Keynote Address: Towards a Sustainable Energy Economy
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Today, as I look around the audience, I see many who are among Hong Kong's leading experts in the energy sector. Some of what I have to say may be familiar. I hope that some of it will be new, or at least shed fresh light on familiar ground. I plan to cover three topics:

- First, where we are today in terms of a sustainable energy economy
- Second, the interesting role that China could play in accelerating the paradigm shift to new energy sources
- Third, what we have done in Hong Kong to address issues of energy efficiency and conservation, including some thoughts on what we should be doing next

The Current State of Play

The first topic, where we are today, is less depressing than you might think.

Since the twin oil shocks of the 1970s, energy efficiency and energy conservation have been on the public policy agenda of every country. A global consensus has emerged that such measures are necessary, given the risks and limitations of fossil fuels.

The fact that we have come to this recognition represents a very important milestone, even if energy efficiency and conservation are no more than a halfway house in the path to sustainable energy. It means that the global community finally understands that the supply of fossil fuels will run out, and has taken on board the destructive impact of fossil fuels on health and the environment. Energy efficiency and energy conservation will help us get through this time of waiting, by teaching us the habits of smart management of energy resources. Whatever mix of energy sources and technologies we end up with in the next stage, we will benefit from learning these habits.

Yet even with this spirit of recognition and agreement, there is no consensus when it comes to the urgency of the problem or its solutions. World leaders acknowledge the problem, but do not agree on how quickly they must take action and who must pay the price, which of course is the problem with any policy based on sustainable development.

The leading example of the difficulties of consensus is the ongoing debate over global climate change and how to deal with it. There is widespread concern about the link between carbon emissions and global warming. Thirteen years have passed since the 1992 Framework Convention on Climate Change, which was ratified by 189 countries and set voluntary targets for emissions that were exceeded long ago. The Kyoto Protocol of 1997 was

supposed to set higher benchmarks, and finally came into effect last February after Russia ratified the agreement.

Yet the Kyoto Protocol remains deeply flawed. The United States, which accounts for 25 percent of global emissions, has refused to sign because of those flaws. Although it is operational, targets are non-binding for developing countries. At the two-week Montreal conference on climate change that finished last Saturday, delegates from 190 countries barely managed to reach agreement to keep talking about terms after the Kyoto Protocol expires in 2012. Markets are forming in Europe for carbon trading but most of what goes on in the realm of climate change is still hot air.

We live in an imperfect world. Most sound policy will create some level of pain. The question is how to strike a balance so that we all gain in the long run. Energy is an unusual case because the long-term rewards potentially far outweigh short-term pain. The pain and risk, however, will be considerable, as we move from a global economy based on hydrocarbons to an economy based on new sources of energy.

Energy is not in the same category as the paper industry. Paper is likely to become obsolete; the demand for energy will be with us forever. The Internet and information technology are already reducing our need for paper, and one day paper manufacturing may become a luxury craft for a niche market. But we will always need energy, and billions of dollars will be made as new technologies are discovered and deployed to replace fossil fuels.

Indeed, the hardest part of this transition is likely to be right now, when we are somewhere in between the hydrocarbon economy and something new. Even if some of us have the vision and determination to introduce bold policies for conservation and energy efficiency – even if we demand that all of our big consumers of energy, our cars, our buildings and factories strictly limit consumption – we have not solved our problem.

Developing countries will resist such policies because they are expensive and serve as a barrier to growth. Developed countries will drag their feet because of the trillions of dollars of sunk costs in energy infrastructure, which depend on consumers continuing to use large amounts of fossil fuels. National leaders are likely to conclude that adopting such policies will result in an unsustainable level of political pain. What we need is something to help us achieve the paradigm shift, which will allow the new technologies to take hold and provide the platform for a new energy economy to emerge.

Could China serve as the key to a sustainable energy economy?

This brings me to my second topic. Could China serve as the key to a new global energy economy?

China faces a major problem with its transport sector, which is booming and may account for two-thirds of China's oil consumption by 2020. Unusually for a developing economy, China is already considering ways of promoting hybrid and fuel cell cars through its own research and development as well as joint ventures with foreign manufacturers. It already has produced its own prototype hybrid cars. General Motors, Toyota and Volkswagen are all planning hybrid production in China in time for the Beijing Olympics in 2008. By the end of

the year, Toyota will begin production of its hybrid Prius in China, its first effort to manufacture hybrid cars outside Japan. By focusing on ways to solve its own problems with energy security and environmental degradation, China could lead the way to reducing global consumption of oil in the transport sector.

There is truly a ferment of activity in China to reduce demand for oil in cars. Chinese researchers admit they have a long way to go to perfect their own prototype hybrid cars, but regulators are helping by pushing consumers to higher standards of efficiency. The central government recently unveiled new efficiency standards for 2005 that are 22 percent more demanding than today's levels in the US. By 2008, China's fuel efficiency standards will be 35 percent higher than US standards. Officials have also said that they will soon introduce an auto-consumption tax to discourage large-engine vehicles, which consume more gas.

