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Original Article

Future research of new energies in europe in order to analyze and provide appropriate strategies to improve energy security

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ABSTRACT

The promotion of new energy technology, environmental considerations, economic stimulation, and the creation of new industries and jobs have led industrialized nations to include the expansion of these energy sources in their development plans. Europe, in particular, should be more sensitive to developments in the energy sector and adopt comprehensive plans and strategies to enhance energy security. This research relies on futurology principles and planning tools to address the future of renewable and new energies in the global market and provide solutions for improved energy security. The main question is: What are the key European strategies to solve energy security issues? What are the primary problems related to energy supply security for European consumers? The findings indicate that Europe's energy supply security is at serious risk due to the dependence on oil and gas imports from Russia and the oil embargoes by countries like Iran and Venezuela. European strategies include strengthening international institutions, using alternative fossil energy sources, diversifying the oil and gas import portfolio, joint investments in oil and gas with importers, and utilizing gas pipelines. Given Iran's strategic location and importance in global oil and gas resources, it is a viable option for reducing Europe's energy security risks.

Keywords: Energy security, Futurology, Europe, Strategies

Introduction

The European Union will try to maintain its position in the framework of the energy strategic documents of this Union, which looks at matters such as the need for greater concentration of the European Union's foreign policy and the security of energy supply and diversification of its sources, strengthening European solidarity and speaking with a single voice. He pursued the title of the main actor in the international scene with more seriousness and strength and in this direction, despite the various obstacles and problems facing the Nabucco project, he advanced the mentioned project in every possible way and as a milestone and a successful test in the convergence process of this union in the current decade is a strategic resource in the energy record of the present era and is considered an effective factor in regional policies and world strategies. 70% dependence on fossil fuel is still seen in the world's energy portfolio. In recent years, natural gas has become one of the most important global sources of energy, so that the strategy of international companies has changed from oil to gas. In this regard, it is possible to refer to cases such as Royal Dutch Shell's strategy change in 2018 and its withdrawal from the Majnoon oil field in Iraq, Eni Italy's investment in the Dhahr gas field, and Russia's focus on Russia's Yamal gas resources, etc. [1].

These cases show that energy should be considered as one of the important components in economic and political issues. On the other hand, due to the environmental issues, the share of clean energy in the energy consumption basket of the world and especially Europe is increasing. Almost a quarter of the total energy consumed in the European Union is natural gas, and most of the member countries of the European Union import almost all the energy sources they need. Some member countries also rely on a source or a transportation route for a large amount of their gas. Disturbance in this path, which is done due to infrastructure damage or political differences, can endanger resources. For example, the gas dispute between Russia and Ukraine in 2009 caused a disruption in the gas supply of some EU countries [2].

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and standing and speaking with a single voice. He pursued the title of the main actor in the international scene with more seriousness and strength and in this direction, despite the various obstacles and problems facing the Nabucco project, he advanced the mentioned project in every possible way and as a milestone and a successful test in the process of convergence of this union as much as possible in the current decade should be recorded in its record. In its Green Energy Document in 2006 and in its European Energy Strategy presented in 2007, the European Union stated that secure, sustainable and affordable energy access depends on the achievement of three goals: A- diversification of energy supplier countries; B - diversification of energy sources; C- Increasing use of alternative and renewable energies [3].

The European Union is increasingly dependent on foreign energy supplies. Currently, this union imports approximately 50% of its needs (a number that will increase to 75% in 2030). If the current trends continue, even the dependence on oil and gas will increase. The fact that fossil fuels (oil, gas and coal) make up about 80% of the gross domestic energy consumption in the European Union, and the dependence on all energy products has increased continuously and uniformly, and now it is almost it is about 50%, it has caused the constant concern of the European Union in the field of energy supply and security of its supply. In other words, Europe's strong dependence on energy and its unique role in production and development have caused energy-related discussions to always turn Europe's good sleep into chaos [4].

Access to stable sources of oil and gas, both as raw materials for industrial goods and as energy supply, has long been considered as one of the main concerns of developed and industrialized countries, especially the European Union. According to the forecasts, European crude oil production, especially in the North Sea region, will decrease from the current level of 7 million barrels per day to less than 4 million barrels by 2020. Also, Europe's domestic gas production from the North Sea will not increase from the current level of 300 billion cubic meters per year in a foreseeable time horizon [5].

Based on this, it is predicted that during the next three decades, the energy production of the European Union will decrease by 17%. The reduction of Europe's internal energy reserves takes place in a situation where the imported energy of the European Union will grow by 15% during these three decades. From this amount, the Union's external dependence on oil will reach 90% and natural gas will reach 80% [6].

