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Identification of the Implications of Energy Corridors and Great-Power Geopolitical Competition for National Security and Defense Strategy

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ABSTRACT

Competition over energy resources and control of strategic transit corridors, particularly in geopolitically sensitive regions, constitutes one of the key determinants of national security and the formulation of defense strategies for countries at both regional and global levels. Accordingly, this article aimed to examine the impact of energy corridors and great-power geopolitical competition on national security and the defense strategies of states. The research methodology was based on a systematic review of scientific literature and case studies, which facilitated the identification of relationships among national security, defense strategy, energy transportation, and the geopolitical competition of major powers. The study first identified the principal implications of energy corridors, including energy security, defense resilience, reduced dependence on external resources, protection of critical infrastructure, enhancement of economic capabilities, utilization of emerging technologies, and coordination of national policies. Subsequently, the implications of great-power geopolitical competition were examined, including shifts in the balance of power, direct and indirect threats, the necessity of revising defense policies, strengthening regional cooperation, managing strategic risks, conducting systematic analyses of competitive dynamics, and increasing states' strategic autonomy. The findings indicated that energy corridors and great-power competition exert extensive influences not only on the economic sphere but also on defense and security policies. Effective and strategic management of these factors is therefore essential for strengthening national security and enhancing defense capabilities. Based on the results, several recommendations are proposed, including the development of energy and technological infrastructure, the reinforcement of regional cooperation, the formulation of coordinated energy and security policies, and the enhancement of human resource capacities. These measures can enable countries to improve their security and stability within the increasingly complex global geopolitical and energy environment.

Keywords: *Energy Corridors, Great-Power Geopolitical Competition, Strategic Risk Management, Regional Cooperation.*

Introduction

Given the strategic importance of Central Asia and the key role of energy corridors in transferring oil and gas resources to global markets, the geopolitical competition of major powers such as the United States, China, and the European Union, particularly in the fields of energy and emerging technologies, has significant effects on the



national security of states and their defense policies (1, 2). Studies show that the growing emphasis on energy autonomy and competition to control energy transportation routes leads to rapid changes in the regional and global balance of power and affects the security of energy infrastructure and the defense capabilities of states (3, 4). Despite extensive research on geopolitics and energy security, there are still major gaps in the integrated analysis of the economic, political, and military interactions of major powers and their direct effects on Iran's national security. In particular, the role of smart energy technologies, energy distribution network systems, and cybersecurity in energy corridors has not yet been studied comprehensively and analytically, while emerging cyber threats and their managerial complexities can endanger the country's national security. The unknown aspects of the problem include the lack of analytical models for the simultaneous assessment of geopolitical threats, energy risks, and the country's defense capabilities, as well as the fact that the interaction among key variables such as the security of energy corridors, great-power competition, energy sustainability, and smart technologies has not yet been systematically identified (5-7). By focusing on related variables, including defense policies and national security, energy infrastructure, smart technologies, and strategic corridors, this study seeks to provide an analytical framework for predicting threats and proposing defense strategies appropriate to geopolitical developments (8-10). The aim of the present study is to fill existing gaps in energy security and defense studies, provide a scientific and practical model for strategic decision-making, and increase the country's preparedness for confronting the complex competition of major powers in Central Asia in a way that can contribute, both theoretically and practically, to enhancing the national security of the Islamic Republic of Iran. Accordingly, the present dissertation seeks to answer the fundamental question: How do energy corridors and the geopolitical competition of major powers in Central Asia affect the national security and defense strategy of the Islamic Republic of Iran?

Literature Review

Geopolitics, as a branch of political science and geography, plays a central role in analyzing and explaining state behavior and international interactions and affects the national security and economic development of countries. Studies show that the geographical position and natural resources of each country create geopolitical opportunities and threats (11). More specifically, countries that possess energy resources or strategic transit routes are exposed to the pressures and competitions of major powers, and managing these capacities requires coordination among domestic policies, diplomacy, and national security (7). From this perspective, geopolitics is not limited to the analysis of geographical position and regional competitions; rather, it is directly connected to economic and energy policies and contributes to the design of national strategies for increasing security and regional influence (1).

Energy security is one of the important dimensions of contemporary geopolitics and has a direct relationship with strategic autonomy and the competitive capacity of states. Studies have shown that dependence on foreign energy resources exposes countries to geopolitical and cyber risks, while the use of renewable energy resources and smart grids can reduce these risks (7, 12). Moreover, designing cybersecurity frameworks for distributed energy networks and using emerging technologies such as blockchain and artificial intelligence increase the capacity of countries to confront cyber threats and geopolitical competition (13). Therefore, energy security is not merely a technical or economic issue; rather, it is considered one of the key instruments for maintaining national security and implementing geopolitical policies.

Great-power competition, particularly among the United States, China, and the European Union, has extensive geopolitical and economic consequences. Studies show that economic and industrial nationalist policies, as

instruments for strengthening national security and maintaining competitive advantage, have been placed on the agenda of these countries (1). Cyber, military, and energy competitions among these powers also affect the national security of regional countries, and states require comprehensive planning based on multidimensional analysis in order to maintain strategic autonomy and prevent extra-regional threats (2, 9). In addition, the emergence of geoeconomics and its connection with security policies show that economic decision-making without understanding geopolitical dimensions can reduce the strategic and security effectiveness of states (14).

