

Introduction

Good morning. I would like to express my thanks to the Institution of Engineers Singapore for inviting me to participate at this Industry Roundtable.

2 The participants in this Roundtable come from a wide range of sectors and this shows the interest that there is in the topics being discussed today. This is appropriate and encouraging as the issues and responses needed from businesses to climate change do cut across the whole economy.

3 2015 will be a significant year for climate change history. The world will be meeting in Paris in December to finalise a new global climate agreement and every single country, including Singapore, will have to commit to play its part in curbing greenhouse gas emissions. Having this Industry Roundtable, at this point in time, is therefore apt and timely.

Singapore's Pledge to UNFCCC

4 Climate change is a global problem which needs a collective global solution. Inaction is not an option unless we want to risk extinction and all of us, be it companies or governments, have to make challenging policies and difficult decisions, hopefully supported by the best analysis and research that the science can offer us today.

5 Earlier this month, Singapore submitted our Intended Nationally Determined Contribution (INDC) to the United Nations. Our INDC states our intention to reduce Singapore's emissions intensity by 36% from 2005 levels by 2030, and to stabilise emissions with the aim of peaking around 2030. This ambitious target reflects Singapore's commitment towards the global efforts to address climate change.

6 Singapore's pledge is a stretched target, given that Singapore had started to switch from fuel oil to natural gas, which is the cleanest form of fossil fuel for power generation, since the early 2000s. In addition, we have limited access to renewable energy sources because of our small land size and low wind and water current speeds. We therefore need to look for much more advanced and sophisticated means to reduce our GHG emissions from now on, as all the low hanging fruits that most countries are relying on have already been plucked in Singapore. This is not an easy task and will require close cooperation between the Government, businesses, NGOs as well as society. This is where all of you can help play a role – both in reducing your company's emissions as well as coming up with innovative solutions that can help to tackle climate change more broadly.

7 Singapore's Climate Projections Beyond reducing emissions, we also need to prepare Singapore and Singaporeans for the impact of climate change. Earlier this month, it was reported in the news that the Thai government had warned that Bangkok's tap water may run out within a month as the country is facing its worst drought in more than a decade. At the same time, Thai authorities have also lowered their forecast for this

year's rice output by more than 2 million tonnes, which amounts to a 10% cut from what was forecasted previously. Such events will not only have an impact on Thailand but also the region as well. As you know, Singapore is a very open economy in which our trade is 3 times our GDP, so we will not be immune to situations like this, which will become more common in future.

8 As part of our efforts to prepare ourselves, the Centre for Climate Research Singapore (CCRS), in collaboration with the UK Met Office Hadley Centre, has developed a robust set of climate projections for Singapore and our immediate region.

9 The study projected three key changes: (a) First, that the daily mean temperatures will increase by approximately 1.4 – 4.6°C by the end of this century; (b) An increase in the intensity and frequency of heavy rainfall events over Singapore, particularly during the wetter season; and (c) The study also projected a total sea level rise of 0.45-1.02 m by the year 2100.

Climate Change – A Business Case?

10 What do all these mean for us and for businesses? Clearly, we can no longer operate in a business-as-usual mode. Climate change has and will continue to put our infrastructure and operational paradigms at risk, and threaten both lives and livelihoods. Together with the government, companies across all sectors will need to respond to and manage the risks from the impacts of climate change. Failure to do so in an effective manner will incur huge financial costs and job losses in the long run, not to mention enormous upheaval for everyone.

11 Some companies have realised this and have started preparing for climate change. For example, Bayer AG, a global MNC with competencies in health care, agriculture and materials science, has developed a centralised risk management database and “risk matrix” which they use to evaluate and prioritise climate-related risks over a 10 to 20-year planning horizon. This information will help Bayer to make informed investment decisions for the next 50 years. In addition, it also provides them with a headstart to bring new innovations to market which generally require a lead time of up to 15 years for research and development.