Despite the explicit emphasis in the energy documents of the European Union, over the past two decades, both the degree of dependence of this union on the import of fossil fuels and its reliance on the countries supplying these fuels have increased, so that since the second half of the decade 1990 until now, 15% of the import of fossil fuels has grown in this union [7].

According to the forecasts contained in the green document of the European Commission approved in 2006, until 2030, the European Union's import need for fossil energy will increase from 50% to 70%. In the energy consumption cycle of the European Union, oil constitutes 40% and natural gas 24% of the EU's consumption needs. Currently, this union imports 76% of its oil and 50% of its natural gas. According to the forecasts made by the European Commission until 2030, the imported oil of the Union will increase from 76% to 90% and the imported natural gas will increase from 50% to 80%; Therefore, for the European Union, which is one of the largest energy consumption markets in the world, the issue of energy security is important. Therefore, the European Commission defines energy security as the ability to ensure future energy needs, both in the use of internal resources (in the framework of economic criteria and other strategic reserves) and in the external sector, in the form of easy access and without risk and exchange. The supply is stable. In another definition, according to Barry Barton and his colleagues, energy security is a condition where all of a nation or the majority of them can have proper access to energy resources with balanced prices [8].

Oil constitutes about 35% of the European Union's energy portfolio. While the transition to alternative sources of energy in this region is slow, they are still dependent on the import of crude oil and petroleum products. In this connection, in order to prevent disruption in the security of oil supply and its products, the preservation of emergency reserves for use has been prioritized as one of the important programs. Emergency Oil Reserves according to the European Union Oil Reserves Directive (2009), member countries of this union must maintain emergency reserves of crude oil and petroleum products equivalent to at least 90 days of net imports or 61 days of consumption, whichever is higher, the stocks must be easily available. So that in the event of a crisis, they can be quickly assigned to the required place [9].

The most important energy players outside the European Union in the field of oil and gas in this region include Russia, Norway and Algeria. In the coming decades, with the enlargement of the European Union and the increase in the demand for natural gas, the dependence of this union on the countries outside it for gas supply will increase. Forecasts show that Europe's dependence on imported gas will increase to more than 75% by 2030. These cases show the vital importance of oil and gas [10].

Energy security means ensuring the ability to meet future energy needs, both in the use of internal capacity (internal resources and strategic reserves) and in external resources, in such a way that easy and risk-free access is provided and supply exchange is stable. In other words, energy security is a condition where all of a nation or the majority of them can have proper access to energy sources with balanced prices [11].

Therefore, the main question of the article is what are the most important security problems of energy supply for European consumers? And what will be the most important European strategies to solve the problem of energy security? The studies that have been done so far have only studied this topic with a political approach, so the innovation of the present article has been studied in terms of economic and political issues with an emphasis on its technical aspects.

Also, ignoring uncertainties can lead to the loss of future chances and opportunities and ultimately lead to the creation of an

unstable program. For this purpose, in this research, taking into account the future uncertainties of the energy market, appropriate strategies to improve Iran's energy security have been presented and analyzed in the form of an energy strategic document.

Theoretical foundations and research background

The mutual economic relations of the countries in the world system in terms of political issues since 1960 brought forward a branch of international political economy that focuses on issues such as the establishment of economic freedom, relations of political and economic issues at the international level. Issues such as expansion of markets, provision of economic security, sanctions, trade between countries, etc. are included in the field of international political economy. In this regard, the strategies adopted in the field of international trade are very effective on economic relations [12].

In this connection, the adoption of unilateral trade policies by a country leads to that country unilaterally removing all its trade barriers without coordination with other countries. Since 1988, American governments have adopted an aggressive one-sidedness in their trade policies, by which they target the target country by adopting unfair trade policies through unilateral economic blockade. In the framework of this policy of aggressive unilateralism, the security of Iran's oil market can be examined with regard to the sanctions imposed by the United States. On the other hand, the trade policy of bilateralism is realized by concluding a system of payment and bilateral trade agreements [13]. Until the end of World War II, bilateral trade agreements were the regulation of most international trade relations. Also, multilateralism refers to a multilateral system of trade and payment agreements. In addition, convergence in international economic theories and policies refers to a process through which two or more national economic units are transformed into a new political and economic structure. It is the first stage of the convergence process. Customs duties and quantitative trade restrictions in the free trade zone are gradually reduced between countries, but in any case, each member country has its own independent trade policies. Therefore, examining European energy security in the form of the European Union and considering the interests of producers and consumers in the form of international political economy theories has a special place in economic relations [14].

