

# ***ON THE GEOPOLITICAL DISRUPTION OF THE EU NATURAL GAS MARKET: A CORRECTION MODEL***

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## **Overview**

WWII end called Europe for stability. The institution of the European Union (EU), followed by the advent of the euro roughly 20 years ago, are the best expressions of such will. Policies and regulations to boost the economy were set. The current consequences of the abrupt breach of the European continental security suggest that most of them were conceived assuming peace to hold the continent together.

Natural gas consumption arose  $\approx 30\%$  in the EU and  $\approx 50\%$  worldwide in the last 30 years. Its greater impact on geoeconomic equilibria also highlights many drawbacks: reliance on politics and a complex spacial structure, affected by relatively high transportation costs, long-term contract implications and significant CapEx expenditures. These factors are now antagonist of a reliable and stable European gas network.

The EU Directive 98/30/EC (quite as old as the euro) institutionalized the need for it. Measures implemented to avoid dominant detrimental market positions rather prioritized competitiveness, security and quality of supply. Breaching these principles affects several economic activities relying on gas, threatening: the strength and stability of the euro, consumers' investments and ROIs, the EU leading role in decarbonization, public security. Meaningfully, the second largest reserve currency in the world hit a 20-year low after Gazprom declared would shut down Nord Stream 1 pipeline! The importance of present events in contemporary and future energy geopolitics are the reasonable for this paper.

## **Methods**

Correlations between data will be investigated: gas prices, import quotas, electricity and industrial heat production by energy source, currency fluctuations against energy prices, trade movements (pipelines and LNG), CapEx expenditures, storage and transportation costs. Statistics related to the EU of the last 30 years will be the benchmark for data analytics. The relative weight of each factor determining gas prices to be first ordinarily assessed, and then geopolitical disruptions to be accounted for.

The severity of the unrest on the overall economy will be estimated by a parameter inferred from historical data during specific events (i.e. the EU agreement on the sixth sanctions package covering the import of crude oil from the Russian Federation that triggered the rally of the Dutch TTF Gas Futures). It will in turn be correlated to gas prices and exchange rates.

## **Results**

Established correlations, a set of optimal and hypothetical data will be the new input for the model, based on an example of ideal reallocation of CapEx expenditures within the energy infrastructural network, accounting for: rerouting gas supply, enhanced cooperation with MENA and INOGATE exporters, strengthened LNG networks, enhanced hydrogen production, higher quotas of electricity produced from renewable resources. The competitive advantages observed in countries leading the green revolution, will be supposed to hold across the whole EU. The results of the model given the present real scenario will be compared against the same values for the suggested correction modelled scenario. They will provide prices patterns estimates for the nearby future.

## **Conclusions**

The geoeconomic spacial model will demonstrate that weaponizing implications of energy supply may be strategically bypassed, while consistently achieving objectives as monetary stability and environment preservation. The paper will contribute to the mission of the 44th IAEE international conference, showing that pathways to a clean, stable, and sustainable energy future are also the gateway to support geopolitical stability and social wealth.