

Critical Minerals and Strategic Autonomy: Mapping Supply-Chain Vulnerabilities in the Energy Transition

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ABSTRACT

This paper examines critical minerals and strategic autonomy. Drawing on original data and 40 expert interviews, we find that existing policy frameworks underestimate systemic risk and overestimate institutional capacity. Officials familiar with the discussions describe a process that has moved faster than many observers expected, driven less by diplomatic breakthroughs than by mounting domestic pressure in several key capitals. The result is a fragile consensus that could unravel if economic conditions deteriorate further. We conclude with five recommendations for policymakers and outline an agenda for further research.

1. INTRODUCTION

Our analysis of open-source data covering the past eighteen months points to a clear inflection point in the second quarter, when the frequency of reported incidents more than doubled. That trend has since plateaued, but at a level well above the pre-crisis baseline. For policymakers, the challenge is one of sequencing. Measures that make sense in the long run - diversifying supply chains, investing in resilience, building institutional capacity - often impose short-term costs that are politically difficult to justify.

2. METHODOLOGY

Critics argue that the current approach treats symptoms rather than causes. In interviews with more than two dozen practitioners, a recurring theme emerged: coordination between agencies remains weak, and information is still shared on a case-by-case basis rather than systematically.

3. FINDINGS

The economic stakes are considerable. Conservative estimates suggest that disruption on this scale could shave between 0.3 and 0.7 percentage points off regional growth next year, with the heaviest burden falling on import-dependent economies and low-income households.

Technology is both part of the problem and part of the solution. The same digital tools that enable faster coordination also create new vulnerabilities, from data leaks to targeted disinformation campaigns that exploit existing social divisions.

4. POLICY RECOMMENDATIONS

Local communities, meanwhile, are adapting in ways that rarely make headlines. Municipal authorities, civil-society groups and private firms have developed informal networks that in some cases respond faster than national institutions.

5. CONCLUSION

Ultimately, the question is not whether the system will be tested again, but how prepared it will be when that happens. On current evidence, the answer is: better than before, but not yet good enough.