
University of Pennsylvania
Institute for Environmental Studies



presents

Pat DeLaquil

Clean Energy Commercialization

Modeling China's Energy Future

China is currently the second largest energy user in the world, and over the next 20 years they are projected to surpass energy use in the United States. The China MARKAL model is a comprehensive, integrated tool for analyzing China's energy-technology options throughout the entire energy economy. This presentation will highlight analyses performed for the Energy Working Group of the China Council for International Cooperation on Environment and Development (CCICED). The analyses focused on answering four key questions:

1. How can China meet its projected demand for energy services in an affordable manner, given that most projections show a significant shortfall in domestic energy resources in 2050?
2. Are there plausible scenarios by which China could meet its projected needs for liquid fuels, especially for transportation, while not becoming overly dependent on imported energy?
3. Are there plausible scenarios by which China could substantially reduce urban and rural air pollution while meeting its projected demand for energy services?
4. Are there conceivable energy-technology scenarios by which China could meet requirements for lower carbon emissions that may arise from global warming concerns?

The results show that a business-as-usual strategy that relied on coal combustion technologies (no matter how advanced), would not enable China to meet all of its environmental and energy security goals. However, an advanced energy-technology strategy based on improved energy end-use efficiency in all sectors, expanded use of renewable energy sources (especially wind and modern biomass), and coal gasification technologies co-producing electricity and clean liquid and gaseous energy carriers (polygeneration) would enable China to continue social and economic development through at least the next 50 years while ensuring security of energy supply (at reasonable cost) and improved local and global environmental quality. Significantly, the analyses indicate that the advanced energy-technology strategy offers the opportunity for meeting China's near-term goals of economic development, environmental improvement and energy security (the three E's) at lower cost than the "business-as-usual" approach. In addition, it provides a lower-cost path to deep reductions in CO₂ emissions in the long term.

The study results will be discussed in relation to recent developments, such as the new Renewable Energy Law and several demonstration projects in bio-fuels and coal polygeneration.

Date: January 25, 2006

Time: NOON - 1:30 pm

Place: Carolyn Hoff Lynch Auditorium

On the Penn campus: Chemistry Building: 34 & Spruce Sts. (enter on 34 St)

NO REGISTRATION REQUIRED

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