



■ Energy

Managing the unknown

By David Mowat, Mark Purdy and Julie Adams

Few companies are more vulnerable to economic and political change than those operating in the global energy sector. Here are four scenarios for the business future. How the sector responds will have direct impact on the global economy.

■ Global energy companies have long been accustomed to coping with the winds of economic and political change. But current events are raising business uncertainty to a new level.

In times like these, some energy companies become cautious and preoccupied with the near term, while others refocus on markets that seem safe and secure. Neither response is necessarily good for business. To help these companies craft better mechanisms and strategies, Accenture has developed four broad but radically different scenarios for the global economic and political landscape, covering the near, medium and long term.

Ultimately, of course, changes in the fortunes of this sector have direct impact on the global economy. And because companies across every industry are vulnerable to some uncertainty and upheaval, the way the energy sector responds will be broadly instructive.

Drawing on the experience and knowledge of Accenture's business and energy strategists, as well as on outside experts in economics and politics, we have identified key economic and sociopolitical forces that will shape the future business environment. The economic forces include economic ideology and corporate strategy, market developments, government economic policy and the role of supranational institutions, as well as the implications for travel and transport and the impact of information and communications technologies. The sociopolitical forces are attitudes and values, approach to policy making, religion and ideology, geopolitics, civil society and international institutions.*

When these forces are represented graphically (see chart, page 49), we can see that one dimension includes forces that could drive us either toward a more economically integrated world or, alternatively, to a more isolated, independent one. Along the other dimension, there are forces that could push us toward either a more collaborative world or, conversely, a noncollaborative one. By mapping these forces in various ways, we get four different scenarios for the future.

- **Common Ground:** An economically integrated, highly collaborative world.
- **Survival of the Fittest:** A Darwinian world of free markets and intense competition.
- **Tempestuous Times:** A world in which economic integration comes at the cost of growing conflict and tension between governments, and between business and society.
- **Worlds Apart:** An actual reversal of globalization into protectionism and nationalism.

Common Ground

In this scenario, strong forces push toward a more integrated, collaborative world. On the economic front, Russia becomes a member of the World Trade Organization. Politically, leading nations work together to reduce international tensions in some of the most volatile parts of the world. Over the medium term, this effort leads to a political settlement in the Middle East, restoring some stability to the region. Crude oil prices become

* See "Business in a Fragile World," Accenture, 2002.

much less volatile and start to decline, as concerns about the security of supply fall.

Greater political stability paves the way for new forms of cooperation between energy companies and governments, especially in the developing world. There is a new focus on sustainable development—developing oil and gas resources in ways that will leave a positive economic legacy for those countries when their reserves run out. In this scenario, smart energy companies seeking better access to new reserves and a long-term license to operate pay particular attention to sustainable development.

Oil and gas companies still operate across global markets, but there is a growing emphasis on localization—working with local partners, building local skills and using local sources of supply. Such local inte-

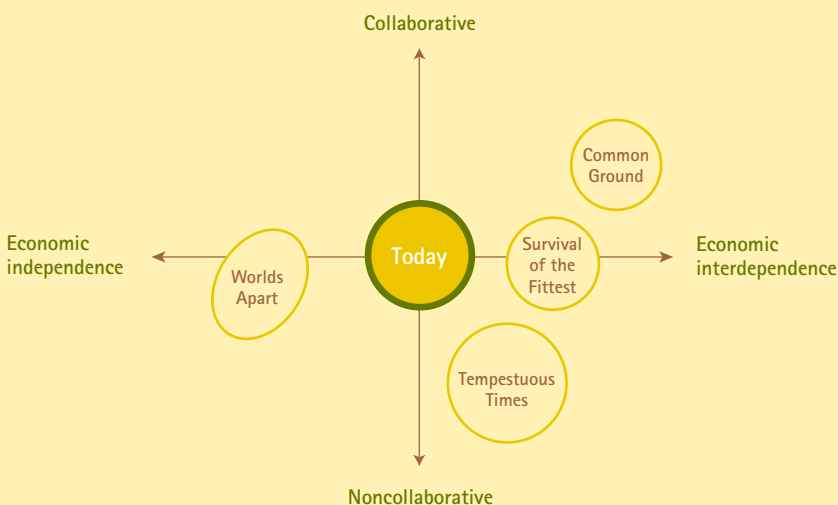
gration brings real benefits—including lower costs and much better access to local skills, which reduces the reliance on expatriate workers. New consumer markets emerge in developing nations as companies and countries alike take advantage of this collaboration, integration and localization.

