Distinguished Delegates

Ladies and Gentlemen

1. Let me start by expressing my heartfelt appreciation to His Excellency Sontirat Sontijirawong and the Ministry of Energy of Thailand for the excellent arrangements and kind hospitality accorded to my delegation.

Singapore's AMEM Deliverables

2. Singapore took over the Chairmanship of the ASEAN Ministers on Energy Meeting (AMEM) in 2018 and built on the success of the excellent cooperation among ASEAN Member States. Together, we deepened energy collaborations among Member States, and also with our Dialogue Partners and International Organisations. We also endorsed new initiatives to strengthen regional energy partnerships and build capability to meet our growing energy demand in a sustainable manner.

3. ASEAN has made good progress under Phase I of the ASEAN Plan of Action for Energy Cooperation or APAEC 2016-2025. We have exceeded our aspirational target to reduce energy intensity by 20% in 2020 based on 2005 levels. The recommendations for Green Building Codes in ASEAN endorsed at the 36th AMEM will help us achieve our next target of reducing energy intensity by 30% by 2025.

4. On the renewables front, more efforts are needed to reach our target of 23% share of renewables in the energy mix by 2025.¹ The capacity building activities conducted under the ASEAN-IRENA Memorandum of Understanding (MOU) will help bring us closer to this target.

5. In addition, ASEAN endorsed the recommendations of the Gas Advocacy White Paper developed by the ASEAN Council on Petroleum (ASCOPE), to enhance the trade of liquefied natural gas (LNG) in ASEAN.

7. As ASEAN economies continue to expand, more energy investments and innovative financing models will be needed. The activities held under the Capacity

¹ According to the ASEAN Centre for Energy, ASEAN achieved 12.4% share of renewables in its energy mix based on 2017 data.

Building Roadmap on Energy Investment and Financing in ASEAN will help the region in this area.

7. Our senior officials have commenced discussions on the next phase of the APAEC for 2021 to 2025. As the Chair of the APAEC Drafting Committee, Singapore is committed to work with ASEAN Member States, Dialogue Partners and International Organisations to develop a forward-looking Phase II of the APAEC.

8. For the 36th AMEM last year, we invited the International Energy Agency (IEA) and IRENA to join in the main AMEM discussions, so that we could tap on their collective wisdom on energy. There was a robust discussion on the themes of “Energy Resilience and Innovation” and “Clean Energy Transformation”, which generated many new ideas and areas of focus. I am happy to see that Thailand has invited IEA and IRENA to join us again this year, and look forward to their strong contributions.

Thailand’s Theme for 37th AMEM

9. The global energy landscape will continue to evolve rapidly, especially with the increasing energy demand in our region. Other key developments include an increased supply of oil and gas, falling costs of renewables and advancements in energy storage technologies.

10. Against this backdrop, Thailand’s chosen theme of “Advancing Energy Transitions through Partnership and Innovation” for the 37th AMEM is both apt and timely. It underlines our shared commitment to realise ASEAN’s goals of energy security, accessibility and sustainability. To do so, we need to strengthen partnerships within ASEAN as well as with businesses and the international community. I am confident that under Thailand’s able Chairmanship, ASEAN will move forward on these goals.

Conclusion

11. In conclusion, I would like to express our appreciation to all ASEAN Member States for your strong support of our 36th AMEM Chairmanship last year. I look forward to working closely with Thailand and the rest of the Member States to advance ASEAN energy cooperation.

12. Without further ado, I would like to invite His Excellency Sontirat Sontijirawong, Minister of Energy, Thailand, to take over as the Chair of the 37th AMEM, and His Excellency Dang Hoang An, Vice Minister of Industry and Trade, Vietnam to take over as the Vice Chair.

13. Thank you.