In the next section, the main goal is to provide important definitions in the field of research and create a suitable intellectual framework for continuing the research path. For this purpose, the development process of renewable energies in the world has been examined first. After that, by explaining the theories of energy security, the dimensions, indicators and their relationship with each other have been introduced; in order to pave the way for the adoption of appropriate strategies in future seasons in order to improve the country's energy security in the space of future research [15].

On the other hand, one of the basic principles of any research is the review of previous researches on the subject under study. In this way, the experiences and results obtained by researchers can be used and the possibility of experiencing similar errors and possible problems can be minimized. In this regard, in the following, the goals and results of some authoritative reports and articles published in the field of research have been analyzed and reviewed [16].

Energy security

The standard definition of energy security was formed during the oil crises of the 1970s and continues to be a conceptual framework: "access to safe, sufficient, reliable and affordable energy reserves". It should also be added to the above definition that for producers, energy security means continuity of demand and access to the market; but energy security from the point of view of consumers means that first of all, there is easy access without the risk of global oil and gas resources. Secondly, these sources should logically have variety and diversity in terms of the geographical area of the sources and also the transmission routes, and thirdly, the flow of energy should generally be provided from points where there is a possibility of stability and no change in their governments in the long term [17].

Today, it can be said that energy security includes three basic concepts of the chain of energy developments in the world: price, continuity and environment. The price of each commodity determines the trend of demand and supply of that commodity in different markets, and ups and downs in energy prices cause drastic changes in the global economy, the budget of each household, factory costs, and the instability, vulnerability, or prosperity of producing and consuming countries. can be On the other hand, like any economic commodity, energy resources are scarce and continue to become scarcer over time; especially finite energy sources such as oil, gas and coal, whose reserves seem to be declining without any doubt. This issue itself causes competition in the market and increases the prices of these types of energy. In general, since the equilibrium price is possible in perfectly competitive markets; therefore, the price can be an indicator of the security of supply or demand [18].

Every applicant for receiving energy in order to be able to plan for the future necessarily needs a continuous and long-term flow of energy, and finally, by trying to find methods with more efficiency and less consumption, he takes a step towards sustainable development in the society [17]. On the other hand, energy security for producers is to have access to a continuous market with rational growth for the development of their society in the future. Because most of the energy producers are from the group of single-product economies that are deeply dependent on the sale of energy, and any possibility of a decrease in demand or the attention of developed countries to alternative energies means creating an obstacle in the social development and economic growth of these countries [18].

The most important issue in the discussion of energy security is to find a model with which sustainability and continuity can be sought in long-term development. Climate change and the emission of greenhouse gases are deeply related to the demand for fossil fuels. In fact, climate change and the security of energy supply and demand are two sides of the same coin, and the same solutions should be used for both problems. There is certainly a conceptual overlap between energy security and the environment, and not only are both concerned with transitioning from a carbon-intensive, fossil fuel-based global economy, but they also have to deal with fundamental shortages: the lack of affordable and accessible fossil energy. Easy or reduce carbon production in the earth's atmosphere Therefore, the challenge of energy and climate change can both benefit from the reduction of demand as well as measures of latitudes that, in addition to increasing the availability of energy sources, reduce carbon production (such as low-carbon energy technology). Nowadays, the acquisition of technologies to reduce greenhouse gas emissions, it is one of the ideal policies of every country; therefore, the share of renewable energy in the total supply of energy is increasing. Undoubtedly, by paying basic attention to these special proposals and presenting the final win-win solution in a synergistic approach, we can move towards a carbon-free economy intelligently tackles security and environmental issues [19].

These concepts show that energy security is a multi-dimensional concept and based on these multiple dimensions in which producers, consumers and investors participate together, a sustainable energy security is more attainable [12].

Disturbances in the oil market and increasing the problem of energy security in Europe

In the topic of energy security, there is a kind of basic concern about access to energy resources, which first emerged as a specific issue of international politics in the 1970s, although the importance of it was revealed decades ago. Newer than these are the concerns related to the smooth circulation of the global energy markets, which with the increase in the absolute amount of energy consumption, especially among the countries that did not consume much energy in the old days, but are now turning into more integrated, more extensive and have become more complicated and this problem has caused the anxiety of access to energy sources to deepen. If today, secure access to energy was simply a matter of exercising geopolitical control over natural resources, it is no longer the case. At the same time, this issue requires the successful management of a range of financial and procurement relationships, the disruption of which will be problematic even for governments that have unopposed physical control over such resources [19].

