

ABSTRACT

dissertation for the degree of Doctor of Philosophy (PhD) in the educational programme «8D03105 - International Relations»

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Foreign Relations of Kazakhstan in the Context of Renewable Energy

Relevance of the research topic. Energy is vital for industries, economies, and daily life, primarily sourced from fossil fuels like coal, oil, and natural gas. Their limited supply has created oligopolistic markets. Since World War II, the U.S. has influenced global energy flows, particularly in the Persian Gulf. The 1970s oil crisis raised awareness of energy's political implications. In 1990, the Intergovernmental Panel on Climate Change highlighted the environmental impacts of fossil fuels, sparking climate change concerns. The 2015 Paris Climate Agreement aimed to combat this by requiring countries to set targets to limit temperature rise, emphasizing the need for renewable energy and improved energy efficiency to reduce carbon emissions.

This dissertation holds significant relevance to the field of international relations by contributing to the existing literature on global energy dynamics, focusing on the intersection of Kazakhstan's dual role as a petroleum producer and a newcomer to the renewable energy transition, its foreign policy formulation and its contribution to global energy security.

Purpose of the dissertation research. The key objective of the thesis is to address the gaps in the scientific literature on renewable energy development by analysing Kazakhstan's foreign policy in the context of current trends in the global energy landscape, taking into account the internal and external conditions of Kazakhstan, as well as its contribution to global energy security.

The primary **research question** guiding this dissertation is, "how can Kazakhstan enhance its diplomatic capacity and global presence in the upcoming energy order in which renewable energy is prioritised?" To answer this question sufficiently, the dissertation author focuses on three interrelated aspects: 1) the internal and external conditions necessary for renewable energy to become a foreign policy instrument; 2) the impact of renewable energy on Kazakhstan's approach to foreign affairs; and 3) diplomatic strategies for maintaining the Republic's relevance to global energy security.

The **hypothesis** is that Kazakhstan's efforts to embrace renewable energy can serve as a strategic pivot to enhance its diplomatic influence and secure its relevance in an evolving energy landscape.

The following **tasks** were identified as instrumental to address the objective of the dissertation, answer the research question and test the hypothesis:

- conduct a survey of international relations theories to theoretically understand and analyse Kazakhstan's foreign energy policy;
- conduct a case study on an anchor country that has features comparable to Kazakhstan but is ahead in renewable energy adoption, to identify the theoretical composition of its foreign energy policy, as well as specific internal and external conditions, for developing renewable energy-oriented foreign affairs strategies;
- conduct a correlation analysis using relevant global statistical data to assess the intensity and trend of the relationship between renewable energy adoption and diplomatic capacity;
- review the key milestones in Kazakhstan's journey towards becoming an energy state;
- conduct model-based forecasting to project the trajectory of Kazakhstan's foreign energy policy with reference to the knowledge acquired from the aforementioned tasks;

- determine the implications of renewable energy on Kazakhstan's multi-vector foreign policy in theoretical and practical terms;
- determine the implications of renewable energy on Kazakhstan's contribution to global energy security in theoretical and practical terms;
- speculate on the unique opportunities, challenges and recommendations for Kazakhstan's foreign energy relations in terms of policy resonance and action alignment with partner countries in light of global aspirations for carbon neutrality.

Research methods. While the title of this dissertation suggests a case-based exploratory research, as renewable energy transition continues to unfold across the globe, the mixed methods research (MMR) methodology is appropriate to provide an evidence-based and data-driven approach to address the multi-layered impacts of renewable energy on Kazakhstan's foreign affairs strategies. In this connection, this dissertation employs a five-phase MMR methodology, which begins with a survey of international relations theories, a case study on an anchor country and a correlation analysis for the purpose of model building. This is followed by model-based forecasting, which leads to recommendations for mandatory actions for Kazakhstan to assert its global presence in a post-petroleum world. Apparently, the four types of data analysis, namely descriptive, diagnostic, predictive and prescriptive, are also incorporated to provide hints at each of the research methodologies that address what happened (descriptive), why something happened in the past (diagnostic), what could happen next (predictive), and what should happen in the future (prescriptive).

Main inputs of the defence. The following scientific hypotheses and conclusions are the core elements that form the backbone of this dissertation, which are to be presented and debated at the defence:

1. While geo-related factors are influential to a country's foreign energy policy, diplomatic capacity and global presence in the post-petroleum world are linked less with neorealism's self-help and power struggles among states but rather with a framework drawing upon principles of neoliberalism and constructivism.

2. The case study on Brazil provides empirical evidence that enriches the understanding of a country's transition towards integrating renewable energy as a strategic element of its foreign policy. The identification of a collection of indicators in Brazil underscores some of the most fundamental but general internal and external conditions that can propel renewable energy to a central position in foreign policy-making in Kazakhstan and other countries.

3. Quantitative research utilising global datasets provides evidence for the intensity and trend of the association between diplomatic capacity and the uptake of renewable energy, suggesting that countries that prioritise and promote renewable energy projects are more prone to develop sustainable and mutually beneficial interstate relations.

4. By maintaining a pragmatic stance through balancing its energy interests among the great powers and many "second-tier" countries, Kazakhstan develops a diversified portfolio of energy partners, which fosters the adoption of a hybrid diplomatic model that integrates both petroleum politics and renewable energy-oriented foreign affairs strategies.

