

## Russian pipeline natural gas export strategy under uncertainty

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**Abstract :** Europe has been a traditional importer of Russian natural gas for more than 50 years. In 2021, Russian state-owned company Gazprom supplied about a third of all gas consumed in Europe. The Russia-Europe mutual dependence in terms of natural gas supplies has been causing many concerns about the energy security of the two sides for a long period of time. These days the issue has become more urgent than ever considering recent Russian invasion in Ukraine followed by increased large-scale geopolitical conflicts, making the future of Russian natural gas supplies and global gas markets as well highly uncertain. Hence, the main purpose of this study is to get insight into the possible futures of Russian pipeline natural gas exports by a scenario planning method based on Monte-Carlo simulation within LUSS model framework, and propose Russian pipeline natural gas export strategies based on the obtained scenario planning results. The scenario analysis revealed that recent geopolitical disputes disturbed the traditional, longstanding model of Russian pipeline gas exports, and, as a result, the prospects and the pathways for Russian pipeline gas on the world markets will differ significantly from those before 2022. Specifically, our main findings show, that (i) the events of 2022 generated many uncertainties for the long-term future of Russian pipeline gas export perspectives on both western and eastern supply directions, including geopolitical, regulatory, economic, infrastructure and other uncertainties; (ii) according to scenario modelling results, Russian pipeline exports will face many challenges in the future, both on western and eastern directions. A decrease in pipeline gas exports will inevitably affect country's natural gas production and significantly reduce fossil fuel export revenues, jeopardizing the energy security of the country; (iii) according to proposed strategies, in order to ensure the long-term stable export supplies in the changing environment, Russia may need to adjust its traditional export strategy by performing export flows and product diversification, entering new markets, adapting its contracting mechanism, increasing competitiveness and gaining a reputation of a reliable gas supplier.

**Keywords :** Russian natural gas, Pipeline natural gas, Uncertainty, Scenario simulation, Export strategy

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