

***Session 4: External Players –  
The United States, India and Australia***

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(L-R: Assoc Prof Basrur, Asst Prof Chang,  
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**United States' Energy Security**

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(\* paper was presented by Asst Prof Youngho Chang)

Until the 1860s, wood was the primary source of energy in the United States (U.S) while coal supplied most of the energy sources for the industrial revolution in the U.S and Europe after that. In fact, coal still supplies more than 20 per cent of the U.S energy consumption today. However, petroleum has been the largest source of energy for the past 50 years. Natural gas stands at about 23 per cent while nuclear and renewable energy contributes about eight and seven per cent respectively. The two largest sectors in the consumption of energy are in the production of electricity and consumption in transportation, and both sectors account for about 70 per cent of the total national consumption.

Specifically, energy security requires meeting not only the overall energy demand, but also specific sectors such as transportation, which depends on petroleum for almost 96 per cent of its energy requirements. It is unlikely that the structure of energy consumption in this sector will change in the near future.

Thus one of the main challenges in U.S energy security lies on its dependence on oil imports. With regard to domestic consumption, as of 2007, the U.S imported over 500 million tonnes of crude oil, and over 100 million tonnes of oil products. Such high reliance on imports leaves the country highly vulnerable to supply disruptions. This is because the oil supply chain is highly integrated and supply disruptions in one region would quickly lead to supply shortages and price hikes elsewhere. Although the greater use of nuclear generated electricity is one of the principal options available, the political and social obstacles to increasing nuclear power are considerable. In fact, of the 132 nuclear power plants that received full-power approval between 1957 and 2007, 28 have been shut down permanently. Also, the number of operating units has declined by 8 percent since 1990.

On the global front, although the U.S has been a leading contributor to the understanding of climate change, it is also the largest contributor of emissions of greenhouse gases. The U.S accumulated emissions of carbon dioxide from energy use since 1850 is more than three times than that of any other country. It is estimated that the U.S is responsible for 27 per cent of the global carbon dioxide emission.

One of the issues facing the U.S is the challenge of improving its energy efficiency. The energy consumption per capita in the United States is about twice that of the industrialised European countries such as Germany and the United Kingdom, and of Japan, although the GDP per capita of these countries are comparable. However, U.S emissions of carbon dioxide per capita are double than that of Europe and Japan, about four times more than China and 20 times than that of India. Thus, the U.S. needs to improve its energy efficiency considerably in order to reduce such disparities.

Therefore, the emphasis within the U.S. on energy security needs to shift from expanding its oil and gas supplies towards using energy more efficiently and increasing the share of renewable energy. Both will also enhance environmental security.

However, the U.S has stated that it will not reduce emissions unless developing countries such as China and India follows suit because a unilateral reduction will hurt the American economy. On the other hand, the developing countries argued that the emphasis should be on per capita emissions instead rather than total emissions. These countries also argued that the reduction of their emissions will prevent them from further developing their economies.

Notwithstanding the lack of consensus, global climate change presents an unusual example of a challenge in which the security of every country's environment is closely linked to that of all the other countries. By addressing this concern vigorously, the U.S would be helping itself as well as helping the rest of the world.

On the home front, the U.S needs a greater emphasis on using energy more efficiently, and on accelerating the development of non-fossil energy sources.