Finally, modern theories of national security and geopolitics emphasize that the interaction among emerging technologies, energy, the economy, and international policies provides a comprehensive analytical framework for predicting national threats and opportunities (8, 15). Recent studies have shown that smart energy networks, security standards, and international cooperation in the fields of energy and critical raw materials can lead to reduced dependence on major powers, increased competitive capacity, and strengthened national security (10, 16). Therefore, the theoretical framework of this study is based on the interaction among geopolitics, energy security, technology, and great-power competition, and it emphasizes the importance of systematic and multidimensional analysis in formulating national and regional policies. The following section presents the background of domestic and foreign studies.

Domestic Studies

Safavi et al. conducted a study entitled "Effective Requirements for Formulating Strategies to Enhance the Geopolitical Power of the Islamic Republic of Iran in West Asia Based on Desirability." The results of their study showed that formulating strategies to enhance Iran's geopolitical power requires attention to internal and external components, including regional diplomacy, defense capability, and economic cooperation (17).

Mardi et al. conducted a study entitled "The Impact of Security-Political Hydropolitical Capacities of Iran-Iraq Border Rivers on Passive Defense in Western Iran." The results of their study showed that using border hydropolitical capacities can help improve passive defense capability and increase national security in western regions of Iran (18).

Shakiba and Nourmohammadi conducted a study entitled "The Impact of US-China Competition in the Middle East on the National Security of the Islamic Republic of Iran, 2010–2022." The results of their study showed that the strategic competition of global powers in the Middle East has a direct effect on Iran's national security and requires the revision of security and diplomatic policies (19).

Zarei and Mousavi Shahidi conducted a study entitled "Geopolitical Strategies of United States National Security in Relation to China during Joe Biden's Presidency, 2020–2024." The results of their study showed that US policies during Biden's presidency, by focusing on limiting China's influence and strengthening the United States' geopolitical position in Asia, have created challenges for the national security of regional countries (20).

Nozari et al. conducted a study entitled "Defense Strategies of the Islamic Republic of Iran Influenced by India-China Geopolitical Competitions in Southwest Asia." The results of their study showed that the geopolitical competitions of India and China in the region have led Iran to revise its defense and security policies (21).

Badii Azandahi et al. conducted a study entitled "Explaining Iran's Geopolitical Strategy: A Geographical Reading of the Gray Zone and the Axis of Resistance." The results of their study showed that Iran's geopolitical strategy within the framework of the Axis of Resistance and the management of gray zones can increase the country's national security and regional influence (22).

Norouzizadeh et al. conducted a study entitled "The Role of the Geopolitics and Geoeconomics of Persian Gulf Energy Transit (Oil and Gas) in Advancing the Regional Policy of the Islamic Republic of Iran." The results of their study showed that using the energy transit capacity of the Persian Gulf can be an effective instrument for achieving Iran's geopolitical objectives (23).

Zarif-Manesh and Beik-Bolandi conducted a study entitled "The Geopolitical Dependence of Regional and Global Growth on the National Space of the Islamic Republic of Iran." The results of their study showed that Iran's national security and economic development are strongly dependent on the proper management of the country's geopolitical position (24).

Mosibi Malekhhil and Daj Liri conducted a study entitled "Geopolitical Factors Affecting the Foreign Defense Strategies of the Islamic Republic of Iran and Turkey." The results of their study showed that the geopolitical relations of Iran and Turkey are influenced by regional and extra-regional components, and these factors affect the defense policies of both countries (25).

Asgari conducted a study entitled "The Impact of Energy Transfer Geopolitics on the National Security of the Islamic Republic of Iran." The results of the study showed that the management of energy geopolitics, particularly oil and gas transmission lines, plays a vital role in ensuring Iran's national security (26).

Jamshidi et al. conducted a study entitled "The Geopolitical Influence of the National Interests of the Islamic Republic of Iran from the Competition between NATO and the Shanghai Cooperation Organization in Central Asia." The results of their study showed that competition among international organizations and regional powers can directly affect Iran's national interests (27).

Shamloo conducted a study entitled "Explaining the Economic Geopolitical Factors Affecting the Defense Strategies of the Islamic Republic of Iran in the Persian Gulf." The results of the study showed that the economic dimensions of geopolitics, particularly energy resources, have a significant effect on the formulation of Iran's defense strategies in the Persian Gulf (28).

Khosrow et al. conducted a study entitled "The Impact of Iran-Russia Defense Cooperation on Iran's Energy Geopolitical Strategy: With Emphasis on Oil and Gas." The results of their study showed that defense cooperation with Russia can serve as an instrument for strengthening Iran's geopolitical position in the field of energy (29).

Ansari et al. conducted a study entitled "Geopolitical Competitions of Regional and Extra-Regional Powers in Iraq and Their Impact on Iran's National Security." The results of their study showed that power shifts in Iraq and regional competitions can have direct and significant effects on Iran's national security (30).

Golafrouz conducted a study entitled "The Role of Energy Geopolitics in the National Security of the Islamic Republic of Iran." The results of the study showed that the intelligent use of energy capacities, particularly oil and gas, can guarantee an increase in the country's national security (31).

Dibavand conducted a study entitled "An Analytical Study of the Feasibility of Enhancing Iran's National Security and Increasing the Cost of Military Threats through Gas Exports by Pipeline and LNG." The results of the study showed that gas exports can function as a geopolitical lever for increasing national security and reducing military threats (32).

