

**Mr S Iswaran, at the Committee of Supply Debate (Ministry of Trade and Industry) on  
Monday, 3 March 2008, in reply to cuts (k) to (o) under Head V**

**INTRODUCTION**

Mr Chairman, my Minister has elaborated on our overall strategy for growing the Singapore economy. While we have done well in recent years, we must continue to pursue new growth areas and opportunities. As several members have pointed out, we must ascend the value chain into higher value-added activities in all sectors including the energy, tourism, and R&D. Indeed, this is the most robust strategy to ensure sustained growth, create good quality jobs for Singaporeans, and help us face the many challenges that lie ahead for our economy and country.

**ENERGY FOR GROWTH**

Energy is a critical resource for any economy including ours. Our aim is to ensure that we have secure energy supplies at competitive prices while we stay true and sensitive to our environment. The simple truth is that we may have now entered an era of higher global energy prices, a structural shift, as Mr Liang Eng Hwa has pointed out. The global demand for energy will increase and the supply constraints are self-evident.

At last year's COS, I spoke of the formation of an inter-agency Energy Policy Group chaired by the Ministry of Trade and Industry. Since then, we have launched our first National Energy Policy Report. The title of this report - "Energy For Growth" - succinctly articulates the Government's thinking and highlights the triangle of tensions that we face between Economic Competitiveness, Environmental Sustainability and Energy Security. There will be challenges and trade-offs, and the solutions are by no means simple.

Given the uncertain global energy outlook, economic growth is our best response. This will ensure that we continue to have the resources to secure our energy supply, at the same time keep our environment clean, and undertake R&D to develop new and more innovative solutions.

**KEEPING OUR ENERGY PRICES COMPETITIVE**

As a small and open economy that depends fully on imports for our energy needs, Singapore is a price taker. Our basic policy tenet is that energy costs should be borne in full by end users. Individuals and industries should adjust their consumption of energy according to its true cost as reflected in its price. We do not subsidise the cost of energy because it will dampen price signals, and create the incentive to over-consume. There are many examples around us that I can point out. Moreover, as all of us know, subsidies are not sustainable in the long run. Our best course of action is to encourage competition and ensure that the market works. Competition will exert downward pressure on prices, and serve to benefit consumers. This approach is not conservative as Ms Eunice Olsen has put it but I think it is prudent, because we want to make sure that as a small economy, we put in place systems that are able to withstand these kind of global pressures - and subsidies cannot withstand

such pressures. To illustrate the benefits of such competition, let me give you some examples.

In 2001, EMA introduced competition in the electricity market. Both businesses and households have benefited. Over the past 7 years, the price of fuel oil has doubled - in fact more than doubled - but the electricity tariff for low-tension users, mainly households, has increased by only 14%. (This is despite the fact that fuel cost accounts for 55% of the cost of electricity generation.) We are currently in the final stages of liberalising the gas market and that will further enhance competition in our energy sector.

## **ENSURING ENERGY SECURITY**

Energy security has re-emerged as a growing concern for many countries, not just Singapore. Mr Liang Eng Hwa has asked about threats, other than high prices. Amidst intensifying global competition for resources, the global energy supply chain is vulnerable to political risk and other unforeseen circumstances. Our response has to be on two fronts. First, on the supply side, we would need to diversify our sources of energy and continuously explore new fuel and energy technologies, the point that several members have spoken about. The second is on the demand side: we need to be more efficient and innovative in our use of energy. MEWR has outlined our efforts to promote energy efficiency last Friday. I would like to elaborate now on our efforts to diversify our sources of energy.

