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Iran, the Pioneer of Nuclear Energy in the Persian Gulf: An Insight to 2030

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Abstract

The global nuclear energy scene is changing rapidly. Some countries are phasing out nuclear technology. Some are in the nuclear renaissance, planning to promote the most ambitious new construction program. Statemen make the proper decision in nuclear policy, striking the best balance between domestic energy policies, energy-concerned foreign policies, and the dynamism of international relations. This study tries to analyze the political aspects of nuclear program in foreign policies and international relations in the Persian Gulf region.

The study examines the reasons why oil and gas producing states want to acquire nuclear energy. It reviews the structural, psychological, and technological dimensions of nuclear politics in a neoclassical realism paradigm to find balancing energy strategies. The research examines policy in the Kingdom of Saudi Arabia, the United Arab Emirates, and Iran. Different states' power and different perceptions of the international system allow for explaining various role players in foreign policy and energy politics.

The theoretical starting point of this thesis is Neoclassical Realism in the literature of international relations. This theory offers venues for the analysis of energy diplomacy. The theory concentrates on material power and underlines the importance of state domestic structure as well as the statesmen's perception of the international system. These aspects create the opportunity to explain the different positions of energy choices in the foreign policies of different states.

Keywords: Persian Gulf, Energy Security, Energy Transition, Iran Nuclear Program, International Relations.

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Introduction

The world doesn't have access to common ground about nuclear energy. In a domestic policy view, energy security inside a country underpins nuclear power through the diversification of energy resources. In the foreign policy view, there are exogenous factors outside a country, such as military conflict, global or regional hegemony, and perceived threats.

This study examines the reasons why oil and gas producing states want to acquire nuclear energy. Therefore, this research addresses the fundamental challenge confronting those who seek to understand the nuclear policy in a regional area, namely, to identify, evaluate, and extrapolate nuclear options of the neighboring countries, with a focus on the geopolitical context of the Persian Gulf.

The study tends to structure and disentangle the complexity of the nature of Iran's nuclear strategy at the nexus of international relations. The following questions will guide this study.

1- In what way is Iran's perception of insecurity and vulnerability changing, and is a regional balance of power evolving?
2- What role could Iran play in the context of the geopolitical dynamics of regional countries striving for nuclear power?
3- Based on the empirical analysis, which factors influence Iran's nuclear policy?
4- What are the main uncertainties and complexities Iran must deal with?
5- If low-carbon energy– and nuclear power in particular– is to play an important role in Iran's energy diversification, how does Iran's perception of the international political system affect the feasibility of regional acceptance?

this study will elaborate on the developments in Iran's nuclear program that have taken place for the last three decades, where the Islamic Republic of Iran (henceforth IRI or simply Iran) was somehow excluded from the global club and its place in the international system is still uncertain.

۱ 1. Where is the Persian Gulf?

Geopolitically, Iran is located at the crossroads of multiple sub-regions of the Middle East, South Asia, and Central Asia. Iranian foreign policy has constantly been determined by the interaction between domestic politics and changes in the regional geopolitical environment (Perteghella, 2019). According to the definition

provided by Buzan, Wæver, and Nolte, regional power consists of the status possessed by those actors that can alter the regional balance of power on their own and define the polarity of their regional complex (Buzan & Wæver, 2003; Nolte, 2010). Such regional leaders employ material assets such as military, economic, demographic, technological, and human resources, as well as ideational assets such as norms and values, to influence the regional security agenda (Perteghella, 2019).

The IR scholars call the Persian Gulf a (sub)regional security complex, centered on a triangular rivalry among Iran, Iraq, and the Persian Gulf Cooperation Council (Ulrichsen, 2021). The GCC is an alliance of Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates and is set up as a regional security complex. Security interdependence is organized into regional clusters called regional security complexes (RSCs). Most relevant here are works in a regional security complex, which Buzan and Wæver formulated as a 'set of units whose major processes of securitization, de-securitization, or both are so interlinked that their security problems cannot reasonably be analyzed or resolved apart from one another.' (Buzan & Wæver, 2003, p. 491). This paper aims to address the central challenges of evolving civil nuclear energy and the challenges the Persian Gulf countries face with concerning nuclear power threats. Thus, this work attempts to connect the conceptual and empirical variables behind the Iran nuclear policy process.