Movahhed conducted a study entitled "Geopolitics of Energy Transfer in the Caspian Sea Region and Its Impact on the National Security of the Islamic Republic of Iran." The results of the study showed that controlling energy transportation routes in the Caspian Sea plays an important role in strengthening Iran's national security (33).

Sharifi and Ajoudani conducted a study entitled “Geopolitical Requirements of a Joint Defense Pact among Persian Gulf Countries.” The results of their study showed that participation in joint defense pacts requires a precise analysis of the geopolitical position and security considerations of member states (34).

Piri Sarmanlou conducted a study entitled “The Geopolitics of the Persian Gulf: Threats and Opportunities Facing the Islamic Republic of Iran.” The results of the study showed that, due to its strategic position, the Persian Gulf creates both significant threats and opportunities for Iran’s security and foreign policies (35).

Foreign Studies

Hauge, Houtzager, and Hörmann conducted a study entitled “The New Economic Nationalism: Industrial Policy and National Security in the United States, China, and the European Union.” The results of their study showed that economic nationalism and industrial policies in the three major global powers are directly linked to national security, and economic decision-making cannot be independent of security and geopolitical considerations. This study also emphasized that, in the era of global competition, coordination between industrial policy and security objectives is vital for maintaining countries’ competitive advantage, and adopting industrial strategies without understanding geopolitical dimensions can reduce national effectiveness (1).

Singh, Jash, and Nanjappa conducted a study entitled “Navigating the Nexus: Geopolitical, International Relations and Technical Dimensions of US-China Cyber Strategic Competition.” The results of their study showed that cyber competition between the United States and China is not only a technological challenge but also has profound geopolitical and national security implications. The researchers emphasized that simultaneous understanding of international relations, emerging technologies, and cyber threats is highly necessary for formulating defense and national security strategies, and policymakers cannot analyze these three dimensions separately (2).

Jayathilleka and Wathsunu conducted a study entitled “Seamount: The New Geopolitical Competition in the Indian Ocean.” The results of their study showed that strategic areas of the Indian Ocean have become centers of great-power competition for controlling trade routes and maritime resources, and this competition can affect the security of regional countries and the global balance of power. The study also stated that the increased military and economic presence in these areas is directly related to countries’ national security interests and geopolitical strategies (4).

Simulcik, Villalobos, and Bazilian conducted a study entitled “Electrification of the Joint Force: Challenges and Opportunities for Competition in the Pacific and Arctic Theaters.” The results of their study showed that the use of clean energies and smart electricity networks can serve as a new instrument for military and security competition in sensitive regions, and countries can increase their competitive capacity through modern energy planning, while weakness in this area can create new security threats (5).

Kurella and Mikkili conducted a study entitled “A Comprehensive Review of DERMS for Smart and Secure Energy Networks: Standards, Protocols, and Security Considerations.” The results of their study showed that the implementation of smart energy networks requires compliance with precise security standards and protocols, and integrating DERMS with emerging technologies can both increase energy efficiency and prevent geopolitical and cyber vulnerabilities (36).

Szymoniak, Piątkowski, and Kurkowski conducted a study entitled “Defense and Security Mechanisms in the Internet of Things: A Review.” The results of their study showed that Internet of Things security and the protection

of smart infrastructure are highly important, and weakness in this area can lead to extensive geopolitical and security threats. The researchers emphasized the necessity of creating integrated defense frameworks to confront cyberattacks and their impact on national security policies (6).

Michaels and Sus conducted a study entitled "Strategic Autonomy in Security and Defence as an Impracticability?" The results of their study showed that the European Union refers to strategic autonomy in its foreign policy discourse, but in practice, economic limitations and geopolitical dependencies prevent its realization. The study emphasized the contradiction between rhetoric and practical realities and stated that achieving security objectives requires realistic policymaking coordinated with global conditions (8).

Ghadi et al. conducted a study entitled "A Hybrid AI-Blockchain Security Framework for Smart Grids." The results of their study showed that integrating artificial intelligence and blockchain technologies can increase the security of smart energy networks and prevent cyber and geopolitical threats, such that this framework can be used as an operational model for strengthening national security and countries' critical networks (13).

Cook conducted a study entitled "Systemic Wisdom and Complex Strategic Competition: A Systems Approach." The results of the study showed that systematic analysis of geopolitical competitions can provide a deeper understanding of global interactions and the effects of security policies, and adopting multidimensional strategies based on complex systems logic increases the effectiveness of geopolitical decisions (15).

Popescu conducted a study entitled "Adapting US Defense Strategy to Great-Power Competition." The results of the study showed that changes in the global geopolitical environment, particularly in relations with Russia and China, require a revision of US defense strategies, and policymakers must take developments among global powers into account in decision-making in order to maintain national security (9).

Ulatowski conducted a study entitled "From Geopolitics to Geoeconomics and Back: Why Age of Geoeconomics Is Over." The results of the study showed that although geoeconomics had been central to international policies for decades, new geopolitical complexities and great-power competition indicate that economic capabilities, without security and political support, cannot alone guarantee states' national security and strategic interests. The study emphasized that combining geopolitics and geoeconomics is essential for designing effective policies (14).

Wang and Tian conducted a study entitled "Does Renewable Energy Consumption Reduce the Energy Security Risk?" The results of their study showed that investment in renewable energies can reduce dependence on foreign energy resources and thereby decrease geopolitical risks related to energy supply. The study stated that sustainable energy development not only has economic benefits but also functions as an instrument of national security (7).

