

MINISTER S ISWARAN AT THE 35TH ASEAN MINISTERS ON ENERGY MEETING IN MANILA, PHILIPPINES

1. Minister for Trade and Industry (Industry) Mr S Iswaran attended the 35th ASEAN Ministers on Energy Meeting (AMEM) in Manila, Philippines from 27 to 28 September 2017.

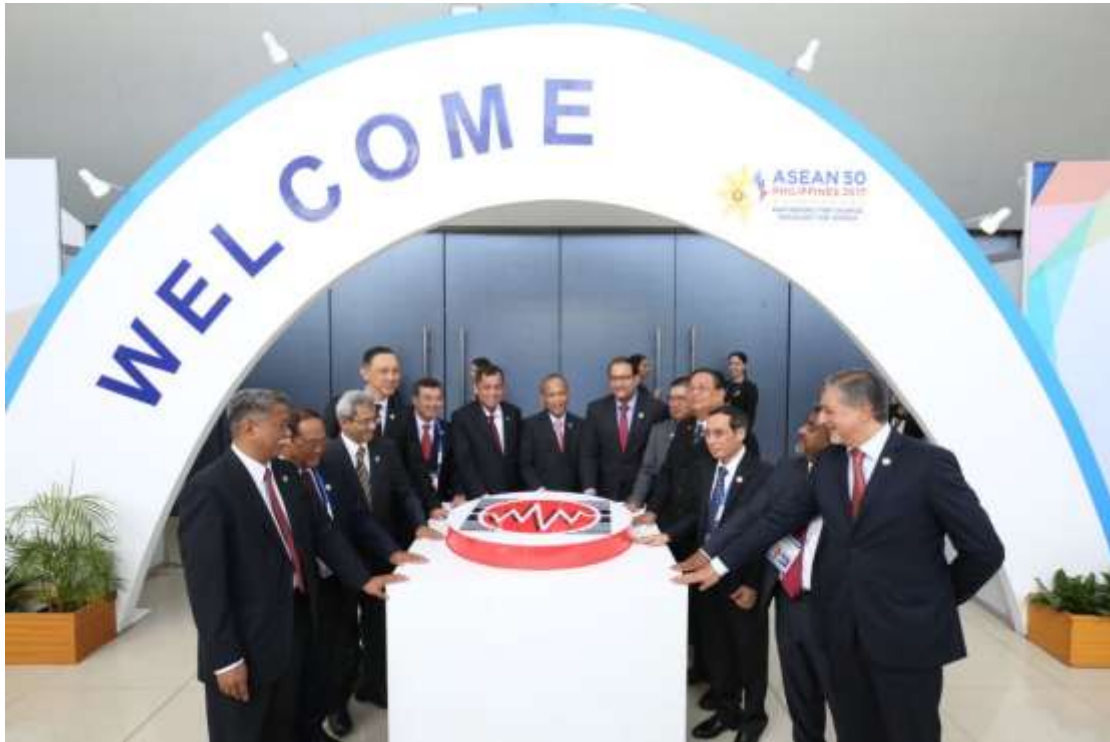
2. The theme for this year's AMEM was "One ASEAN Community through Resilient and Sustainable Energy". Ministers from the ten ASEAN member states exchanged views on key issues such as sustainable energy development and the importance of resilience in energy infrastructure. They were joined by their key energy dialogue partners, namely Australia, China, India, Japan, South Korea, New Zealand, Russia, the United States and the International Renewable Energy Agency (IRENA). The Ministers also affirmed the good progress of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016 - 2025, which seeks to enhance energy connectivity and achieve energy security through market integration in ASEAN. The inaugural AMEM-International Renewable Energy Agency (IRENA) Dialogue was also convened at the meeting.

3. Minister Iswaran said, "A connected and integrated ASEAN will enable improved infrastructure, and promote energy security and sustainability in the region. The AMEM has been a good platform for ASEAN member states to explore collaborations and develop mutually-beneficial initiatives in the energy sphere. Singapore will continue to play an active role in driving greater energy cooperation in the region, when we chair the AMEM next year."

4. At the ASEAN Energy Awards 2017 Ceremony which was held during the AMEM, seven Singapore organisations were recognised for their best practices in energy management and energy efficiency. (*Refer to Annex A for the list of awardees*).

5. Minister Iswaran also attended the 11th East Asia Summit (EAS) Energy Ministers Meeting (EMM) and met his counterparts to reaffirm bilateral ties and explore opportunities for collaborations. He was accompanied by officials from the Ministry of Trade and Industry and the Energy Market Authority.