2. Nuclear Energy or Nuclear Weapons?

The World Wars spawned the French nuclear program. Charles de Gaulle justified the French nuclear program because it would liberate the republic from the "yoke of double hegemony" by setting France on its own, independent technological pathway, making it an international superpower similar to the Soviet Union or the United States (Sovacool, Brown, & Valentine, 2016, p. 249). The history of nuclear industries shows a significant linkage between civil nuclear power and nuclear military ambitions. The enthusiastic pioneers of civil nuclear energy entertained early nuclear weapons, e.g., Canada, Germany, Sweden, and Switzerland. Even the ambitions of non-civilian nuclear programs can be found in the histories of non-nuclear military states like Argentina, Bangladesh, Brazil, Japan, South Africa, and South Korea. It is an essential point that all the states skillfully commercialized in civil nuclear power have parallel capabilities to access nuclear weapons capabilities. For instance, all the major nuclear-armed states: China, the US, France, Russia, and

the UK At the end of World War II and the early Cold War, most of the industrial efforts were dedicated to military aims, even under the umbrella of Eisenhower's Atoms for Peace Program. With this background, the rapid deployment of nuclear power reactors originated in military industries, and all the civil and military industries shared similar infrastructures for uranium enrichment and fuel reprocessing. Economists have called this phenomenon "economics of scope" (von Hirschhausen, 2017). In the emerging nuclear energy states, like India and Pakistan, all the civil and military nuclear programs were extremely shared and strongly similar. Likewise, such links are well-acknowledged in the politics around the nuclear programs of Egypt, Saudi Arabia, Turkey, and the United Arab Emirates. *The Economist*, for instance, argues for Saudi Arabia's potential nuclear new-build program and its high cost of capital (The Economist, 2018). Mohammed bin Salman stated that "without a doubt, if Iran develops a nuclear bomb, we will follow suit as soon as possible." With this expression, he put Saudi's nuclear program directly into a military context (CBS News, 2018). Civil nuclear program in Egypt, Turkey, and the United Arab Emirates are held to be among the countries "most poised to seek advanced nuclear capabilities in response to a resurgent nuclear Iran" (Burkhard, Wenig, Albright, & Stricker, 2017). Inside the Middle East, the first main nuclear reactor was constructed in Bushehr, Iran on the north coast of the Persian Gulf. The construction of the Bushehr nuclear power plant started officially in 1975, but it began to generate electricity in 2011, the first in the region.

To whatever degree, there can be little doubt that the superpowers and international society have a shared concern about the Iran nuclear program. Iran is one of the most sanctioned countries in the world supposing Iran was seeking to develop nuclear weapons. In his inauguration, President Ebrahim Raisi committed to supporting any diplomatic initiative that results in lifting the sanctions (Al-Alam, 2021). It was a signal of willingness to restore the JCPOA or Iran's nuclear deal. Despite the negotiators meeting in Vienna in August 2022, at the time of writing, no deal has been revived (Reuters, 2022). However, the balancing strategies predominates the region starting 2022. Iran and Saudi Arabia will restore diplomatic relations in March 2023. Other Persian Gulf states have had direct talks with Iran to restore relations. In August 2022, Iran resumed diplomatic relations with the UAE, as did Kuwait. Qatar previously announced the return of its ambassador to

Iran in 2017, when it was blocked by other Arab countries (Loft, **2023)**.

3. Neoclassical Realism as the Theory of Foreign Policy

The international system, as well as domestic actors and structures, influence a state's foreign policy. In Neoclassical Realism, foreign policy is a dependent variable, as it incorporates the relative power capabilities of the state and the perception of leaders about relative power capabilities (Kim & James, 2016). Leaders need the freedom to direct the state's resources in the direction found necessary. Based on the Neoclassical Realism Theory, the main actors in the international system are not just states but state leaders and statesmen. Zakaria underlines in his book From Wealth to Power that "statesmen, not nations, confront the international system" (Zakaria, 1999, p. 35). Statesmen also construct the architecture of the international system.

