

CFO Insights

Energy & water: A market reality check

No matter your industry, your business prospects depend in some way on energy. And while the energy landscape in the United States has changed dramatically over the last decade—with abundant, relatively low-cost natural gas, expanded domestic oil production, and lower pricing in global oil markets—now is not the time to be complacent about energy usage or costs.

In fact, for CFOs, now may be the time to take stock of your energy portfolio, rebalancing and derisking it for the future. Why? The favorable energy supply and price environment enjoyed currently in the U.S.—like all competitive advantages—will likely erode as domestic and global markets adjust to new energy supply and demand realities. Moreover, when it comes to energy markets, expect the unexpected: infrastructure that can't rapidly adjust to changing supply/demand balances; international events that roil global energy markets; extreme weather that disrupts supply and challenges perceptions of reliability; and related resource challenges, particularly the looming specter of water scarcity. All can erode the economics of the newfound energy advantage. And, of course, there is always the possibility that energy policy will affect supply and prices—in ways unfavorable for users and suppliers.

With oil prices plummeting and stock markets gyrating in response, it may seem prudent to remain a spectator to current market forces. But in this issue of *CFO Insights*, we'll make some key observations related to the energy and water markets and discuss why CFOs should take advantage of an energy future that has been largely reshaped over the last few years.



Taking a reality check

Back in early 2012, when we asked CFOs about their most worrisome risks in *CFO Signals*[™], concerns over rising energy costs were mentioned alongside economic fears.¹ However, as technology has helped the U.S. unlock nontraditional sources of energy, the situation has evolved favorably for many energy suppliers and users. But, to what extent can CFOs rely on today's perceptions of U.S. "energy abundance" to make financial commitments for the future? And what risks should they consider in developing their forecasts?

Observation #1:

The current U.S. energy supply situation may be currently quite favorable—but nothing lasts forever.

The statistics tell the story: energy in the U.S. has seen a renaissance. While it has always been a resource-rich country, recent events—in particular, the unlocking of substantial reserves of oil and natural gas through the combined technologies of horizontal drilling and hydraulic fracturing—have created an energy advantage that has put the U.S. in an enviable position. Consider the following:

- Even after more than 25% increases in U.S. natural gas production in recent years, the U.S. Energy Information Administration (EIA) projects continued increases in coming decades, amounting to an additional 56% from 2012 to 2040.²

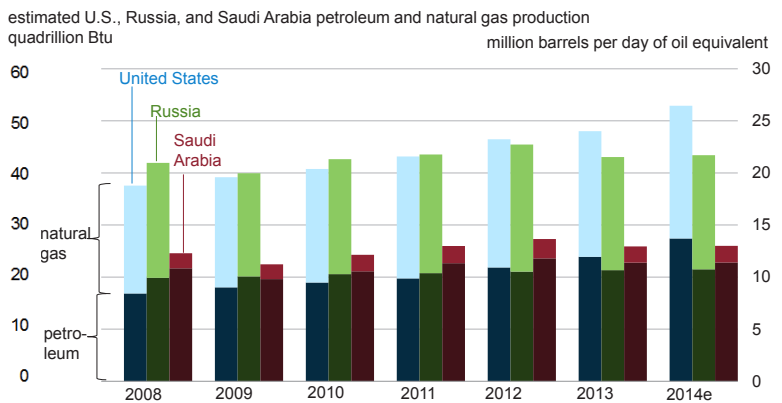
- The U.S. surpassed Saudi Arabia and Russia as the world's largest producer of oil and natural gas liquids in the first quarter of 2014, according to Bank of America Corp., with a daily output exceeding 11 million barrels a day.³
- In 2014, the U.S. imported 7.4 million barrels of oil a day (estimated), down 5% from 2013 and almost 20% from 2010, according to the EIA.⁴

In short, the U.S. has been heading for increasing energy self-sufficiency in the coming decade, and even if this trend is tested by low global oil prices, the implications for U.S. businesses are significant. Specifically, the reality of having abundant domestic energy for decades, has created a change in mind-set that may allow U.S. companies to start factoring in reasonable expectations for favorable energy prices into their budgets and investment plans. (see sidebar: "Excited by lower energy prices? Depends on your industry," page 4.)

Observation #2: Low natural gas prices will spark continued expansion of the industrial sector.

On the demand side of the equation, the news is also positive. Energy-intensive industries (power production, bulk chemicals, food, paper, primary metals, cement, glass, and so on), which are very sensitive to natural gas prices (as both a fuel source and a raw material) are taking advantage of currently low natural gas prices and the expectation for fairly stable prices for the foreseeable future. In fact, the industrial sector is expected to expand faster than U.S. GDP over the next several years.⁵ But won't this increased demand drive energy price increases? The short answer is yes—increased industrial demand, as well as exports of liquefied natural gas will definitely put upward pressure on prices. However, a key here is the size of the resource base: very large amounts of natural gas have been discovered and the marginal cost curve of developing incremental reserves is relatively flat. Deloitte MarketPoint's World Gas Model projects an average U.S. Henry Hub spot price of \$5.86 per MMBtu over the next 20 years (2015–2034).⁶ While this is a 28% increase from the 2014 average spot price of \$4.59 per MMBtu at Henry Hub (January–September), reported by the EIA, it would still make natural gas one of the least expensive fuels for energy-intensive industries.⁷

