

## **SINGAPORE AT THE FOREFRONT OF THE SMART ENERGY ECONOMY, SAY INTERNATIONAL ENERGY EXPERTS**

*SINGAPORE, 2 November 2010* - International energy experts today declared that Singapore was at the forefront of the smart energy economy, well-poised to take advantage of developments in the global energy environment and encouraged Singapore to promote continuous progress on the smart energy economy. They endorsed Singapore's strategy of diversifying its energy portfolio and to study the option of nuclear energy. The energy experts are members of the Ministry of Trade and Industry's International Advisory Panel on Energy (IAP), which met in Singapore for its bi-annual session.

### **Greater uncertainty in the global energy landscape**

2 The IAP discussed the key trends facing the global energy landscape including the potentially higher cost of energy resources in the future. Members highlighted the increased economic and policy uncertainties which cast doubt on the pace of energy investments. The IAP also took note of the lack of consensus at international climate change negotiations, and the expiry of domestic green fiscal stimulus measures in many countries.

3 The IAP was optimistic about new energy-related technologies, including advanced biofuels, carbon-capture, energy storage, and water-energy solutions. Members observed, however, that the challenge with new technology was delivering them on a commercial scale though there were emerging success stories such as "hydraulic fracturing" technology to extract natural gas from shale.

### **Diversification is key in national energy strategy**

4 In response to these trends and uncertainties, the IAP endorsed Singapore's strategy of energy diversification as recommended by the Economic Strategies Committee.

5 Members agreed that fossil fuels would remain a dominant fuel source in the foreseeable future. Singapore's switch to natural gas for power generation was timely, with relatively abundant gas resources globally arising from new sources of unconventional gas being developed. Gas also has relatively low carbon emissions and low capital cost. The IAP endorsed Singapore's investment in LNG infrastructure which would allow us to capitalise on opportunities in dynamic and growing Asian gas markets.

6 The IAP further supported Singapore's plans to diversify its energy portfolio by fuel type and geographical source. Solar energy remained a promising potentially growing source of renewable energy as the cost of solar photovoltaic systems continued to decline. The IAP noted, however, that the potential for renewable energy in Singapore was limited by its land constraints. Greater connectivity of

electricity grids with neighbouring countries could also provide enhanced flexibility for import and export of electricity.

### **Preserve optionality for nuclear energy**

7 IAP members said that it was important for Singapore to keep open the option of nuclear energy, in view of the increasing interest in nuclear energy globally and the new technologies being researched and developed. There was value for Singapore to wait for next-generation nuclear technologies to evolve. The emerging developments in areas such as fuel types, siting options, safety and waste management could yield significant benefits compared to current technologies.

8 To preserve optionality, the IAP noted that it was important for Singapore to develop scientific and technological expertise in nuclear energy. This would allow Singapore to make an informed and intelligent assessment of developments in nuclear technology. Members also emphasised the importance of developing a strong safety culture as an early step for any country considering nuclear energy.

### **Energy efficiency an important strategy to mitigate carbon and lower costs**

9 IAP members agreed that energy efficiency was an important strategy to alleviate rising energy demand, reduce carbon emissions, and save costs. The IAP suggested that the pursuit of energy efficiency required system-wide changes to processes and a coordinated combination of appropriate price signals, application of new technologies, and behavioural change.

### **System approach is critical for effective electricity infrastructure**

10 The IAP supported a continued upgrading of Singapore's already reliable electricity grid which would provide flexibility in its energy diversification strategy. The development of a smart grid could help effectively integrate renewable energy sources like solar energy and underpin applications that could achieve significant improvements in energy efficiency. They agreed that info-communications technology was a key part of these new innovations and Singapore was well positioned to be a leader to develop solutions for "smart cities".

11 IAP members emphasised the need to identify those aspects of smart grid technology that are appropriate for Singapore. They supported Singapore's approach in rolling out a smart grid pilot to identify the needs of Singaporean consumers and to ensure smooth implementation.