Taliaferro suggests that the power of states to emulate internal balancing is a function of the level of external vulnerability as mediated through the "extractive and mobilization capacity of existing state institutions" (Ripsman, Taliaferro, & Lobell, 2016, p. 145; Taliaferro, 2006). On the other side, the state's vulnerability to external threats is a function of social fragmentation. In other words, the degree of state-sponsored nationalism, or the extractive capacity of society, and embedded statist (or anti-statist) ideology shape the state response to the external vulnerability by emulating new offset strategies or persisting in existing strategies (Ripsman et al., 2016, p. 79; Taliaferro, 2006). Energy resources are employed more frequently in foreign policy to realize foreign interests in states where the energy sector is more closely tied to the government than in states where the energy sector is more separate from the government. According to Orban, states expand because of material resource expansion. Statesmen cannot use all the power of the state, regardless of what it is: military, economic, or resource capabilities (Orban, 2008, p. 21). When the energy sector has a more distinct type of governmental structure, it is more difficult to transfer energy resources from national power to state power. This explains why countries far away from democracy employ energy resources as their policy tools.[1] Moreover, while the state is potentially

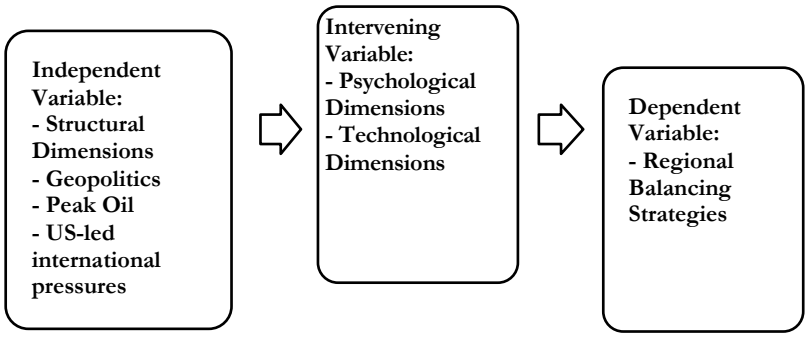
[1] Česnakas explains that namely Norway, Netherlands, Canada, and Mexico cannot acquire state power from energy resources when expanding their influence abroad efficiently enough. While it is much easier for Saudi Arabia, Russia,

autonomous of societal forces, it is not necessarily so. Depending on domestic political arrangements, states vary in their ability both to enact policy responses to international challenges and to raise revenue and resources to implement policy choices (Ripsman et al., 2016, p. 166).

The term neoclassical realism first appeared to designate works that sought to explain state behavior by referring to independent variables that are located at the structural level (like power distribution among states) and intervening variables placed at the unit or domestic level (such as the perception of decision-makers and state extractive and mobilization capacity) (Rose, 1998, pp. ۱۴۴–۱۷۷). Taliaferro suggests that the power of states to emulate internal balancing is a function of the level of external vulnerability as mediated through the 'extractive and mobilization capacity of existing state institutions' (Ripsman et al., 2016, p. 145; Taliaferro, ۲۰۰۶). Neoclassical realism seeks to bridge the different levels of analysis to understand the processes and outcomes of foreign policy decision-making. The intervening domestic-level variable allows exploring the internal processes by which the state arrives at policies and decides an action in response to objective external circumstances. Source: *Taliaferro, "Neoclassical Realism and Resource Extraction: State Building for Future War," in Neoclassical Realism, the State, and Foreign Policy (Cambridge, UK: Cambridge University Press, ۲۰۰۹), p. 213, fig. 7.2.*

Figure shows the causal model adopted by Taliaferro with an emphasis on resource-extractive states (Taliaferro, 2006, 2009). The article identifies three theoretically informed key dimensions of Iran's nuclear program: the structural dimension, the psychological dimension, and the technological dimension.

Venezuela, and Iran. Although in my view, each case deserves separate research because of their differentiation at the unit level. (Česnakas, 2010, pp. 39, 48)



Source: Taliaferro, "Neoclassical Realism and Resource Extraction: State Building for Future War," in Neoclassical Realism, the State, and Foreign Policy (Cambridge, UK: Cambridge University Press, 2009), p. 213, fig. 7.2.

Figure (1): The Neoclassical Realist Model of Resource-Extractive States

Dependent Variables: In terms of dependent variables, neoclassical realism concentrates mainly on global and regional geostrategic strained relations and disputes and the inter-state hostilities that stem from these and pays less care to local and economic/commercial disputes and to collaborative arrangements (Dannreuther, 2010, 2015). The bunch of dependent variables includes geographical proximity and geopolitics, peak oil and the decline in energy production, and political and economic isolation caused by US-led international pressures.