Before the formation of OPEC, the power of the oil market (as the main energy option in that period) was in the hands of the big oil companies and there was no threat to energy security; but with the formation of OPEC, the security of the oil market faced serious threats from the channel of price changes and oil production. The trend of increasing oil prices in some years, along with the decrease in oil production, caused large consumers such as European countries to look for a solution to these risks. Below, the most important developments in the crude oil market in the period after the formation of OPEC have been studied with a different approach. It should be mentioned that the developments of this period have threatened the security of energy consumers such as European countries [20].

Russia is central to energy security in the European Union

The concept of energy security is completely related to perceptions of dependence on foreign suppliers. Many of the European Union members, except Denmark, Ireland, the Netherlands, Romania, Sweden and the United Kingdom, depended on outside the Eurozone to meet more than half of their natural gas needs in 2007. Russia is one of the actors that has well understood the role and importance of energy in the new structure of the international political economy [20].

As the largest producer of gas and the second producer of oil in the world, this country is aware of the requirements of the new structure of the international political economy after the Cold War and with the understanding that the major industrial economies of the world, including North America, the European Union, China and Japan, need resources. Russia's energy and the Caspian Sea are very dependent, turning from ideology in the "dominant side" economy to geo-economics, while trying to use the political exploitation of this country, which is very rich in hydrocarbon energy reserves, as well as dominating the highways of energy transmission lines. To play the role of an oil empire that can supply oil and gas in large quantities in the world. Russia is trying to use energy as a soft power, instead of using nuclear weapons and hard military power, to increase the national wealth and advance the foreign policy goals of this country, especially in its positions against the European Union [21].

Russia considers energy as an important political tool and driving force of its economic development. The increase in the price of oil caused the activity of Russia in the energy sector. This trend has been reflected for Russia's greater influence throughout Central Asia, atmospheric superiority in the field of transportation to East Central Asia, and preventing the efforts of foreign powers to build pipelines outside of Russia's control. The pipelines immobilize the export and import markets of oil and gas, which means increasing the dependence of importers and exporters on each other. The main stream is the oil and gas pipeline between Canada, America, Russia, Central Asia and Europe. The problem becomes more complicated when we consider that the only way for Central Asian oil and gas exporters to reach Europe is through the Russian pipeline, which is owned by Gazprom and Transneft. Kazakhstan-Turkmenistan pipeline to China provides other exits [22].

Therefore, Russia has the pulse of Europe's energy security and until now, Europe has had no choice but to pay attention to Russia's demands to ensure the security of its energy supply. This

issue has shown itself as an Achilles' heel in Europe's energy security, and Europe has not been able to take an effective step to resolve it; but this situation cannot continue and the requirements of energy security inspire Europe to move towards Iran and open its market to Iranian gas by trying to lift the sanctions against Iran. In this way, find a way to escape from Russia's unilateral policies and increase the security of its energy supply. Now the issue is that if this idea is implemented and Iran enters the European gas market, will the relations between Iran and Russia remain strategic in the field of energy as in the past, or will there be geo-economic and challenging competitions and competition for the gas market? Will Europe cast a shadow on the relations between the two sides? [23].

Background research

Rabbi et al (2022) draws the conclusion that central European countries may transition to a clean energy economy and become carbon neutral on economic and strategic levels by locating alternative clean energy supply sources, reducing energy use, and producing renewable energy. According to the study, the EU energy industry can be decarbonised and attain energy security using three basic strategies, such as supply diversification, energy savings, and quicker adoption of renewable energy to replace fossil fuels. The energy transformation industry still needs to improve energy efficiency, incorporate a circular and sustainable bioeconomy, and support renewable energies, including solar, wind, hydropower, nuclear, and hydrogen [24].

Stamatios et al. (2018) are examining the relationship between energy consumption deriving from renewable energy sources, and countries' economic growth expressed as GDP per capita concerning 25 European countries. The results show that there is a higher correlation between RES' consumption and the economic growth of countries of higher GDP than with those of lower GDP. The obtained results are consistent with other papers reviewed in this study [25].

Abdelrahman et al (2020) is analyzed the impacts of transitioning from a fossil fuels to a renewables dominated energy system on energy security for Jordan. This indicates that a high level of direct and indirect electrification is the key to transition towards a fully sustainable energy system. This proposed transition will enhance the energy security level of the Jordanian energy system in five of the six dimensions studied. The five dimensions that will be improved are availability, cost, environment, health, and employment, whereas the dimension on diversity will stay neutral. It can be concluded that Jordan can achieve a 100% renewable energy system by 2050 and such a transition will enhance the energy security level [26].