Today, about three-quarters of our electricity is generated using piped natural gas. We have thus decided to import Liquefied Natural Gas (LNG) to diversify our supplies of fuel, rendering us less prone to possible disruptions of supply. I am pleased to inform members that Singapore's efforts to import LNG are on track. In September last year, we designated PowerGas as the LNG terminal operator. It is a natural extension of PowerGas' role as the owner and operator of the gas pipeline network in Singapore, and will ensure integration of the existing gas infrastructure and the LNG terminal. EMA is also in the final stages of an RFP process to select the LNG "aggregator". The "aggregator" will consolidate demand from end-users, and import LNG into Singapore. We will announce the outcome of this RFP process in the second quarter of this year.

In diversifying our sources of energy, we have also taken steps to encourage the adoption of renewables, such as solar energy. These include, reducing cost and facilitating grid connection. A point that Mr Edwin Khew has spoken about. In June 2007, the Energy Market Company (EMC) removed the registration fee of \$5,000 for market participation that was previously imposed on solar installations that export to the grid. The wholesale licence fee by EMA has also been reduced from \$1000 to \$100. Among other outreach and educational efforts, EMA has also published a handbook ("Handbook for Photovoltaic Systems") to provide information on the installation and connection of Photovoltaic systems to the power grid. So, we are doing our parts in terms of reducing government charges in all sorts of ways but we are eschewing subsidies that distort the market.

In addition, I am pleased to announce that the Government will be setting aside \$20 million for the Solar Capability Scheme. This is a grant-based incentive, to spur more innovative approaches and capability development, in the architecture, design and system integration of solar panels as part of green buildings. The fund will go towards offsetting part of the installation cost of solar panels for new buildings which attain a certain level of Green Mark standard. EDB will be releasing more details of this scheme in due course.

### **DEVELOPING THE CLEAN ENERGY SECTOR**

Apart from providing a key resource, the energy sector also presents significant economic opportunities. The energy sector is already important to our economy: In 2006, the oil industry contributed 4.5 percent to Singapore's GDP. We will continue to build on our lead in this field, and further develop a comprehensive energy cluster in Singapore.

In recent years, international concerns over climate change and environmental sustainability have spurred, a greater worldwide impetus for the development and adoption of clean energy technologies. Clean Edge, a leading report on the industry, projects that the global market for clean energy technologies will quadruple to over US\$220 billion in 2016 as compared to US\$55 billion in 2006. This presents significant opportunities for Singapore.

As it stands, renewable energies such as solar are still as some members have noted, much more expensive than traditional fossil fuel-based energy. To be consistent with our basic principles, we should not adopt measures which subsidise specific renewable energy types. One example is the Feed-in-Tariffs that both Mr Edwin Khew and Ms Eunice Olsen had suggested. And for the benefit of other members, just to elaborate, what does the Feed-in-Tariffs entail? It means the renewable energy plants are given a guaranteed contract for the off-take of energy that they produce over a substantial period of time at a specified price, say over 15-20 years. And the price, in order to be meaningful, has to be above the market price because today the cost of producing such energy is significantly higher than the market price. The relativity, if you talk to different people, varies, and also because the price of oil is also changing. But something in the order of magnitude, today, as compared to our pool price of 22 cents per kilowatt-hour, if we are using solar energy, we are looking at two to three times the cost, perhaps a little lower because oil prices have gone up now. But that is the order of magnitude. So what we are effectively saying is that we have to subsidise the producers of these renewable energies, for example; solar. This subsidy will in turn be passed on to all consumers of energy so that we can have solar powered generation, and this is not an optimal strategy.

Then we have the question of why solar, when it can be bioenergy, biodiesel and so on. It can be many sources and does not have to be just one. Then the question is, why just the energy industry and why do we not subsidise others as well. So, I think we have to be very clear about this and to stick to our principles. What we are investing our resources in is R&D and Test-bedding - an area that would resonate with members - because this is the key to

developing technologies that will bring down the cost of generating alternative energies. We also believe that this approach will give better returns in the long run. If solar energy is at grid parity then there is no need to talk about Feed-in-Tariffs. Our efforts in R&D will provide an unprecedented set of opportunities for us to develop our capabilities and talent, and allow us to develop technologies that can be marketed to the world. Our unique advantage is our compactness which provides an ideal platform for early test-bedding of such ideas in an integrated manner that larger countries cannot. Our consumers will benefit from this too, as we will be able to pioneer the use of many of such solutions.

