

“Energy’s Next Era”

Facing Up to the Global Challenge **Daniel Yergin**



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From the Middle East, Asia, and Africa to the Gulf of Mexico and financial markets worldwide, energy is once again center stage for global economics and politics. Indeed, “energy security” is, in 2006, at the top of the agenda for the United States and the other industrial nations of the G-8.

What will “Energy’s Next Era” mean for companies, investors, consumers, governments — and for the global economy? Almost a century ago Winston Churchill declared oil the key to the “Prize.” Today, the same can be said not only for oil, but also for natural gas and electric power — and for new technologies. A more integrated world economy and rising prosperity, unexpected natural disasters, geopolitical tensions and terrorism, environmental imperatives, and technological challenges — all of these are adding to the pressures on the global supply system, resulting in escalating demand and spiking prices.

The dramatic increase in the oil price in the last few years has been driven by a “demand shock” — the result of the best global economic performance in a generation. But demand is not the only reason. While China’s consumption grew by 16 percent in 2004, it registered almost no growth in 2005. The world has also, at the same time, been going through a slow-motion “supply shock” — with disruptions in output in Venezuela, Nigeria, Iraq, the Gulf of Mexico — and periodically elsewhere. International tension over Iran’s nuclear program, and the accompanying fear of disruption of supplies, will certainly overshadow the oil market for many months to come.

The Energy Landscape

- Rapid demand growth — worldwide
- Supply constraints
- Investment constraints (access, regulation, political risk)
- High prices
- Global warming and environmental policy
- Energy security concerns
- Technological advances (supply and efficiency)

The energy industry faces a renewed urgency to secure the energy future — and it is responding with massive investments in infrastructure and supply. At the same time, there is, as never before, a bubbling in new technologies across the energy spectrum, from innovative ways to develop and deliver the world’s current energy supplies to alternatives and renewables and “smart” demand. Moreover, a much stronger consensus is forming around the importance of energy efficiency and conservation in the energy balance.

The Geopolitical Landscape

- Ensuring energy security
- Emergence of China and India
- New globalization
- Evolving capitalism models
- Global health threats
- Poverty and income distribution
- Demographic change

These realities pose great strategic and management challenges, compounded by the ever-present risks of price volatility, access to resources, politics and regulation, and technological changes. Critical questions include the timing of new investment, the matching of supplies and demand, the demographic challenge facing the energy industries in terms of human capital — and relations among nations. Climate change and the prospective regulation of carbon now must also be factored into decision-making. The scale of the required response is enormous: the International Energy Agency estimates that \$16 trillion of energy investment will be needed over the next 25 years. That may be the aggregate, but individual companies will need to assess the long-cycle investments that are inherent to the energy business against rising costs, political uncertainties, and the inevitable “surprises” along the way.

This is a period when the dimensions of the energy business are changing. Constraints on natural gas supply in the United States and the development of a new global LNG business are propelling the integration of North America into a new global natural gas market. And with that comes the beginnings of what was unthinkable a few years ago — a global gas price. Canadian oil sands, not so long ago regarded as little more than a fringe business, are now a major engine for growth in North American oil supplies. Public support and government policies will give ethanol and other biofuels a growing role in motor fuels worldwide.

All this is occurring at a time of widespread anxiety that petroleum supplies are “peaking” — which is another way of saying that they are running out. This is actually the fifth time that the world has “run out” of oil. The first was in the 1880s. The last time was in the 1970s. Yet, since the 1970s, world oil output has increased by more than 60 percent.

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While the concept of an oil supply “peak” may be fashionable, the image of the “peak” should give way to the “plateau,” — a plateau that, based upon what is known today, is still several decades away.

As has been the case since the first oil well was drilled in 1859 (adapting techniques developed for salt drilling), technological development will be critical. It is currently facilitating an expanding role for “non-traditional” liquids — such as oil sands, ultra-deep water, natural liquids, and gas-to-liquids. In fact, these “non-traditionals” were already becoming traditional in ever greater volume even before the recent additional catalyst of higher prices. Altogether, current and projected projects indicate that the world’s capacity to produce liquids — traditional and non-traditional — will be substantially larger a decade from now than it is today.

Some observe that “consumption” has exceeded reserves added from new “discoveries” in recent years. But there is more to the story. CERA’s analysis, drawing on IHS’ proprietary databases (by far the most extensive in the world) demonstrates that, over the last several years, when “revisions” and “extensions” of existing fields are added to “discoveries,” the sum exceeds global “consumption.”

But the urgency and immediacy surrounding energy and its development are very real. In 2006, governments around the world are placing a priority on energy security, diversification and new sources, regulatory policies to foster investment and ensure reliability, and on advancing environmental objectives. Consumers are worried about future supplies and prices; and participants in the global economy, while worrying about possible shocks, are counting on the energy business to deliver what will be needed for long-term economic growth and stability. For the energy industry itself, this new era requires stepped-up investment, increased flexibility, a global mind-set — and fresh thinking.

Daniel Yergin

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