For a long time, the oil reserves of the Gulf countries have made the country one of the most important energy suppliers. To improve Ukraine’s energy market, a partnership that supports both parties must create. In this article we discuss the energy sector in Ukraine, current and future challenges, and how relations with the Gulf States can help to resolve these challenges. The importance of the Persian Gulf region to Ukraine is due to the significant potential for mutually beneficial trade and economic cooperation. Cooperation with the Gulf states in the energy sector is of particular strategic importance for strengthening Ukraine’s energy security by diversifying energy sources, as these countries have 54% of the world’s proven oil reserves and 40% of natural gas. In the energy market of the Persian Gulf countries, Ukraine has to compete with leading European and Asian countries, which requires systematic activities and coordination of efforts between the Cabinet of Ministers of Ukraine and some public and private oil and gas companies. Ukraine’s cooperation with the Gulf States can provide Ukraine with ample opportunities for mutually beneficial cooperation and the implementation of large-scale economic projects. First of all, Ukraine could take an active part in the construction of energy infrastructure in the Gulf countries. Using the geostrategic location, unique opportunities of Ukraine as a transit country for energy resources from East to Europe, the Government of Ukraine should develop a set of political, economic and scientific-technological measures aimed at the practical supply of Middle Eastern hydrocarbons to Ukraine. A special role should be played by the comprehensive elaboration of the routes of supply of Iraqi oil and Iranian gas to Ukraine. The current volatile situation in and around these countries, especially with regard to Iran’s nuclear program, should not hamper work on energy transport corridor projects from the Persian Gulf to Ukraine. Subject to the active actions of relevant Ukrainian ministries and agencies, the energy and financial resources of the Persian Gulf sub region in 5—10 years can play a key role in Ukraine’s efforts to diversify energy supplies and create a reliable energy security system.
PROBLEM STATEMENT IN GENERAL AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

Energy-saving-related investment projects usually have the characteristics of low internal rate of return (IRR) and short payback periods because of the need to invest a lot of money in the early stages. However, the main reasons that hinder most colleges and universities from using energy-saving potential are the lack of sufficient qualified national experts and experience in implementing energy-saving projects, as well as their lack of ability to implement financial resources. Also, at this stage, the investment and development of the project are not yet complete, and the purpose is to attract investment. With the modernization of budget targets, banks are worried about the high risks of implementing energy-saving projects and the lack of legal guarantees to repay issued loans. In this case, one of the opportunities for improvement is to implement energy efficiency projects through participation in energy service contract mechanisms and partnerships with energy service companies (ESCOs). In Ukraine, many legislative bills aimed at increasing the investment attractiveness of the country include energy efficiency and energy conservation through the introduction of a new budget agency to establish an energy modernization mechanism: Energy Service Mechanism.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

Although modern methods define the basic principles and concepts of realization, the energy service contract mechanism is a relatively new thing, and a lot of research has been done in this field. The modern recognized leader researcher Shirley Hansen (Hansen, Shierly J.) is an example of the development of this mechanism. Among them is a famous book: “Global ESCO: Lessons Learned from 49 Countries”, in which Pierre Langlois and scientist Paolo Bertoldi evaluated the latest developments in ESCO energy services on a global scale. In this article, we present the results of the analysis that describes the research surrounding the energy sectors of Ukraine and the Gulf States.

FORMULATION OF THE GOALS OF THE ARTICLE

The purpose of the analysis is to understand Ukraine's power generation methods, especially the important geopolitical and geo-economics status. In this article, we outline the research from the perspective of energy use, emerging research fields, and countries that contribute to collaborative research in the energy field. Finally, this article makes other recommendations to improve the energy and power sectors of the Gulf countries and Ukraine.

PRESENTATION OF THE MAIN RESEARCH MATERIAL

The economy of state has remained accessible and export-oriented, and in 2008 it joined the globe Trade Organization. The Persian Gulf sub-region is associate degree integral a part of the center east and also the Arab World and is that the most vital economic and political part of it. These countries have a particularly necessary political science and geo-economic position, as they need giant reserves of energy resources and investment potential, extremely developed infrastructure, and high getting power. Taken along, all this defines its strategic significance to state [1].