Our strong support for R&D and test-bedding is evident in our recent initiatives. The Research, Innovation and Enterprise Council (RIEC) has allocated \$170 million over the next 5 years for solar R&D. In the area of test-bedding, EDB has also launched a \$17 million Clean Energy Research and Test-bedding platform (CERT) for solar photovoltaic technologies. A\*STAR has set up the Singapore Initiative in New Energy Technologies (SINERGY) Centre to develop alternative energy technologies. Just a few weeks ago, the Solar Energy Research Institute of Singapore (SERIS), which will be hosted at NUS, was launched. With an expected investment of \$130 million over five years, SERIS is slated to be one of the most comprehensive solar research centres in Asia and it will enable NUS and Singapore to be a world leader in solar R&D.

Our recent efforts to grow the clean energy industry have yielded good results. Beyond the well-publicised multi-billion dollar investments by the Renewable Energy Corporation, in the world's largest solar panel manufacturing complex, and Neste Oil in its 2nd generation biodiesel plant, several other clean energy companies have chosen to set up their regional headquarters here, including Solarworld, Conergy and Solar-Fabrik. Several have also chosen to set up R&D centres including Bosch and Oerlikon Solar. We will continue with our efforts to attract such companies to Singapore.

Notwithstanding the progress on several fronts, I fully agree with Mr Edwin Khew, Ms Eunice Olsen and Mr Liang Eng Hwa, that we can do more to grow the clean energy sector, to develop more innovative solutions on energy, as well as to mitigate the risks of high oil prices and to ensure Singapore's energy security. I thank members for their comments and suggestions in this regard.

Going forward, we will need to always keep an eye on the horizon in view of the ever changing international energy landscape. Given the global nature of energy issues, we have decided to set up an International Advisory Panel on Energy that I will chair. This panel will comprise a group of thought-leaders, eminent persons and energy experts from around the world, and will meet for the first time in November this year.

The meeting of the International Advisory Panel will be held in conjunction with our first ever International Energy Week. The Week will include a Singapore Energy Conference and other

events that will allow policy makers, academics and industry players to come together to network, share ideas and spearhead new initiatives. In doing so, we will develop Singapore as a thought-leader in the region on energy issues. Through this process, we will constantly re-examine our policies, develop innovative approaches, and identify new opportunities for Singapore, as members have suggested.

### **TOWARDS TOURISM 2015**

Mr Chairman, let me now turn to tourism, which is another key economic driver. The sector has seen strong growth. 2007 was a sterling year that our visitor arrivals hit a record of 10.3 million visitors in 2007, up 5.4% from the previous year and \$13.8 billion in tourism receipts were generated in 2007, exceeding our target as well. For 2008, STB has set a target of \$15.5 billion (12%) in tourism receipts, and 10.8 million (5%) in visitor arrivals. We are on track to meet our Tourism 2015 targets of 17 million visitor arrivals and \$30 billion in tourism receipts. It is encouraging that the international media has also noticed the transformation that has been taking place in Singapore. In its October 2007 issue, the F1 Racing Magazine called Singapore the "Monaco of the East". More recently, the New York Times published a feature article on what a visitor could do around the clock in Singapore. Time Magazine in May last year described it as "Singapore's New Look".

Ms Penny Low has asked for an update on our plans going forward. We will continue our efforts to position Singapore as a compelling leisure and business destination, and several major projects have been announced that will enhance our tourism landscape. These include the development of the International Cruise Terminal at Marina South, which will receive guests by 2010, and the Gardens by the Bay, which will open in 2011. We will also develop Mandai into a nature themed destination, and this is expected to be completed after 2010.

