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BY NIKOS TSAFOS

# Natural Gas Panacea

*Forget about a long-term glut and cheap prices.*

In March 1999, *The Economist* wrote that, “The price of oil has fallen by half in the past two years, to just over \$10 a barrel. It may fall further—and the effects will not be as good as you might hope.” Soon thereafter, in January 2000, an article in *Foreign Affairs* titled “The Shocks of a World of Cheap Oil” argued that “the world should worry less about a scarcity of oil than about a glut.” Four years later, these forecasts were proven wildly wrong.

Fast forward to March 2010. *The Economist* wrote about an “unconventional glut” in natural gas: “newly economic, widely distributed sources are shifting the balance of power in the world’s gas markets.” With clock-like precision, in January 2011, a *Foreign Affairs* article cheered the “Good News about Natural Gas” that would lower prices and “reduce the political and market power of today’s major oil- and gas-producing countries.”

A long-term glut in natural gas was improbable to begin with, and the dual shock of unrest in the Middle East and a nuclear disaster in Japan make it even less likely now. A few years hence, we will look back at this time the way we look back at oil in the late 1990s. Because gas markets are regional, scarcity will affect places differently. Russia, Qatar, Australia, and Central Asia will see their influence grow. North America will still do well. Europe and Asia will not.

#### **SUPPLY SHOCK: MIDDLE EAST**

The revolutionary wave in the Middle East has delivered a shock more psychological than real. The region

accounts for just 20 percent of global gas output versus 35 percent of oil, so losing Middle Eastern gas is not as painful as losing its oil; and physical disruptions so far are limited to Libya, whose lost output only partly hurts Italy. But unrest has created a risk premium as markets fear the loss of Yemeni or Algerian gas, the latter supplying a tenth of Europe’s needs—either of these would trigger a price rally.

The broader question is where the Middle East goes next. A political model has clearly failed: autocratic governments could not offer real employment, and when half the citizenry is under twenty-five years old, that failure has systemic implications. Gas was a tool in addressing that deficiency by feeding industrialization programs to create jobs. Qatar and Egypt placed moratoriums on new export projects to send more gas to local markets. Saudi Arabia has long tried to use gas to fuel power stations and industry. In Oman, exports have suffered as gas is sent to the local market.

From afar, the Middle East has always been viewed as the repository of the world’s fossil fuels. But a combination of booming domestic demand and a focus on developing oil over gas has resulted in gas-rich countries such as Iran, Kuwait, and the United Arab Emirates turning into net importers. The Middle East is now seen more as a destination of gas than a source. That choice between exporting gas to earn hard currency and keeping gas at home to create jobs now becomes clearer. The

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bias toward using gas at home had already hampered the region's export growth prospects. Add to that a volatile political environment, and anyone expecting much additional gas from the Middle East to power cities from Berlin to Beijing will be let down. If anything, current volumes could disappear, as they have in Libya already.

#### **DEMAND SHOCK: FUKUSHIMA DAIICHI**

Before a disastrous earthquake hit Japan on March 11, 2011, the nuclear industry was bracing for a "renaissance." It was a half-renaissance really. After Chernobyl, the share of global electricity coming from nuclear power had flattened out, but new reactors were still being built and nuclear was defending its market share at around 17 per-

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cent. More than half of that growth came from Asia, but the hope was that nuclear power would return to the United States and Western Europe, where it had stagnated after Chernobyl (save a few exceptions).

That trajectory was disrupted in March 2011. The immediate impact on gas markets was that Japan lost a fifth of its nuclear capacity, and it would need to burn other fuels, including gas, to make up the shortfall. Japan is the world's largest importer of seaborne liquefied natural gas with a 32 percent market share. A significant rise in its demand has global ramifications.

More generally, the disaster in Japan has triggered a three-layered shock. First, governments are rethinking safety measures in their own reactors, in particular the ability to retain access to electricity in order to shut down safely. The European Commission said it wants to test all plants on the continent. Germany has shut down reactors to re-inspect them; France and the United States are undergoing safety reviews as well.

Second, countries are debating anew whether to extend the life of older reactors. Around 25 percent of the world's fleet is over thirty years old. In some countries, extensions have been easy, but in others, such as Germany, they have been hotly contested. More than forty gigawatts (four times the lost capacity in Japan) could close in four European countries over the next decade or so: Belgium, Germany, Spain, and the United Kingdom. These reactors contribute anywhere from 16 percent (United Kingdom) to

51 percent (Belgium) of national electricity. Less nuclear power means more gas and renewables.

Third, the prospects for a nuclear renaissance look dimmer. The industry was already struggling with high costs: in the United States, a new reactor would be hard pressed to compete with lower-priced gas. In Europe, it could, but only marginally. Added public scrutiny only adds to the industry's woes. Nor is this solely a Western issue. China and India said they would delay approvals for new reactors as they review safety designs, as has Thailand. Gas once again stands to gain as nuclear is pushed back.

#### **ONE WORLD, TWO WORLDVIEWS**

The gas world seems to have turned upside down. But these events merely accelerate a transition to a tighter market that was happening anyway. Their significance is that they have shaken the belief, held widely, that gas was facing a decade-long overhang after 2008. The proponents of that view have now less to stand on.