Vivanco-Martín et al (2023) focuses on analysing the strategy and aspirations of the European Union within the hydrogen sector. This aim is achieved through the examination of the European Parliament's hydrogen strategy, allowing for a study of actions and projects in hydrogen technologies. The most important conclusions to learn from this analysis are that hydrogen has many of the right characteristics to make it the key to decarbonisation, especially in hard-to-abate sectors, and that it is bound to be one of the main actors in the imminent green transition. Moreover, hydrogen seems to be having its breakthrough, and this field's development can have benefits not only from an environmental perspective but also from an economical one, enabling the way into the green transition and the fight against climate change [27].

Gitelman et al (2023) presents the conceptual features of energy security management under a radically changed context, increasing crisis phenomena, and threats of various natures. The results of the study are of practical interest in the development of regional energy policy, plans, and specific actions that aim to ensure energy security in a turbulent global environment [28].

Joiţa et al (2023) provide an overview of the current evolution of energy security status in the European Union and in Romania, with reference to global efforts to achieve climate neutrality through the energy transition. The results of the articles are embodied in an approach that aims to focus on economic and social factors that determine the capacity of states to support the EU's independence from a single supplier in the current context of conflict. The authors conclude by anticipating massive challenges in achieving the environmental objectives of the European Green Deal, as well as by highlighting the issue of energy poverty as a social factor influencing global strategic decisions [29].

Materials and Methods

Today, the energy markets do not follow a specific order and commercial, advertising and political tastes guide the energy industry instead of central planning; the level of uncertainty in the topic of future research of energy has continuously increased, and this applies both at the national level and at the global level.

On the other hand, different sources of energy supply are considered as an important factor in all economic, scientific and political aspects, and the environmental effects, internal and external progress and reliability of energy production systems cannot be ignored as a result of choosing these different energy sources. Today, these effects need proper management and formulation of effective strategies due to changes and uncertainty. The more these changes and uncertainties are revealed, the more rational decisions can be made at organizational, national and global levels. Planning techniques have been widely used when the environment has high uncertainty as a way to imagine different futures.

The importance of energy issues in every country has a special place; this importance, along with the uncertainty that was raised in the previous sections as an inseparable part of energy, causes a situational plan that reveals the use of planning in strategy formulation, decision-making, understanding problems and future opportunities of energy. Therefore, in this research, an effort has been made to rely on valuable information and research about energy, especially renewable energies in Europe and the world, and also by using planning tools, to design solutions in

line with the future research of renewable and new energies in the world.

International political relations and the European energy security problem

Russia is one of the main suppliers of gas to Europe. Russia is the dominant supplier of gas for a number of NATO members in Europe. Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Poland, Romania and Slovakia each receive between 75 and 100 percent of their natural gas imports from Russia. Six other countries import more than 50% of their oil from Russia [30].

In addition, due to the decision of the German government in 2011 to remove nuclear energy from the energy portfolio, the importance of Russia as a strategic source for Germany is increasing. The base load of electricity, which was previously produced by nuclear power plants and is currently provided by little-equipped power plants, is expected to be supplied by natural gas imported from Russia using the Nord Stream pipeline that connects NATO's eastern allies. It goes around, to be replaced. In general, the dominant position of Russia has a significant limitation in the alliance during the confrontation and endangers the cohesion of the allies [31].

The current economic sanctions may be successful in preventing Russia's adventure in the Baltic; but these measures have the ability to prevent further expansion of Russian production, including unconventional oil and gas. In 2018, Russian oil exports grew by 2% and accounted for 13% of the world's oil exports, while gas exports increased by 5.4%, representing 26% of the world's share. Al, Russia acts as a standard market player in the energy market, competitively. However, this may prove an impossible goal [32].

Russia accounts for 40.6% of natural gas imports to the EU and is the cheapest supplier, so there is little incentive for buyers to switch. NATO members with high purchasing power, such as Germany, Italy or France, can use their market power and receive discounts and guarantees directly from Russia; therefore, they have different structural motivations than NATO members with less purchasing power, who may prefer the European Union's internal market framework [33].

This is fully shown in the division of opinions about the Nord Stream 2 pipeline, which is under construction from Russia to Germany, but is opposed by the United States and a number of Baltic and Central European allies. Russia's position in Europe's energy sector should be strengthened [34].

This is especially true considering the internal pressures in Russia to maximize the sale of energy resources abroad and use this income to subsidize domestic consumption; therefore, it is unrealistic to expect that NATO can change Russia's approach. Effectively, the goals of this alliance should be, firstly, access to affordable energy sources without too much dependence on Russia, and secondly, having a backup option [32].

