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Singapore Government

PRESS RELEASE

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**SPEECH BY ASSOC PROF KOO TSAI KEE, SENIOR
PARLIAMENTARY SECRETARY, MINISTRY OF NATIONAL
DEVELOPMENT, AT THE OPENING OF "GLASSTECH ASIA
2000, CERAMIC ASIA 2000 AND STONE TECHNOLOGY ASIA
2000" AT THE SINGAPORE EXPO ON WEDNESDAY, 1 MAR
2000 AT 10.10 AM**

National Archives of Singapore

Raising Energy Efficiency of Buildings

Distinguished guests, ladies and gentlemen:

1. I am very pleased and honoured to join you this morning for the combined events of

"Glasstech Asia 2000, Ceramic Asia 2000 and Stone Technology Asia 2000". The products

and services on exhibit here are very important to the building and construction industry.

Their potential impact on building performance is especially significant. This morning, I would like to focus on one major aspect of building performance, namely, energy efficiency of

buildings.

Energy Usage and Projected Growth

2. But first, let me sketch the big picture. Singapore's overall electricity consumption is

projected to increase at a rate of 5.3% per annum. An estimated direct capital investment of

about \$3.3 billion is required to meet this projected growth in energy usage.

3. Compared with many developed countries, Singapore is not a very efficient

consumer of energy. This is borne out by figures compiled by the International Energy

Agency, measured in terms of the ratio of energy consumption to GDP growth. IEA's figures

show that Singapore's energy efficiency is 21% lower than that of the United Kingdom, 23%

behind Hong Kong, 29% behind Japan, 57% behind Denmark and a whopping 66% behind

Switzerland. Clearly, much needs to be done.

4. By and large, there appears to be a prevalent indifference towards energy efficiency in Singapore. What could account for this? Firstly, energy constitutes, in most instances, only a fraction of the total operating costs of an organisation. Consequently, other factors such as land costs, rentals and manpower expenditure receive greater attention from management.

5. Secondly, some energy efficiency measures require high capital investment up front and have long payback periods. For example, in the building industry, developers often focus on maximising the net saleable area and the timely completion of buildings. Building owners very often minimise capital outlay at the expense of future operating costs.

6. The apathy among building owners, particularly among buyers of residential units, about the long term cost savings that can be derived from energy efficient buildings, is strange. When we buy cars, many of us worry about the fuel (energy) efficiency and the long term maintenance costs of different models. Manufacturers make it a point to allay such worries by putting the fuel efficiency of each and every car in their colourful brochures. Yet when we buy buildings, we do not worry about their long term energy efficiency. A mind-set change is necessary. When buyers demand energy efficient buildings, developers will almost certainly respond by delivering them in the market.

Need to Improve Overall Energy Efficiency

7. In the coming years, however, Singapore would have to improve its overall energy efficiency. We will have to respond to growing

international pressure to reduce carbon dioxide (CO₂) emission levels. The 1998 Kyoto Protocol of the United Nations Framework Convention on Climate Change, to which Singapore is a signatory, has established a legally-binding obligation on developed countries to reduce their CO₂ emissions and other greenhouse gases by an average of 5.2% below 1990 levels by 2008 to 2012. As CO₂ is also closely correlated to a nation's overall energy consumption, Singapore will have to reduce its energy consumption to help bring down CO₂ emission levels.

Energy Efficiency of Buildings

8. Energy consumption can be divided into three broad sectors, namely, industries, residential and commercial buildings, and the transport sector. The building sector accounts for 34% or a third of total energy consumption in Singapore. Let me focus on this sector's role in reducing energy consumption.

9. Investing in the energy efficiency of a building is an effective way to reduce operating costs and increase the return on investment. Over the years, a number of strategies have been developed to reduce the overall energy consumption of buildings. Besides the use of energy

management systems, energy-efficient lighting systems, and efficient cooling systems to

reduce energy consumption, it is extremely important to reduce the heat load of buildings.

Facade design for buildings

10. Indeed, the solar heat that filters through a building's facade constitutes a substantial share of a building's heat load. This heat will have to be eventually absorbed by the air-conditioning system at the expense of energy usage. Minimising solar heat gain into a building is therefore a very important consideration in the design of energy-efficient buildings.

11. The building's facade has a great influence on the amount of energy required to maintain comfort levels inside the building. Appropriate choice of building materials for facade design can help minimise solar heat gain. Building professionals should therefore be encouraged to use building materials that have good thermal properties to improve the energy efficiency of buildings.

Architectural glass

12. The emergence of architectural glass with improved thermal performance, such as solar control and low-emissivity -- or "low-e" -- coating glass, has helped to improve the energy efficiency of buildings by reducing the external heat load.

13. Low-e coating, which allows high transmission of light without excessive heat gain, could provide "cool" daylight for occupants. It reduces energy consumption for purposes of cooling, without compromising on the level of daylight entering the building.

14. The choices of architectural glass will multiply as the industry continues to enhance coatings and glass substrates to meet architectural

demand. The next generation of architectural glass may be in the form of active solar products. Instead of redirecting the sun's wavelengths, tomorrow's glazing may be able to capture solar energy and turn it into useable electricity.

Other materials in facade design

15. As facade design has a direct impact on energy efficiency, all building owners and professionals should seriously consider energy-efficient design options, from using state-of-the-art high performance architectural glass and highly engineered curtain walls, to adopting the concept of active and interactive facade that would improve the energy efficiency of buildings. They should also work with the relevant authorities and agencies with an interest in promoting energy efficiency of buildings to achieve optimum building performance.

BCA's Initiatives To Promote Energy-efficient Buildings

16. This morning, I am pleased to announce that BCA will embark on several initiatives in collaboration with other agencies and organisations to promote energy-efficient buildings. BCA will be revising the current OTTV standard for building façades to take advantage of the technological advancement in glazing materials.

17. BCA will also be spearheading a comprehensive research programme on energy performance to study the cost-effectiveness of building materials, equipment and systems through a life-cycle costing approach to promote cost-effective design. To help create awareness

among building owners and managers, BCA is also looking at the feasibility of formulating an energy-efficiency index. This index would serve as a measure for building owners and managers to assess the energy efficiency of their buildings and to make comparisons with other buildings. Information pertaining to energy efficiency of buildings will be made available on a new Internet site. If necessary, an Energy Resource Information Centre for Buildings may also be set up to provide a one-stop centre on all matters relating to energy efficiency.

Conclusion

18. Promoting energy efficiency cannot be the responsibility of the Government alone. Building owners and designers have key roles in ensuring that their buildings are optimally designed and efficiently run. Manufacturers and suppliers can also play their part by introducing new and advanced building materials and technologies to achieve better energy efficiency.

19. I am therefore very glad that the Singapore Glass Merchants and Glazier Association, and the Conference and Exhibition Management Services Pte Ltd have taken the initiative to organise today's events. Such events increase awareness and are invaluable in introducing new technologies and expertise into our region. With so many international exhibitors taking part, I am sure all participants would benefit from these events.

20. I wish all the exhibitors and the organiser a successful exhibition. I also wish all

visitors to this show an enlightening experience. To the foreign delegates and visitors, I wish

you a fruitful and pleasant stay in Singapore.

21. Thank you.

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