

President's Forum on Initiative for Sustainable Asia

Global Energy Issues: Challenges to Sustainable Asia

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Preamble

Over six years into the new millennium, and with globalization force gaining momentum, the Asian nations are increasingly perturbed by the escalating prices of fossil fuels, particularly that of the crude oil. Governments and private sectors alike are facing stressful problems of rising costs of economic production and social development. Some experts say that humanity's way of life is on a collision course with geology. The situation is compounded by frequent occurrence of natural calamities and political conflicts that disrupt crude oil production and supply. On top of all, global communities will have to reckon with the cruel fact that the planet earth holds limited supply of crude oil and other fossil fuels that will one day be completely depleted. As it is now, the era of cheap oil supply seems to be coming to an end!

Global Oil & Gas Situation

It is estimated that the global demand for crude oil is currently about 83.5 million barrels per day. Production of conventional or easily extracted oil by major producers such as the Middle East, Russia, U.S., China, Venezuela, Mexico, Norway, Nigeria and so on will peak eventually, with production declining thereafter. In fact the U.S. continent has peaked some three decades ago, and yet this advanced nation remains the biggest consumer, using up a quarter of the world's oil. Other nations are fast coming up as big consumers, with China becoming the fastest growing oil consumer because of her rapid economic development and tremendous annual increase in motorized vehicles on the road. In the case of natural gas, the cost is also on the increase, transportation is not easy, and the supply is frequently short except in regions where infrastructure is adequate, such as Europe where the supply could be readily obtained from the North Sea. The search for new supplies in deep seas and extraction of unconventional sources of petroleum such as tar sands spells costly supply of oil in future.

Coal – Major Fuel for Electricity

Nature has endowed the earth with more than a trillion tons of readily available coal. The largest reserves are found in the U.S., Russia, China, India, Australia, South Africa and some other nations. As it is today, coal remains the major fossil fuel for electricity generation in many nations, with China topping the list. Even in advanced country like the U.S., coal still accounts for 50% of all energy sources for electricity generation. Globally, coal consumption is about 5 billion tons a year.

However, of all fossil fuels, coal emits the most amount of carbon dioxide per unit of energy, besides producing other pollutants such as sulfur dioxide and nitrogen oxide. Hence the burning of coal has been blamed for aggravating the green house effect and global warming. Of course there are some efforts to cut CO₂ and pollutant emissions but the equipments and technologies are still very expensive. This is the main reason why the U.S. is reluctant to concede to the Kyoto Protocol. Some countries in North America and Europe are testing the viability of coal gasification for power generation to overcome the problem of CO₂ emissions. China is reported to have plan for converting coal to liquid motor fuels.

Nuclear Energy

Although still controversial, nuclear energy is being increasingly harnessed for power generation. However, nuclear fission technology is largely confined to nations which possess the technology and expertise. There are about 440 nuclear plants worldwide that generate 16% of global electricity. Some nations have gone far ahead. It is reported that France is generating 78% of its electricity from nuclear power plants. However, efforts by some developing nations to build nuclear reactors have sparked political controversy for fear that they might divert the uranium or plutonium for nuclear weapons. Nuclear power plants also have other dark sides like the accidents that happened at Three Mile Island and Chernobyl, and the question of radioactive waste disposal. Some scientists are testing the viability of creating fusion energy on earth. Nuclear fusion technology is thought to be safer because it creates no long term radioactive waste and is not feasible to be turned into weapons. However, the fusion technology seems to be decades away before anyone could create and harness efficient energy from hydrogen plasma created on earth. The sun is our natural fusion reactor. May be it is better for us to spend more efforts to develop new technologies to transform the solar power into energy that is more cost effective and affordable to consumers at large.

Renewable Energy Sources

Renewable Energy has been a hot topic for discussion at various national and global platforms. Resources and technologies to harness such energy sources may differ from nation to nation. However, all of us share a common destiny because we are all members of a big family – the mother earth. Each nation could experiment and develop technologies to harness specific forms of renewable energy based on resources or expertise available to them respectively.

Hydro Energy is well known and need no introduction. The generation of electricity from hydropower requires the construction of dams with huge capital expenditure and causes social and environmental concerns. Currently the market share of hydropower in global electricity generation is about 16% and it is expected to fall with the development of other sources of generation.

The Solar Energy is free for everyone, but to turn it into power, the price is expensive. Solar electrical systems or photovoltaic cells have been increasingly in use for powering houses and businesses in the more advanced nations. However, there are still relatively rare in most developing nations because the prices are still high. Perhaps one day the solar devices could become much cheaper and more efficient with the development of new technology such as the nanotechnology, which holds promises for a low-cost way to create solar cells called the nano-solar cells.

