

The Real Crisis in Energy Security: Physical Shortages of Strategic Resources

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Energy is an indispensable commodity for sustaining daily life and economic activity. Moreover, given its potential to influence military operations and national security, energy possesses the characteristics of a strategic resource. Consequently, ensuring the stable and affordable supply of sufficient energy to society and consumers—namely, achieving energy security—constitutes the most fundamental requirement of energy policy in any country.

Although energy is indispensable, its critical importance is rarely perceived in everyday life. In normal circumstances, we can simply flip a switch and immediately operate any electrical and energy appliance, and energy appears to be readily available for a price, without difficulty. When energy prices remain low and stable, energy becomes almost as inconspicuous as “air or water.” However, once the stability of energy supply is threatened and prices surge, circumstances change dramatically. Energy issues dominate news headlines, and governments elevate energy policy to a top priority.

The sharp rise in international energy prices from late 2021 onward, compounded by Russia’s invasion of Ukraine, prompted Europe and Japan to introduce energy subsidy programs. In societies increasingly polarized between a small wealthy elite and a large segment of relatively low-income households, even advanced economies experience severe social impacts when energy prices soar. Consequently, energy security policies have emerged as urgent priorities worldwide—a trend that persists today.

Nevertheless, when examining the issue of energy security, it is essential to recognize that the most strategically significant concern lies not in the impact of soaring energy prices, but in the inability to secure the necessary quantity of energy—in other words, the occurrence (or even the looming threat) of a physical shortage. While price escalation undoubtedly exerts serious consequences, as noted earlier, the fact that energy is an indispensable strategic commodity means that its unavailability—or even the widespread perception of such a risk—can produce an extraordinary and far-reaching impact.

In the case of the Ukraine crisis, Europe—having become excessively dependent on Russian pipeline gas—was suddenly confronted with a drastic reduction in supply during the summer of 2022, forcing it to brace for the possibility of gas shortages. At that moment, Europe plunged into a state of near-panic, deploying every conceivable countermeasure with extraordinary urgency. The most emblematic example of this desperate response was the aggressive procurement of gas from global markets, even at the expense of displacing other buyers. This wave of “panic buying” drove European gas prices to unprecedented levels—approaching \$100 per million BTU (equivalent to nearly \$600 per barrel of oil). Europe, seizing upon the increased availability of destination-flexible U.S. LNG, bid up prices aggressively to secure available LNG cargoes. In doing so, Europe effectively diverted LNG shipments originally intended for Asian markets, all under the banner of safeguarding its own energy security. Such is the magnitude of the impact that even the mere possibility of a physical shortage of energy can exert.

This issue is by no means confined to Europe during the Ukraine crisis. Nearly half a century ago, during the first oil shock, Japan faced the Arab oil embargo and was driven into a desperate scramble to secure crude oil. Japanese oil companies and trading houses scoured global markets, purchasing oil at exorbitant prices, which in turn triggered a sharp surge in international crude prices. Moreover, under the intense pressure of the embargo, the Japanese government was compelled to revise its Middle East policy—even defying U.S. objections to do so. Such developments illustrate the profound influence that the mere possibility of a physical shortage of energy—an essential strategic resource—can exert on national policy and global markets.

Oil, natural gas, and LNG will remain critical components of international energy trade for a considerable period in the foreseeable future. Consequently, concerns over potential physical shortages in these markets—arising from various causes—cannot be dismissed. The possibility of such shortages will continue to represent a core issue in energy security. However, today, a new and equally serious challenge related to physical scarcity has captured global attention: the issue of critical minerals, including rare earth elements, indispensable for advancing the energy transition. These minerals are not only essential for clean energy technologies but also constitute irreplaceable strategic resources for major economic sectors such as the automotive industry. Their importance extends far beyond energy, positioning them at the center of both industrial competitiveness and national security considerations.

As in past crises, this issue is compounded by excessive dependence on specific suppliers—most notably China—and the concentration of supply sources. The potential “weaponization” of these resources by dominant suppliers has become a focal point of international concern.

If history offers any lesson, it is that both the oil crisis and the Ukraine crisis shared a critical common feature: prior to the outbreak of each crisis, energy prices had already surged, and global supply-demand conditions were severely strained. This pattern must not be overlooked. The emergence of acute concerns over physical shortages and the weaponization of strategic resources is strongly conditioned by such pre-existing market tightness and price escalation. Furthermore, an additional factor warrants attention—the difficulty of securing alternative supply sources in response to unforeseen disruptions. The greater this difficulty, the more severe and protracted the crisis is likely to become.

The world is now paying close attention to the growing severity of issues surrounding critical minerals, and major nations are actively seeking to implement strategic countermeasures. One of the key outcomes of the recent U.S.-Japan summit was the advancement and strengthening of bilateral cooperation on rare earths and other critical minerals. This development reflects the heightened prominence of these issues in both countries, driven by the context of strategic competition with China. In this cooperative framework, particular emphasis has seemingly been placed on upstream development and refining/processing capabilities for rare earths and other essential minerals. To ensure the stable supply of these strategic resources, it is self-evident that measures must include expanding global production capacity, diversifying and dispersing supply sources, and securing alternative supply channels.

However, historical experience in international energy markets demonstrates that an excessive focus on securing supply—while neglecting other dimensions—can produce significant adverse “side effects”. Overemphasis on supply-side measures has, in the past, fueled resource nationalism, amplified the dominance and bargaining power of producing countries and suppliers, and,

paradoxically, intensified competition for resources, thereby aggravating supply-demand imbalances. In light of these lessons, it is imperative to pursue supply-side strategies in tandem with robust demand-side measures. These should include the development of substitute technologies, resource saving/efficiency improvements, and recycling initiatives aimed at curbing the consumption of critical minerals. Equally important is the establishment and reinforcement of strategic stockpiles of these minerals to serve as a safety net during emergencies. Such reserves would underpin mechanisms designed to prevent panic buying and stabilize markets through coordinated international frameworks. These comprehensive measures closely parallel the initiatives undertaken by the OECD in response to the oil crises of the past. Drawing upon these historical lessons, the international community must advance long-term, strategic policies to prepare for the potential emergence of future crises.

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