

Cisco Internet Business Solutions Group, Global Energy Practice

The Energy Community

The energy sector is large and increasingly important in terms of world politics and economics. According to data from *Fortune* magazine's 2008 Global 500 survey, more than 35 percent of the \$11.5 trillion in Global 100 revenues is from energy companies, with 5 percent coming from utilities. These figures, however, understate the true size of the sector, given that some of the largest companies are national oil companies (NOCs) and do not publicly disclose earnings.

Energy has also become highly consolidated, with more than 80 percent of revenues concentrated in less than 20 percent of the companies. Overall, the energy ecosystem comprises companies that find and extract fossil fuels (coal, petroleum, and natural gas) and transport and convert these resources into a variety of wholesale and retail products fundamental to modern civilization. Energy commodities trading and cultivating alternative energy have also become increasingly vital components of the ecosystem.

The hydrocarbons business is undergoing a shift in the balance of power. NOCs have developed in-house expertise and have access to technology through service and supply companies. Consequently, integrated oil companies (IOCs) face the prospect of being offered access to environmentally challenging reserves and are continually challenged to manage the value chain more effectively.

At the same time, new work paradigms associated with the Generation Y workforce are emerging, and a shortage of skilled scientists and engineers threatens to limit oil supply growth within five years, as companies struggle to develop complex new fields. ODS-Petrodata, Inc., a market intelligence firm, projects that 160 new offshore rigs will become available over the next few years and will require a crew and support staff of more than 30,000. Accordingly, the industry cannot afford to wait the 10 years it typically takes to train an engineer doing basic work on a deep-water rig.

Notwithstanding the complexities of this industry landscape, demand for energy will continue to grow. The International Energy Association forecasts that by 2030, China and India will account for nearly half the entire growth of world energy demand. Hydrocarbons will continue to meet the world's increasing thirst for energy while alternative energy sources are developed. As a result, oil and natural gas prices are expected to remain historically high,



although extended global recession and/or strengthening of the U.S. dollar could, potentially, push oil trading below \$60 again in the near term.

While the entire energy ecosystem is facing substantial pressure and change, the business model for electric utilities, in particular, is rapidly changing. Historically, money has been made from power generation. In the near future, revenue will also be derived from retail. Thought leadership and client engagement concepts pioneered by the [Cisco® Internet Business Solutions Group \(IBSG\)](#) led to the development of Cisco's [Smart Grid Solutions](#) business unit to serve utility customers end-to-end.

In an industry where business value is derived from applying tacit knowledge to interpret data, build and exploit sophisticated mathematical models, and solve complex operational problems, the ability to collaborate effectively across the ecosystem is increasingly important to maintain the pace of productivity and innovation that the world will demand over the next few decades.

Opportunities for Energy Companies

Based on our research and discussions with energy company executives, the [Cisco IBSG Global Energy Practice](#) identified 10 major trends, or market transitions, that will be instrumental in shaping the industry's future:

1. **Globalization:** globalization of natural gas and volatility of the economy
2. **Power:** balance of power shifting to the reserve owners (NOCs)
3. **Government requirements:** increase in regulatory requirements, sustainability practices, and alternative energy resources
4. **In-country refining:** growth countries demanding in-country refining
5. **Capital projects:** rethinking how major capital projects are executed
6. **Rusting assets:** aging assets, primarily in OECD countries
7. **Integration:** integrating the supply chain closer to the oil-well head
8. **Innovation:** increasing the speed of innovation across the energy ecosystem
9. **Resilience:** ensuring business resilience
10. **Aging workforce:** retiring workforce is immediate and large-scale, leaving a gap in expertise among younger workers

Transforming Business Models

The [Cisco IBSG Global Energy Practice](#) helps Fortune 500 companies understand the business benefits of using the network and associated technologies to address challenges and transform their organizations, workflows, and business processes. Based on our engagements with customers, we have outlined a number of areas where our expert advisers help industry executives address significant areas of interest:

- **Innovation**—improve the management of innovation processes
- **Emerging technologies**—identify future technologies that can evolve for use in the energy sector
- **Collaboration**—explore the economics of collaboration; use collaboration technology to find the right expert, regardless of location, to improve productivity and innovation

- **Resiliency/emergency management**—identify primary risks (such as pandemic, political, operational, or environmental) and strategize to improve business resiliency
- **Smart industrialization**—build industrial cities that combine multiple operations within the value chain to reduce costs and improve processes
- **Sustainability**—reduce carbon emissions to become more green
- **Virtualization and cloud computing**—create borderless networks based on cloud computing and virtualization across the energy ecosystem
- **Next-generation retail**—develop new business models for servicing end customers
- **Future of trading**—use communications and collaboration tools on the trading floor to improve insight and control while accelerating transactions
- **Smart grid**—optimize efficiency of the power grid through better correlation of power supply and demand to reduce energy network outages and disruptions, improve resiliency and security of the power system, and increase environmental sustainability

The dynamics of the energy supply chain are changing rapidly, and old business models are quickly becoming obsolete. Energy companies will have difficulty surviving if they cannot adapt to the exigencies of the increasing difficulty of extracting hydrocarbons; the pressure to operate globally; and the ability to acquire, manage, and interact with critical knowledge workers.

Energy companies must create new business models using the network as a platform for virtual, agile operations that can respond quickly to industry, economic, and environmental changes. Not only must they embrace new ways of working, but also new technologies that will enable this transformation, including tools that foster innovation and collaboration among various players in the value chain.

Our industry thought leadership and consulting engagements are enabling premier energy companies across the global energy ecosystem to improve innovation and productivity. For more information about the capabilities of the Cisco IBSG Global Energy Practice, please visit our [website](#) or contact:

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More Information

Cisco Internet Business Solutions Group (IBSG), the company's global consultancy, helps CXOs from the world's largest public and private organizations solve critical business challenges. By connecting strategy, process, and technology, Cisco IBSG industry experts enable customers to turn visionary ideas into value.

For further information about IBSG, visit <http://www.cisco.com/go/ibsg>.



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