The most powerful tool of the allies to deal with the monopoly abuse of power by a supplier is transparency in energy trade and EU market rules. Especially the smaller European allies can use these market rules to compensate for the relative lack of purchasing power [34].

Use against Germany or Italy. In the past, using this asymmetry, Russian suppliers used the Czech Republic or Bulgaria to provide better conditions to Germany. The European Commission, the executive of the European Union, has the duty to investigate these cases, to fine the abusers of market power, and to seek solutions. This independent monitoring function of the commission supports the corrupting effects of the politics of division and rule of Russia. The European Union does not always apply its market rules uniformly. The growing divergence of interests vis-à-vis Russia between Germany and the United States—and sometimes, within these countries—could have a negative impact on NATO's cohesion. If the alliance does not speak with one voice, Russia may be able to negotiate with allies separately and offer different deals to reward or punish their positions. Russia, also uses corruption and the funding of extreme political parties as an offensive tool to weaken the cohesion of the West and expand its alternative government model, weakens the security of Europe [35].

European strategies for the security problem

Institution building and international regulations with emphasis on the creation of oil exchanges

The establishment of multinational oil companies has been an action against free trade for years. Also, with the change in the political face of the world, new tools and organizations have been formed to achieve this goal. OPEC was created in 1960 in order to confront the oil companies and also guarantee the interests of the oil producing countries. Between 1960 and 1973 (the Arab war and the Zionist regime), this organization did not have much effect on the oil prices and market. The Arab oil embargo caused a sharp increase in the price of oil in the world markets. After that, the oil consuming countries decided to create an organization against OPEC in order to confront OPEC. The oil-consuming countries that realized their dependence on the oil-producing countries, especially the countries of the Middle East, founded the International Energy Agency. The main goal of this organization is to reduce the dependence of consumer countries. In order to achieve this goal, the International Energy Agency has policies such as increasing energy efficiency, developing alternative energy sources to diversify the energy portfolio, and diversifying the source of crude oil supply [36].

In line with the implementation of these policies, the member countries of the agency are obliged to carry out some activities. The International Energy Agency, the Institute of Economic Cooperation, etc. are all in the direction of confronting the independence-seeking movements of the main owners of primary resources and with the aim of dominating countries rich in resources in a new way. In the international oil scene, in order

to deal with the OPEC oil exporting countries, the International Energy Agency is formed to use new methods to deal with this union, and therefore we see that they use capital to create organizations. They argue that it should have been formed in oil producing countries. A clear example of these formations is the creation of oil stock markets, which are several times the volume of physical transactions in these stock markets (London, New York). Also, more than 20 countries are members of the International Energy Agency, including: Australia, Austria, Belgium, Canada, Denmark, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, Zealand, Norway, Spain, Sweden, Switzerland , Turkey, England and the United States, the key role of stock exchanges in the formation of the oil market can be seen as reducing the risk caused by oil price fluctuations. Creating transparency of oil prices in international markets, stabilizing and preventing sudden price shocks, reducing the risk of oil transactions, and flexibility and business development are among the duties of the oil exchange. The London Oil Exchange market was established in 1981 for the trading of energy futures contracts. The first gasoil futures contract was delivery in Rotterdam port, which had 807 gasoil futures contracts on the first day of opening. In 1986, Brent futures contracts were offered for the first time in this stock market. The formation of the oil and energy stock market has controlled price fluctuations and excitement to some extent and has managed the risks arising from the price [37].

Diversification of energy importers

In order to ensure their energy security, the Europeans have been trying to diversify the sources of gas imports in this region, and in this regard, they have been looking for alternative sources to reduce dependence on Russian oil and gas resources, so that the provision of gas resources delivered through Turkey is always have welcomed the presence of Turkey in the gas market due to the discovery of gas, despite the uncertainties regarding its commercialization, can fundamentally change the energy export equations of Europe with this country [38].

Joint investment of European countries with oil producing and oil importing partners

Considering the dependence of oil and gas resources needed by European consumer countries on Russian energy resources, which is considered a threat to the energy security of this region, one of Europe's strategies is to invest in Russian oil and gas producing companies in order to When there is a crisis and the maximum pressure of the United States of America and possible retaliatory measures to maintain their influence in regulating the macro policies of these countries. In addition, the aforementioned investment by European companies can be considered a tool to neutralize the oil sanctions of the United States of America against Russia and pressure on Europe. In this regard, some of the main Russian oil companies, such as Lukoil or Rosenbaut, are officially independent, but everyone knows that the oil policy is directly managed by the Kremlin. These companies, especially in difficult geographical areas such as Sakhalin, have made interesting joint investments with international oil companies such as Shell and Exan Mobil; but it seems that relations between large international oil companies and their Russian counterparts are often difficult [39].

