



Smart Energy, Sustainable Future

## MEDIA RELEASE

25 May 2022

### **Youths Invited to Co-create Sustainable Energy Solutions with Industry**

Youths play an important role as our next generation leaders to foster brighter ideas for a more sustainable energy future in Singapore. To support Singapore's energy transition and engage youth on the importance of sustainability, the Energy Market Authority (EMA) has partnered with energy companies Keppel Infrastructure, Schneider Electric and Sembcorp Industries to present a new category in the third edition of the Singapore Energy Grand Challenge (Youth) 2022. This new category targets Institutes of Higher Learning (IHL) students from local institutes of technical education, the polytechnics and the autonomous universities to come up with sustainable energy solutions to address real-world problems faced by energy companies today.

2 Students participating in the IHL category will need to address company-specific problem statements proposed by the respective energy companies. These include topics on enhancing power grid reliability with increasing electric vehicle adoption, improving the efficiency of solar panels, and reducing energy consumption through digital technologies (Please refer to Annex A for the company-specific problem statements). As part of the energy challenge, mentoring and training opportunities will be provided to finalist teams to refine their solutions. The top teams with the most innovative ideas will be awarded a total of \$10,000 in cash prizes for their solutions to each company-specific problem statement.

3 "Given Singapore's aspiration to decarbonise its power sector by 2050, providing opportunities for students to co-create solutions with the industry could spark fresh perspectives in reducing our carbon emissions. Through this challenge, we look forward to engaging more youths to play a part in Singapore's energy transition to a greener future", said Mr Ngiam Shih Chun, Chief Executive, EMA.

4 Registration for the new IHL category opens today. Students interested to participate may register online (<https://go.gov.sg/segc2022>) by 30 June 2022. Students must form teams of two to four schoolmates and submit a proposal

showcasing how their proposed solution addresses the company-specific problem statement. Shortlisted teams will be invited to participate in the Semi-Finals in September 2022, followed by the Grand Final to be held at Youth@SIEW in October 2022. All submissions will be judged by a panel of representatives from EMA and industry partners based on the criteria of relevance, creativity, and presentation.

5 The Singapore Energy Grand Challenge (Youth) also comprises Junior and Senior categories for secondary and junior college students. Organised in partnership with Microsoft, students participating in these categories were invited to use Minecraft: Education Edition to share their ideas on the following topic: **“As Singapore transitions towards a carbon-free energy future, how can we reduce our carbon footprint by leveraging the Four Switches and managing energy demand to achieve a more sustainable Singapore by 2050?”**. Registration for the Junior and Senior categories closed on 20 May 2022 and 88 submissions from 25 schools were received. The top teams across all categories will receive their awards in October 2022.

6 The SEGC (Youth) was first launched in March 2020. Since then, over 179 teams across 40 schools have taken part in the challenge. Past winning submissions can be viewed online at <https://www.poweringlives.gov.sg/events/segc-youth/winners>.

7 For more information on the Challenge, please refer to Annex A or visit the Powering Lives Portal (<https://go.gov.sg/segc-youth>). To learn about Singapore’s energy transition towards a more sustainable future, please refer to Annex B or visit [www.BeyondTheCurrent.gov.sg](http://www.BeyondTheCurrent.gov.sg).

Annex A: Factsheet on Singapore Energy Grand Challenge (Youth) 2022

Annex B: Factsheet on Advancing Singapore’s Energy Transition Towards a More Sustainable Future

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## About the Energy Market Authority

The Energy Market Authority (EMA) is a statutory board under the Singapore Ministry of Trade and Industry. Through our work, we seek to forge a progressive energy landscape for sustained growth. We aim to ensure a reliable and secure energy supply, promote effective competition in the energy market and develop a dynamic energy sector in Singapore. Visit [www.ema.gov.sg](http://www.ema.gov.sg) for more information.

## About Keppel Infrastructure

Keppel Infrastructure (KI) is a wholly-owned subsidiary of Keppel Corporation, a Singapore flagship multinational company providing solutions for sustainable urbanisation. KI provides solutions for some of the world's most pressing challenges through its power & renewables, environment and new energy businesses by leveraging its proprietary technology, strong technical expertise and proven operating capabilities.

KI has a track record of developing energy and environmental infrastructure end-to-end, including power generation assets, waste-to-energy (WTE) facilities, large-scale district cooling systems, as well as NEWater and desalination plants. In Singapore, it operates a 1,300-megawatt high efficiency gas-fired combined cycle power plant and a utility pipe rack and pipeline network in Jurong Island. It is also Singapore's leading electricity retailer, and the first and largest district cooling systems developer and service provider. Globally, through Keppel Seghers, it is one of the leading WTE technology providers with more than 100 project references in 20 countries.

KI is expanding its presence, in Singapore and overseas, in areas such as power generation, waste management, district cooling, renewables and energy storage, electric vehicle charging infrastructure and other clean energy opportunities.