Independent Variables: In terms of independent variables, neoclassical realism pays high attention to the geographical distribution and position of energy resources. It concentrates on the geopolitical spread of power and the value of resources. Two intervening variables are selected here for discussion: psychological and technological.

Intervening variables: In terms of intervening variables, neoclassical realism focuses more on the reasons for disputes considered to be found mainly in local circumstances rather than at the global and regional levels of inter-state disputes. The article adds the technological and psychological dimensions to the intervening variable because of the changing technological face of international politics as well as the changing perceptions of Iran manifested regionally in recent years.

The advantage of framing the question with the neoclassical realism model is that it suggests a simple approach to domestic politics without the need to analyze Innenpolitik in detail. In cases

of changes in decision-making groups or changes in threat perception or leader images, they could be expected to explain the changes in foreign policy or the state's interests in the international system without needing a deep domestic analysis that would distort the focus on foreign policy analysis (Česnakas, 2010, p. 47). It is important to remember that any choice of framework or variables will be specifically designed for the purposes set out in this article.

4. Structural Dimensions: Iran Nuclear Program

The Iranian nuclear program has many interconnected factors. Iran is the most complex and difficult issue due to the high risk of energy and foreign policy interests colliding (Yergin, 2012). In the mid-1980s, amid the Iran-Iraq War. It obtained know-how and technology from the Pakistani A. Q. Khan network (Bosch, 2006, p. 7). Russia and China helped calm down the Security Council members regarding the Iranian nuclear issue. The UNSCR 1696 was passed, mandating Iran to stop uranium enrichment by August 31, 2006, or face potential economic or diplomatic sanctions. However, it was only under Article 40, which didn't authorize the military as the next logical step (Mason, 2015). Since December 2006, four UN sanctions have been imposed on Iran under Chapter VII and Article 41 because of its nuclear program. The Sanctions Committee was formed at the same time as the first resolution, and the international community is required to enforce all the UN Security Council sanctions (Ghavam, 2014). The timeline of the Iran's nuclear program is summarized and depicted in Table in the years between the 1950s and 2021.

Table (1): Timeline of the Iran Nuclear Program 1950-2022

Year (s)	Iran Nuclear Program
۱۹۵۰	On a minor scale, by Mohammadreza Shah Pahlavi under America's Atoms for Peace, was aimed at developing atomic power.
۱۹۷۵–۶	Construction of Bushehr-1 and -2 had started.
۱۹۷۸	Suspended at the beginning of the Iranian Revolution by the supplier, Siemens.
۱۹۸۰	Amid Iran-Iraq War, the Iranian government made the decision to seek nuclear weapons capability. It obtained know-how and technology from the Pakistani A. Q. Khan network.
۱۹۹۶	Construction of Bushehr-1 restarted.
۲۰۰۳	Under the pressure of the IAEA, Iran temporarily halted its

Year (s)	Iran Nuclear Program
	enrichment program.
۲۰۰۴	Russian nuclear export agency- Atomostroyexport took over the completion of the Bushehr power station in Iran from the German company Siemens, but this is now suspended. It sold two reactors to China for the Lianyungang power plant and two reactors to India for the Kudankulam power plant.
۲۰۰۶	President Ahmadinejad restarted enrichment and accelerated the development of missiles, some of which would carry nuclear payloads.
۲۰۰۶	Ali Larijani, the speaker of Iran's Parliament, declared that Iran needs its nuclear program because "fossil fuels are coming to an end. We know the expiration of our reserves."
۲۰۰۶	Activation of many centrifuges to enrich uranium[۱]
۲۰۱۰	In September 2009, Iran informed the Agency that it was constructing the Fordow Fuel Enrichment Plant (FFEP), located near the city of Qom (The IAEA Director General, 2010).
۲۰۱۰	Iran announced that it had reached the 20% level.
۲۰۱۰	Bushehr-1 nuclear reactor went online.
۲۰۱۱	Iran, as the 31st country in the world, finally started operating its first reactor that had been under construction at Bushehr since 1975. In the 25 years since the accident at Chornobyl, only four countries—Mexico, China, Romania, and Iran—have started new nuclear power programs.
۲۰۱۳	Iran's Bushehr power plant entered commercial operation in the third quarter of 2013.
۲۰۱۴	In April 2014, the Iranian government announced it had reached an agreement with Russia for the supply of two reactors, with the first construction at the Bushehr site, starting in 2014. The deal has never been effective.
۲۰۱۵	Under the JCPOA, Iran has committed not to reprocess spent nuclear fuel and to send it to Russia.
۲۰۱۶	Iran boosted output by 85 percent after the load factor of its single reactor almost doubled and by successfully overcoming technical issues during startup. Consequently, the nuclear share in electricity production increased from 1.3 percent to 2.1 percent.