Using the capacity of pipelines to provide energy

The use of the gas transmission pipeline for both the consumer and supplier sides provides the security of energy supply and its demand. Because considering the high cost and significant investment in building facilities and pipelines, it is not logical to not exchange gas between the two sides in the short term. In this connection, two important gas transmission pipelines are described below [40].

Leave the stream

The construction of Turkish Stream, like Nord Stream, is a part of Gazprom's transportation diversification strategy, which shows the willingness of the Russian government to support it. The creation of a new route for the delivery of Russian gas to southern Europe and western Turkey has led to the reduction of dependence on gas transmission through Ukraine to Europe, and the goal is to provide gas to the countries of Turkey and southeastern Europe. Its second coastal pipeline can reach the border of Bulgaria and Turkey or the border of Greece and Turkey. The entire marine part, i.e. the two pipelines under the Black Sea, was created and owned by the Turkstream Company. The first Turkish Stream sea pipeline connecting the receiving terminal with the Turkish transmission system (to supply the Turkish market) was built and paid for by the Turkish company (100% state-owned) Botash [41].

The second coastal pipeline, connecting the receiving terminal with the border of Turkey, was built by a Gazprom-Botash company, based on this protocol (2019) has been established and each company has a 50% share (Morning Star 1 mentions that the construction of both Turkstream marine pipelines, receiving terminal and two marine connecting pipelines was completed by the end of 2019 [42].

Managing European refineries by providing food in order to ensure the security of the oil market

Since European refineries need producers to supply their crude oil feed, you can become their shareholder by supplying feed to these refineries and thus participate in their products. Also, in this way, the share of our oil market in Europe can be increased by providing refined feed to customers in this region. The noteworthy point is that in the conditions of the crude oil

embargo, it is not possible to export and use the country's oil in Europe by refining companies, but in the form of oil clearing with neighboring countries and we, in return, export crude oil from the neighboring country or a mixture of crude oil. Iran can solve this problem with other crude oils. It should be mentioned that the realization of this issue depends on active energy diplomacy with the neighboring countries and Europeans, and in this way, by becoming a partner in the shares of the refineries; it has both prevented the sale of raw materials and caused the European economy to depend on oil and the products of those refineries [43].

Taking advantage of the profitable opportunity for European activists to use oil and gas resources

Iran is one of the largest holders of fossil fuel energy resources (especially gas) among the countries of the world. On the other hand, European countries have the largest industrial sector and have energy-intensive industries, and need energy supplies from various sources. Also, due to the geographical location of Iran in relation to the European Union and in terms of the profitability of commercial transactions, investment opportunities are available for European companies (those who are willing to accept the risk of sanctions and gain profit in exchange for energy trade); of course, this requires active energy diplomacy in neighboring countries and Europe [44].

The ban on European companies' activities in the energy market and investment in Iran's oil and gas industry has threatened the energy security of the European market. Uncertainty about the security of energy supply is one of the main issues facing Europe. Considering the process of economic development and the need of Europe's industrial production sector for different energies (such as gas, diversification and the use of alternative capacities have always been significant for this region, which expands the opportunity of cooperation in the field of energy in the future in this region [45].

Using the country's gas capacity as gas diplomacy in Europe

Since energy plays an important role in the security, performance and competitiveness of international actors, governments consider energy as part of their economic, political and strategic tools and often intervene in energy-related discussions; especially in the field of gas trade, due to the physical connection established between producers, consumers and transit countries, cooperation and interaction require a high commitment from the parties. Energy security is one of the most challenging areas of cooperation and dialogue between the European Union and energy supplying countries. According to the growing trend of global gas consumption (especially in Europe) in the near future, due to less pollution of gas than oil and as a system with less risks than the gas transmission pipeline, the use of LNG can be the fields of expansion of the country's gas market provide in Europe. It should be mentioned that activating the country's potential gas capacity and managing the country's gas consumption process is very important for the realization of this strategy. Adopting a policy of cooperation instead of competition with some gas producers such as Russia is very effective in strengthening this strategy [46].

