

Global Energy: Reserves, Usage and Prospects

Understanding energy markets II: future “reserves”, production and prices for alternative energy sources (market potential for future energy sources)

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I will focus my talk around the following three aspects.

1. Where are we today? I will discuss the current status of alternative energy sources in the US and to a lesser extent, worldwide. The focus will be on feedstocks for producing liquid/gaseous fuels (primarily for the transportation sector) and those for producing electricity. Both renewable as well as nonconventional fossil alternatives will be discussed. These will include; biomass (1st and 2nd generation feedstocks), wind, solar, hydroelectric, oil sands, and advanced coal. Current production, feedstocks, technologies, environmental and economic implications will be discussed.
2. Where might we be in the future? Expected future feedstocks and technologies and their environmental and economic implications. The need for a systems approach (considering the full life cycle of the energy system from feedstock extraction, through fuel production and finally its use in the end-use system) will be emphasized.
3. Viability of different sources. I will analyze in more detail [from resource availability, environmental (focusing on climate change issues), economic and, to a lesser extent, social perspectives] a select set of more promising technologies, examining synergies/competition associated with their use in the various markets (e.g., use of biomass in biomass-coal co-firing compared to producing ethanol for use in transportation). Key uncertainties, knowledge gaps, and differences of opinion will be examined. Implications for public policy will be highlighted.