Our View: Long-Term Forecasts – Don't Blame the Messenger

Philip Verleger
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Energy consultant Robert McNally spurred an international controversy on February 12 when he blasted the International Energy Agency in *The Wall Street Journal* for distorting and politicizing its long-term forecasts.[1] His criticism is misguided and uninformed.

McNally's rant was beyond specious because it reflects the views of someone ignorant of the art, science, mystique, and futility of building or using long-term forecasting models. His commentary is important, though, because it highlights Saudi Arabia's developing dilemma. A February 20 *Wall Street Journal* piece highlighted the economic squeeze on Saudia Arabia's grand expansion plans.[2] The Saudis likely based these aspirations on the predictions made with models of the type McNally admires but seems unequipped to understand. We suspect that the Saudi plans were developed using models adjusted or "tweaked" to produce results that supported their leaders' desires.

Very few policymakers or corporate executives who rely on long-run forecasts from models comprehend the models' critical inability to anticipate major technical changes or sudden shifts in consumer behavior. All they want is confirmation of their foregone conclusions. Those who build or have built such models often watch in horror as long-term forecasts prompt catastrophically bad decisions.

Today, auto companies, oil refiners, airlines, and many other firms are suffering from forecasts developed in windowless rooms by economists very good at crunching data but not experienced in the whirlwinds that drive model forecasts wildly off course.

Long-term forecasting models and long-run projections are subject to several weaknesses.

> Shifts in consumer preferences can invalidate any projection.
>
> The impacts of government policies **and successful efforts to evade these policies** can undermine any modeling effort.
>
> Technical "surprises" implemented quickly can and have made ten-year-forward projections **ludicrously wrong**.

[1] Robert McNally, "Climate Politics Neuters an Energy Watchdog," *The Wall Street Journal*, February 12, 2024 [http://tinyurl.com/2ukfjysw].

[2] Eliot Brown and Chelsey Dulaney, "Megaprojects in the Desert Sap Saudi Arabia's Cash," *The Wall Street Journal*, February 20, 2024 [http://tinyurl.com/yw2c74uj].

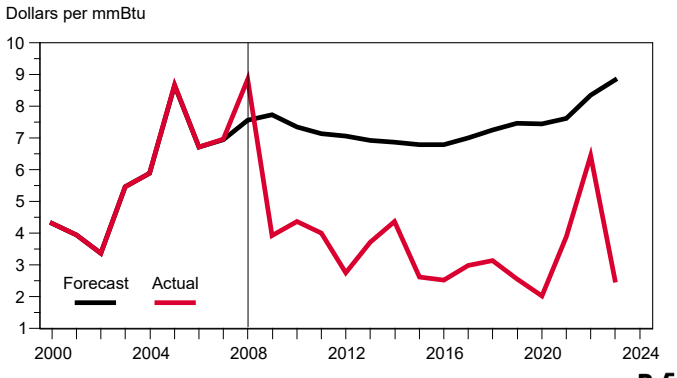
> Changes in market control—such as the exercise of monopoly power or a transition to a competitive market through deregulation—can and have drastically altered the underlying basis of a forecast and transformed future behavior.

Such factors vitiate long-term projections. Still, analysts and economists must make them.

The collapse in US natural gas prices Illustrates a key problem with long-term forecasts. On February 21, the Henry Hub price of natural gas was $1.58 per million Btu (mmBtu). The EIA's 2008 forecasts, produced when McNally advised President George W Bush, projected the February 2024 gas price to be almost $9 per mmBtu. Their forecast was only off by eighty-two percent. (Figure 1 compares the EIA forecast to actual prices from 2008 to 2023.)

The forecast error occurred because the model did not anticipate the explosion of fracking, a major technical change that supercharged US natural gas production. The EIA's energy modelers likely knew nothing of fracking because the first successful well was just beginning to drill in 2008.[3] As McNally noted in his op-ed, the IEA and EIA traditionally only account for existing policies and regulations in preparing their forecasts. They do not consider technical changes or regulatory evasions such as the auto industry's successful avoidance of fuel economy standards.

Figure 1
2008 EIA History and Forecast of US Natural Gas Prices vs. Actual Henry Hub Prices, 2000 to 2023



This approach **dooms** long-term forecasts. In 2008, the EIA's energy forecasters were unaware of or not allowed to estimate the fracking impact. Thus, they projected US liquefied natural gas imports to rise from 0.5 trillion cubic feet to more than three trillion by 2024 (fourteen percent of supply). Instead, the US became an exporter. Figure 2 (page 3) shows the collapse of LNG imports. Instead of importing more than three trillion cubic feet, in 2022 the United States exported almost seven trillion cubic feet.

Long-term forecasts issued today will be off the mark in many areas by as much or more as governments work to direct energy use away from fossil fuels. Unanticipated technological changes will compound these errors as entrepreneurs pursue the profits offered by the push to cut global emissions.

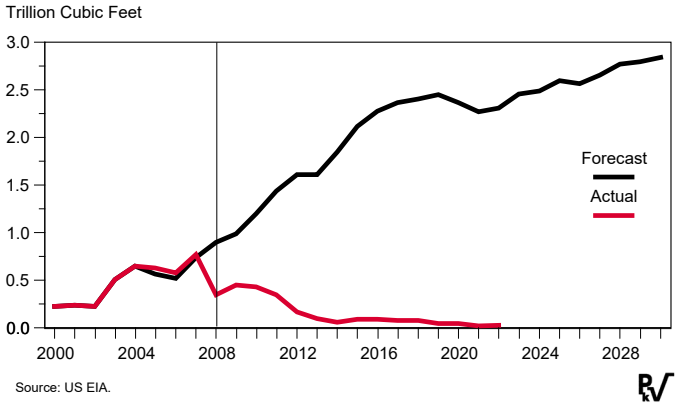
Much to its credit, the International Energy Agency at least tried to avoid some of the pitfalls of long-term forecasts in its May 2021 publication *Net Zero by 2050*. The report offered a scenario to realize the net-zero greenhouse gas emissions and global warming targets set in 2015 at COP21 in Paris.[4] In

[3] See Russell Gold, *The Boom: How Fracking Ignited the American Energy Revolution and Changed the World* (New York: Simon & Schuster, 2014).

[4] IEA, "Net Zero by 2050: A Roadmap for the Global Energy Sector," May 2021 [http://tinyurl.com/yskhkkjt].

response, the fossil fuel industry roundly criticized the IEA's recommendation that most future oil and gas exploration expenditures be dropped,

Figure 2
2008 US EIA History and Forecast of US LNG Imports vs. Actual Imports, 2000 to 2030



In *Net Zero by 2050*, the IEA described a way to achieve the net-zero target. Unlike other forecasts, the IEA analysts attempted to anticipate technological and regulatory developments that might keep global energy use on track to meet the Paris goals.

Robert McNally blasted the IEA's 2021 analysis in the *WSJ* op-ed noted above. He objected to its findings because the IEA forecasters believe oil use will peak. In his view, they have been "bullied" into this assertion. He saw the conclusion as incorrect and the agency's call to stop investing in new oil fields as wrong.

Missing from McNally's rant is any evidence that private-sector firms have heeded the IEA's call. Indeed, as recently as three months ago, the agency complained that producers were worsening the climate problem by continuing to invest.[5] Evidently, the oil industry disagrees with its view. In the current competitive economic environment, they believe, firms can keep investing, which makes McNally's concerns irrelevant.

[5] IEA, "Oil and gas industry faces moment of truth—and opportunity to adapt—as clean energy transitions advance," November 23, 2023 [http://tinyurl.com/423smk44].