Annex A: Singapore winners of the ASEAN Energy Awards Competition 2017



Caption: Minister for Trade and Industry (Industry) Mr S Iswaran with other ASEAN Energy Ministers at the official opening of the 35th ASEAN Ministers on Energy Meeting (AMEM).

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ANNEX A

Singapore Winners of the ASEAN Energy Awards Competition 2017

Category	Award Recipients	Key Highlights
Green Building Awards		
Small & Medium Green Building Category	Winner: Woh Hup Building	<ul style="list-style-type: none"> • Accolades <ul style="list-style-type: none"> ○ BCA Green Mark Platinum Award (2017) ○ PUB Water Efficient Building (2012) ○ EMA Solar Pioneer Award (2010) • The Woh Hup building is a 4-storey building comprising 3 levels of office space and a carpark. • The building adopts double glazing, low-emissivity glass, as well as low window-to-wall ratio and extensive external shading devices which minimises heat absorption into the building. As a result, no artificial lighting was required for 55% of the building for 80% of the year. • Light sensors were used in the building to control the level of artificial lighting, to promote responsiveness in supplementing the shortfall in lighting levels. • Solar photovoltaic (PV) panels, with a total power capacity of 33.9 kWp, have been installed and provides up to 9.0% of the building's energy needs. • All water fittings in the building achieved the "Excellent rating" as certified by the PUB Water Efficiency Labelling Scheme (WELS). Innovative water fitting features include dual-flash valves and waterless urinals, which were installed in all restrooms. • An automatic irrigation system, which uses rain and soil moisture sensors, was installed in landscaped areas. Rain water and condensate are collected and used to irrigate the landscaping in the building. • Woh Hup prefers to use products which have been certified under the Singapore Green Labelling Scheme (SGLS), e.g. carpet tiles, ceiling boards, adhesives and drywall partitions.
Large Green	Winner: NEXUS@one-north	<ul style="list-style-type: none"> • Accolades: <ul style="list-style-type: none"> ○ BCA Green Mark Platinum Award (2013) ○ SIA Design Award – Commendable (2014)

Building Category		<ul style="list-style-type: none"> ○ BCA Construction Excellence Award Certificate of Merit (2016) • Headquartered in Singapore, Ascendas-Singbridge is one of the largest developers with a diversified portfolio of business parks, industrial, logistics, office and hospitality assets. The Nexus @one-north comprises two towers with six storeys each, and is connected by a lush sky garden bridge. • Adopting high connectivity and passive design considerations such as a climatic responsive façade, has helped to significantly reduce heat absorption into the building. • The Central Landscape Plaza was designed to be elevated to promote maximum cross ventilation and sunlight for plants. • Lush greenery was added to the landscape plaza to reduce heat generated from the surrounding area. • A chiller plant system was installed in the building which operates at a high efficiency of 0.579kW/RT¹) with optimised controls through the use of Variable Speed Drives for the pumps and cooling towers. • Energy efficient lightings were used to achieve an average lighting power budget of 7.53W/m² for the office areas. • Motion sensors, and sensors which control demand of fresh air supply, were installed at the air handling units² (AHUs), staircases, and toilets. Carbon monoxide sensors were also installed at the carpark. • Solar PV panels generated about 2.5% of the total building energy consumption annually.
Energy Efficient Building Awards		
New and Existing Building Category	Winner: Ng Teng Fong General Hospital & Jurong Community Hospital	<ul style="list-style-type: none"> • The Ng Teng Fong Hospital and Jurong Community Hospital are the first hospitals in Singapore to be designed and built together as an integrated healthcare development to complement each other for better patient care, greater efficiency, and convenience.

¹ Unit: kilowatts (kW) per refrigeration tonne (RT). A refrigeration tonne is a unit of power used to describe the heat-extraction capacity of chiller equipment, and is defined as the rate of heat transfer that results in the melting of 907kg (a short tonne) of ice in 24 hours. On average, an aging or non-efficient cooler would have an efficiency of >1 kW/RT.

² An air handling unit is a device used to regulate and circulate air as part of a heating, ventilating, or air-conditioning system.

