

## ALTERNATIVE ENERGY COOPERATION IN EAST ASIA

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Thank you Mr. Chairman. Good evening, Ladies and Gentlemen of the Working Group.

Malay tradition usually requires me to begin with an apology.

Indeed, my apology today is due to my wanting to cast the net a little wider and a little further, in wanting to stretch the definition of energy conservation to include some focus on alternative energy sources. The motivation is entirely selfish, as I believe that I may live to long enough to sadly see the total exhaustion of oil and gas in the world. It would, I believe, happen at a time when I am totally dependent on my savings to live and when I can no longer easily afford to change my personal conveyance or to pay for high energy costs.

It is no big secret that Malaysia's own domestic oil and gas reserves run out in approximately 20 and 35 years respectively. In

perusing available options to handle this future depletion, the current surge in fossil fuel prices, of energy conservation, of mounting oil and gas subsidies, I came to understand some very important principles:

(One) The choice of alternative energy sources must be made carefully as going off tangent to the world's own movement in such technologies could lead to one's infrastructure and technology being out of synch with the rest of the world. Imagine the wastage and rectification costs.

(Two) The choice of alternative energy source itself, looking so far into the future, can be difficult to make so quickly and so difficult to stick to dogmatically in the short term. Indeed, General Motors of the US estimates that it would cost some USD 70 billion and up to 30 years to supply up to 70% of the US population with hydrogen supply. What if mid-way to this, a better source of alternative fuel is found? What happens to all that sunken expenditure?

(Three) The switch to alternative fuel sources itself is very, very costly and consumer acceptance may delay an effective, politically convenient switch. For example, in Malaysia, there are around 2,600 petrol stations. The estimated cost of the first natural gas dispensing pump for natural gas powered vehicles is circa RM1.5 million each. To put in the first pump for each petrol station, thus enabling a network of refueling stations for the country's natural gas powered vehicles, would then cost some RM4 billion. This is equal to the replacement cost of the entire current petrol station network, and does not include the cost of natural gas reticulation to these stations or of natural gas vehicular conversion kits for Malaysia's 13 million vehicles. Compounding this problem is the need to convince the individual car owner to convert to using natural gas to power his or her vehicle. The World Bank estimates that a 100% pricing differential needs to exist to compel a car owner to convert to alternative fuels. Would all-around Government subsidies be necessary all over again?

(Four) The penalty for doing nothing can be so staggering that it becomes an economist's "Nightmare on Elm Street". Given my own back of the envelope estimated cost of petrol and gas consumption in Malaysia, should Malaysia have to import all its fuel in the future, the total import bill for Malaysia would jump by more than 15%. Bear in mind that Malaysia's trade to GDP ratio is already more than 200% and one can grasp the magnitude of the problem. For many other countries, the problem could even be larger. For countries that are already net or total oil importers, imagine the resources that can be freed and the industries that can be built if one were self dependent on energy. Let us not forget that the Industrial Revolution was sparked by the use of a new form of energy, the steam engine powered by coal.

Mr. Chairman and members of the Working Group,

Since the first oil shock of the 1970s, the Americans have been pushing hard to find alternative fuels. They seem to now have settled on to the use of hydrogen as an alternative fuel. Indeed, it appears that they are preparing to make a full decision as to the

adoption of hydrogen as the primary fuel for them. The decision is expected by 2015. In the meantime, massive research is being conducted, trial runs being done, standards being formulated, and a large public relations and consumer acceptance campaign appears to be conducted. Numerous magazine articles have extolled the virtues of hydrogen fuel cell vehicles and electricity generation systems with comparisons being made with other fuel systems. Automotive Bibendums now highlight hydrogen fuel cell cars to grab the imagination of the consumer.

The end aim appears to be not just energy conservation and a switch to alternative fuels, but to ensure consumers of sufficiency so as not to spark off widespread, destabilizing panic.

The European Union has actually gone out to be the first region in the world to issue a hydrogen-economy initiative where by 2010, 22% of the electricity and 12% of all energy generated in the region must be from this source.

Members of the Working Group,

In trying to ensure our very long term energy security, we are faced with potentially crippling costs. Indeed, many technologies are just now being developed which requires massive R&D expenditure. Intellectual Property rights and technical complexity is likely to ensure that such technologies are not easily made available at a cost acceptable to poorer countries. The nightmare scenario is one whereby countries are practically held to ransom when they need to acquire energy to promote development and ensure basic living standards for their people.

However, this is where unity, shared resources, and striving towards a common goal can help us East Asians shoulder the burden and turn a potential crisis into an opportunity.

Please allow me to put forward three ideas for consideration:

(One) The establishment of an East Asian Alternative Energy Institute as part of the initiatives under East Asia. The European Union's and the American's own hydrogen energy initiatives

would serve as good benchmarks for us East Asians to better and not just emulate.

(Two) A jointly owned and managed R&D laboratory to develop East Asian owned alternative energy and fuel cell technology. The ownership and capitalization of this can be from each country's government owned investment arm. The combined size can be far larger than any one country or company can muster by itself, making possible far better discoveries at a faster rate, limited perhaps only by intellectual capital poured into it.

The payback or payoff for this investment can be the sales of this technology to national automotive and electricity generating companies. Indeed such joint ventures in R&D have been proven to succeed in Japan; their model might be worth investigating for emulation purposes.

(Three) The setting up of a jointly owned and managed East Asian Alternative Energy Standards and Knowledge Development Institute whose task is, inter alia, to develop standards, codes, safety procedures, programs, consumer acceptance strategies, and

so on. In short and in general, to attain and disseminate knowledge on alternative energy sources, its technologies, and its use.

And what is the big payoff, ladies and gentlemen of the working group? Imagine the profits generated from selling into the replacement or retrofitting cycles of:

- An estimated 2 billion cars globally by 2030
- 11,000 large commercial aircraft globally
- More than 28,000 commercial ships globally, and
- Around 1.2 million fishing boats globally, with

In the USA alone,

- 1.9 million Trucks
- 715,000 buses, and
- 21,000 locomotives.

Imagine that!

Thank you so much Mr. Chairman and members of the working group for your time.