According to the wide in agreement world energy security standards, for any region, energy offer from one supply mustn't exceed twenty five %, as a result of solely in such circumstances will the state grow as associate degree freelance energy supply. Power carriers return from 5—8 external sources within the overwhelming majority of European countries. Meanwhile, state may be a nation with associate degree energy deficit, because it solely fulfills its oil desires by 10—15 %, 25—30 %, from its sources of fuel and energy provides. Russia (oil-90 %, gas- sixty %, and nearly one hundred pc of nuclear fuel) purchases the massive volumes of energy carriers (oil, gas, nuclear fuel) much from one supply [2].
Under these circumstances, reliance on foreign energy carriers is crucial for the Ukrainian energy sector and also the economy as a full, since in recent years the Russian facet has used the energy issue as a good lever for not solely economic however conjointly political management. Therefore, Ukraine’s significant reliance on Russian energy carriers poses the challenge of diversifying them in the lightweight of high-priority tasks aimed toward up its energy stability.

Few regions within the world may receive energy carriers from state, as another to Russian ones. They’re the Caspian countries, eight Persian Gulf states, North Africa, and also the Near East sub-region. The latter is that the richest carrier of electricity. Cooperation within the energy sector with the Persian Gulf States is of strategic significance for up the energy security of state through the diversification of energy sources, as these countries account for fifty-four of the world's established oil sources. Reserves and four-hundredth of fossil fuel reserves. Drilling within the Gulf in 2020 might hit forty-two.9 million barrels per day, in keeping with the International Energy Agency (IEA) estimates, compared to twenty-one.7 million barrels in 2000 (Table 1) [3].

The urgency of Ukraine's cooperation within the field of energy with the Gulf countries is additionally impressed by the actual fact that the prospects for the provision of oil and gas to Ukraine from Azerbaijan and Turkmen, additionally as from volatile geographical area, square measure currently terribly little. Opportunities for Azerbaijani gas provides to Ukraine are traditionally exaggerated by some Ukrainian specialists, in our read.

First, in step with the CIA-World-Fact book, as of one Gregorian calendar month 2012, Azerbaijan's proved gas reserves also are smaller than those of Ukraine (849.5 billion blocky meters and one.104 trillion blocky meters, respectively). Also, relative to Ukraine, Azerbaijan produces less gas (16.68 billion blocky meters and nineteen.36 billion blocky meters as of 2010, respectively). It ought to even be noted that additional proved natural reserves exist in neighboring Azerbaijan, Kazakhstan, and Asian nation Gas, and that they mine it and sell it in nice quantities.

Secondly, over the past eighteen years, Azerbaijan has signed over thirty energy resource offer agreements with totally different countries and therefore the world's largest oil and gas firms. Today, Azerbaijan is enclosed in many prospective oil and gas ventures within the Black Sea–Caspian region as a potential supply of gas offer, during which Ukraine is currently primarily not interested. Also, over the past 2 years, Baku, a part of Ukraine, has secure to provide gas to Republic of Lithuania, Poland, Ella's additionally. Syria, Jordan, et cetera. to the present finish, the gas secure to Ukraine by Azerbaijan can solely be provided in 2017, following the launch of the Shah–Deniz–2 gas field [4].

Ukraine might expect to receive Turkmen gas, whose reserves (2.6 trn blocky meters) square measure bigger than those of Azerbaijan, and