That view—the "glut view"—was based on several data points. First was a production revolution in the United States. As late as 2005, the Energy Information Administration at the U.S. Department of Energy expected that imports from outside North America would make up 20 percent of U.S. demand in 2025 (from around 3 percent in 2005). Instead, U.S. production rose 20 percent within five years; the growth exceeds the output of whole countries such as China, Saudi Arabia, Indonesia, or Algeria. New forecasts show no need for more imports.

The growth was driven by technological advances in the ability to extract unconventional gas—shale gas, coal bed methane, and tight gas. The hope is that other countries can replicate that success. From China to Argentina, and from Poland to South Africa, companies are grabbing land in the new frontiers. Foreign investment into U.S. unconventional gas is booming as companies rush to learn these new techniques. If unconventional gas takes off internationally, production would rise beyond anyone's imagination.

On the other end, demand looked anemic after the crisis. World gas demand fell 2.1 percent in 2009. In OECD countries, the drop was 3.1 percent and in the European Union it was 6 percent. Not only did gas demand fall, but wind and solar power have been booming, especially in the European Union. Wind accounted for 10 percent of EU power capacity in 2010, up from 2 percent in 2000. Solar too reached a 3 percent market share, from nothing a decade ago. And the growth trajectory is explosive.

More broadly, the demand pessimism was premised on a "post-energy" proposition, where the link between

GDP and energy use broke down. The International Energy Agency forecasts that energy use in OECD countries will grow 0.1 percent a year from 2008 to 2035; this against an annual GDP growth of 1.8 percent. The official forecast of the European Commission, revised in 2009, is bolder: “the new Baseline should not be qualified as a business as usual scenario. A business as usual scenario would not display the decoupling of energy and carbon growth to the extent of the new baseline scenario.” Energy use in 2030 is lower than in 2005.

Not everyone shared that worldview, however. Most of the world’s gas producers—countries or companies, Western and not—argued that the glut would be short-lived. They too had compelling data points. Demand rebounded strongly in 2010, and in fact developed countries consumed more gas in 2010 than in 2008. In non-OECD markets, the growth was even stronger. Meanwhile, European governments that subsidize renewables are shifting their focus to plugging fiscal holes. The exponential growth in solar and wind may not prove so exponential after all.

The bigger structural challenge was the growing disparity between supply and demand. If one looks at the world’s proposed export projects, there are indeed many, and if all went ahead, the world would be awash in gas. But they will not: politics, high costs, lack of secured supply, and technical challenges all stand in the way. Privately, companies admit that their realistic prospects are far fewer than their announced ones. Several companies have outright canceled projects.

Current exporters are struggling. Several export facilities are running at 60 percent and 70 percent utilization rates, far below the historical average of 90 percent. Almost all the countries that started to import liquefied natural gas in the last four years came from Latin America and the

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Middle East—of these, some used to be net exporters (Argentina, United Arab Emirates). Now the trend is moving to Southeast Asia, where most countries look to import gas. Indonesia and Malaysia—the world’s second- and third-largest liquefied natural gas exporters, who account for a fifth of global liquefied natural gas output in 2010—want to import gas. There is far more momentum towards

more imports than exports. And the hope that unconventional gas would reverse that trend seems premature. The obstacles in the way—lack of infrastructure and personnel, concern about the environment, low activity—are more pronounced than the positives of enthusiastic governments and a potentially large resource base.

Prices supported this “scarcity” thesis. Liquefied natural gas projects have a four-year lead time for construction, so the relevant data points are prices for post-2014 delivery. Even during the crisis, prices for those contracts were strong. The inability to procure gas at low prices, despite being told that there is a “glut,” was a lament heard often from the buyers. It will get louder now.

### **A TIGHTER GAS MARKET**

Gas markets are fragmented, so a tighter market will affect regions differently.

North America still enjoys an unconventional gas boom. In 2010, U.S. gas prices were 50 percent lower than in many Asian and European countries and this seems sustainable given the ample resource base in the United States. There are no liquefied natural gas exports from the lower forty-eight yet, although companies have plans to do so. But the volume likely to be exported is insufficient to equilibrate U.S. with global prices. In North America, the news for gas is still good.

Europe has been euphoric about Gazprom’s weakened “grip.” Relief was temporary, however. The concessions that Europe extracted over the past two years look less meaningful already. Europe wants to shrink Russia’s market share over the next decade, which it can on the margin. But the pendulum swung too far to the European consumer in 2010. It will swing back soon.

Asia is in a tougher spot. To meet rising demand, the region will turn to Qatar, Central Asia, and Australia. Qatar is already the region’s biggest supplier, but the country drives a hard bargain for long-term contracts. In Central Asia, China’s presence is growing, and gas is part of the trade nexus. Finally, there is Australia. As an OECD country, Australia has many attractions. But the country is showing signs of “Dutch disease” as resources shift toward mineral extraction. How to manage demand for commodities, including gas, without distorting the economy will be a big challenge for Australian policymakers in the decade to come.

In a broader sense, a world of expensive gas has implications for climate change. For the past few years, gas has branded itself as a bridge fuel—a lower-carbon way to facilitate the move from oil and coal to wind and solar. The euphoria which saw a long-term glut in supplies assumed that this transition would be made easier and cheaper by abundant gas. That assumption is now dead. ♦