Over the medium to long term, strategic cooperation between governments—particularly on major transportation infrastructure projects—radically changes energy industry dynamics. Construction of a Russo-Japanese oil pipeline and a new terminal at Murmansk in Siberia to export crude to the United States dramatically increase Russian oil exports and create new competition for producers in the now stable Middle East.

Reduced tensions and greater stability in key energy-producing

Map of the future

A number of economic and political forces are shaping the future business environment (see story). Four scenarios for that future can be mapped along two axes: one ranges from a collaborative to a noncollaborative world; the other ranges from an economically interdependent to an economically independent world.



SOURCE: ACCENTURE ANALYSIS



regions allow companies to plan better. But there are growing concerns about the high cost of the stability. There are far stricter environmental controls across all regions and energy sectors, pushing up costs (and, indirectly, energy prices for business and residential users). Rules providing greater job protection add to costs in some stages along the supply chain. While stability makes planning ahead a better bet, the positive impact is offset by time delays as growing regulation and bureaucratic controls hamper fast decision making.

Survival of the Fittest

This scenario envisions a world of free trade and mobile capital in which the capital markets drive economic and business decision making. Russia joins the WTO and, together with existing member China, progressively opens up its energy markets to foreign invest-

ment. Russian and Chinese energy companies, aided by efforts to improve corporate governance and transparency, represent an increasing source of competition in global energy markets.

Competition is fierce, so energy companies tend to focus on short-term strategic objectives. As more of the key energy-producing markets are liberalized, energy companies look to create value through mergers and acquisitions. Consolidation in the oil sector increases, and the super majors seek acquisitions in the more open markets of Russia, China and the Middle East to gain access to reserves and production. This is particularly true in the downstream market, where years of tight and low margins have seen some players consolidate or exit the sector.

As markets open and competition intensifies, oil prices fall but become more volatile. In part, this

is due to pressures within OPEC, which is unable to contain the tensions between price setting and cheating on production that are driving oil prices down. The organization, now conceding market share to non-OPEC producers, eventually breaks up completely.

For energy companies, this world offers many positive features: economies from global supply chains, low taxes and regulation, integrated and highly liquid capital markets producing a low cost of capital, and high levels of innovation. But there is a negative side as well. Despite its high growth performance, this world generates tension and friction that could boil over into instability.

As profit and competitiveness begin to drive every business decision, energy companies are increasingly forced to put issues such as sustainable development, renewable fuels and corporate citizenship on the back burner, and government and business support for initiatives like the Kyoto Protocol begins to recede. As state-owned energy companies are privatized, they are increasingly unable to fulfill the wider social and community welfare roles they once played in some countries, contributing to rising social tensions.

With the widespread deregulation of energy markets, problems such as the California electricity crisis of 2000–2001 start to recur as suppliers struggle to meet power demands based on supplies from an open and competitive market, which may not have enough capacity to deliver. Europe's nuclear industry is unable to cope in this highly deregulated world in which state funding has disappeared. Countries such as France and

Finland, which still have mainly state-owned nuclear industries, follow the formerly state-owned but now fully liberalized UK market into similar difficulties.

Tempestuous Times

Our third scenario is a world of conflict and friction in which energy companies can still operate globally but find it more costly and difficult to do so. They are forced to shorten their supply chains and build more backup facilities, as these become increasingly vulnerable to disruption, either from terrorists or extreme antiglobalization protesters. Those oil companies with carefully balanced portfolios can cope reasonably well—as trouble flares up in one market, they can switch production to another. However, independents and niche players find life very difficult as their key regions of production erupt in turmoil, often forcing them to suspend operations.

Although the larger players are better able to spread their production risk, they begin to encounter problems in their major consumer markets, as anti-globalization groups mount a series of worldwide consumer boycotts against well-known energy brands. This prompts some energy companies to differentiate their brands by region. As some global retail brands disappear, there is disruption of those midstream and upstream activities—such as refining—that were previously geared to production for global markets.

Security is the number one concern for energy companies in this scenario. Security costs soar—especially for insurance to protect employees and key assets such as power sta-

tions, refineries, pipelines, tankers and liquefied natural gas carriers. As oil production becomes increasingly costly and vulnerable to disruption, the price of oil increases dramatically and becomes extremely volatile, making any kind of planning difficult at best.