| Countries  | Proven oil reserves | Mining | Exports | Domestic consumption | Imports |
|------------|---------------------|--------|---------|---------------------|---------|
| Iran       | 151.2 billion       | 4.231 million bbl./day | 2.295 million bbl./day | 1.694 million bbl./day | 0       |
| Iraq       | 143.1 million       | 3.3 million bbl./day | 2.6 million bbl./day | 818,000 bbl./day | 0       |
| Qatar      | 25.57 billion       | 1.631 million bbl./day | 704,300 million bbl./day | 169,900 bbl./day | 0       |
| UAE        | 97.8 billion        | 3.087 million bbl./day | 2.036 million bbl./day | 572,100 bbl./day | 0       |
| Saudi Arabia | 264.6 billion    | 10 million bbl./day | 6.88 million bbl./day | 2.817 million bbl./day | 0       |
| Kuwait     | 101.5 billion       | 2.682 million bbl./day | 1.365 million bbl./day | 339,000 bbl./day | 0       |
| Oman       | 4.902 billion       | 890,500 bbl./day | 71,600 bbl./day | 98,000 bbl./day | 0       |
| Bahrain    | 107.2 million barrels | 45,000 bbl./day | 0 | 98,000 bbl./day | 0       |

Table 1. Energy generated by the Gulf countries
Turkmenistan’s gas exports (48.5 billion blocky meters) surpassed Azerbaijan’s gas exports (5.5 billion blocky meters) by around nine times as of 2009. However, the development of the Trans-Caspian gas pipeline required for this has not nonetheless started, and it’s not proverbial if it’ll ever begin in any respect. Turkmen is sorting out various markets for its gas assemblage, with no time lost. For exports. Thus, Turkmen place 2 new gas pipelines into operation in Gregorian calendar month 2009, one to China, the opposite to Asian country. Oil production within the Gulf in 2020 by the International Energy Agency (IEA) might hit forty-two.9 million barrels per day, compared with twenty one.7 million barrels in 2000.

Their comparatively similar geographic locations square measure one amongst the factors that confirm the main target of cooperation between Ukraine and therefore the Gulf countries. Therefore, solely Turkey and therefore the sea square measure set between the northern regions of Asian country and Republic of Iraq and therefore the southern border of Ukraine (Crimea). Today, to get valuable gas from the Surgut deposit in Western geographical area, or to get cheaper gas from Qatar, that is sort of constant distance from Ukraine (about 2500 kilometers), Ukraine faces a haul. However, the way to give fuel for the energy transport ships of the gulf countries is that the biggest challenge. At constant time, given the prospects for energy-related cooperation between Ukraine and therefore the Gulf countries, it ought to be got wind that the political science state of affairs within the sub region and its close areas is incredibly advanced and contradictory. However, compared with alternative Arab countries, large socio-political changes came about in 2011–12, and therefore the Gulf countries have remained comparatively stable thus far. When the higher than changes, Egypt’s standing because the leader of the Arab world has been weak, however currently 3 gulf countries square measure stringent the standing of recent leaders.

The United States and its NATO allies have struggled to provide stability in the Persian Gulf, despite its large military presence, because their very presence is a source of uncertainty and promotes the growth of anti-American sentiment among Arabs and Iranians. The arms race is one of the key causes destabilizing the situation in the Persian Gulf. The Gulf sub-region ranks first in the world in terms of this measure. The US supplied Arab countries in the period from 2005 to 2010 alone. The Persian Gulf with over 40 billion US dollars’ worth of weaponry. It is assumed that, in the coming years, the same countries will be supplied with 60 billion US dollars’ worth of mostly American arms. The accelerated militarization of the sub-region is being carried out under the pretext of protecting Arab allies against the possible threat of nuclear missiles from Iran. In the Gulf Arab countries, including Iraq, the USA proposes to establish a so-called "safe belt" for Israel, a common air defense system in these countries, which could detect and kill the launch of Iranian missiles into Israel.

From time to time, territorial disputes occur between Arab countries — members of the Cooperation Council for the Arab States of the Gulf (CCASG) — on certain financial, economic, trade, and customs matters, as well as on certain regional and international issues. Important differences in the positions of the Council can be noted, in particular concerning the individual Gulf States signing separate agreements with the United States on the creation of free trade zones; the creation of a common currency, the expansion of the CCASG due to the accession of new members (Jordan, Morocco). One of the factors that destabilize the political situation in some of the Persian Gulf Arab countries (especially in Iraq, Kuwait, Bahrain, and the KSA) is perceived as discrimination against the Shia community, campaigning for equal rights with the Sunnis to participate in government bodies. This means that.

