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Al-Farabi Kazakh National University
Almaty, Kazakhstan

Review

of the foreign scientific supervisor to dissertation work by Zhai Xuan, having the title "Current state and prospects of cooperation between Kazakhstan and China in the natural gas sector", presented for the Degree of Doctor of Philosophy on a specialty 8D04101 – World economy.

I am submitting my feedback and judgment on the dissertation work of Zhai Xuan, presented for the degree of Doctor of Philosophy in the specialty 8D04101 – World economy as her Foreign Scientific Supervisor.

Based on my knowledge of her work, I believe Zhai Xuan has demonstrated exceptional analytical skills and made satisfactory progress in researching the important topic titled "Current state and prospects of cooperation between Kazakhstan and China in the natural gas sector". This topic is clearly of significant importance, especially considering it presents a new perspective concerning Kazakhstan.

Against the background of energy security increasingly becoming the core of international energy cooperation, research dedicated to developing effective methods and strategies plays a crucial role in ensuring energy security. The main issue of the work is to analyze and evaluate the cooperative mechanisms between Kazakhstan and China in the natural gas sector, while examining the development status of the natural gas market, in order to identify the obstacles and barriers causing the decline in bilateral gas trade volume.

The candidate has completed empirical research applying theoretical concepts to practical projects. The selection of this research interest and the application of relevant methodologies both meet the standards required for a high-level thesis.

The dissertation work achieves significant results in its first section, successfully constructing a conceptual model of international energy cooperation and synthesizing

key findings from the relevant literature. In the second section, the topical issues of cooperation between Kazakhstan and China in the system of modern gas relations are discussed and evaluated. The results and recommendations ultimately obtained have practical applications in collaborative work, making the presented research outcomes particularly significant and valuable.

From my point of view, the completed dissertation work has been successful and has achieved some important results:

- The development of methodological approaches for analyzing mutual relations between energy consumption and economic development.
- The identification of the main trends and issues in the diversification of the energy market, considering the prospects for its sustainable development.
- The assessment of large-scale natural gas projects revealed in this study demonstrates the economic benefits of gas cooperation in modern relations.
- The identification of the competitive role of Kazakhstan in the natural gas market using specific combinations of transportation scenarios, along with the development of a mathematical model for improving the efficiency of the gas supply chain.

These key findings demonstrate the importance of natural gas cooperation to economic and trade relations. The defined objectives and purposes align perfectly with the research topic. Considering the completed work, the scientific novelty and the practical value of the obtained results, I conclude that the dissertation of Zhai Xuan titled "Current state and prospects of cooperation between Kazakhstan and China in the natural gas sector" fully meets the scientific requirements for a doctoral dissertation for the degree of Doctor of Philosophy on the specialty 8D04101 – World economy, and I recommend it for defense.

Yours sincerely,



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