۱. Enrichment is the process by which the ratio of the U-235 isotope to the far more common U-238 is increased. A 3% to 5% U-235 concentration is required to provide the fuel for a civilian nuclear reactor. A 20% level is needed for medical purposes. An atomic bomb needs 90%.

Year (s)	Iran Nuclear Program
۲۰۱۷	After increasing electricity production by 7.6 percent, the nuclear share increased again slightly, from 2.1 percent to 2.2 percent in 2017.
	Iran removed excess centrifuges and infrastructure from the FFEP in line with its nuclear-related commitments under the JCPOA (IAEA, 2017).
۲۰۱۸	The US announced its withdrawal from the Joint Comprehensive Plan of Action.
۲۰۱۹	Construction of the Bushehr-2 reactor started.
۲۰۲۱	Iran and the US agree on the path back to the nuclear deal.
۲۰۲۲	In August 2022, negotiators met in Vienna in talks to restore the agreement (Reuters, 2022).
	The talks have stalled since September 2022 (Loft, 2023).

Sources: (Mason, 2015; Schneider, Frogatt, Hazemann, Tadahiro, & Thomas, 2015; Schneider et al., 2014; Schneider, Froggatt, & Hazemann, 2012; Schneider et al., 2017, ***2018; Schneider & Froggatt, 2004; Yergin, 2012) compiled by the author)***

With all its ups and downs, nuclear politics is well-established and has a complex and meaningful correlation with regional geopolitics. Iran faces unprecedented challenges as well as opportunities regarding its endogenous nuclear knowledge. However, Iran will need to reconcile its domestic political agenda with its economic interests in the nuclear program.

5. Geopolitics

Geographical proximity is one of the crucial elements in determining whether an issue ought to be securitized or not with the other side. There is "more security interaction among neighbors than among states located in different areas potent for security because many threats travel more easily over short distances than over long ones" (Buzan & Wæver, 2003). For instance, the EU's heavy dependence on Russia and its feeling of a threat go hand-in-hand with geographical proximity (Sharples, 2012). Among the major actors, the geopolitics of Russia and China are different from each other and totally different from the EU and the USA. Iran's geopolitics have also been an important factor in the continuity of its nuclear activities. According to Lacoste's point of view, geopolitics is an agent or an approach that relates to the ontology of a phenomenon. Geopolitics in its present sense focuses on the evolution of the interconnected political world as an interconnected and interdependent system at local, national, and international levels and draws attention to other geopolitical studies, namely transnational economic, social, and

political forces (Ó Tuathail, 1994). Iran is living in an unstable and stormy region. The countries that have faced international military invasions are in the neighborhood, such as Iraq and Afghanistan. The geopolitical problems, combined with security threats and rivalries for regional hegemony, form the basis of Iran's regional policies (Ehteshami, 2014).

6. Peak Oil

It has been more than a century since oil was discovered in Iran. Anglo Persian Oil Company (APOC) was founded in 1908 following the discovery of a large oil field in Masjid-e-Suleiman, Iran.[1] Since 1954, the Persian Gulf has been one of the primary hubs of energy, especially oil and gas production. As Iranian history has been locked into hydrocarbon-based energy systems, its economy at the macro-level returns to scale increasingly in an endogenous path-dependent manner. Hubbert (1956) predicted for the US that the oil reserves would be depleted in 50 years or a "foreseeable future." He explained the world situation with respect to the requirements and supply of fossil fuels and whether nuclear energy from uranium and thorium will be able to replace that from fossil fuels as the latter approach their inevitable exhaustion. Iran's initial nuclear program, launched in the 1950s on a minor scale by the Shah under America's Atoms for Peace, was aimed at developing atomic power. It was driven intensively in the 1970s by the Shah's conviction that Iran's oil and gas resources would be exhausted within three decades. In 2006, Ali Larijani, the speaker of Iran's Parliament, declared that Iran needs its nuclear program as a reliable energy source for electricity generation. He pointed to the end of the fossil fuel age and the fact that the future development of countries is related to nuclear fuel and nuclear knowledge (Mehr, **2006)**. Decision-making based on the peak oil view can create risks of its own. Such an expression was surprising for Western countries because they knew Iran as a country with the world's second-largest conventional natural gas reserves and among the world's largest oil reserves. They categorized the risks within the Persian Gulf as terrorism, the stability of societies, Iran's nuclear program, and its drive to dominate the region. The main reason for considering Iran's nuclear program as a risk is that the program could upset the balance of power in the Persian Gulf Region. After the Iraq War and the shock of 9/11,