Akadiri and Özkan conducted a study entitled "Energy Markets, Geopolitical Risks, and Global Trade: A High-Stakes Tug of War." The results of their study showed that geopolitical changes, particularly in oil and gas markets, have direct and extensive effects on global trade and the energy security of countries, and states must simultaneously pursue geopolitical and energy risk management policies in order to maintain competitive advantage (3).

Chen et al. conducted a study entitled "Cybersecurity of Distributed Energy Resource Systems in the Smart Grid: A Survey." The results of their study showed that smart energy networks are exposed to cyber threats because of their distributed nature, and the security of these networks is directly related to maintaining energy security and the national power of states. The study emphasized the importance of combining emerging technologies and security frameworks (12).

Çoban et al. conducted a study entitled “Charting Sustainable Future on Energy Security, Financial Development, Natural Resources and Economic Output for Turkey.” The results of their study showed that sustainable policymaking in the fields of energy, natural resources, and financial development can simultaneously strengthen energy security, economic growth, and the country’s competitive capacity and is vital for regional geopolitical stability (37).

Gajurel conducted a study entitled “Implications of Geopolitics on National Security of Nepal.” The results of the study showed that Nepal’s geographical position between two major Asian powers has created geopolitical threats and opportunities, and managing these threats requires coherent security strategies and precise analysis of the regional environment (11).

Gaggero et al. conducted a study entitled “An IEC 62443-Based Framework for Secure-by-Design Energy Communities.” The results of their study showed that implementing security standards in collective energy networks can reduce cyber risks and geopolitical threats and increase the efficiency of smart networks, which is highly important for the national security and economy of states (10).

Mukhtar et al. conducted a study entitled “Energy-Efficient Framework to Mitigate Denial of Sleep Attacks in Wireless Body Area Networks.” The results of their study showed that energy consumption management and the protection of critical wireless networks can reduce security and cyber threats and consequently contribute to protecting sensitive national infrastructure (38).

Isetani et al. conducted a study entitled “Indo-Japanese Collaboration on Energy Security and Critical Raw Materials.” The results of their study showed that international cooperation in the field of energy and critical raw materials can strengthen energy security and industrial development and plays an important role in reducing dependence on major powers and enhancing national security (16).

Mohammadi and Zarei conducted a study entitled “Exploring the US National Security Strategy concerning Russia’s Geopolitical Conduct throughout the Joe Biden Era, 2020–2024.” The results of their study showed that Russia’s geopolitical behavior, particularly in the fields of energy and security, has a significant effect on US national security policies, and changes in the global environment require continuous revision of strategies and international interactions (39).

Cramaro conducted a study entitled “Geopolitics and Security: Analyzing Political Science Perspectives on International Relations.” The results of the study showed that analyses in political science and international relations are necessary for better understanding geopolitical competitions and their security consequences and can contribute to designing efficient national and international policies (40).

Gheorghe and Panazan conducted a study entitled “Investigating the Effect of Geopolitical Risk on Defense Companies’ Stock Returns.” The results of their study showed that geopolitical risks can directly affect the financial performance and returns of companies active in the defense sector, and predicting these risks is highly important for investment policies and national security (41).

Research Methodology

In general, research methods in the behavioral sciences can be classified according to two criteria: the objective of the research and the method of data collection. In terms of objective, the present study is applied, and in terms of method, it is descriptive and correlational. This study is descriptive because its aim is the objective, realistic, and systematic description of events, incidents, and issues related to the research domain. Descriptive research is

research whose objective is to describe the conditions or phenomena under investigation. This study is among applied studies designed for national security and defense strategy. Due to the lack of access to a laboratory, it also falls within the category of descriptive studies. In terms of research nature, it is also considered an evaluative study. The required information and data in this study were collected through the library method. The information needed to develop the theoretical foundations of the study, which constitutes an important stage of research work, was reviewed by referring to various academic and research centers, studying reputable domestic and foreign scientific journals, existing collections of articles, reports, findings of studies, projects, and previous research records. In addition, the Internet and relevant websites were used to extract and employ the required materials. The content analysis technique was used to analyze the information.

Findings and Results

This qualitative study was conducted among studies and research works carried out on the dynamic capabilities of circular accounting, and qualitative content analysis with a conventional approach was used to analyze the data. The method of the present study is descriptive-analytical and is of the content analysis type. Content analysis is a method that refers to any systematic and objective technique for extracting the characteristics of a message.

First step: Formulation of the research question. In the table below, the research questions and the parameters under investigation are specified.

Study population: Studies in the field of the effects of energy corridors and great-power geopolitical competition on national security and defense strategy

Nature of the task: What are the implications of energy corridors and great-power geopolitical competition for national security and defense strategy?

Time limitation: 2025

Methodology: Documentary analysis, identification and coding, creation of concepts and codes, classification of codes

Second step: Systematic review of works. In this step, all texts related to the research objectives were examined. Eligible studies were selected for inclusion in the meta-synthesis analysis. In meta-synthesis studies, secondary data produced through qualitative methods in the research topic area are used for data collection.

Third step: Selection of appropriate categories. At this stage, the researcher must evaluate the quality of the sources retrieved based on the selected keywords of energy corridors and great-power geopolitical competition regarding national security and defense strategy.

Fourth step: Extraction of information from texts. At this stage of the qualitative meta-study method, namely meta-synthesis, the researcher must select one of the nine methods of this approach according to the nature of the topic and the collected sources. In this study, content analysis was used as the method for extracting information from the final sources.

