

#### INNOVATION AND AGILITY ARE KEY TO SEIZING NEW OPPORTUNITIES IN A CHANGING GLOBAL ENERGY ENVIRONMENT

1. International energy experts gathered in Singapore for the fifth biennial meeting of the International Advisory Panel (IAP) on Energy to discuss Singapore's energy policies against the backdrop of an increased global focus on combating climate change following the Paris Agreement, and sluggish global energy markets that have seen prices remain lower for longer.

2. The panel, which is chaired by Minister for Trade and Industry (Industry), S Iswaran, agreed that while these developments pose challenges, they also offer opportunities that Singapore is well-positioned to capture. It should continue to pursue policy initiatives that support innovation, and maintain flexibility and options for the future.

## Seizing Opportunities for Clean Energy Growth

3. The IAP encouraged Singapore to continue its efforts to increase the deployment of renewables, in particular solar photovoltaics (PV). The IAP noted that there had been a significant take-up rate for solar PV in recent years, in particular, due to the increasing price competitiveness of solar energy. There are ample opportunities in the renewables space to further integrate solar PV through associated technologies such as energy storage, given rapid advancements in technology and business models.

4. The meeting noted the importance of combining predictability and confidence in the regulatory regime with the required flexibility and nimbleness to ensure that Singapore is responsive to the dynamic energy environment. This would encourage investments and innovation in the clean energy field. The IAP supported the principle of pricing energy appropriately to reflect the positive and negative externalities of renewables as well as conventional sources of energy.

5. Beyond domestic deployment, the IAP noted that there are significant economic opportunities for Singapore to be at the forefront of efforts to develop clean energy solutions for the region. Singapore should build on its existing ecosystem that brings innovation and investments together for the clean energy sector, with skilled manpower, and strong links between research institutions and industry. Singapore should collaborate with ASEAN and Asian partners to provide platforms for solutions to be tested for wider deployment that serve regional needs and development.



# Strengthening Singapore's Natural Gas Position in a Volatile Global Energy Environment

6. The IAP noted that the global liquefied natural gas (LNG) markets may remain oversupplied until the start of the next decade due to lower than expected demand in Asia and new supply projects in the US, Russia and Australia coming online. The IAP agreed with Singapore's policies to ensure energy security and offer gas users greater flexibility through a portfolio of options, including long-term LNG contracts, piped natural gas (PNG), and spot import of LNG.

7. The IAP noted that efforts to develop a regional gas trading hub are still evolving, but will be bolstered by the oversupply in the market. The panel supported Singapore's efforts to capture opportunities in gas markets by developing itself as a regional trading hub, noting that Singapore enjoyed the advantage of trust and transparency alongside a developed ecosystem for commodities trading and financial services. The IAP encouraged Singapore to explore opportunities to improve liquidity in LNG trading through initiatives such as LNG bunkering, the SGX LNG Index Group (SLiNG) price index, and other solutions like small-scale LNG/Compressed Natural Gas (CNG) for the region.

8. The IAP also suggested that Singapore continue to explore innovative technologies that could improve energy security and efforts to combat climate change, such as carbon capture and sequestration (CCS), building-integrated PV, the use of hydrogen as a fuel, thermal-electric technologies, and tidal generation.

# (Annexes:

**Annex A** – About the International Advisory Panel on Energy **Annex B** – List of International Advisory Panel on Energy Members)

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# <u>Annex A</u>

# About the International Advisory Panel on Energy

1. The International Advisory Panel (IAP) was set up by the Ministry of Trade and Industry (MTI) to provide insights and perspectives on emerging trends in the global energy arena, and to advise on the strategic directions for the energy sector in Singapore. This will enable us to be prepared to meet the challenges and leverage on the opportunities that are emerging in the global energy landscape.

2. The panel comprises a group of top energy executives and thought leaders from around the world. Mr S Iswaran, Minister for Trade and Industry (Industry), Singapore, chairs the IAP.

3. The IAP meetings are held biennially. In 2014, the IAP discussed a wide range of energy issues, including facilitating Liquefied Natural Gas (LNG) trading, strengthening Singapore's natural gas position and Singapore's research development and demonstration (RD&D) strategy towards increasing the share of renewable energy in Singapore's energy mix. The IAP's recommendations have informed our national energy policy. The 5<sup>th</sup> meeting of the IAP was held from 25<sup>th</sup> to 26<sup>th</sup> Oct 2016. The meeting consisted of deliberation sessions focusing on the outlook for LNG in Singapore and the region, and Singapore's clean energy strategy.

4. In conjunction with the Singapore International Energy Week (SIEW), several IAP members also spoke at the Singapore Energy Summit organised by the Energy Market Authority (EMA).



#### Annex B

## List of International Advisory Panel on Energy Members

#### Chairman

Name	Designation
Mr S Iswaran	Minister for Trade and Industry (Industry)

#### **IAP Members**

Name	Designation
Dr Claude Mandil	Former Executive Director, International Energy Agency (IEA)
Dr Daniel Yergin	Vice Chairman, IHS Markit
Mr Peter Schwartz	Senior Vice President, Salesforce
Lord Ronald Oxburgh	Chairman of Green Energy Options and 2OC and Member of the UK House of Lords
Dr Dan Arvizu	STEM <sup>1</sup> Evangelist and Chief Technology Officer of Emerson Elemental, Emmerson Collective and Former Director and Chief Executive, National Renewable Energy Laboratory (NREL)
Dr Alf Bjørseth	Chairman and Owner, Scatec AS
Mr Ole Enger	Chairman of the Board of 5 Norwegian industrial companies and Former Chairman, REC
Dr Adnan Shihab-Eldin	Director-General, Kuwait Foundation for the Advance of Sciences (KFAS)
Dr Choo Kang-soo	Endowed Chair Professor, Daegu University of Foreign Studies and Former Honorary Chairman, Korea Gas Union
Mr David Gray	Chairman of the UK Gas & Electricity Markets Authority (GEMA), the governing board of Ofgem
Mr Maikel van Verseveld	CEO, OMNETRIC Group

<sup>&</sup>lt;sup>1</sup> Science, Technology, Engineering and Mathematics



# **Absent with Apologies**

Name	Designation
Dr Arun Majumdar	Director, Precourt Institute for Energy, Stanford University and Founding Director, US Advanced Research Projects Agency – Energy (ARPA-E)
Mr Andrew Brandler	Chairman, Sir Elly Kadoorie & Sons Limited
Mr Peter Voser	Chairman of the Board of Directors, ABB Ltd
Mr Jon Wellinghoff	Chief Policy Officer, SolarCity and Former Chairman, US Federal Energy Regulatory Commission (FERC)