12 However, climate change is not only about managing the downside risks. There are also many opportunities to be seized too, especially in urban solutions, as cities move to prepare themselves for climate change. Many cities have developed ambitious targets to reduce their carbon emissions and are putting in place plans to adapt themselves to climate change. For example, Jakarta has launched a massive \$40 billion land-reclamation project last year to protect itself from rising sea levels. In Singapore, we have already made considerable efforts on this front. We have raised the platform levels for reclamation by 1 m from 3m to 4m above mean sea level since 2011 to take into account the future rise in sea levels. We have also made the drainage standards for all parts of Singapore more stringent to build in a buffer for more intense rainstorms in future. On top of that, we have built seawalls to protect our coastline and developed the four national

taps to enhance our water resources. Research is also on-going to determine how climatic factors can affect public health risks, as well as our transportation, energy and telecommunications infrastructure. We can expect many more projects to increase our resilience to climate change in the coming years as all cities implement their adaptation plans.

13 In our part of the world, I also foresee that there will be a stronger impetus to harness green growth opportunities from innovations in energy efficiency and clean technology solutions. Our government, for example, has started to invest in clean energy. One of my Ministry's projects is the installation of a 1 Megawatt peak solar photovoltaic system in PUB's Choa Chu Kang Waterworks. It meets about 7% of the plant's average daily energy needs, which is equivalent to about 1.1GWh of clean energy a year. This will reduce PUB's carbon emission by 500 tonnes per year. To overcome our land constraints, PUB will also be seeking possible innovative solutions to optimise our space for solar power generation through the test-bedding of floating solar PV panels at Tengeh Reservoir.

14 On the private sector front, we are seeing more new initiatives as demand for more energy efficient solutions grow. For example, Panasonic Appliances and Refrigeration Devices Singapore converted two of its boilers to operate on any fuel including those that are more fuel efficient. This contributed to significant improvements in Panasonic's environmental performance, particularly in the reduction of carbon emissions. At the same time, the company has also set up an energy solutions team to develop and trial a new-generation energy system that combines solar systems, energy storage and home energy management systems.

15 City Development Limited (CDL) is another gleaming example. CDL has, over the past two decades, been at the forefront of green building innovation. Its Tree House condominium, for example, has achieved a Guinness World Record for the largest vertical garden. Beyond the aesthetic feature, the 24-storey vertical garden also provides tangible benefits. Air-conditioning energy savings of between 15 - 30% annually are expected for some of the rooms insulated by the garden.

16 All these points to a growth in demand for innovative, cost-effective and quality sustainability solutions. This presents real business opportunities and at the same time, a challenge to the engineering community to be bold and experiment, to think creatively and come up with solutions to meet these needs.

17 Beyond the individual business opportunities, project returns and accolades that being green can confer on businesses, there is growing evidence that choosing pro-actively to be sustainable makes good business sense for the whole company. I am not just talking about success in the form of having a feel-good culture but also in terms of profitability, growth and overall success in the marketplace. The clearest example of a company that lives this out is Unilever. Unilever set itself a bold vision in 2010 to halve its environmental footprint and source all its inputs sustainably within a period of 10 years, while maintaining strong growth and treating both its employees and customers

well. It has made good progress towards its goals. Most significantly, in a recent study of its own business units, Unilever found that those brands that were actively practicing sustainability were more successful than those that were not. In particular, these brands accounted for half the growth of the company in 2014, grew at twice the rate of the rest of the company and were more profitable than standard products. This vindicates their strategy and holds many lessons for other companies bold enough to follow suit.

Concerted Efforts by All

18 Let me conclude. Governments cannot solve the problem of climate change alone. Businesses have to be at the table, ready to rise to the challenge of developing innovative and practical solutions. As we continue to chart the course towards building a climate resilient and low-carbon society, let us build stronger cooperation between companies, financial institutions, NGOs, government and investors. Discussions such as this can make an important contribution. Our collective wisdom and experiences will help us to move faster towards the goals we set for ourselves. Ultimately, I believe that this will not only be good for the earth and its people, it will also mean greater success for enlightened companies like yourselves.

19 I look forward to a fruitful and meaningful discussion with all of you. Thank you.

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