In a qualitative dissertation, the objective is to understand phenomena from the perspective of participants and within their specific institutional and social context; this objective is overlooked when findings are quantified. A qualitative dissertation may be positivist, interpretive, or critical. Rather than measuring and evaluating organizational phenomena, a qualitative dissertation deals with their meaning.

Qualitative research processes assume that organizational realities are not fixed and certain; rather, they result from the projection of human imagination. Those who prefer qualitative research argue that, in order to discover

new knowledge, direct intervention in organizations and the use of human feelings to interpret organizational phenomena are necessary.

The coding stages used in qualitative dissertations include open coding based on categories extracted from the preliminary study of the theoretical foundations of the research, axial coding, and selective coding.

Fifth step: Analysis, interpretation, and synthesis of qualitative findings. In the fifth step, after extracting information in the previous step based on the content analysis method, the qualitative findings contained in previous studies are analyzed, interpreted, and synthesized in order to provide an integrated and systematic interpretation with a novel approach (42). Accordingly, all identified codes are classified into categories with similar concepts according to their meanings. The following table shows the codes and categories derived from the theoretical foundations using a comparative approach.

Table 1. Codes and Categories of the Research Components: First Stage

Code	Implications of Energy Corridors for National Security and Defense Strategy	Source
E1	Improving passive defense capability in border areas by using hydro-political capacities	(18)
E2	Increasing national security through the management of oil and gas transmission lines	(26)
E3	Using energy transit capacity as a geopolitical instrument	(23)
E4	Strengthening geopolitical position through energy-related defense cooperation	(29)
E5	Using gas and LNG exports as a lever for reducing military threats	(32)
E6	Controlling energy transportation routes in the Caspian Sea to strengthen national security	(33)
E7	Increasing national security through intelligent management of oil and gas energy resources	(31)
E8	Ensuring national security through the combination of energy security and economic development	(24)
E9	Advancing regional policies through the use of energy geoeconomics	(23)
E10	Increasing the country's deterrence capability through the geopolitical management of energy lines	(26)
E11	Reducing security vulnerability through the use of smart energy networks	(36)
E12	Enhancing national security through energy defense and security frameworks	(6)
E13	Increasing energy security and reducing cyber threats by combining AI and blockchain	(13)
E14	Energy efficiency and national security through IEC 62443 standards	(10)
E15	Reducing dependence on foreign energy resources and geopolitical risk	(7)
E16	Increasing countries' competitive advantage through simultaneous management of energy and geopolitical risk	(3)
E17	Energy and national security through resilient smart energy networks	(12)
E18	Strengthening national security through sustainable energy and natural resource policies	(37)
E19	Reducing energy and cyber threats through an energy-efficient framework	(38)
E20	Strengthening national security and industrial development through international energy cooperation	(16)
G1	Revising countries' security and diplomatic policies as a result of US-China competition	(19)
G2	Creating challenges for the national security of regional countries through US policies	(20)
G3	Revising defense policies in light of India-China competition	(21)
G4	Increasing regional influence through the management of gray zones and the Axis of Resistance	(22)
G5	Direct effect of competition among international organizations on national security	(27)
G6	Necessity of revising defense strategies in light of NATO-Shanghai Cooperation Organization competition	(27)
G7	Strengthening national security through the formulation of intelligent foreign defense strategies	(25)
G8	Need for geopolitical-position analysis for joint defense pacts	(34)
G9	Creation of geopolitical opportunities and threats in strategic regions	(35)
G10	Effect of global competition on national security and defense policies	(1)
G11	Necessity of integrating technology, international relations, and cyber threats into defense policies	(2)
G12	Regional security affected by the military and economic presence of major powers	(4)
G13	Use of clean energies and smart networks as instruments of security competition	(5)
G14	Protection of smart infrastructure against geopolitical threats	(36)
G15	Strengthening strategic autonomy through realistic policymaking	(8)
G16	Increasing the security of networks and infrastructure through the combination of AI and blockchain	(13)
G17	Systematic analysis of geopolitical competitions for designing multidimensional strategies	(15)
G18	Revising defense strategies in response to global geopolitical changes	(9)
G19	Necessity of integrating geopolitics and geoeconomics to ensure national security	(14)
G20	Predicting geopolitical risk for the performance of defense companies and national security	(41)

The following new codes are extracted by integrating the indicators.

Table 2. Codes and Categories with a Comparative Approach: Second Stage

Domain	Main Implication	Constituent Initial Codes
Energy corridors	Strengthening the national security of border areas and infrastructure	E1, E2, E6, E7
Energy corridors	Geopolitical use of energy transit	E3, E5, E9
Energy corridors	Energy-related defense cooperation	E4, E8
Energy corridors	Reducing energy threats and vulnerabilities	E10, E11, E12, E14
Energy corridors	Enhancing cybersecurity and smart-network security	E13, E17, E19
Energy corridors	Reducing energy dependence and geopolitical risk	E15, E16, E20
Energy corridors	Sustainable energy development and economic growth	E18, E20
Geopolitical competition	Revising security and defense policies	G1, G2, G3, G6, G18
Geopolitical competition	Strengthening regional influence and national security	G4, G5, G7, G9
Geopolitical competition	Analyzing geopolitical position and defense pacts	G8, G10, G11, G12
Geopolitical competition	Using energy and technology for security advantage	G13, G14, G16
Geopolitical competition	Strengthening strategic autonomy	G15, G19
Geopolitical competition	Systematic analysis of global competitions	G17, G18, G19
Geopolitical competition	Risk prediction and effects on defense companies	G20

The status of the network of main and sub-themes is presented below.