Wind Energy is also abundant in every corner of the world. Countries in Europe and North America are harnessing wind power with the installation of wind turbines. However, like the solar energy, the challenge is how to optimize the storage of energy to supply electricity in a more economic way. In other words, the present technologies need to be further improved to make them more economically feasible.

Biomass Energy is becoming increasingly popular not only in some developed nations, but in the developing nations as well. Biomass energy is derived from fuels made from plants. These fuels can be in the form of ethanol, biogas or biodiesel. Technologies are proven in various nations. The U.S. has been producing ethanol from corn and blended it into gasoline. In Brazil, ethanol from sugarcane has provided 50% of automobile fuel. In U.S and other nations, including Malaysia, vegetable oil has been burned, either pure or mixed with regular diesel, in unmodified engines. Biofuels hold promising future in developing nations, particularly in the Asian region, where the majority of populations depend on farming for a living. The challenge is how to make fuel-crops farming more productive, and popularize the use of biodiesel which is more environmentally friendly than fossil fuels. On the other hand, the automobile industries are producing more efficient cars to the level of a hybrid and the use of hydrogen fuel cell. The question is how to popularize them when the price is still rather high.

Sustainable Development in Asia

In recent years, Asian economy continued to sustain high average growth of more than 8% principally due to a rebound in corporate investments in industrialized countries and recovery of the global semiconductor industry, as well as increase in exports of information technology products. China(9.9%) and India(8.3%) continued to drive the growth of other economies in the Asian region.

The Southeast Asia region achieved a growth rate of 5.5% in 2005 amid rising fuel prices and the increase in inflation and interest rates. West Asia had a higher growth rate at 5.9% mainly contributed by oil exporting countries, which benefited from higher export earnings from oil.

FDI inflows to Asia increased by 11% in 2005, mainly due to investments in the oil sector and related activities, telecommunications and real property.

Main destinations for FDIs in Asia were China (US\$60.3billion), Hong Kong (US\$39.7 billion), Singapore (US\$15.9 billion) and India (US\$6 billion). For West Asia, FDI inflows in 2005 expanded by 50.0% to US\$26.5 billion.

The robust economic development in Asia has been sustained by outstanding external trade performance. However, with the continued high price of fossil fuels, which most Asian nations still heavily depend upon for economic production and social development, the question arises as to whether the competitive edge of the region may be eroded and a sustainable level of development diminished in the long run. The energy factor has become a more obvious cause for concern when the whole world is alerted to search for alternative sources of energy supply as well as solutions to environmental pollution and global warming.

What are the options for Asian nations, in terms of energy policies and strategies, to mitigate the ill-effects of high energy cost and promote the use of cleaner alternative energy sources? I humbly present the following points to stimulate discussion and draw ideas, suggestions and inputs from participants of the 2006 IEC:

1. Governments in Asia, in particular the governments of ASEAN+3 nations should establish a framework of cooperation and formulate specific programs for industrial complementation and coordination of projects to develop technologies and products utilizing solar, wind, biomass and other renewable energy sources in the region;
2. Likewise the private sectors in the region should strengthen cooperation to enhance investments and coordinated R&D in efficient energy products and services for the common interest of all;
3. There should be more concerted efforts between the public and private sectors in the region to promote energy conservation and efficiency. The ACCCIM has proposed to Malaysian government to optimize electricity generation by reducing reserve margin, extending interconnectivity to other countries, offer concessionary off peak tariff to industrial consumers, develop more infrastructure to transport and supply less costly natural gas to industrial zones and so on;
4. Most Asian nations are endowed with rich natural resources that possess huge potential for development relevant to energy generation. However, there should be a common agenda to work towards the development of cleaner energy sources and environmental protection. A sustainable development of Asia should proceed in line with the recommendations as laid down in the Kyoto Protocol;

5. Public agencies and private sector organizations in ASEAN+3 nations, including the Power Supply Agencies, Academies of Science and Engineering, Chambers of Commerce, Industrial Associations and other relevant organizations at national level should enhance cooperation by organizing interaction forums and exchanging information on energy issues. The decision to organize the IEC by rotation in various nations is a positive move towards this direction.

Conclusion

The 2006 IEC is the first Conference in this region ever organized on private sector's initiative to deliberate on energy issues. It is hoped that the ideas and findings at this conference will serve as a good reference to decision makers in governments and private sectors of the Asian region. We are grateful to experts and leaders from the international community for their invaluable inputs and observations at this conference. It is also hoped that Asia will sustain growth, competitiveness and stability for a long, long time, for the common good of humanity.