

NATURAL GAS *brief*

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Ukraine

A Lesson in Global Energy Stability We Need to Learn

OpEd by Naomi Boness, PhD., Stanford University

One year has passed since Vladimir Putin sent tanks into Ukraine to finish the war he began in 2014. Militarily, he launched an all-out offensive. Diplomatically, he embarked on a campaign of energy blackmail as he sought to soften any European response with promises to cut off an offending nation's natural gas supply.

First, **he halted deliveries to Poland and Bulgaria**, moving next to **Finland** and **Denmark**, and finally to the **rest of Europe**. The price of gas **quintupled by August**, reordering the global market with strong incentives to send LNG cargoes to Europe rather than to Asian markets. Prices **stabilized in the fall** when stored capacity appeared sufficient to survive a mild winter, but the prospects for next year are decidedly bleak, as Europe is unlikely to replace its reserves.

Beyond the economic and human damage, Europe's climate ambitions also took a hit as several nations began replenishing their coal stockpiles in preparation for an extended shortage of gas. As LNG was diverted to meet EU needs, these problems were passed along to the rest of the world.

Russia's aggression further exposed the energy crisis that was already becoming apparent in 2021 with global shortfalls in natural gas following Covid. The truth is that our system, and particularly the U.S.'s chronic lack of infrastructure, plays havoc with security, economic development and the climate—domestically and across the globe.

ABOUT THE AUTHOR



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The fragility of the energy supply can also allow massive long-term impacts several degrees removed from an event like the shutdown of the Nord Stream pipeline. For example, the world's third-largest emitter, India, has been actively trying to move away from coal and oil which constitute nearly **70% of its current energy supply**.

In an effort to improve **air quality**, two years ago, Prime Minister Narendra Modi announced plans to **more than double natural gas's share in the energy supply**. Last month, he unveiled a strategy to **triple renewable energy in India by 2030**. These moves go hand-in-hand as a reliable source of baseload electricity is a prerequisite for large scale renewables.

In Modi's ambition, India's challenge is the opposite of that experienced in the United States—it has the political wherewithal to build the infrastructure, but it doesn't have the resources to produce natural gas.

Coupled with a chronic undersupply of LNG in the global market and diversions to European markets, demand for natural gas is driving prices too high for India to switch from coal. Indeed, its **LNG imports actually decreased in 2022** and its need for **coal is expected to increase by about 7%**. Nor is India's plight unique. With the EU's increased use of coal, the **world set an all-time record for coal demand in 2022—crossing the 8 billion ton threshold** and contributing to another year's increase in CO₂ emissions.

Some might be tempted to see this as a temporary setback, that the war will eventually end, and the market will settle down. But the facts don't support the hope. Coal demand **has been on the rise for several years** and is projected to **stay high** as overall energy demand increases. All the while, gas production and U.S. exports have been severely stymied by a lack of infrastructure.

The United States has the natural resources and the economic strength to significantly add to the world's LNG supply, strengthen energy security, replace dirtier fuels and lower global carbon emissions. The problem is that our system for approving infrastructure makes it nearly impossible to develop our resources and bring them to market. Until we fundamentally change our approach, we should expect little progress.

A year later, and we have seen the results of paying too little attention to energy security. At minimum, if Putin didn't have a lock on his neighbors' energy supply, he may have reconsidered his invasion. However, the invasion of Ukraine and resulting volatility of energy supply and cost has shone a spotlight on the fragility of our global energy system. Perhaps we can learn from our mistakes and address the global energy challenges that simply will not go away. ■



THE NATURAL GAS INITIATIVE AT STANFORD

Major advances in natural gas production and growth of natural gas resources and infrastructure globally have fundamentally changed the energy outlook in the United States and much of the world. These changes have impacted U.S. and global energy markets, and influenced decisions about energy systems and the use of natural gas, coal, and other fuels. This natural gas revolution has led to beneficial outcomes, like falling U.S. carbon dioxide emissions as a result of coal to gas fuel switching in electrical generation, opportunities for lower-cost energy, rejuvenated manufacturing, and environmental benefits worldwide, but has also raised concerns about global energy, the world economy, and the environment.

The Natural Gas Initiative (NGI) at Stanford brings together the university's scientists, engineers, and social scientists to advance research, discussion, and understanding of natural gas. The initiative spans from the development of natural gas resources to the ultimate uses of natural gas, and includes focus on the environmental, climate, and social impacts of natural gas use and development, as well as work on energy markets, commercial structures, and policies that influence choices about natural gas.

The objective of the Stanford Natural Gas Initiative is to ensure that natural gas is developed and used in ways that are economically, environmentally, and socially optimal. In the context of Stanford's innovative and entrepreneurial culture, the initiative supports, improves, and extends the university's ongoing efforts related to energy and the environment.



Join NGI

The Stanford Natural Gas Initiative develops relationships with other organizations to ensure that the work of the university's researchers is focused on important problems and has immediate impact. Organizations that are interested in supporting the initiative and cooperating with Stanford University in this area are invited to join the corporate affiliates program of the Natural Gas Initiative or contact us to discuss other ways to become involved. More information about NGI is available at ngi.stanford.edu or by contacting the managing director of the initiative, Naomi Boness, Ph.D. at naomi.boness@stanford.edu.