Iran's strategic position in Europe's energy supply

Following the crisis in Ukraine and the increase in tension between Russia and the United States and the European Union, concerns about the security of energy supply due to Europe's dependence on gas imports from Russia have increased greatly, and diversifying the sources of gas supply to Europe is a priority of the European Union's energy strategy and foreign policy is placed Considering the high volume of energy reserves in the world, Iran can be the best option for ensuring Europe's energy security in the medium and long term [47]. The strategic and geopolitical position, the important regional position, the huge energy and trade capacities with Iran are important and opportunistic factors in regulating the relationship between the European Union and Iran. Iran is one of the largest countries in the world with energy. Diversification of gas supply sources and reducing dependence on gas imports from Russia has been a priority of the European Union's energy strategy for years, but due to the limited sources of alternative supply and the neglect of Iran as a suitable alternative for gas supply to Europe, which can provide energy security strengthen in Europe [48].

Conclusion

Examining the current trends in the new structure of the international political economy shows that in this structure, energy is one of the important building blocks of hegemony and plays a strategic role in the approaches of the great world powers. In other words, for the hegemonic powers in the new structure of the international political economy, among the three material pillars of the hegemonic power consolidation, i.e. domination over energy resources, the rule of the free market in the international political economy and a stable international financial system, energy and transmission lines. Energy is one of the important building blocks of hegemony and the mechanism by which governments can take a share of foreign trade in the world trade market. Energy and energy transmission pipelines, while attracting foreign investment and providing a suitable basis for the expansion of regional cooperation, will strengthen economic infrastructures, increase the influence and political role of countries in regional equations; it can be effective as an important diplomatic tool to realize and advance bilateral and multilateral economic, political and cultural goals of countries

and strengthen joint cooperation between neighbors and establish regional peace and stability.

It seems that in relation to energy security in the future in the production sector, the competition between the four important oil and gas production regions, i.e. the Persian Gulf, Russia, the Caspian Sea and West Africa, will continue. Europe supplies most of its oil and gas from Russia, North Africa and then the Persian Gulf. As one of the important producers of oil and gas in the world, Iran has special importance. Despite the fact that Iran and Russia are strategic allies in the field of geopolitical issues; but this issue does not cause their potential and actual competition in the geo-economic field to be ignored or to reduce its importance. In the past decade, as a result of the sanctions imposed on Iran, Russia has been able to consolidate its monopoly on the global gas markets, without facing any obvious reaction or sensitivity from Iran. It is obvious that Russia's grand goals and strategies in the field of maintaining the monopoly of gas supply to Europe are much easier to achieve with an isolated Iran under international sanctions. In fact, with the realization of this scenario, Russia is confident that Iran will remain in the strategic circle of its allies in the arena of international politics, and at the same time, it will restrain its most dangerous competitor in the field of gas transmission lines without paying any cost.

In the topic of energy security, there is a kind of basic concern in the field of access to energy resources, which first appeared as a specific issue of international politics in the 1970s, although its importance was evident decades ago. Newer than these are the concerns related to the smooth circulation of the global energy markets, which with the increase in the absolute amount of energy consumption, especially among the countries that did not consume much energy in the old days, but are now turning into more integrated, more extensive and have become more complicated and this problem has caused the anxiety of access to energy sources to deepen. If today, secure access to energy was simply a matter of exercising geopolitical control over natural resources, it is no longer the case.

Historically, the nationalization of the oil industry of the world's major producers in Africa and Asia and the Iranian Islamic Revolution, the Iran-Iraq war, the Kuwait-Iraq war, the Arab oil embargo against the Zionist regime, etc. (which are fully discussed in the article) has been investigated) has caused the instability of energy supply and its security has faced danger.

In the current situation, the security of Europe's energy supply is facing a serious risk due to important reasons such as the high dependence of European oil and gas imports from Russia and the oil embargo of oil producing countries such as Iran, Venezuela, etc.

The most important strategies that European countries can adopt to manage the above threat are the strengthening and expansion of international institutions in the direction of deregulation with an emphasis on oil exchanges, the use of alternative sources of fossil energy, diversification of oil and gas import baskets, capital joint installation of oil and gas by European companies with countries that have reserves and the use of pipelines considering the long-term nature of this method of gas transmission. Iran is of global strategic importance in terms of being at the center of the world's energy resources (gas and oil), as well as Iran's strategic position in the most important region of the Persian Gulf and the Strait of Hormuz on the one hand, and being located between the warm waters of the Persian Gulf and Central Asia. It adds to the importance of the country. Russia and Iran have the largest natural gas reserves in the world, and the European Union imports most of its energy from Russia. Therefore, Iran's energy resources can be a suitable option for the European Union in order to diversify its energy supply sources.

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