[1] In 1935, APOC has renamed the Anglo-Iranian Oil Company (AIOC). In 1954, after the nationalization of Iran oil industries, it became the British Petroleum Company or BP.

the Iraqi military got weakened, and regime Zionist was much more worried about the Iranian nuclear program (Yergin, 2012).

Making decisions based on the “Peak Oil” perspective can create its own risks. The point of believing in "Peak Oil" is well described by Schneider-Myerson (2015), who shows how believers in this idea are politically prepared for this event. Some even suggest a strategy, including stocking up on food, weapons, and ammunition in anticipation of the imminent depletion of fossil fuels. This theory did not endear the peak oil view to statesmen and key decision-makers. Bardi (2019) concludes that the peak oil predictions are incompatible with the common views that consider economic growth as always necessary and desirable and resource depletion or fossil fuel consumption as marginal factors that can be overcome with technological progress. It was for this reason that the idea of the oil peak became a victim of the "clash of the absolutes" with the mainstream view of the economic system and was abandoned. In this conflict, belief in peak oil was the loser, not because it was "wrong", but because it was a minority opinion.

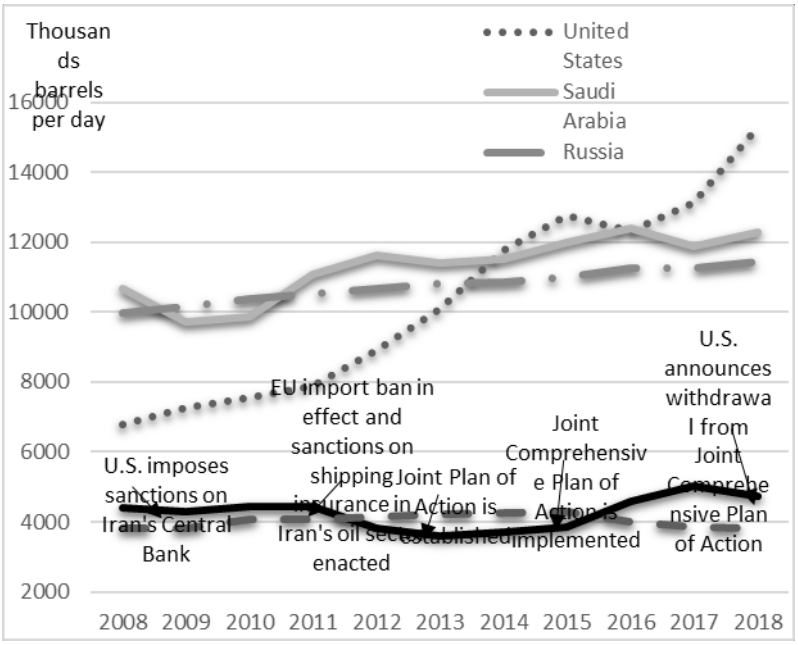
Following Hubbert’s main idea in Peak Oil in 1956 and Campbell and Lahérrere’s report about the ending of cheap oil in 1998, Bardi describes that ‘Peak Oil’ is a minority idea and it must be convolved and explained with two other effective phenomena, ‘Climate Change,’ and ‘Limits to Growth’ (Bardi, 2019; Campbell & Laherrere, 1998; Hubbert, 1956). These three issues are related to each other and have in common the fact that the peak oil models on which they are based predict the unavoidable decline of the world’s economy or, at least, the impossibility of it to keep growing for a long time. The future will bring new data, and with it, the concept of peak oil might regain popularity for a second time, just as it did for the first time with the work of Campbell and Lahérrere.