### **IAP's insights will help Singapore strengthen its position as a smart energy economy**

12 Thanking the IAP, Mr Iswaran said, "While Singapore's short term energy needs are well met, we need to prepare for the longer term uncertainties in the

global energy landscape. We are in a good position to do so with the right elements, including a strong technological base and skilled human capital, to adopt, and even develop, the next generation of energy solutions. The IAP's insights will be most helpful in strengthening Singapore's position as a smart energy economy."

13 The IAP met over three days (31 October - 2 November 2010), and was chaired by Mr S Iswaran, Senior Minister of State for Trade & Industry and Education. The IAP members met Senior Minister Prof Jayakumar, Deputy Prime Minister Teo Chee Hean and Minister for Trade and Industry Lim Hng Kiang during their stay.

**MINISTRY OF TRADE AND INDUSTRY**  
**2 November 2010**

### **About the International Advisory Panel for Energy**

- 1 The International Advisory Panel (IAP) is 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, Senior Minister of State for Trade & Industry and Education, Singapore chairs the IAP.
- 3 The IAP met for the first time from 2-3 Nov 2008 in Singapore, and endorsed Singapore's energy policy framework. The IAP also made several key observations, for example that Singapore should review the use and feasibility of alternative low-carbon energy solutions, adopt energy efficiency as a strategic priority, and augment a market-based approach to energy prices. These observations were valuable in shaping the Economic Strategies Committee's (ESC) energy policy recommendations in 2010.
- 4 The 2<sup>nd</sup> meeting of the IAP was held from 31 Oct – 2 Nov 2010. The three-day meeting consisted of deliberation sessions focusing on the opportunities and challenges given global energy trends, strategies to grow the energy industry, outlook for hydrocarbons and feasibility of nuclear energy.
- 5 In conjunction with the International Energy Week, several IAP members also spoke at the Singapore Energy Summit, organised by the Energy Market Authority (EMA) and the Energy Studies Institute (ESI), Singapore.

**List of Members of the International Advisory Panel for Energy**

**Chairman:**

Mr S Iswaran  
Senior Minister of State  
Ministry of Trade and Industry  
Ministry of Education

**Members:**

Mr Mukesh Ambani  
Chairman & Managing Director, Reliance Industries Ltd\*

Dr Dan Arvizu  
Director and Chief Executive of Department of Energy, National Renewable  
Energy Laboratory

Dr Alf Bjørseth  
CEO & Chairman of the Board, Scatec A/S

Mr Cao Peixi  
President, China Huaneng\*

Ms Eileen Claussen  
President, Pew Centre on Global Climate Change\*

Dr John Deutch  
Institute Professor, Massachusetts Institute of Technology\*

Mr Michael J Dolan  
Senior Vice President, Exxon Mobil Corporation

Mr Ditlev Engel  
President and Chief Executive Officer, Vestas Wind Systems A/S

Mr Ole Enger  
President and Chief Executive Officer, Renewable Energy Cooperation

Mr Robert A Hefner  
Founder and Owner, The GHK Company\*

Mr Tsunehisa Katsumata  
Chairman, The Tokyo Electric Power Company Incorporated

Mr Lee Hee-Beom  
Chairman and Chief Executive, STX Energy

Dr Claude Mandil  
Former Executive Director, International Energy Agency

Lord Mogg KCMG of Queen's Park  
Chairman, Office of Gas and Electricity Markets \*

Lord Ronald Oxburgh  
Member of House of Lords, Ex-Chairman, The Shell Transport and Trading Company

Dr R K Pachauri  
Chief Executive, The Energy and Resources Institute\*

Mr Nicholas Parker  
Chairman, Cleantech Capital Group LLC

Mr Peter Schwartz  
Chairman, Global Business Network

Dr Daniel Yergin  
Chairman and Executive Vice President, IHS Cambridge Energy Research Associates

Yousef Omair Bin Yousef  
Chief Executive, Abu Dhabi National Oil Company\*

*\*Unable to attend 2<sup>nd</sup> IAP Meeting*