According to the CIA-World-Factbook, as of 2012, Iraq was the fifth largest in the world (after the KSA, Venezuela, Canada, and Iran) in terms of its proven oil reserves (143 billion barrels). In 2012, Iraq ranked eighth in the world in terms of daily oil production (3.3 million barrels per day). According to the International Energy Agency’s projections, by 2020, Iraq’s oil production will more than double, hitting 6.1 million barrels/day and 8.3 million barrels/day by 2035 (Table 2).

In 2002, Iraq and Ukraine signed a protocol to the UN Oil-for-Food Program. Ukraine was believed to be able to supply Iraq with oil extraction equipment, tubing, and training Iraqi
oil specialists. In 2003, "Naftogaz" of Ukraine signed a Memorandum of Understanding with Polish company Polskie Gornictwo Naftowe I Gazownictwo (PGNiG) on the establishment of a joint venture for the assessment of Iraq's oil and gas infrastructure, the restoration of pipelines and storage facilities, and transportation of oil, but unfortunately, these intentions have never been enforced [6].

In recent years, issues related to Ukraine's energy cooperation with Iraq have been addressed at bilateral meetings at various levels. At the beginning of February 2011, the First Deputy Prime Minister Andriy Klyuyev and the Governor of Bagdad, Salah Abdul-Razzaq, met in Kyiv. On 20–22 November 2012, the former Minister of Foreign Affairs of Ukraine K. Gerashchenko visited Iraq with a three-day official visit. On 2 December 2012, in Baghdad, the fourth meeting of the Joint Commission on Trade, Economic, Science, and Technical Cooperation between Ukraine and Iraq took place. Cooperation in the energy sector has also been discussed, among several other issues of bilateral cooperation. The Ukrainian side of the meeting was led by Ukraine's Special Representative for the Middle East and Africa E. Mykytenko, Iraq — Deputy Minister of Industry and Minerals Adel Karim.

The problems that could complicate Ukraine's energy cooperation with Iraq at this point include internal military-political and socio-economic instability, in particular the friction in the relationship between the Iraqi Kurdistan leadership and the central government of Iraq. Uncompromising struggle persists between leading Iraqi political powers and religious-ethnic confessions. The possibility of the disintegration of Iraq along ethnic and religious lines is sufficiently real. Armed criminal organizations are still very active in different parts of Iraq. Corruption in the upper echelons of the Iraqi government has reached a degree of national security risk. Political instability, ongoing terrorist attacks, overuse, and corruption among local bureaucracies are alienating many potential foreign investors. Security remains at the border between Iraq and Syria. In the Kurdish province of Dahuk alone, there are 80 thousand refugees from Syria. The US accuses the Iraqi authorities of allowing Iran to use Iraqi airspace to carry Iranian weapons to Syrian government forces. Tensions in relations between Iraq and Turkey continue as well.

The CIA-World-Factbook reports that, as of January 2013, Iran ranked fourth in the world (after the KSA, Venezuela, and Canada) in terms of proven oil reserves-151 billion barrels, accounting for around 10% of the world's reserves. In 2011, Iran ranked fifth in the world in terms of daily oil production (4,231 million barrels per day). More than 60% of Iran's oil exports went to countries in the Asia-Pacific region, and the rest — to Europe and Africa. In terms of proven natural gas reserves, Iran ranks second in the world (33.07 trillion cubic meters in 2012), compared to Russia (47.57 trillion cubic meters in 2012). In 2010, gas production in Iran amounted to 146 billion cubic meters, almost all of which went to domestic use (144.6 billion cubic meters). As an exporter of natural gas (7.87 billion cubic meters), Iran is the twenty-fifth in the world [7].

In our view, to be second in the world in terms of gas reserves and to export just a small amount is quite unacceptable to the international community. Therefore, if Iran does not address the problems of its nuclear program and does not enable the production of gas in large quantities and delivers it to the countries of Europe, it will pose significant threats to its national security.