The cost of capital for investment in high-risk areas also rises dramatically, reflecting the higher-risk premium demanded by the markets. Projects in areas such as the Middle East are canceled as several countries have their credit ratings downgraded. Encumbered with higher financing costs and greater operational risk, energy companies become unwilling to invest in such regions. The focus now turns to competing for existing, less risky reserves and to using technology to try to extend the life of already mature areas.

Overall, energy companies become less innovative and forward-thinking. As the focus turns to keeping the oil and gas flowing, key product, environmental and renewable-fuel innovations take far longer to come to market as companies concentrate less on risky ventures. This is a very unstable world, on the verge of complete fragmentation.

Worlds Apart

Our final scenario provides a glimpse into that fragmented world, which has disintegrated into stagnation.

Barriers to trade and capital mobility go up, and access to oil and gas reserves is limited, threatening the very existence of global energy companies. Long-established global supply chains or sourcing break down, economies of scale are lost as markets contract, and innova-

tion dwindles as it becomes impossible to recoup the costs of research and development. Governments increasingly use their regulatory and tax regimes to promote their own national champions at the expense of multinationals, and in some cases, they renationalize their domestic energy interests.

Global energy companies, facing the risk of being unable to recoup investment costs and protect assets, are forced to withdraw from developing countries. Previously innovative sectors, such as LNG, gas-to-liquids technology, and deepwater oil and gas developments, slow down as oil companies shy away from the costs of bringing them onstream.

Countries that have been concerned about the security of their energy supply now see their worst fears realized as they struggle for energy supply in these tight markets. Blackouts become quite common in countries never before affected, like the United Kingdom, which becomes import-dependent for both oil and gas by 2010.

With reduced access to reserves and less competition among energy companies, oil prices rise significantly, but without the volatility they have previously shown. Since there is no global oil market, OPEC either breaks up completely or fragments into regionally based organizations.

Russia postpones indefinitely its previous intention to join the WTO. Concerns about the competitive impact of WTO membership rise in China. The Doha trade round, begun at the end of 2001, collapses as developing and industrialized countries fail to make any progress on market-opening measures. Energy

Scenario outcomes

For each possible scenario, we expect a number of things to happen in the short, medium and long term.

<i>Planning horizon</i>	Common Ground	Survival of the Fittest	Tempestuous Times	Worlds Apart
<i>Short term</i>	<p>Steady recovery from recession</p> <p>International cooperation to reduce Middle East tensions</p> <p>Oil price falls and stabilizes</p>	<p>Rapid economic recovery</p> <p>European Union energy markets liberalize for business users</p> <p>Oil price falls but more volatile</p>	<p>Protracted recession</p> <p>Growing anti-globalization protests against energy companies</p> <p>Middle East tensions intensify</p> <p>Oil price higher and more volatile</p>	<p>Protracted recession</p> <p>Retaliatory protectionist measures escalate</p> <p>Further EU energy liberalization stalled</p> <p>Local energy prices high but stable</p>
<i>Medium term</i>	<p>Russia joins WTO</p> <p>Political settlement in Middle East</p> <p>New taxes on corporations</p> <p>Kyoto Protocol approved</p> <p>Russo-Japanese and Russo-Chinese pipelines built</p> <p>Doha trade round concluded, with market-opening measures for developing countries</p> <p>China experiences strong growth from WTO membership</p>	<p>Russia joins WTO</p> <p>Kyoto Protocol abandoned</p> <p>National/state-owned oil companies privatize</p> <p>Rapid market consolidation</p> <p>Doha trade round concluded, but some unease among developing countries at concessions given</p>	<p>Consumer boycotts against global energy companies</p> <p>Terrorist attacks on supply chain infrastructure</p> <p>International infrastructure projects canceled</p>	<p>Doha trade round collapses</p> <p>Renationalization of domestic oil interests</p>
<i>Long term</i>	<p>Stable, reasonable economic growth</p> <p>Increasing environmental regulations</p> <p>Gas and renewables dominate oil-company portfolios</p> <p>Emergence of new downstream markets in developing countries</p> <p>Growing diversification of oil-based economies</p>	<p>High economic growth, but potentially unstable</p> <p>Highly mobile capital</p> <p>Low taxation and regulation</p> <p>OPEC breaks up</p> <p>Gas and renewables account for smaller share of oil-company portfolios</p>	<p>Economic growth poor, very unstable</p> <p>Ring-fencing of energy installations and infrastructure</p> <p>Energy companies forced to exit riskiest regions</p> <p>Growing nationalism</p> <p>Backlash against foreign-owned companies (particularly brands)</p>	<p>Global GDP contracts</p> <p>Access to reserves under threat</p> <p>High input costs</p> <p>OPEC breaks into regional groupings</p> <p>Developing countries focus on import substitution and building national champions</p>

companies find it difficult to operate in markets protected by rising walls of tariffs, quotas and red tape. Increasingly detached from global supply chains and sourcing, downstream markets become much less competitive.