All of you will understand the extraordinary nature of the policy message. China's economic growth has had a major impact on world energy markets. China's demand for energy is one of the reasons that we have oil prices at US$70 per barrel and that geopolitical tensions are rising over access to fossil fuels and other resources. In twenty years, China has gone from Asia's largest exporter of oil to the world's second largest net importer after the United States, as domestic supply peaked and began to fall well behind domestic demand. China has experienced a cycle similar to that of the United States, another oil exporter turned importer. But where the US took about 100 years to reach its oil production peak, it has taken China only a few decades.

These developments represent a huge challenge for Chinese policy makers. Yet they also give China a tremendous opportunity. Because of its size, its rapid growth, and its relative lack of sunk costs in fossil fuels, China could serve as the bridge to a new global energy economy beyond fossil fuels.

It will not be easy, and it will depend very much on the level of commitment on the part of China's leaders to sustainable development. My impression of the leadership is that it is very aware of the costs of rapid growth, and it is adopting an ethical approach to growth based on sustainable development, balancing the needs of economic growth, social equity, and the environment.

Let's go back to the issue of sunk costs. In the manufacturing sector and electricity, China does have sunk costs. It has the world's most extensive coal reserves, which will continue to drive its factories and power plants, because those resources are cheap and China needs them. It is trying to add nuclear and natural gas, as well as coal gasification and other clean coal technologies. In these sectors, movement away from fossil fuels will be slow.

Transport, however, is another story. China is the world's most rapidly developing car market. Research shows that car ownership has taken hold at far lower income levels than other developing economies, such as South Korea. Everybody in China wants to drive. By the year 2020, China will be the largest car market in the world, with annual sales of 15 million vehicles. Even the oil industry will tell you that this level of growth is unsustainable.

If China succeeds, however, in building up the market and infrastructure for hybrid cars, it might become the first country of its size to be able to develop a low-hydrocarbon transport

sector. China might even become the first country to be able to produce cars based on fuel cells cheaply enough for the mass market.

A Chinese auto industry based on fuel cells may sound revolutionary, but China has had the opportunity to bypass or leapfrog other obsolete technologies, and the results have been remarkable. In telecommunications, it has avoided the sunk costs of fixed lines in much of the country, and gone straight to mobile telephones. In Tibet, monks communicate between remote temples by mobile phones, where, in the recent past, it would take days to send messages across the steep mountain trails.

The only country that has come close to having the same opportunity as China is Japan, during its period of rapid growth. Because Japan imports all of its fuels, it had no choice but to develop energy-efficient appliances and cars. It is no accident that Japanese car companies were the pioneers in hybrid cars and fuel cells. Both countries had the advantages of being latecomers. The opportunity for China, however, is far greater than it ever was for Japan, because of its scale.

Back to the present: Hong Kong's unfinished agenda

Finally, I'd like to share a few thoughts about energy efficiency and conservation in Hong Kong.

Here, for the time being, we are still stuck in our halfway house, in which energy conservation and energy efficiency are crucial. In Hong Kong, we have had some significant successes on these fronts, although we need to do more.

Anyone who was here in the 1990s will remember the black exhaust from taxis, minibuses, vans and trucks. Since then, Hong Kong has become the first city in Asia to use clean diesel, and virtually all taxis have been changed to LPG, or liquid petroleum gas. Conversion of minibuses is in the early stages. Those black fumes are a thing of the past, or nearly so. The government should build on this policy by introducing an overall program for energy efficiency, including tax relief and other incentives to encourage the use of hybrid cars and cleaner transport.

Another area where Hong Kong needs to do more is in its policy on electric power, which also has implications for environmental policy. Hong Kong's arrangements with the two power utilities are based on the scheme of control arrangement, a light-handed form of regulation that was first introduced in 1963. In 1963, Hong Kong was a manufacturing economy, and the Pearl River Delta and the rest of China were still suffering from the disastrous aftermath of the Great Leap Forward. It was virtually impossible to imagine today's service-based economy and close links with the manufacturing powerhouse in Guangdong.

When the current scheme of control expires in 2008, we must take into consideration the needs of our service-based economy, including cleaner air. Our capacity to generate power is now greater than local demand, with the result that we are exporting it to Guangdong. Any businessman would take the opportunity to sell something where there is demand and supply. That's just economics. But should Hong Kong ratepayers support that business,

which also produces more air pollution locally? Regulation of the power sector represents a series of choices, none of them easy. We need to learn, however, how to properly weight and manage the need for clean air, which is critical if Hong Kong's development is to be sustainable.

Conclusion

This is very much a time for optimism. For the past three hundred years or more, the global economy has been based on fossil fuels. Only now are we beginning to confront the destructive side effects of the hydrocarbon economy and to do something about it.

While I was thinking about this topic, I decided to search the Internet using the words, "energy conference." I found 140 million references to the topic. That means that as we meet today, around the world there are dozens if not hundreds of similar conferences going on, looking at the prospects for fuel cells, biogas, and sustainable buildings, which are among the topics we will review today and tomorrow.

This is an incredibly exciting time in the energy sector. With so many people talking and thinking about these issues, we have to be able to make an impact. I look forward to what you, the experts, can tell us in the next few days. I also look forward to what our policy makers, in Hong Kong as well as Beijing, can do to put the best new technologies and ideas into practice.

Thank you.

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