For more information, please visit [www.kepinfra.com](http://www.kepinfra.com)

## About Schneider Electric

Schneider's purpose is to empower all to make the most of our energy and resources, bridging progress and sustainability for all. We call this Life Is On.

Our mission is to be your digital partner for Sustainability and Efficiency. We drive digital transformation by integrating world-leading process and energy technologies, end-point to cloud connecting products, controls, software and services, across the entire lifecycle, enabling integrated company management, for homes, buildings, data centers, infrastructure and industries.

We are the most local of global companies. We are advocates of open standards and partnership ecosystems that are passionate about our shared Meaningful Purpose, Inclusive and Empowered values.

For more information, please visit <https://www.se.com/sq/en/>

## About Sembcorp Industries

Sembcorp Industries (Sembcorp) is a leading energy and urban solutions provider, driven by its purpose to do good and play its part in building a sustainable future.

Headquartered in Singapore, Sembcorp leverages its sector expertise and global track record to deliver innovative solutions that support the energy transition and sustainable development. By focusing on growing its Renewables and Integrated Urban Solutions businesses, it aims to transform its portfolio towards a greener future and be a leading provider of sustainable solutions.

Sembcorp has a balanced energy portfolio of over 15GW, with more than 5.7GW of gross renewable energy capacity comprising solar, wind and energy storage globally. The company also has a proven track record of transforming raw land into sustainable urban developments, with a project portfolio spanning over 13,000 hectares across Asia.

Sembcorp is listed on the main board of the Singapore Exchange. It is a component stock of the Straits Times Index and sustainability indices including the FTSE4Good Index and the iEdge SG ESG indices. For more information, please visit [www.sembcorp.com](http://www.sembcorp.com).

## ANNEX A: FACTSHEET ON SINGAPORE ENERGY GRAND CHALLENGE (YOUTH) 2022

### Singapore Energy Grand Challenge (Youth) – Institutes of Higher Learning (IHL) Category

<b>Target Audience</b>	Open to all IHL (i.e. ITE, polytechnic and autonomous university) students
<b>Organiser</b>	Energy Market Authority
<b>In Partnership with</b>	Keppel Infrastructure, Schneider Electric, Sembcorp Industries
<b>Challenge Details</b>	<p>The challenge will be in a case competition format and students will be required to come up with sustainable solutions based on real-world problems faced by energy companies. The company-specific problem statements are:</p> <ul style="list-style-type: none"> <li>• Keppel Infrastructure: “With increasing energy demand, Keppel is seeking an integrated solution to reduce energy consumption of a typical building in Singapore through digital technologies such as Internet of Things/Artificial Intelligence/Machine Learning. The proposed solution should consider the environmental impact, system stability and cost-effectiveness.”</li> <li>• Schneider Electric: “With increasing electric vehicle (EV) adoption, Schneider is seeking proposals to reduce carbon emissions and maintain grid reliability. The proposed solution should be cost-effective, suitable for deployment with minimal disruption to existing infrastructure, and increase the use of clean energy for EV charging.”</li> <li>• Sembcorp Industries: “Singapore aims to have at least 2 gigawatt-peak of solar deployed by 2030. With more solar in our energy mix, Sembcorp is seeking ways to manage intermittency. The proposed solution may include new technologies to manage the amount of energy flowing into the grid or by creating a suitable environment to maximise the deployment of solar panels. It should be cost-effective, minimise its impact on the grid, be easy to deploy and maintain.”</li> </ul>

<b>Prizes</b>	Cash prizes of \$30,000 in total will be awarded for this category. For each company-specific problem statement, the prizes are: <ul style="list-style-type: none"> <li>○ Champion - \$6,000</li> <li>○ First runner-up - \$4,000</li> </ul>
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Singapore Energy Grand Challenge (Youth) – Junior/Senior categories

<b>Target Audience</b>	Open to all secondary school and junior college students
<b>Platform</b>	Minecraft: Education Edition (M:EE)
<b>Organiser</b>	Energy Market Authority
<b>In Partnership with</b>	Microsoft Singapore
<b>Supported by</b>	Infocomm Media Development Authority
<b>Challenge Details</b>	<p><b>Challenge Statement:</b>  <b>As Singapore transitions towards a carbon-free energy future, how can we reduce our carbon footprint by leveraging the four switches and managing energy demand to achieve a more sustainable Singapore by 2050?</b></p> <ul style="list-style-type: none"> <li>○ The challenge will leverage Microsoft’s sandbox styled game, Minecraft: Education Edition, for participants to create their ideal Energy World and showcase their aspirations for Singapore, with a focus on sustainability and managing demand.</li> <li>○ An in-game quiz will be incorporated to acquaint youths with Singapore’s Energy Transition, and to educate them on balancing the trade-offs in the energy “trilemma” – i.e. balancing energy security, affordability and sustainability.</li> </ul>
<b>Categories</b>	There are two categories: <ul style="list-style-type: none"> <li>○ Junior (lower secondary students)</li> <li>○ Senior (upper secondary and junior college students)</li> </ul>
<b>Prizes</b>	Cash prizes of \$20,000 in total the Junior and Senior Categories. For each category, the prizes are: <ul style="list-style-type: none"> <li>○ Top team - \$5,000</li> <li>○ First runner-up - \$3,000</li> <li>○ Second runner-up - \$2,000</li> </ul>