Producers are also struggling locally with rising costs of labor and material. There are shortages of key skills and personnel because of new barriers to the movement of people, and there is a reduction in knowledge transfer across different markets.

There are no real winners in this scenario, only regional survivors. Energy companies that have dominant positions in countries with large internal markets—for example, the United States, China or Russia—can still achieve reasonable economies of scale, after a phase of strong domestic consolidation. Other energy companies seek to overcome the constraints of fragmented markets by following a “multi-domestic” strategy. In practice, this means building a local identity and brand name, working with local

Choosing the right approach

For each scenario, the appropriateness of particular strategies and systems will vary. For instance, in a world characterized by the Common Ground scenario, it will be important for companies to be innovative and competitive. In Tempestuous Times and Worlds Apart, innovation will be difficult.

	Common Ground	Survival of the Fittest	Tempestuous Times	Worlds Apart
High innovation and competitiveness	✓✓	✓✓	X	X
Business functions in lower-cost regions	X	✓✓	X	X X
Importance of local workforce	✓✓		✓	✓✓
Value in strong government and community relationships	✓✓		✓	✓✓
Value of local versus global brand	✓		✓	✓✓
Global supply chain optimization	✓	✓✓	X	X X
Benefits of consumer-friendly policies	✓✓		✓	✓

✓✓ Highly appropriate ✓ Somewhat appropriate (Blank) Neither appropriate nor inappropriate X Inappropriate X X Highly inappropriate

SOURCE: ACCENTURE ANALYSIS

partners, developing local supply chains and diversifying their ownership structures internationally to minimize capital transfers across borders.

Outcomes, timelines

Together, these four scenarios provide a range of possible short-, medium- and long-term outcomes for the global energy industry (see chart, page 53).

If companies know the range of possible outcomes, they can determine whether their current systems and strategies will be appropriate (see chart, page 54). They will then be prepared to adapt and adjust quickly as conditions unfold. A number of variables and other factors must be taken into consideration when making this determination.

High innovation and competitiveness. Companies that value innovation and are highly competitive would fare best in a future characterized by either the Common Ground or Survival of the Fittest scenarios, in which markets are open and global.

Business functions in lower-cost regions. The ability to optimize the location of business functions could bring real efficiency gains—though this would work well only in the Survival of the Fittest scenario, with its truly global and open world in which companies are free to move functions across countries. According to Accenture research, moving as little as a quarter of back-office processing to lower-cost regions could yield industry savings of about \$2 billion per year.

Importance of local workforce. Having a local workforce is impor-

tant in all of the scenarios—except Survival of the Fittest—because companies are forced by competitive pressures to focus on immediate profitability. This makes it difficult to institute measures with longer-term payoffs, such as localization.

Value in strong government and community relationships. It's important to build local relationships under all the scenarios except Survival of the Fittest, in which the capital markets exert primary influence.

Value of a local versus global brand. Global brands would not do well in a world characterized by the Tempestuous Times or Worlds Apart scenarios, since a local element is increasingly important in those scenarios. However, in the Common Ground scenario, products and brands are increasingly tailored to local customs and preferences as companies seek to build and create new market space, particularly in the developing world.

Global supply chain optimization. Global scale and common processes would create definite benefits in the economically integrated worlds of Common Ground and Survival of the Fittest. On the other hand, they would prove a major problem in the disconnected Worlds Apart scenario. Common systems would also be vulnerable to disruption in the turmoil-ridden Tempestuous Times.

Benefits of consumer-friendly policies. Consumer-friendly policies are a key element of good corporate citizenship in the Common Ground scenario. They could be a source of competitive advantage for smart companies that go against the trend

The International Energy Agency: Ensuring energy security in a volatile market

Contrary to popular expectations, the price of oil actually fell in the first 24 hours of the war with Iraq. Though a number of factors influenced the energy markets as hostilities approached, one of the most important, but least well known, was the role played by the Paris-based International Energy Agency.

The IEA is an intergovernmental agency established in the wake of the 1973–74 oil shock to provide energy security for its 26 member countries, which include many major oil consumers. IEA members control vast strategic reserves. In the event of any potential or actual disruption, the agency is able to coordinate the efforts of member countries, which can release these reserves into the marketplace to help ensure a continuous oil supply.

