

**Transcribes of Mr S Iswaran, Minister in the Prime Minister's Office and Second Minister for Home Affairs and Trade & Industry, Republic of Singapore participating in Ministerial Panel 3: The Role of the Government Institutions in Accelerating the Transition to a Global Clean Energy Economy at the World Future Energy Summit, 16 January 2012**

**Minister Iswaran, if I may just draw the analogy as Minister in the PMO. Singapore has over the last 5-10 years taken the sector of water as a major area in which public policy played a significant role in essentially shifting the trajectory of Singapore as a state in terms of its future water security, water use and water consumption and also recycling. How far is the experience that Singapore has had one of regulatory success to capitalise innovation, investments and changes of pathways, and how much is it incentivising it – what is the mixture that you followed and perhaps that analogy also is in the energy sector now a very relevant one?**

Thank you for the questions. I think it would be fair to say that from a Singapore perspective, what we believe is that you need a judicious balance between public policy, whether it is in the form of regulation or incentives, and private sector initiatives to come together in order to achieve the kind of end goals we seek. And I think specifically public policy should be oriented towards the areas where we can make a difference and it plays to the strengths of the particular country or economy. So let me illustrate Singapore's perspectives since you raised this in a very particular way.

We are a small island state. We do not have much in the way of resources; we do not have much in the way of alternative energy options; and as an island state, we are acutely aware of the consequences of climate change. So when we approach this topic, we try to take the whole spectrum and see how we can deal with it. I would like to highlight four areas where we have.

The first is in terms of industry structure itself, and how we have gone about it. In the electricity market in Singapore, we liberalised it in 2001. In the ten years since, there has been a dramatic change because the generating companies compete to sell electricity in our market. And what has happened is in the ten years – in 2001, three quarters of our electricity was generated by plants using fuel oil; in 2010, 80% of our electricity was generated by Combined Cycle Gas Turbines, which are significantly more efficient and friendly to the environment. At the same time, we believe in a pure price – we want price to be a clear signal of the cost of energy to the consumer. We have targeted assistance for low-income households and for certain other sectors, but we do not subsidise the price of electricity. So that was the first thing – the structure of the industry and how we have gone about it.

The second point that was made earlier is on demand management. We have embarked on a slew of initiatives, and it is not dissimilar what other countries have done. Specifically for us, the petrochemical sector is an important part of our economy, accounting for about 8-10% of our GDP. Our ability to work with this sector at the system level, to try and reduce their carbon footprint and their energy requirements has been a key factor, apart from other things like incentives for

companies to undertake energy-efficient technologies and also green building designs.

The third area in which we have concentrated a lot of our efforts has been in capability development in industry. We have invested significant resources in getting our government research agencies working together with the private sector to enhance their capability in the clean energy space. This is the space that is fast evolving and we believe in Singapore we can play a part. One example of this is the Solar Energy Research Institute of Singapore, which does not just undertake research in its own right, but it collaborates in a very targeted way with industry players, from manufacturing to R&D – the entire spectrum of the value chain – in order to try and achieve higher capabilities in, for example, the PV cell sector.

The final point I will make is in the space of R&D, and Singapore serving as a “living laboratory”. We feel that at the end of the day, as a small country, what we can offer many of our partners from the private sector, is the opportunity to collaborate with our institutions and use Singapore as a test-bed to try out new ideas, and see how you can scale them up in order to make them commercially viable as well. We have an experimental power grid; we have electric vehicle test-beds and various other kinds of test-beds, which basically create a platform for industry to work with our government agencies, capitalise on our incentives in order to try out all of these.

Those are four areas I’ve wanted to highlight. In the area of renewables, we have been working at it notwithstanding our relative disadvantage, and we are applying for membership to IRENA (the International Renewable Energy Agency) as well. Our key objective at the end of it is to find a sustainable balance for a state like ours. We want to find a balance between economic competitiveness, environmental sustainability, and energy security for Singapore.

**Minister Iswaran, can I go back to one issue that frequently comes up in the public sector when government “intervenes” in what is, at least in the past, has been seen as the natural trajectory of certain fuels coming into the economy and then going out, because the market is essentially reflecting that adequately. We’ve heard a lot today and also in the high-level task force of the Secretary-General – what is the true cost of a particular form of energy, because it is not always what you pay at the pump or pay on your electricity bill. Is cost something that Governments can successfully correct for, and therefore begin perhaps much earlier, or on a much greater scale, the introduction of new technologies or a premium on efficiency, because what the markets would have signalled maybe would not have been what Singapore has done at this point?**

I think that’s a very important question, so I go back to the point I made. Our fundamental approach in the electricity and energy markets is to leave the cost of the energy unadulterated to the best of our ability, in other words it should be true cost. Of course, there is a question of carbon cost and so on, but these, as and when a clear price for carbon is discerned, then those will obviously have to be factored in. So in terms of electricity in Singapore, which is generated using primarily natural gas, we have left the cost untouched, it feeds through, and the cost is adjusted on a

quarterly basis, because the gas price is pegged to fuel oil prices globally, which change on a quarterly basis for us. Then we give targeted assistance to low-income households, and in certain cases where there may be some adjustment for industries.

When it comes to the comparison with some of the alternative sources of energy, take solar as a case in point, we have eschewed the route of subsidising consumption. In other words, we have not gone the way of offering incentives for people to install solar panels, or to encourage greater use of solar panels. The reason is very simple – when you look at the cost, typically solar energy is at about three times grid parity, and subsidising it would merely encourage greater consumption of it, when at this stage it would appear to be inefficient.

However, what we firmly believe is that we should be targeting the realisation of greater efficiency in these sectors through upstream work, which is why invest a great deal of our resources in R&D, industry capability development, and other areas which we think are important supply-side initiatives, in order to bring alternative energy options into a more proximate range as an alternative to conventional energy options. That is the pathway we took.