MEDIA RELEASE

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Expert Study Affirms Net-Zero Feasibility for Singapore Power Sector by 2050

Sets out scenarios and shifts needed in the power sector to achieve ambition

The Energy 2050 committee released its report today concluding that it is realistic for Singapore's power sector to aspire to achieve net-zero emissions by 2050. The report noted that the entire energy value chain would have to undergo transformational changes to achieve this, and acknowledged that it would be challenging due to uncertainties such as geopolitical trends and technological advancements.

2 The report's findings are timely and significant, given Singapore's raised ambition to achieve net-zero by or around mid-century, and the fact that the power sector accounts for about 40% of Singapore's carbon emissions. The Committee, which consists of experts from the private and public sectors, was commissioned by the Energy Market Authority (EMA) to guide the planning of Singapore's future energy system.

Strategies Towards Power Sector Decarbonisation

3 While there are various pathways for the power sector to achieve net-zero by 2050, the Committee identified a number of strategies that would enable Singapore to be well positioned for this transition. These include how Singapore must decarbonise and diversify its energy supply mix, enhance its power grid with advanced control systems and digital technologies. In addition, Singapore will need to actively manage demand growth and consumption patterns. In the journey towards net-zero, the Committee sees an opportunity for Singapore to position itself as a technology frontrunner and become a living lab for innovative energy solutions.

Challenges and Trade-offs for Power Sector Decarbonisation

4 While achieving net-zero for the power sector is feasible, the Committee recognised that it would be a complex and challenging endeavour with inevitable trade-offs. Uncertainties such as geopolitical trends and technological advancements in various low-carbon energy solutions could lead to changes in Singapore's decarbonisation plan. Decarbonisation will also be costly – investments will need to

be made in infrastructure such as the power grid, to support the increasing number of renewable energy and distributed energy resources (DERs)[1]. This would be a trade-off for greater sustainability and reliability.

5 Mr Ngiam Shih Chun, Chief Executive of EMA, said, “The power sector’s journey towards net-zero emissions will be complex and challenging. This study by the Energy 2050 Committee serves as an invaluable guide and will help to signal the path ahead to all the key stakeholders in the energy sector.”

6 “While the Government will have to play a leading role in driving the energy transformation efforts, it is also critical for all other sectors and Singaporeans to embrace the need for the energy transition and contribute. We are optimistic that this can happen, and Singapore can arrive in 2050 with a brighter and greener future,” said Mr Choi Shing Kwok, Chairman of the Energy 2050 Committee.

Ongoing Efforts to Decarbonise the Power Sector

7 EMA had in 2019, announced the Singapore Energy Story, laying out the plans to decarbonise the sector. Since then, EMA has announced its target to import up to 4 gigawatts of low-carbon electricity by 2035 and issued the first request-for-proposal last year. It is also taking active steps to invest in the research of low-carbon technologies such as hydrogen and geothermal energy as well as carbon capture, utilisation and storage (CCUS) through the $55 million Low-Carbon Energy Research Funding Initiative. EMA continues to monitor global developments in areas such as nuclear energy and their implications for Singapore.

8 Together with industry partners and other government agencies, EMA is working on a power grid digital twin to enhance Singapore’s grid resilience and reliability, and support the transition towards cleaner energy sources. To encourage energy conservation during periods of tight market conditions, EMA launched demand-side management schemes such as the Demand Response and Interruptible Load programmes. These allow consumers to reduce or shift their energy consumption in response to tight supply, in exchange for compensation.

9 As Singapore’s energy sector transitions towards a more sustainable future, there are growth opportunities that businesses can tap on and that the workforce can look forward to. New businesses and jobs in clean energy will emerge in areas such as solar, energy storage systems, hydrogen and smart power grids. EMA will further study the recommendations in the Committee’s report and announce new developments when ready.

[1] Examples of DERs include solar and energy storage systems, which are located at end users’ premises.

10 The full report from the Committee is available at https://www.ema.gov.sg/energy-2050-committee-report.aspx

Annex A: About the Energy 2050 Committee
Annex B: Infographic on the report's key strategies and recommendations

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About 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 for more information.

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ANNEX A

ABOUT THE ENERGY 2050 COMMITTEE

The Energy 2050 Committee (the Committee) comprises a team of experts in diverse areas such as energy and environmental systems, economics, public policy and international studies from both the public and private sectors.

List of Members (in alphabetical order of last name)

1. Mr Choi Shing Kwok (Chairman of Committee)
   Director & Chief Executive Officer, ISEAS – Yusof Ishak Institute

2. Prof Chua Kee Chaing
   President, Singapore Institute of Technology

3. Mr Elangovan Karuppiah
   Chief Executive Officer, Regional Solutions & Services, Middle East & Asia Pacific, Siemens Smart Infrastructure, Siemens Pte Ltd

4. Mr Hugh Lim
   Executive Director, Centre for Liveable Cities, Ministry of National Development

5. Mr Frank Phuan
   Co-Founder & Business Chief Executive Officer, Sunseap Group Pte Ltd

6. Mr Quek Gim Pew
   Senior Research & Development Consultant, Ministry of Defence

7. Mr Russell Tham
   Head, Strategic Development & Joint Head, Enterprise Development Group (Singapore), Temasek International Pte Ltd

8. Prof Su Guaning
   President Emeritus, Nanyang Technological University

9. Mr Wong Kim Yin
   Group President & Chief Executive Officer, Sembcorp Industries

ANNEX B

INFOGRAPHIC ON THE REPORT'S KEY STRATEGIES AND RECOMMENDATIONS