Energy Management for Economic and Environmental Sustainability in East Asia

Forum Day 2
Tuesday, 8 July 2008

by

Dato' Ir. Pian Sukro
(Panel Speaker)

Chairman of the Energy Commission, Malaysia

Good morning, Ladies and Gentlemen.

Now when we talk about energy, we tend to have a wish list. I think we all know why energy is so important for us. But sometimes we forget what we wish for in energy supply. People sometimes wish for supply security and sustainability, but people also tend to forget affordability. This is very critical to developing countries who need energy to develop their economies quickly, but at the same time face escalating energy prices beyond their affordability. Of course we cannot ignore being environmental friendly and not contributing to climate change. These are the wishes that I would like to put in place in terms of energy supply.

What I have here is actually the location of the world's main fossil fuel reserves: oil, and gas are mainly found in the Middle East, Russia, Africa, North and South America, and as well as Oceania. Coal reserves, on the other hand, are not to be found only in the Middle East.

In terms of world energy use – by fuel type: oil will continue to be the dominant fuel globally followed by coal as well as natural gas. Renewable types, mainly major hydro and nuclear, will continue to play only a supportive role to the above conventional types. All these reports you can actually obtain from the IEA World Energy Outlook 2007. I am trying to give you the picture in terms of the global scene.

World energy consumption – by region: Within non-OECD countries, Asia's consumption has exceeded that of Europe and Eurasia in the last decade and will constitute more than half of the total consumption.

This is due to the high increase in demand from China as well as India. And this high increase is partly due to the relocation of energy intensive industries to Asia and the high expectations of Asians to achieve developed economy status.

In terms of world coal consumption by region: China has continued to be the main coal consuming country. Its consumption has and will surpass the rest of the world, excluding India and USA, by the end of this decade.

This is due to coal being the main energy resource available to China, and China not having many oil and gas resources.

In terms of world nuclear capacity: nuclear power has been the monopoly of OECD countries. Within the next two decades, non-OECD Asia and non-OECD Europe will strengthen their dependence on nuclear power. This is due to the limited options available on the supply side.

In terms of electricity demand: as you can see, power generation and consumption in non-OECD countries will surpass that of the OECD countries by the middle of the next decade.

This is understandable since 1.6 billion of the world's population still do not have access to electricity and they are located mainly in developing non–OECD countries.

Now in terms of energy intensity: the energy intensity of OECD and non–OECD countries has been declining for the last two decades, and in the last decade for non–OECD Europe as well as Eurasia. This part is due to the change in economic structure of these countries and also the relocation of energy intensive industries to developing countries such as India as well as China.

I think I want to discuss a little bit the merits and limitations of various energy technologies that are available to us.

As you can see here, in terms of fuel specificity, fuel specificity as applied to electricity production relates to the amount of fuel required to sustain a certain amount of electrical energy. In a way, it indicates some measure of practicality in using the various types of energy resources. The amount of renewable energy required is very much greater than the commercial fossil fuel. This accounts for the past and projected future dependences on these fuels.

Malaysia's current demand is around 15.000 MW, so you can imagine if you multiply all those quantities by 15 because this is only the requirement to supply 1.000 MW for 1 whole year, you can get a glimpse of what the quantities required are.

In terms of coal for example, if you require 2 million tons to sustain 1000 MW for 1 year, to sustain Malaysia's present demand, you would require 30 million tons for example. Of course you can compare it with nuclear, oil, and the rest of it.

If you would like to compare it with a chicken for example, biogas chicken, 800 million chickens there, you can imagine the number being multiplies by 15. So you can get a glimpse of what the requirement is.

Next is in terms of comparative cost. All these data which I am showing you, I got from the various listed sources that are acknowledged.

As you can see, for nuclear, coal, natural gas, they are much more competitive than all the renewables shown. This accounts in part for the slow penetration of renewable energy in the world, because of economics the world continues to depend on fossil fuels.

Now in terms of the environment and in terms of carbon emission, this slide shows a comparison of the various technologies in terms of carbon emission. In terms of carbon emission for the various energy sources, this slide shows the reverse of the previous one on comparative cost. i.e. power production from fossil fuels which is comparatively cheaper will result in much more adverse conditions regarding the environment and climate change.

It is definitely difficult to persuade poor people to choose the environment over affordability.

The question that I would like to ask and probably some of you also may like to ask is "what steps are being taken to ensure that all of the world's population have got access to energy / electricity at affordable prices?"

Currently about 1.6 billion of the world's population do not have access to electricity. Next, "By relocating their energy intensive industries to developing countries, developed countries merely transfer their energy problems to the former". "Despite being a major 'renewable energy' why is development of major hydro not being promoted – even if it meets the environmental impact requirements?", and finally "why is nuclear power not being promoted and included under the clean development mechanism when it meets all the emission requirements?". These are some of the questions I ask myself, as some of you probably do, too.

Next would be some of the actions that I proposed most economies should be asking for in order to solve some of their energy problems. The first one is because of the affordability and high world market prices of fossil fuels, developing countries tend to subsidize energy prices. This tends to distort economic decisions and of course the solution would be to gradually remove pricing subsidies. If need be, subsidies should be given directly to those who need them. This is exactly what I think, as the Hon. Minister was saying this morning.

Dependency on oil is still high and increasing – particularly in the transport sector. Indigenous fossil fuel resources, if any, will deplete and countries will have to plan for that eventuality.

Malaysia will be facing that soon, and I think Indonesia is already facing that because you are becoming a net importer of oil.

Develop less energy intensive economic structure. What I should say is that whilst most developed economies reduce their energy intensity, in Malaysia it is increasing.

Strive to have more balanced resource dependencies and put greater emphasis on security and sustainability of supply.

Extend the life of fossil fuel resources by developing early alternative energy such as hydro and other renewables. Also institute demand side management and improve energy efficiency. I think in terms of renewables, biomass and grid connected solar power can supplement urban power. Also improve energy efficiency through correct pricing, cogeneration and distributed generation.

These are some of the suggestions that I would like to make in terms of demand side management. Lastly, develop cross border trading of electricity to optimize use of regional energy resources, particularly hydro. As we know, in South East Asia, there are a lot of hydro resources in Sarawak, Burma, also in Indo-China states. But these hydro resources cannot be used because we don't have the grid interconnection in place. And talking about that, when the Hon. Minister also mentions interconnection of the ASEAN power grid, it still remains a dream for me.

We have actually interconnected between Thailand, Malaysia, and Singapore. We also have interconnection among Thailand and its neighboring states but we still do not have interconnection with Indonesia and the rest of the eastern ASEAN like Borneo.

Finally, I think we have no choice but to revisit the nuclear option for the longer term solution.

So with all that, thank you very much for listening to me.