## ANNEX B: FACTSHEET ON ADVANCING SINGAPORE'S ENERGY TRANSITION TOWARDS A MORE SUSTAINABLE FUTURE

Climate change is a global existential threat and Singapore is doing its part to reduce emissions for a more sustainable future. Our Long-Term Low-Emissions Development Strategy (LEDS) aspires to halve emissions from its peak to 33 MtCO<sub>2e</sub> (metric tonnes of carbon dioxide equivalent) by 2050, with a view to achieving net zero as soon as viable in the second half of the century.

2 The power sector has a key part to play as it accounts for about 40% of Singapore's carbon emissions<sup>1</sup>. We need to significantly reduce the power sector's emissions, while ensuring that the power system remains secure, reliable and sustainable. Singapore is therefore harnessing four Switches – natural gas, solar, regional power grids and low-carbon alternatives – to transform its energy supply, while promoting energy efficiency to reduce demand.

### Four Supply Switches for Power Sector Decarbonisation

#### A. Natural Gas

3 As Singapore transitions towards cleaner energy sources, reliable and sufficient energy sources are needed to ensure supply reliability. Natural gas will continue to be a dominant fuel for Singapore's electricity generation even as we scale up the other 3 Switches. EMA will continue to diversify our natural gas sources and work with the power generation companies to improve the efficiency of their power plants.

#### B. Solar

4 Solar remains the most promising renewable energy source in the near term for Singapore. Today, over 500 megawatt-peak (MWp) of solar has been installed<sup>2</sup> and we are on track to achieving our solar panel deployment target of at least 2 gigawatt-peak (GWp) by 2030 (equivalent to powering 350,000 households a year). Conventional rooftop solar has been complemented with innovative ways of deploying solar photovoltaic systems on spaces such as water bodies, temporary vacant land or sheltered walkways, making Singapore one of the most solar dense cities in the world. To manage the intermittent nature of solar and ensure grid resilience, we are planning to deploy at least 200 megawatts (MW) of energy storage systems (ESS) beyond 2025.

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<sup>1</sup> Source: National Climate Change Secretariat

<sup>2</sup> Figure accurate as of Q2 2021.



5 Nonetheless, there are still limitations to the amount of solar energy that we can harness due to Singapore's limited land area. Even as we work towards achieving our 2030 solar target of 2GWp, it will constitute only around 3% of the country's total electricity demand in 2030.

### **C. Regional Power Grids**

6 To overcome our land constraints, Singapore is tapping on regional power grids to access cleaner energy sources beyond its borders. Regional power grids can help accelerate the development of renewable energy projects in the region, bringing economic growth and increasing access to renewable energy. Electricity imports will also help us to diversify our energy sources away from natural gas and improve our energy resilience.

7 Singapore is planning to import up to 4 gigawatts (GW) of low-carbon electricity by 2035, which is expected to make up around 30% of Singapore's electricity supply in 2035. This will be done through a competitive Request for Proposal (RFP) process. Steps will also be taken to maintain our energy security, such as diversifying our import sources and ensuring back-up supply is in place to mitigate supply disruptions.

8 To pave the way for these electricity imports, EMA has been working with various partners on electricity import trials. These trials will allow us to assess and refine the technical and regulatory frameworks for importing electricity. They include a trial to import 100MW of electricity from Peninsular Malaysia, as well as a pilot to import 100MW of solar-generated electricity from Pulau Bulan, Indonesia. Singapore is also a part of the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP), which facilitates cross-border power trade among the four countries.

### **D. Emerging Low-Carbon Technologies**

9 Singapore is exploring emerging low-carbon technologies such as hydrogen and carbon capture, utilisation and storage (CCUS) that can help reduce Singapore's carbon footprint in the longer term. While such technologies are nascent, EMA is taking active steps including investing in R&D through the Low-Carbon Energy Research (LCER) Funding Initiative to improve the technical and economic viability of implementing low-carbon technologies such as hydrogen and CCUS.

10 Advances in geothermal technology have also opened up the opportunity for us to consider the prospect of tapping on this energy source for power generation. For instance, EMA is working closely with Nanyang Technological University, and various ministries and agencies including the Ministry of Trade and Industry and the National



Climate Change Secretariat to conduct studies to determine the geothermal resource potential in Singapore.

### **Promoting Energy Efficiency to Manage Demand**

11 Besides transforming the way we produce energy, managing our energy demand is also key to achieving a more sustainable future. With the economy recovering from the pandemic and as energy demand grows with increasing electrification, demand management will be a key pillar in supporting the energy transition. EMA will continue to encourage energy efficiency in the industry and households, and is concurrently developing other demand management initiatives. Together, everyone will have to play their part by conserving energy and supporting the greener energy transition for a more sustainable future.