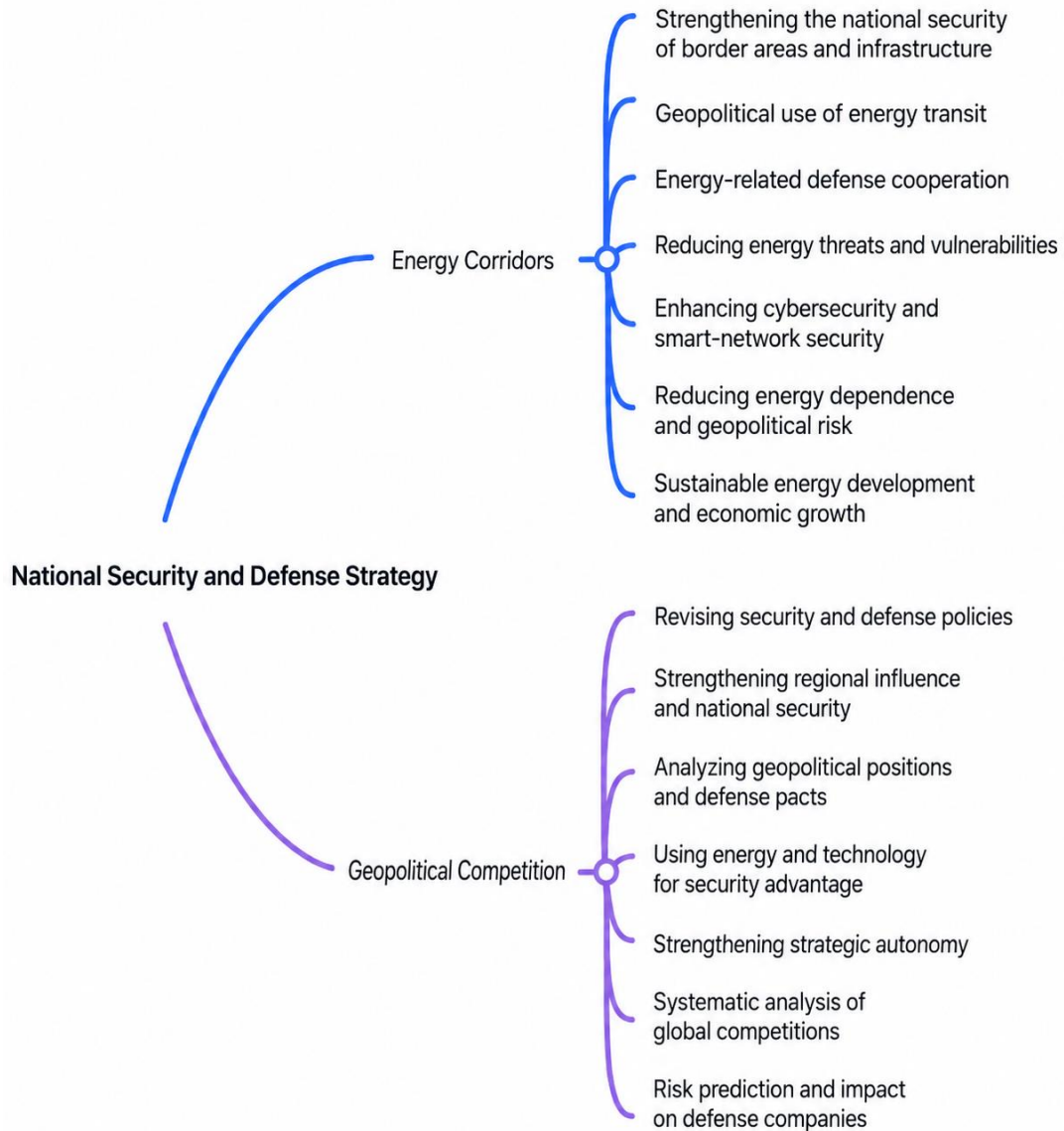


Figure 1. Network of Research Themes

Conclusion

The aim of this article was to examine the implications of energy corridors and great-power geopolitical competition for national security and the defense strategy of states. Accordingly, by analyzing previous domestic and international studies, a set of implications was identified and coded, and then presented in the form of integrated main implications. The research methodology was based on a systematic review of scientific sources and case studies, which helped identify the relationships among national security, defense strategy, energy transportation, and great-power geopolitical competition. The results of this analysis provide a conceptual and practical framework for policymakers so that, by better understanding geopolitical and energy-related effects, they can optimize their security and defense decision-making.

Implications of Energy Corridors for National Security and Defense Strategy

Border and infrastructure security: The analysis of this study showed that energy corridors play a vital role in strengthening border security and protecting critical infrastructure. The intelligent use of oil and gas transportation routes, energy reserves, and border pipelines can increase the defense capacity of states and strengthen their ability to confront internal and external threats. Moreover, precise management of these corridors makes it possible to prevent enemy infiltration and reduce vulnerability in sensitive areas, thereby improving national security in political, economic, and military dimensions.