U.S. is the largest producer of petroleum and natural gas in the world



Source: U.S. Energy Information Administration
 Note: Petroleum production includes crude oil, natural gas liquids, condensates, refinery processing gain, and other liquids, including biofuels; barrels per day oil equivalent were calculated using a conversion factor of 1 barrel oil equivalent=5.55 million British thermal units (Btu)

Meanwhile, many oil and gas companies continue to make the investments necessary to unlock additional supplies—at least as long as the economics make sense. For example, producers are tapping heavily into scientific and technological advancements to boost recovery and improve efficiency in North American shale plays, which are known for low recovery and steeply declining production rates compared with conventional wells. Advances such as multi-well pad drilling, multiple fracture stages, and improved well and pipe design have already boosted drilling efficiencies significantly. Producers are using fewer rigs to extract more oil and gas in less time, which keeps costs down. Even if lower global crude prices slow domestic development, these reserves likely won't go away. When prices inevitably recover, further advancements promise to keep driving efficiencies in shale production.

Observation #3: Rising global energy demand will present a major risk to the U.S. energy renaissance.

Despite the favorable supply-and-demand outlook in the U.S., one should never forget that energy markets are global and that U.S. energy supply and prices both influence, and are influenced by, global supply and demand. Going forward, CFOs should understand that global energy consumption is predicted to grow by more than 50% by 2040, according to the EIA, driven in large part by electricity production and transportation requirements.⁸ Some 90% of that growth will be in the developing world, while demand in the developed world will remain relatively flat.⁹ Consequently, as part of an integrated global economy, the U.S. will inevitably be subject to geopolitical demand and risk factors that will feed backwards through commodity chains to North America.

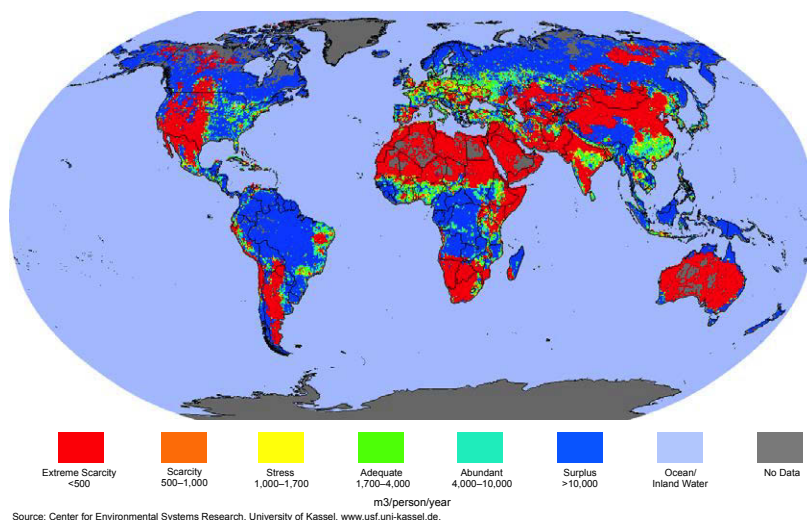
Observation #4: Water, which is inextricably linked to energy, is increasingly becoming a key constraint in global economic development.

You can't generate energy without water, and you can't extract, treat, and deliver adequate quantities and quality of water without energy. But, the problem with water is that it is finite and not always there when and where you need it.

A major reason for increased water scarcity is that the demand for fresh water has doubled over the past 50 years. Moreover, assuming "business as usual," there is a projected 40% shortfall in water supply versus demand by 2030. As a result, it is projected that about half of the world's population may experience water scarcity by 2030.¹⁰ Driving that trend are factors such as population growth, economic growth, and increased urbanization, which are all competing for this very finite resource.

In the U.S., water scarcity from prolonged droughts is already having an economic impact. According to the EIA, the California hydropower-generation capacity has been decimated by the drought: from 2004 to 2013, hydropower accounted for 20% of California's total energy generation during the first six months of the year; in 2014, that total dropped to just 10% during the same time period.¹¹ And not only is the California energy sector feeling the impact, the agricultural sector is estimated to have seen a loss of approximately \$1.5 billion and the state's GDP is predicted to decline by \$855 million.¹²

Projected water scarcity in 2025



The implications, for companies and their CFOs are also being felt. According to the 2014 CDP Water Disclosure Report, 68% of respondents have identified water risks as a substantive business risk, 75% of respondents identified business opportunities, and 22% reported water issues could limit business continuity.¹³

Takeaways for CFOs

While the U.S. is currently enjoying a renaissance in energy, the time to take advantage of the implied domestic supply security is now. Because of the size of the reserves and a relatively flat domestic demand profile, the supply situation in the U.S. can be expected to remain favorable over most investment-planning horizons. And, although short-term price volatility will always be present, these solid supply fundamentals imply that longer-term energy price trends should remain within predictable bands.