Any interruption in the 2.5 million barrels per day produced by Iraq could have had serious impact on a market already strained by events ranging from a strike in Venezuela to a severe winter in the United States and Europe. When it became clear that a diplomatic solution to the crisis in Iraq was unlikely, the IEA signaled oil-producing countries that it expected them to offset any shortfall in production from Iraq; otherwise, the agency would act quickly and massively to facilitate the release of its emergency supply.

Working through the IEA, major agency member countries and nonmember producer governments came out with the same message when the war began: There is adequate oil available. The price of oil did not spike; it eased gradually, and the markets remained calm.

It was under these difficult circumstances that Claude Mandil took the helm as the IEA's new executive director. Arriving at the agency from the Institut Français du Pétrole just six weeks before the war broke out, Mandil has had to quickly establish close personal working relationships with both OPEC and IEA member governments. *Outlook* spoke with him four days after the conflict began.

Outlook: Energy companies naturally are concerned with the outlook for the investment environment in the countries where they operate, as well as with the stability of the energy market itself. What do you see over the near term?
Mandil: We expect OPEC to do its job by contributing to stable markets and prices. It will also be very important to see



*The IEA's Mandil:
A collaborative effort*

how the regulatory climate will develop in various places. This is certainly true of Iraq, but also in some countries like Russia and other places in the Middle East and Central Asia, where there is a strong need for an improved investment climate.

The energy markets are no stranger to volatility and disruption. But the events of the past six months or so—even before the crisis in Iraq—seem to be without precedent.

I think that we are witnessing an unusual conjunction of difficult developments—a real supply disruption in Venezuela, unrest in Nige-

ria, the threat of unrest in Algeria and very cold weather in North America. In Japan, nearly 20 nuclear units were closed for safety reasons, and politically it may be difficult to restart them. All of this has happened in addition to the crisis in Iraq. When you have one or two unexpected events of that kind, industry oil stocks will normally be sufficient to prevent too much volatility in the market. But when many such events occur at once, industry oil stocks can go down very sharply.

What kind of actions can energy companies take to offset the unpredictability of the market?

There are two things that they already do and should continue to do. The first is to diversify the places where they invest and conduct exploration. Second, they need to make sure that their investments are capable of producing a good return, even if energy prices drop significantly below present levels. I think that all major oil companies today would still make a good return with oil prices of \$18 per barrel, and would probably be breaking even around \$13 per barrel.

After the Iraq conflict ends, do you see energy markets entering a period of stability and recovery?

I think that oil supplies will increase quickly over the coming months, as soon as events in Iraq come to an end. But that doesn't necessarily mean more stability. To have stability requires two things: first, political stability within OPEC; second, a good climate for investment. We can't take either of these conditions for granted.

What role do you think technology will play in the future of the energy sector?

First, technology can help companies produce more energy with the same level of effort as before—for example, by help-

ing them find new deposits, develop new production fields, go deeper and deeper into the sea to extract oil and gas, and discover ways of producing oil from tars at competitive prices. Second, we need technology to address environmental issues, particularly "greenhouse" effects.

What about alternatives to fossil fuels?

Technology is needed to bring new fuel innovations—for example, in renewables, hydrogen or new forms of nuclear energy—to the market at a competitive price. So we feel that in the coming years, technology and the need for more investment in research and development will be absolutely key to the energy industry.

How significant will the role of renewables be?

Here again, technology is key in terms of getting prices down to competitive levels. We welcome all the decisions that have been taken by the European Union to promote renewables, although perhaps the targets set are a bit optimistic. We feel that it is important to put money in renewables on a selective basis, investing first in those that are closer to the market.

What about hydrogen?

We are just a little bit cautious about creating too many expectations among the general public. Hydrogen will not come onto the market overnight; there won't be a so-called hydrogen economy for 10 to 20 years. Second, the hydrogen economy won't necessarily solve all of the issues. It won't necessarily help to get rid of hydrocarbons, because it is expected that most of the sources of hydrogen will at least for some years come from hydrocarbons. Nor will it solve the problem of CO₂ emissions unless it is linked with CO₂ capture.

Are there other factors?

To get rid of fossil fuels will require a lot of progress in nuclear and renewable energy, because the amount of nuclear and renewable production needed to replace gasoline and diesel by hydrogen is absolutely out of reach. Of course, there is also potential for progress in areas such as storage and transportation, and it's worthwhile trying.

Do you expect the IEA's relationship with the oil market to change?