		<ul style="list-style-type: none"> • Wards were designed in a fan-shape to provide a window for each patient, which enabled better ventilation and more daylight. Corridors were also designed to maximise ventilation. • Three levels of protective shading were installed at the patients' windows to optimise daylight, while reducing solar heat gain and glare. • The hospital's entire hot water requirements are provided for by a solar hot water system. • Highly energy-efficient chillers were used to reduce the hospital's electricity demand by the air-conditioning system. • The hospital also uses energy efficient LED lights and T5 fluorescent lights.
	2nd Runner-up: Westgate	<ul style="list-style-type: none"> • Accolades: <ul style="list-style-type: none"> ○ BCA Green Mark Platinum Award (2013) ○ BCA Universal Design Mark Platinum Award (2015) ○ BCA Building Information Modelling Gold^{Plus} Award (2015) ○ NParks Board Skyrise Greenery Outstanding Award (2015) ○ NParks Board Landscape Excellence Assessment Framework (LEAF) Outstanding Project (2016) ○ Singapore Institute of Landscape Architects (SILA) Landscape Design Gold Award (2015) • Westgate consists of a 7-level lifestyle and family shopping mall and a 20-level prime office tower, and is located at the heart of Jurong Gateway. • It adopted the Total Building Performance approach that ensures optimal and sustainable building performance. • It conducted computer simulations to optimise the façade and layout design to maximise the thermal comfort for shoppers in naturally ventilated walkways and atrium. • It has a high air-conditioning efficiency of 0.54 kW/RT. • It uses energy-efficient LED lighting and T5 fluorescent lights. • Motion sensors were installed in the toilets and staircases to reduce energy consumption. • Escalators and lifts are equipped with smart energy saving modes.
	1st Runner-up:	<ul style="list-style-type: none"> • Accolades: <ul style="list-style-type: none"> ○ BCA Green Mark Platinum (2010)

<p>Retrofitted Building Category</p>	<p>Six Battery Road</p>	<ul style="list-style-type: none"> ○ BCA Green Mark Gold Award (2008) • Six Battery Road is a 42-storey office building located in Raffles Place. It is the first operating CBD office building to attain the Green Mark Platinum accolade. It also features the first vertical indoor garden in Singapore. A high-efficiency chiller with auto-tube cleaning system was installed to achieve design system efficiency of 0.65 kW/RT. • Energy-efficient LED lighting and T5 fluorescent light fittings were installed for office floors. • Motion sensors were fitted in restrooms and staircases to optimise energy efficiency. • Occupancy demand features such as motion sensors, CO₂ and carbon monoxide sensors were installed to regulate the usage frequency according to demand. • It also has an educational corner which displays energy and water savings and green features to communicate the importance of water and energy conservation to visitors. • Hybrid carpark lots are reserved for cleaner emission vehicles.
	<p>1st Runner-up: Swissôtel Merchant Court</p> <p>(Note: there were two 1st Runner-ups in this Category)</p>	<ul style="list-style-type: none"> • Swissôtel Merchant Court is a luxury hotel located near Clarke Quay. • It achieved more than 31% savings in electricity consumption. • It replaced its chiller plants with high-efficiency chillers, pumps and cooling towers. It also replaced its existing heat recovery unit with a dedicated heat pump unit. • All light fittings were changed to energy efficient LED fixtures, while natural daylight brightened the passageways and guest rooms during the day. • Systems are constantly monitored through a Building Automation System (BAS), which enables optimum operation of the electrical systems. • Swissôtel encourages hotel guests to minimise the frequency of changing bed linen and towels, thus reducing laundry requirements and lowering the carbon footprint. • Recycling bins were made available in all guest rooms and there is a dedicated bin centre for staff to segregate recyclable waste such as paper, cans, plastics and glass.

<p>Tropical Building Category</p>	<p>1st Runner-up: The Integrated Building-Changi General Hospital</p>	<ul style="list-style-type: none"> • Accolades: <ul style="list-style-type: none"> ○ BCA Green Mark Platinum Award (2014) ○ BCA Universal Design Gold^{Plus} Award (2014) • Changi General Hospital is a medical facility located in Simei, and a key partner and resource for the Eastern Health Alliance. The Integrated Building, added in December 2014, provides a conducive environment to promote healing for patients across hospital and rehabilitation settings. • Optimal natural ventilation was achieved using Computational Fluid Dynamics (CFD) simulations of air movement during building design for the inpatient wards, to create an airy and comfortable environment for patients, visitors and staff. • Passive façade design features such as deep balconies, roof terraces, overhangs and optimised window-to-wall ratio, as well as design refinement through sun path analysis were used to reduce external heat gain. The final design achieved a significant reduction of heat absorption into the building. • Heat recovery from returned chilled water was used to produce hot water for all shower facilities. • 35 kWp of solar PV panels were installed on the roof to generate renewable energy. • Rainwater captured was used for landscape irrigation. During dry spells where rainwater is insufficient (18% of days), NEWater was used. • Overall savings of 4,432.5 MWh/yr of energy and 4,593m³/yr of water was achieved.
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