Geopolitical use of energy: This article showed that countries can use energy corridors as instruments for geopolitical influence and pressure in international relations. Control over energy resources and routes increases the ability to regulate markets and apply diplomatic and economic levers, thereby strengthening the position of states in regional and global competitions. Such an approach enhances national security by reducing transboundary threats and increasing bargaining power in defense and strategic policies.

Energy-defense cooperation: The study showed that international and regional partnerships in managing energy corridors strengthen defense cooperation and lead to the exchange of security information, coordination of defensive operations, and increased preparedness of military forces. The creation of joint security networks around energy transmission lines can reduce the effects of threats and help stabilize security in sensitive regions.

Reduction of threats and vulnerabilities: The study showed that intelligent management and centralized monitoring of energy corridors reduce security vulnerabilities and asymmetric threats. This approach prevents the infiltration of illegal groups, sabotage, and cyber threats, and leads to increased public trust and improved national security at national and regional levels.

Cybersecurity of networks: The research findings emphasized that, in the digital age and in smart energy networks, energy corridors require extensive cyber protection. Integrating emerging technologies with security standards can reduce cyber threats and possible sabotage and prevent the blockage of energy routes and damage to critical infrastructure. As a result, the national security and defense capability of states are enhanced in a challenging environment.

Reduction of energy dependence: The article showed that diversification of energy resources and investment in renewable energies can reduce countries' dependence on foreign resources and, consequently, their vulnerability to geopolitical crises. In addition to enhancing energy security, this approach increases countries' defense capability in the face of sanctions and international restrictions and contributes to sustainable national security.

Sustainable development and economic growth: The study showed that the management of energy corridors can serve as a driver of economic development and sustainable growth, which in turn increases financial resources for defense and security programs. Sustainable development of energy and infrastructure improves countries' capacity to manage threats and invest in defense capabilities and helps increase regional geopolitical stability.

Implications of Great-Power Geopolitical Competition for National Security and Defense Strategy

Revision of defense policies: The results showed that great-power competition requires continuous revision of countries' defense policies and strategies. Changes in power at the international and regional levels force countries to adjust their defense capabilities in accordance with emerging threats and formulate flexible strategies to confront geopolitical developments.

Strengthening regional influence and national security: The article showed that great-power competition makes it possible for countries to strengthen their regional influence through defense diplomacy, security pacts, and participation in regional projects. Increasing political and military presence in strategic regions enhances national security and creates geopolitical levers for confronting direct and indirect threats.

Analysis of position and defense pacts: The study emphasized that different countries need precise analysis of their geopolitical position and participation in defense pacts in order to maintain national security. Coordination with allies and the creation of regional coalitions increase countries' ability to confront military and nonmilitary threats and strengthen defense policies.

Use of energy and technology for security: The study showed that energy and emerging technologies, particularly in the fields of cyber systems and smart networks, are important instruments in geopolitical competition and the strengthening of national security. Investment in these areas increases defense capability and reduces countries' vulnerability to external threats, while enabling better management of critical resources and infrastructure.

Strategic autonomy and self-reliance: The article showed that achieving strategic autonomy and self-reliance is one of the vital implications of great-power competition. To maintain national security and implement defense policies, countries must strengthen their domestic capacities and reduce dependence on foreign powers in order to preserve their strategic flexibility under crisis conditions.

Systematic analysis of global competition: The study showed that systematic and comprehensive analysis of global competitions helps countries predict and manage the effects of international policies and developments. This approach leads to better defense decision-making, increased military preparedness, and reduced risks arising from geopolitical changes.

Risk prediction and effects on defense companies: The research findings showed that the geopolitical risks of major powers can have a direct effect on the performance and returns of defense companies. By predicting and managing these risks, countries can optimize their resources and capabilities and strengthen their national security and defense strategy at national and international levels.

Discussion and Comparison

In examining the implications of energy corridors and great-power geopolitical competition for national security and defense strategy, it can be stated that the findings of this study are consistent with the results of previous studies in many dimensions and, at the same time, offer new perspectives. For example, domestic studies such as those by Asgari and Norouzizadeh et al. have shown that intelligent management of energy transportation routes, particularly oil and gas lines, plays a vital role in ensuring national security; these findings are consistent with the

results of the present study regarding the importance of energy corridors in increasing defense capability and reducing dependence on foreign resources (23, 26). Moreover, studies by Shakiba and Nourmohammadi and Nozari et al. emphasized the direct impact of the competition of global powers, particularly the United States, China, and India, on Iran's national security and highlighted the necessity of revising defense and diplomatic policies; this finding is consistent with the present analysis concerning geopolitical implications and the need to coordinate defense and energy policies (19, 21). At the international level, studies by Hauge et al. and Singh et al. have shown that industrial policies and cyber competition have not only economic consequences but also extensive geopolitical and security effects; the analysis of this study likewise indicates that energy corridors and great-power competition must be examined in an integrated and multidimensional manner in order to preserve national security and the defense capability of states (1, 2). In addition, the findings of Jayathilleka and Wathsunu and Simulcik et al. show that global strategic regions, whether in the Indian Ocean, the Arctic, or energy arenas, have become sensitive centers of power competition, which requires the development of resilient and flexible defense and energy infrastructure (4, 5). Ultimately, by combining domestic and international data, this study shows that energy corridors and geopolitical competition are not only determining factors of national security but also instruments for enhancing the defense and strategic capabilities of states, and they require coordinated policymaking based on multilayered and interdisciplinary analyses.

