



## TRILATERAL ENERGY SECURITY COMMITTEE (TESC)

# Changing the Game: Reshaping Energy Security in Northeast Asia Through Trilateral Collaboration

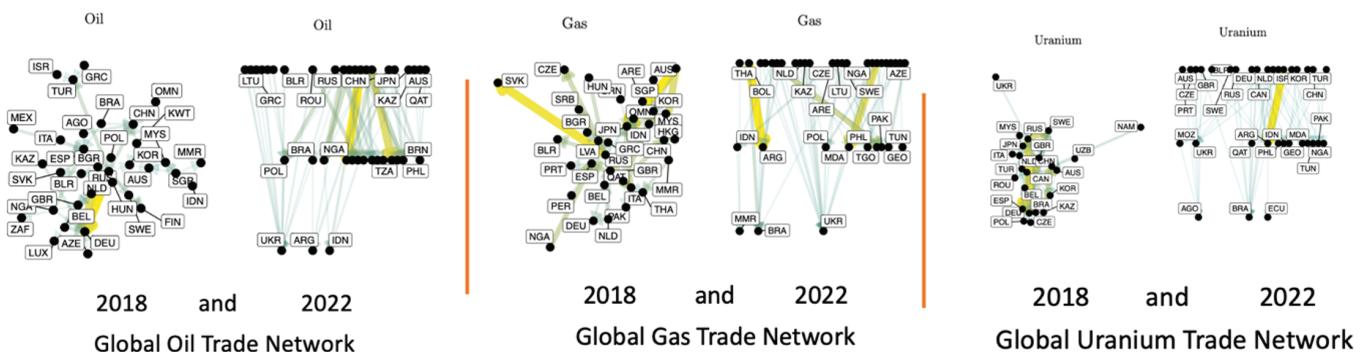
ENERGY SECURITY is crucial for economic growth and geopolitical stability. South Korea and Japan, closely aligned with the US, face significant risks to their energy supply given their import dependence for energy and physical isolation from key, allied trade partners. In addition to threatening South Korea and Japan, these risks pose a significant threat to US interests in the Western Pacific. These risks fall into three main categories: policy shifts, such as changes in US export policies or sanctions; military conflicts and political instability that could disrupt shipping lanes or interrupt production; and natural causes like pandemics or weather-related disasters.

To address these challenges, the Trilateral Energy Security Committee (TESC) has been formed, bringing together experts from the Korean Energy Economics Institute (KEEI), the Institute for Energy Economics, Japan (IEEJ), and the Hamm Institute of American Energy (HIAE) at Oklahoma State University. TESC aims to evaluate energy security vulnerabilities, assess disruptive risk scenarios, and recommend policies to mitigate these risks.

Our initial bipartite network analysis has shed light on crucial aspects of energy trade patterns. We discovered that energy markets exhibit greater volatility compared to general trade. This became evident when comparing the impacts of the COVID-19 pandemic and the Ukraine invasion on trade disruptions. While the pandemic affected overall energy trade and supply chains similarly, the invasion of Ukraine triggered far more significant disruptions in energy markets.

## Why now?

Once robust energy trade networks are becoming less resilient



Another key finding is that energy network disruptions tend to be more concentrated and isolated than those in general trade. This means that when disruptions occur, they don't impact all commodities equally, but rather affect specific areas more intensely.

These insights point to a clear conclusion: policy responses to energy market disruptions should be tailored to address specific commodities and economies. This aligns with existing literature that emphasizes the importance of grounding policy decisions in microeconomics.



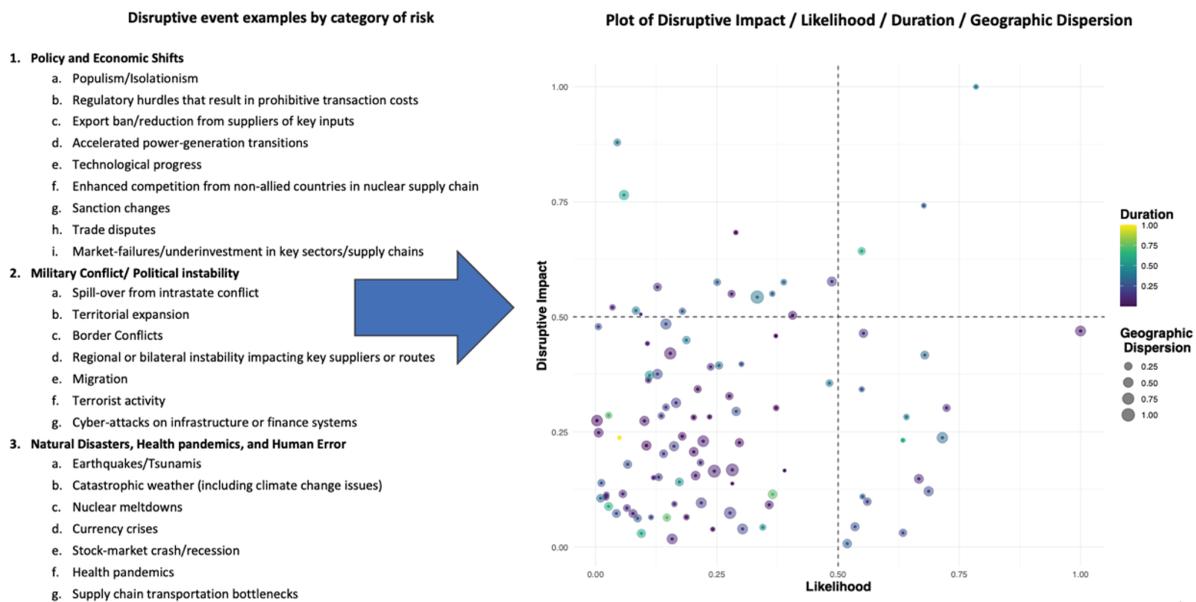
## TRILATERAL ENERGY SECURITY COMMITTEE (TESC)

The volatile nature of energy markets underscores the need for robust preventive policies to ensure supply and price stability. Policymakers should focus on developing proactive measures to maintain stability in these unpredictable markets.

In essence, our research highlights that energy markets are particularly vulnerable to geopolitical events, disruptions are often commodity-specific, and targeted policy responses are likely to be most effective. These insights can guide the development of more nuanced and effective strategies to address energy market disruptions and enhance overall energy security.

Future research will focus on how both systemic and inherent energy security vulnerabilities interact with disruption to both predict the severity of the disruption and produce the best possible policy prescriptions to reduce volatility.

## Disruptive event simulation modeling



Specific areas of investigation may include cooperative investment projects for commodity supply chains such as LNG, which could include projects from extraction to transport and storage, as well as US nuclear enrichment projects, including frontier technology such as small-modular reactors (SMRs) that make use of high-assay low-enriched uranium (HALEU), and collaborative supply chain investments to create a regional supply hub for allies.

In addition to securing the supply of current energy profiles in South Korea and Japan, policy research is warranted in areas such as diversification of energy sources, particularly technologies contributing to net-zero goals, and cooperative military strategies that explicitly address energy security. These efforts aim to mitigate vulnerabilities, enhance security, and promote stability for each nation, the region, and globally.

By addressing these energy security challenges, the US and its allies can safeguard their economic interests, maintain geopolitical influence, and ensure long-term stability in the Western Pacific region. The ultimate goal of TESC's work is to develop comprehensive policy prescriptions that will reduce volatility in energy markets and enhance the resilience of these key democratic partners in the face of potential disruptions.