5. Renewable energy adoption transcends mere energy technology substitution, and the absence of energy democracy and social justice into the foreign policy-formulation may complicate the Kazakhstan's efforts to enhance policy resonance and action alignment with the frontrunners in renewable energy transition.

Main results of the research. The survey of international relations theories reveals that geo-related factors, neorealism, neoliberalism and constructivism significantly shape foreign energy security policy. In the post-petroleum world, the shift moves towards neoliberalism and constructivism principles.

Brazil, a pioneer in low-carbon energy, was used as the case study anchor. Key success factors in renewable energy diplomacy include eight indicators: 1) Renewable energy potential;

2) Ruling elite's change competency to pursue renewable energy transition; 3) Foreign policy resilience to renewable energy transition; 4) National measures to increase sustainable energy security; 5) Electricity infrastructure; 6) Human capital; 7) Energy cooperation with intra-regional actors; and 8) Energy cooperation with extra-regional actors.

Correlation analysis, using global data from 2014 to 2022/23, shows that countries leading in transitioning from fossil fuels have better prospects for sustainable interstate relations.

Model-based forecasting suggests Kazakhstan's foreign policy could undergo changes and increasingly bear resemblance to Brazil's approach that achieves energy security, economic growth and environmental sustainability in theoretical and practical terms.

Novelty and significance of the obtained results. This dissertation introduces a novel MMR methodology, integrating international relations theories, a Brazilian case study, and global data to create a forecasting model for Kazakhstan's foreign relations in renewable energy. It utilizes a unique set of indicators from the Brazilian case study to explore how internal and external factors shape Kazakhstan's renewable energy transition and diplomacy. The author pioneers new pathways for understanding the formulation of renewable energy-focused foreign policies.

The dissertation also presents a novel approach to acknowledging Central Asian and "second-tier" countries in Kazakhstan's multi-vector foreign policy. It advocates for consolidating energy interests among great powers and partner countries, promoting energy security and carbon neutrality. A "hybrid diplomacy" strategy, combining petroleum politics and renewable energy strategies, is conceptualized to address energy challenges at various levels and maintain Kazakhstan's global energy security role.

The author incorporates concepts like energy democracy, technocracy, and social justice into the discussion of international energy relations, offering new insights beyond traditional approaches. The dissertation suggests theoretical and practical shifts in Kazakhstan's foreign policy to adapt to the global low-carbon transition. It contrasts neorealist principles with neoliberalism and geo-related factors, considering Kazakhstan's renewable energy potential and regional cooperation.

To align with leading renewable energy transitions, Kazakhstan must shift from a petroleum-based strategy to one embracing a green identity, grounded in constructivist principles. Practically, Kazakhstan's renewable energy foreign policy involves investments from the EU and China and President Tokayev's vision of foreign policy economization. Emphasizing regional and multilateral cooperation will attract funding and partnerships, enabling Kazakhstan to address development issues and explore alternative energy paths effectively. President Tokayev's clean energy commitment underlines a hybrid diplomatic strategy to tackle diverse energy challenges domestically and internationally.

Correspondence to the directions of scientific development or state programmes. This dissertation explores the critical early 2020s, emphasizing renewable energy adoption, sustainable technologies, decarbonization for energy security and carbon neutrality. With rich resources, Kazakhstan aims for carbon neutrality by 2060, requiring foreign policy and diplomatic shifts. Despite internal constraints, Kazakhstan and Central Asia can become key exporters of low-carbon electricity, raw materials and rare earth elements. Effective foreign relations and cooperative ventures will shape Kazakhstan's evolving multi-vector foreign policy in global energy security. President Tokayev's clean energy commitment suggests a hybrid diplomacy approach, combining petroleum politics and renewable energy strategies to address diverse energy interests and transitions. This study informs policymakers about unaligned energy interests and uneven renewable energy transitions globally, highlighting national, regional, and international changes, opportunities, and challenges towards a carbon-neutral future. It equips political entities to manage renewable energy transitions as movements

of energy democracy and social justice, essential for re-inventing national identity. Internally, it implies fostering sustainable development conditions; externally, it promotes policy resonance and alignment for effective renewable energy-focused foreign strategies.

The research identifies four dimensions needing further exploration: targeted renewable energy investigations (solar, wind, hydro, biofuels, green hydrogen), energy regionalism in Central Asia, reconciling petroleum identity with fossil-free futures, and technocracy's role in energy and climate crises.

The PhD student's contributions to the preparation of each publication. During the period from 2019 to 2024, under the supervision of his scientific supervisor Professor Kukeyeva Fatima of Al-Farabi Kazakh National University and Professor Xu Xinpeng of the Hong Kong Polytechnic University, the dissertation author Hor Ka Wai Christopher published two articles in journals indexed by Scopus, four articles in journals recommended by the Committee for Control in the Sphere of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, and one book chapter. His contributions were substantial, as he not only formulated the titles, theoretical frameworks and methodologies but also engaged in data collection, data analysis and the composition of the articles. During the course of his doctoral studies, he exhibited consistent improvement in his research skills, analytical capabilities and subject matter expertise, affirming his competence in conducting independent research as a researcher and scholar. This dissertation adequately represents his efforts, contributions and overall scholarly achievements.