Recommendations Based on the Research Findings

The findings of this study showed that energy corridors and great-power geopolitical competition have a vital and direct role in national security and defense strategy. Accordingly, the first recommendation is that governments and decision-making institutions should pay special attention to the intelligent and strategic management of energy corridors. Using energy transit capacity, smart energy networks, and renewable energy resources can be an effective instrument for strengthening national security, reducing dependence on foreign resources, and increasing the defense flexibility of states. Policymakers should design long-term programs and policies coordinated with geopolitical objectives so that these capacities are continuously used in the service of national security and sustainable development.

Second, the findings showed that geopolitical competition among major powers, particularly among the United States, China, Russia, and India, has direct effects on national security policies and the defense strategies of regional countries. Accordingly, it is recommended that countries predict various scenarios of great-power competition through precise analysis of their regional and global position and design flexible, risk-based defense strategies. Creating a balance among regional cooperation, development of defense capacities, and intelligent diplomacy, particularly in geopolitically sensitive regions, can reduce the effects of external threats and increase deterrence capability.

Third, the findings indicated the importance of emerging technologies and cybersecurity in increasing the efficiency of energy corridors and protecting critical infrastructure. Accordingly, it is recommended that countries invest in artificial intelligence, blockchain, and smart networks while formulating integrated security frameworks and standard protocols for protecting energy and defense infrastructure. This approach can prevent cyber vulnerabilities and geopolitical threats and strengthen countries' defense capacities in the global competitive environment.

Fourth, the findings showed that economic and energy policymaking cannot be independent of security and geopolitical objectives. Accordingly, it is recommended that coordination among industrial, energy, and national

security policies be increased and that decision-making be carried out in an integrated manner based on geopolitical analyses. Formulating energy and industrial policies with a security-oriented perspective can reduce dependence on foreign resources and increase the strategic autonomy of states.

Fifth, the study showed that using regional capacities, including defense cooperation, joint security pacts, and the management of gray zones, can increase the geopolitical effectiveness and national security of states. Accordingly, it is recommended that strengthening regional cooperation, creating joint defense structures, and coordinating diplomacy with aligned countries be considered in order to increase national security and manage regional threats.

Sixth, the findings showed that systematic analysis and simulation of future scenarios are necessary for managing great-power competition and energy corridors. Accordingly, it is recommended that countries use conceptual models, scenario simulation, and multipurpose data analysis to evaluate the reciprocal effects of energy and geopolitical competition and formulate flexible and preventive defense and security strategies.

Seventh, the study showed that investment in education and the development of specialized human resources in the fields of energy, security, and defense plays a key role in increasing the preparedness of states. Accordingly, it is recommended that educational programs, specialized workshops, and applied research in the areas of energy corridor management, emerging technologies, and national security be designed and implemented so that domestic capacities for managing threats and exploiting geopolitical opportunities are strengthened.

Research Limitations and Recommendations for Addressing Them

Despite its important achievements in analyzing the implications of energy corridors and great-power geopolitical competition for national security and defense strategy, this study has several fundamental limitations that should be considered. First, access to quantitative and qualitative data related to the defense and security policies of different countries was limited, and much information was not publicly available because of security sensitivity or confidentiality. This limitation caused the analyses to be based mostly on secondary sources and previous studies, with less use of up-to-date and precise field data. To address this limitation, it is recommended that future studies use mixed methods, including specialized interviews with defense officials, open data, and information published by international organizations, so that analyses are based on more real and up-to-date data.

Second, this study focused mainly on previous domestic and international studies, and the analyses were based on a systematic review of sources; therefore, there are limitations in generalizing the results to all countries and geopolitical regions. Given the structural, economic, and political differences among countries, some implications may differ under other conditions. To reduce this limitation, it is recommended that future research use comparative studies across different countries and design statistical analyses and scenario-based models to evaluate various implications.

Third, this study mainly addressed the direct implications of energy corridors and the geopolitical competition of powers and paid less attention to long-term and indirect effects and the interaction among multiple factors. Some geopolitical and energy-related implications, particularly cyber, economic, and social effects, have greater complexity and require dynamic and multidimensional models for their analysis. It is recommended that future studies use complex systems modeling, scenario simulation, and network analysis methods to examine simultaneous and reciprocal effects, thereby providing a more comprehensive and precise view of impacts on national security and defense strategy.

Fourth, limited access to up-to-date Persian and English sources and the shortage of case studies in some sensitive areas constituted another limitation of the study. This limitation is particularly evident in the fields of emerging technologies, smart energy networks, and cybersecurity, where comprehensive and up-to-date information is scarce. To address this limitation, it is recommended that international research cooperation and access to specialized databases be increased and that researchers use multilingual sources and field studies to provide more precise analyses.

Fifth, time and budget limitations prevented the conduct of extensive field analyses and longitudinal assessment of geopolitical and energy changes. Many changes in international policies and competitions require periodic and long-term examination. To address this limitation, it is recommended that future research use longitudinal studies and time-series data to monitor long-term trends and dynamically analyze the effects of geopolitical and energy developments on national security.

Finally, the limitations of this study in integrating the multiple implications of energy and great-power competition showed that comprehensive analytical frameworks are needed to assess reciprocal effects. To address this limitation, it is recommended that conceptual and quantitative models be developed, including key national security indicators, geopolitical indicators, and energy data, in order to provide multidimensional analyses and predict various scenarios. This approach can increase policymakers' decision-making capacity in formulating defense and security strategies and provide an appropriate instrument for managing regional and global threats and opportunities.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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