In addition, we will persevere with our development efforts to ensure that our tourism industry is able to serve the increasing number of visitors. Manpower development is key. The TOurism TALent (TOTAL) Plan was launched in October last year, where \$360 million was committed to train 74,000 tourism industry workers. To date, there have already been more than 4,300 enrolments. In addition, STB has committed \$30 million to the (TIP-iT) or Training Industry Professionals in Tourism scheme, to help industry partners invest more in training and build capabilities. As part of the tourism careers campaign, STB launched the tourism careers portal ([www.tourismcareers.sg](http://www.tourismcareers.sg)), a key one-stop information gateway for potential job seekers. STB will intensify outreach efforts through roadshows and career fairs. MTI and STB are working together with the industry players to get their feedback on how the industry, in particular from the HR perspective, can tackle the challenges for the next 2 years and to be responsive to the market.

### **SPIN OFFS FOR THE LOCAL ECONOMY**

Our event calendar for the next few years will see many top-tier international events. The first ever F1 night race will be held in Marina Centre on 28 September this year. This will be

followed by the stopover in January next year of the super yachts competing in the Volvo Ocean Race. Singapore will also be hosting the inaugural Youth Olympic Games in August 2010. All these events will add buzz and activity to Singapore, and attract tens of thousands of visitors which will add significant value to the whole economy, in particular from high-yield tourists. This includes the creation of 50,000-60,000 jobs in the tourism sector over the next three years.

Ms Penny Low would also be pleased to note that we expect our SMEs to benefit significantly from this development. The benefits are of course the entire chain of the life cycle of the projects. From the development phase, whether is it the Marina Bay Sands or Resorts World, engaging many of our local companies for the development of the infrastructure to when they move into the operation phase, many would outsource the services or to work together with the operators to provide certain services. And beyond that, the third in surge in visitor arrival will benefit not only the operators but also local attractions like the DuckTours, Mint Museum of Toys and Singapore River Cruises, but also smaller scale boutique hotels. F&B enclaves like Emerald Hill and Tanglin Village are also increasingly frequented by both tourists and locals alike. The increase in MICE events also gives home-grown companies like East West Travellers and Pico Art International a chance to garner greater exposure on the international stage in the MICE industry. Social enterprises, too, have benefited. One such example is The Singapore Shawl, a social enterprise that provides employment for retrenched women in particular those hit by the 2003 economic downturn. The shawls have hand made motifs that reflect life in the Garden City, from the flora and fauna to local cultures. These shawls are regularly presented to foreign dignitaries and visitors to Singapore.

Mr Teo Ser Luck has asked about the visitorship the F1 race is expected to generate and the anticipated demand from locals. F1 ticket sales across all tiers have been very brisk. The bulk of the tickets have been sold which is quite remarkable as the race is still 6-7 months away. The race organisers are also planning to make more tickets available soon. All in all, we are expecting well over 80,000 spectators for the event. Overseas demand for the event has been strong as well. We expect tourists to make up 30 to 40 percent of all ticket holders.

Mr Teo has also asked about the overall economic value of this project. When we embarked on this, we said that we expect tourism receipts to be boosted by about \$100 million a year. That is the quantifiable component. But because this is the first of its kind event in Singapore, we really need to have the experience of year one before we can pin down the number in a more definitive manner. We share the optimism that the numbers are likely to be positive. At the same time, there are many intangible benefits that would spread over to the entire economy. Whether is it benefits to our SMEs or other companies that we have already talked about, or also in terms of the branding and positioning of Singapore and also for our wealth management industry - for example, through the creation of new entertainment and networking events built around the F1 for the high network clients. There will be a wide range

of quantifiable and non quantifiable benefits and our overall assessment of the event is that it will be a positive venture for Singapore.

The race aside, STB is working closely with partner agencies, industry stakeholders and community organisations, on a calendar of events around the race period. These include the inaugural Singapore River Festival, the Singapore Biennale and the Singapore Motorshow. The events also extend to the heartlands, like Go-Karting and so on. So in all, we expect this to be a positive and successful event.

