

## **Session 13: The Energy Chain and Market, Part I**

### **-Discussion Questions-**

#### **Key questions:**

- What factors contribute to the growing demand for energy in our world? What is the trend of energy intensity (i.e., the growth rate of energy use versus the growth rate of gross domestic product)? Would it matter if we used total output instead of GDP?
- What is the current share of energy supply from (1) fossil fuel, (2) renewable energy, and (3) nuclear energy? What are the future supply trends?
- Discuss how each of the following issues challenges the use of traditional fossil fuels (oil, natural gas, and coal): (1) depletion of fossil fuel reserves, (2) global warming (3) energy security, (4) rising energy cost. What would be the impact on economic growth?
- What are the advantages of renewable energy (solar, wind, biomass, wave and tidal energy, etc.)? What are some of the obstacles in switching from using fossil fuels to using renewable energy?

#### **Specific questions on each reading:**

Asif and Muneer (2007): Energy Supply, Its Demand, and Security Issues for Developed and Emerging Economies.

- Briefly describe each of the crucial energy economies (China, India, Russia, United Kingdom, and United States) in terms of (1) the size of energy consumption, (2) dependency on energy imports, and (3) potentials for use of renewable energy.

National Petroleum Council (2007): Facing the Hard Truth About Energy. Chapter 1: Energy Demand

- In what areas and by what means can energy consumption become more efficient? (Discuss it from the perspectives of vehicle transportation, commercial and residential consumption, industrial sector, electric generation, etc.)

National Petroleum Council (2007): Facing the Hard Truth About Energy. Chapter 2: Energy Supply

- Note that the energy supply system includes the physical store of a particular source, production or conversion of the resource to usable form, and delivery of products to consumers. What are some issues facing infrastructure for energy conversion and delivery? (See pp. 162- 163 in Chapter 2 for some reference). How is energy infrastructure similar to or different from the other types of infrastructure that we had discussed previously?

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