Australia Reconsiders Taking the "Dangerous Road Taken by the U.S." of Ever-Growing Dependency on Imported Oil

U.S. Expert Proposes a Combination of Aggressive Mitigation Measures; However, Costs Are Exhorbitant

U.S. oil production expert Dr. Roger Bezdek completed a series of lectures in Australia last month on the topic of peak oil — the point at which world oil production reaches its maximum and the supply of oil is no longer able to meet growing demand. According to Dr. Bezdek, "Oil is the lifeblood of the world's economies and societies, and peak oil is like no other problem faced by modern industrial society. When, potentially soon, oil production peaks, the implications for the world are immediate, significant, and dire."

This prompted the Australian Association for the Study of Peak Oil and Gas to pose the following question:

"One road, taken by the United States long ago, creates dangerous, ever-growing dependencies on imported oil to fill the supply and demand gap. The other road, leading to energy independence and security, spawns alternatives that allow Australia to move beyond oil. Will the Land Down Under seize the opportunity they now have to make the right choice?"

According to recent studies by Roger Bezdek and Robert Wendling with Management Information Services Inc., a Washington-based economic and energy research firm, and Robert Hirsch with SAIC, peaking is a certainty, but the timing is not known.

In February 2005, Bezdek, Wendling, and Hirsch published a report called Peaking of World Oil Production: Impacts, Mitigation, & Risk Management, which states that, in 2003, the world consumed just under 80 million barrels per day (MM bpd) of oil. U.S. consumption was almost 20 MM bpd, two-thirds of which was in the transportation sector. Current world oil demand will continue to increase by approximately 2% per year for the next few decades, with growth driven primarily by the transportation sector.

Predicting when peaking will occur is extremely difficult because of geological complexities, measurement problems, pricing variations, demand elasticity, and political influences. Some forecasters project peaking within a decade, while others predict it will occur by 2030. What is known is that the world has never faced a problem like this. While previous energy transitions (i.e., wood to coal, coal to oil) were gradual and evolutionary, oil peaking will be abrupt and revolutionary.

Please turn to Page 10

Estimated Result of a $2.6-Trillion Investment in the U.S. to Reduce Reliance on Imported Oil

Sources of U.S. Oil	Assumptions Associated with Mitigation Technology	Amount of Oil by Source Serving U.S. Oil Consumption, 2006 (millions of barrels per day)	Amount of Oil by Source for Estimated U.S. Oil Consumption, 2026, With Mitigation Measures (millions of barrels per day)
From mitigation technology:			
Coal-to-liquids	3 new 100,000 barrels-per-day plants per year, takes four years to build	0	5
Oil shale	3 new 100,000 barrels-per-day plants per year, 8 year delay	0	4
Enhanced oil recovery	175,000 barrels per day added each year after 4 years preparation	0	3
Vehicle Fuel Efficiency	Ramping up to a 50% increase in vehicle fuel efficiency after 8 years	0	2
Total amount of oil from mitigation technology		**0**	**14**
Domestic production		**8**	**6**
Imported Oil		**13**	**6**
Total		**21**	**26**

Source: Adapted from "Peaking of World Oil Production and Economic Impacts of U.S. Liquid Fuel Mitigation Options," Management Information Services Inc., July 2006.

Continued from Page 3

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Oil peaking is dramatic because it represents a liquid fuels problem, not an "energy crisis" in the traditional sense. For the transportation sector, oil peaking will create a severe liquid fuels problem because there are simply no ready alternatives to liquid fuels for use by motor vehicles, aircraft, trains, and ships. Peaking of World Oil Production states that "Non-hydrocarbon-based energy sources, such as solar, wind, photovoltaics, nuclear power, geothermal, fusion, etc. produce electricity, not liquid fuels, so their widespread use in transportation is at best decades away."

In essence, both the supply and demand sides of the issue need to be addressed with timely, aggressive mitigation initiatives. For the transportation sector, the solutions offered in Peaking of World Oil Production and Economic Impacts of U.S. Liquid Fuel Mitigation Options, July 2006, (also by Bezdek, Wendling, and Hirsch) mainly focus on changing Corporate Average Fuel Economy (CAFE) standards (fuel efficiency) and producing large amounts of clean substitute liquid fuels.

Peaking of World Oil Production suggests, "The three largest categories of autos, light trucks, and heavy trucks all utilize the internal combustion engine, whether gasoline- or diesel-burning. Clearly, advancements in energy efficiency and replacement in this capital stock (for instance, electric-hybrid engines) would help mitigate the economic impacts of rising oil prices caused by world oil peaking." However, the normal replacement rate of this equipment will require time, on the order of 10-20 years, and will cost trillions of dollars.

According to Peaking of World Oil Production, "Sustained high oil prices will stimulate some level of forced demand reduction. Stricter end-use efficiency requirements can further reduce embedded demand, but substantial, world-scale change will require a decade or more. Production of large amounts of substitute liquid fuels can and must be provided. A number of commercial or near-commercial substitute fuel production technologies are currently available, so the production of large amounts of substitute liquid fuels is technically and economically feasible, albeit time-consuming and expensive." Short-term, much of the adjustment burden "will likely be borne by decreases in consumption from discretionary decisions, since 67% of personal automobile travel and nearly 50% of airplane travel are discretionary," according to the U.S. DOT.

Therefore, in order to avoid major oil-peaking problems in the transportation sector, it appears that the best solution is a combination of aggressive mitigation measures. Since mitigation measures will require substantial time to become effective, the best time to initiate those measures is now. Implementation of mitigation measures will cost trillions of dollars as the accompanying table indicates.

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