### **EXPLOITING R&D IN A KNOWLEDGE-BASED ECONOMY**

My Minister has outlined the need to do more to develop ourselves as knowledge-based economy, thriving on creativity and innovation, and the importance of R&D in this effort. Through A\*STAR and the S&T2010 plan, we have focused on fostering world-class scientific research and nurturing R&D talent, as well as to strengthen Singapore's attractiveness to draw in global corporate R&D labs to boost our economic competitiveness.

### **GROOMING LOCAL RESEARCH TALENT**

Mr Low Thia Kiang has asked about our efforts to groom local research talent. A\*STAR has been investing in building local talent since 2001 through the National Science Scholarships (NSS) and A\*STAR Graduate Scholarships (AGS). Through these scholarship programmes, we hand-pick the best local talent and groom them to become future scientific leaders for Singapore. To date, we have over 700 scholars in the pipeline, who are studying at leading universities around the world. Our goal, as Minister has said, is to train 1,000 by 2015.

And these scholars will also, beyond their PhD, be groomed by having been attached to some of the top research scientists from around the world. Mr Low Thia Kiang has also asked how did Singaporeans benefit and have we been sufficiently pro-active. I want to inform the House that more than 85% of the A\*STAR scholarships awarded are to Singaporeans. Non-Singaporeans who take up A\*STAR scholarship are also expected to take up citizenship during the course of their studies. I would like to assure Members of the House that bringing in foreign research talent is an integral part of nurturing and developing our own local pool of talent, and hence these should be viewed as complementary and not conflicting strategies.

### **HARNESSING ECONOMIC VALUE FROM R&D**

Going forward, to harness the economic value of our R&D investments, commercialisation will be a key focus for A\*STAR to make our research dollars count. We will do this by strengthening the links with the industry and by bringing technologies that are developed through R&D to the market.

Strong links between research institutes and industry clusters will ensure that the discoveries in our labs are relevant to the needs of industry. From April to December last year, the Biomedical Research Council (BMRC) and Science and Engineering Research Council

(SERC) initiated 171 new R&D collaborations with industries. Notably, the SERC Aerospace programme.

Mr Low Thia Khiang and Miss Penny Low have asked if our local businesses benefit. There are many examples of SMEs who have benefited from the "Growing Enterprises with Technology Upgrade" (GET-Up) scheme, and I can elaborate on that if you want later. But let me just stress, in particular, 166 A\*STAR researchers have joined the ranks of 116 SMEs to help jump-start and strengthen their in-house R&D capabilities. This flow of talent, from the institutes to the SMEs, remains one of the most practical forms of assistance that SMEs can benefit from.

A\*STAR is also committed to bringing technologies to market. There are many examples of these, but we should not measure the value of the research done in A\*STAR purely by the value of the divestments or the spin-offs. As I have elaborated, it is a manpower issue, it is the benefits that accrue across the entire economy, and we should look at the entire spectrum in forming a judgement on the endeavour which is long-term in reach.

Let me conclude by saying that to further strength Exploit's efforts in bringing IT, they will launch a new programme called Exploit-IP which will promote international IT partnerships to benefit Singapore businesses, which is Miss Penny Low's point about collaborative R&D.

Exploit will also be launching the Technology Transfer Network (TTN) this year. The will bring together Exploit and the Institutes of Higher Learning (IHLs), to facilitate the transfer of IP.

In terms of KPIs, our R&D expenditure as a percentage of GDP has gone up from 1.9% to 2.4%. The number of Research Scientists and Engineers per 10,000 of our labour force has increased from 66 in 2000 to 87 in 2006. In terms of patents, between 2000 and 2006, patent applications increased by two-and-a-half times to 2036 in 2006.

## **CONCLUSION**

Let me conclude by saying that our R&D strategy, as well as our polices on tourism and energy, continue to be robust to position Singapore well for the future.

Thank you.