

by G. Warfield "Skip" Hobbs

The Future of the Global Oil Industry: Resources, Challenges and the Geoscience Workforce

Petroleum powers the world's economies, but is there enough oil and natural gas to meet surging demand as developing nations enter the consumer age? Current global oil consumption stands at 85 million barrels per day and is expected to rise to over 100 million BOPD within 10 years. Oil prices have soared to a sustainable level of \$60–\$75 per barrel. Will prices go higher or collapse? As production in the mature sedimentary basins of North America, Europe and Southeast Asia declines, the United States, with less than 5% of the world's population, consumes 25% of the world's oil and natural gas. Can this continue? Global peak hydrocarbon production is most likely to occur between 2025 and 2040. Then what?

The world has significant remaining conventional and unconventional oil and gas resources with some estimates exceeding 4 trillion barrels, which is many times more crude oil than has been consumed to date. Where are these resources located, and who controls them? Unconventional hydrocarbon resources are adding significant new reserves. Improved recovery technologies and conservation will extend the life of known reserves in mature

conventional oil and gas fields. Despite the current North American focus on continuous reservoir resource plays, there are still significant new exploratory plays, as demonstrated by the multi-billion barrel ultra-deep Lower Tertiary play in the deep water Gulf of Mexico. Internationally, deep water delta systems and the Arctic margins offer significant exploration potential.

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A vibrant future global economy will require access to petroleum resources and major capital investment in exploration, development and infrastructure. There are many technical, geopolitical, infrastruc-

ture, economic, environmental, capital and workforce challenges to meeting near-term and future global oil demand. How can we deal with these? Where will capital be deployed? Graduates entering the petroleum workforce must have appropriate geoscience and business skills—What are they? Where will the industry find its future geotechnical employees? The public must have a better understanding of energy and the geosciences so realistic energy policies can be implemented. Finally, a serious commitment to developing affordable alternate energy technologies is essential—estimates are that by 2100 alternate energy sources will be required to supply fully 40% of global energy demand. ■

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