I don't expect a change in our relationship with the market in that sense, because the IEA is a government organization, and we are doing what our 26 member governments want us to do. I don't think that any of our member governments is will-

ing to let us change our way of dealing with the market, which is about avoiding supply disruptions. We are not trying to change prices or to manage the market—we are not here to do that. On the other hand, one of the things that will change in the coming years—and for which we are trying to prepare—is the very notion of energy security.

In what way?

Market liberalization and deregulation is an extremely good development, but it is also bringing new problems and new issues of dealing with energy security. We have seen, for instance, that the move away from long-term contracts for natural gas in Europe can lead to new problems. The fact that key investment decisions—in areas such as energy production, transmission and distribution—are now made within a market context means that there is not necessarily enough capacity to supply peak demand. You need to do that with specific regulations. All of that is raising new issues in terms of energy security, which no longer ends at national borders.

So you believe that assuring the security of supply will become a much more collaborative effort.

We try to work very closely with our member countries and, indeed, nonmember countries. We also strive to produce innovative and sometimes provocative thinking in our papers in order to help our governments to take good decisions in their energy policy. We also work very closely with very large consuming countries that are not inside the IEA system—China and India, for example, where we are working with them to develop energy policies that are closer to our mutual goals.

How will the IEA's focus change once the war with Iraq is over?

We have 150 people in the IEA. Only perhaps 10 to 15 percent of these are working on emergency issues—including my deputy and myself. The day-to-day work on longer-term issues is still continuing—we have not stopped that in any way. We expect to continue addressing all those longer-term issues of technology, energy security and new patterns of energy security. We are not focused just on Iraq.

How does the IEA's relationship with producing countries affect the security of supply?

The fact that the market is rather quiet now is, in part, a reflection of the fact that the IEA and OPEC are really working in a very close and good relationship, in order to try to protect the market from any unexpected ups or downs.

A flexible and entrepreneurial culture greatly enhances a company's ability to survive sudden changes in the business environment and to rebound quickly.

in the Tempestuous Times scenario; in Worlds Apart, they also would be likely to prove important in establishing a company's commitment to domestic consumers.

Of course, no one can be certain which of these futures may emerge—in reality, we are likely to see elements of all of these scenarios in one form or another. But this does not mean that global energy companies are powerless to protect their businesses. To the contrary, our analysis highlights a number of strategies and tactics that they can implement to survive and prosper, no matter what the future may hold.

Harness existing knowledge and market experience. In many instances, energy companies already will be operating across regions and countries that contain elements of the scenarios outlined. This means the companies will have developed the relationships, structures and workforce necessary to operate in specific environments. By marshaling this knowledge and experience, they will vastly improve their ability to anticipate and manage sudden changes in their operating environment.

Make use of strategic options. To build flexibility into their businesses, companies should be sure they have a range of strategic options, including the ability to enter and exit markets quickly, reconfigure their supply chains or move resources around as circumstances change. For example, they may want to look at whether they own or lease distribution infrastructure in certain markets; whether they should acquire businesses in particular markets or work instead with local partners; or whether they should take small stakes across different markets to

minimize the effects of disruption in any one location.

Build relationships across different geographies and sectors. The more connections a company has developed on the ground—competitors, suppliers, communities, local and national governments, nongovernmental groups—the more quickly it can spot emerging trends that may signal a shift toward one scenario or another. Extensive connections also enhance energy companies' ability to work with others to shape developments toward preferred, mutually beneficial outcomes.

Create an entrepreneurial workforce. A flexible and entrepreneurial culture greatly enhances a company's ability to survive sudden changes in the business environment and to rebound quickly. Businesses can foster an entrepreneurial culture by encouraging more autonomous decision making and by using performance and rewards systems to inculcate entrepreneurial values across their workforce.

Exist globally and locally. Increasingly, companies recognize the need to establish organizational frameworks that allow them to be simultaneously global and local in approach—and therefore able to operate in any of our scenarios. Technology can play a key role here, enabling companies to develop functions, services and offerings rapidly on a global scale, while simultaneously allowing customization to accommodate local conditions. People and management processes, too, can be key—by ensuring strong employee mobility across different local subsidiaries, by giving employees a mix of global and local responsibilities,

and by making sure that managers get the actual experience of working in local markets.

No business, of course, can insulate itself entirely from external uncertainty and risk. There will always be some shocks over which there is no control. But by anticipating these possible futures and developing some key capabilities, global energy companies can help ensure that they are well positioned to succeed no matter what the future may bring. ■

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