The system of international sanctions and the oil embargo adversely affect the economic situation in the region. According to the International Center for Development Studies (London), Iran is losing around US$ 40 billion annually as a result of international sanctions. Currently, inflation in the country is about 25%, and unemployment is 20%. Accordingly, foreign sanctions impede Iran's access to modern oil and gas infrastructure production technologies. However, in its November 2012 issue, "The Economist" predicts that Iran's GDP will rise by more than US$ 400 billion by 2017 and will amount to US$ 881.2 billion. Iran's GDP rose in the field of geological exploration, extraction, refining, and refining Creation of infrastructure.

Ukraine's foreign trade turnover with the Gulf countries reached almost USD 1.5 billion in 2016 and accounted for 1.64 percent of Ukraine's overall sales of goods and services. In total, imports of goods and services from Ukraine to the GCDCP countries amounted to USD 1.15 billion — USD 332.2 million. Among the six GCDA countries, the main trade volumes in Ukraine are Saudi Arabia (50.8% of the overall turnover of GCDS products and services) and the UAE (41.1%) [2].

According to the results of the first half of 2017, there is a partial recovery in the number of commodity exports from Ukraine to the Persian Gulf countries, which were heavily seeded in 2015—2016 (-36.2% of the population). In particular, exports of goods to Saudi Arabia increased by 30.0 percent in the first six months of 2017 compared to the same duration in the previous year and by 47.3 percent to the UAE [7].
The importance of the Persian Gulf to Ukraine is due to the huge potential for mutually beneficial trade and economic cooperation. Although Ukraine is not one of the most energy-efficient countries, the likelihood of importing or transiting energy from the Gulf States is very small. The priorities of Ukraine’s regional policy are the establishment of balanced, equitable, and mutually beneficial relations, the strengthening of Ukraine’s economic role in the markets of the region, maintaining security at our state’s southern borders, enhancing regional security and stability. Ukraine considers important cooperation in the field of oil and gas exploration, development, planning and modernization, design and construction of oil and gas infrastructure, the joint production of hydrocarbons in both countries, and attracting investment in the modernization of Ukraine’s gas transport system. The automotive industry may become a promising field of Saudi-Ukrainian cooperation. Cooperation in space, in particular in the joint development of artificial satellite systems, is an important field. Launching of Saudi satellites. The goal of the article is to examine the size and the relationship of trade and investment between Ukraine and KSA, by defining the figures for the key goods or services that have been changed or obtained by the two countries, with the key impact factors that have had an impact on them. Trade at the country level has also witnessed cooperation in various fields, as the Kingdom and Ukraine signed agreements in 2016, including the Dual Taxation Agreement, the Investment Security Agreement, and the Economic and Trade Framework Agreement for Trade, Economic, Scientific and Technological Cooperation. The key exported commodities included plastics and their articles, machinery, and machine tools and their parts, fertilizers, and various chemical products, as well as ready-made clothing. While the main imported goods in the same year were: cereals, iron and steel (steel), fats and animal or vegetable oils, made of iron or cast iron (steel) and meat, offal, and edible pieces.

CONCLUSIONS AND RECOMMENDATIONS

Approximately 5—10 years from now, energy and financial resources in the Persian Gulf sub-region will play a key role in the resolution of Ukraine’s tasks of diversification of energy carriers; supply and the development of a stable energy protection framework. First of all, this is due to the fact that the Persian Gulf region will continue to play a dominant position in the world oil and gas market over the next three decades.

Traditionally, the Gulf countries are hosting strong multinational oil firms and consortia, possessing not only the latest technology, but also huge resources. With few exceptions, Ukrainian oil and gas companies do not have such resources, however, as a rule, they have skilled personnel and modern technologies that are very good. Thus, in order to gain a foothold in the Persian Gulf energy market, Ukrainian companies could join consortia with leading countries in Europe, the USA, Russia, China, Japan, South Korea, India and the rest of the world.

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