However, any competitive advantage attracts competitive responses. The U.S. energy advantage is quite visible to the rest of the world, and the current advantage will most likely be answered by other nations and regions exploring and developing their own nontraditional energy resources. For instance, although China faces formidable infrastructure and water issues in developing shale resources, it continues to direct large investments toward exploring and developing these reservoirs.

**Excited by lower energy prices?
Depends on your industry**

Judging from the results of the latest *CFO Signals™* survey, there is one subset of finance chiefs that is not embracing the prospect of lower energy prices—energy CFOs.

In fact, in the Q4 survey, CFOs in the energy and resources sector recorded sharp drops in year-over-year sales and earnings expectations. Sales forecasts fell to 4.0%* from 7.3%* in the previous quarter, and earnings forecasts to 3.4%* from 10.3%*. In addition, more than 20% of CFOs in the sector expressed declining optimism, primarily due to external factors. This was an increase from 0% who expressed declining optimism in the second and third quarters of 2014.

Their peers in other sectors don't see much change on the horizon. Only 27% of CFOs overall believe energy prices will be higher in a year, and very few express high confidence. Interestingly, finance chiefs from energy/resources are the most likely to expect higher energy prices (31%).

Expectations about energy prices are generally not being built into pricing plans, either. In most of the industries surveyed, less than 25% of CFOs say their energy price expectations are affecting their own companies' pricing plans. The exceptions? Energy/resources which stands at

How are companies approaching low energy prices?

CFOs' selections based on five-point semantic differential scale with opposing choices as noted (n=102)



Source: *CFO Signals*, Q4 2014, CFO Program, Deloitte LLP

more than 60% and manufacturing at 48%. Still, energy savings are not stopping companies from raising prices. CFOs say prices are largely back to prerecession levels—and headed higher. Just under half say their prices are higher now than prerecession, and well over half say their prices will be higher in a year.

How long that trend is sustained depends on how long energy prices remain at current levels. "If low energy prices are sustained," notes Ira Kalish, Chief Global Economist for Deloitte, "it will have an impact on non-energy industries." In addition to boosting consumer and business purchasing power, he explains, "lower energy costs will give companies more wiggle room to either cut prices, boost investment, or increase returns to shareholders."

* Numbers with asterisks are averages that have been adjusted to eliminate the effects of stark outliers.

On the water front, preparing for scarcity starts with a company understanding its usage across its value chain within the watersheds in which it operates, and then understanding what risks and opportunities that creates. Based on that analysis, the company can then decide what to do in order to mitigate its water risk. The obvious ones are improving efficiency and increasing reuse/recycling, essentially running the business with less water or even no water. This coupled with “collective action”—engaging stakeholders to make reasonably certain that everyone has water when and where it’s needed—can reduce business risks and “fuel growth” (for more information see “[Ripple effect: Why water is a CFO issue](#),” *CFO Insights*, July 2012).

At the same time, energy management should not be overlooked as a tool to gain needed savings and reduce dependence on valuable resources. Given advances in technology, this should be a dynamic process—one that finance is in a perfect position to advocate for. After all, by prioritizing energy management, CFOs have the potential not only to debunk the myths around energy abundance, but to deliver on the realities of profitability and competitive advantage.

Endnotes

- ¹ *CFO Signals*, Q1 2012, U.S. CFO Program, Deloitte LLP.
- ² “[Annual Energy Outlook 2014](#),” page MT23, April 2014, U.S. Energy Information Administration.
- ³ “[U.S. seen as biggest oil producer, after overtaking Saudi Arabia](#),” Bank of America via Bloomberg,” July 4, 2014.
- ⁴ “[Weekly Petroleum Status Report](#),” Week ending 12/26/2014, U.S. Energy Information Administration; “[U.S. Imports of Crude Oil, 1910s to 2010s](#),” U.S. EIA.
- ⁵ “[U.S. Industrial Outlook: Growth Mode](#),” September 2014, The Manufacturers Alliance for Productivity and Innovation (MAPI).
- ⁶ “[Henry Hub Natural Gas Spot Price](#),” The World Gas Model, Deloitte MarketPoint 2015.
- ⁷ “[Henry Hub Natural Gas Spot Price](#),” April 2014, U.S. Energy Information Administration.
- ⁸ “[International Energy Outlook 2013](#),” September 2013, U.S. Energy Information Administration.
- ⁹ “[International Energy Outlook 2013](#),” September 2013, U.S. Energy Information Administration.
- ¹⁰ “[International Decade for Action: Water for Life](#),” United Nations, 2014.
- ¹¹ “[California drought leads to less hydropower, increased natural gas generation](#),” U.S. Energy Information Administration, October 2014.
- ¹² “[Economic Analysis of the 2014 Drought for California Agriculture](#),” University of California, Davis, July 2014.
- ¹³ “[From risk to value creation: how corporate stewardship is driving innovation in water](#),” 2014 CDP Water Disclosure Report, 2014.

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