7. The US-Led International Pressures

Against this background, Iran’s geographic location in the Middle East, along with its huge reserves and potential petroleum resources, make the country attractive as a supplier of fuel energy. The concerns of Iran’s government relating to international oil markets have two components. First, Iran dislikes the volatile and unpredictable nature of the energy market. Second, the government distrusts what is perceived as the undue influence that a few producers, especially those in the United States, have on the market. Iran’s President Khatami from 1997 to 2005, called for repairing the mistrust with the US by introducing the policy of Dialogue Among

Civilizations (Amanpour, 1998). In his public talks, Khatami continued to emphasize Islamic and revolutionary values and promoted "interfaith dialogue" and "faith-based movements". Although Khatami has opted for cooperation, the 'axis of evil' label (created by the US) has raised perceptions of coercion, isolation, and alienation, as well as concerns over regime change. To balance against the US, Iran started to pursue an opaque policy in its nuclear development. While rejecting claims about its nuclear intentions, Iran kept the nature of its nuclear activities ambiguous by not ratifying the Additional Protocol of the Non-Proliferation Treaty (NPT) and providing partial access to the International Atomic Energy Agency (IAEA) inspectors (IAEA, 2022). This was a way of challenging the US in non-military ways and indicating the possibility of prospective military action (Bayar, 2019; Kim & James, 2016).

Figure shows the oil production level of Iran's crude oil and NGL from 2008 to 2018 in comparison with the production levels in the United States, Russia, Saudi Arabia, and China. The mid-2010s offered Iran a 'window of opportunity' on the international stage under JCPOA and the sanctions were lifted in January 2016. In 2017, the major growth in oil production was seen in Iran (+8.2%). In 2017, Iran's production reached its highest level since 2007 at 268 Mtoe; i.e. 5,024 thousand barrels on average per day (IEA, 2019). In 2016, Tehran used this window of opportunity to introduce a new fiscal framework, the Iran Petroleum Contract (IPC), to offer international oil companies (IOCs) more attractive terms than the previous contractual framework, the buyback scheme (Jalilvand, 2019). At the time, Iran was still the third-largest oil exporter in the world. The EU gradually halted all its imports from the country, while the US put in place financial sanctions against any potential buyer of Iranian oil. These sanctions were quite effective in curbing Iran's oil exports. The oil sanctions against Iran were consequently lifted, but in 2018, US President Trump withdrew from the Iran nuclear deal and re-imposed oil-related financial sanctions (Van De Graaf & Sovacool, 2020). However, Iran's vulnerability to US sanctions continues. Iran's crude oil exports and production have declined again since the May 2018 announcement by the US that it would withdraw from the JCPOA and reinstate sanctions against Iran (EIA, 2020).



Source: (Own elaborations based on BP statistical review 2019)
Source of Data: (BP, 2019; EIA, 2020)

Figure (2): The US, Saudi Arabia, Russia, China, and Iran Average Crude Oil Production per Day in Thousand Barrels between 2008 and 2018, Data from the BP Statistical Review, 2019, Inspired by the Iran Report by the US EIA, 2020.

Due to the mounting threat of climate change and concerns related to energy security across the world, policymakers are increasingly looking for alternative energy sources to diversify their energy supplies. As a cleaner-burning alternative to coal and oil for electric power generation, nuclear energy is an attractive 'transition fuel' towards a low-emission global energy basket. As will be shown, nuclear energy will represent a crucial and integral systemic component for the transition to a renewable energy basket. Consequentially, nuclear energy is rapidly gaining in geopolitical importance. The geopolitical dynamics will only increase Iran´s paramount geostrategic position in a world eager for new clean energy resources, and natural gas, in particular. With growing demand, energy security and diversification of resources are of growing importance to both consumers and producers as two sides of the same coin, as neither is immune to any sort of disruption in the international energy markets. The quest for energy security becomes

an overall global phenomenon; therefore, it is a central element in the foreign policy agendas of all actors – state and non-state.

8. Psychological Dimensions: Threat Perception

The international community perceives Iran's nuclear program as a source of threat, while the Iranian public supports their government's stance on peaceful nuclear energy as part of Iran's indisputable right to modernize (Urquhart, 2009). As Jervis states, war deterrence depends on perceptions; if one actor's behavior is to influence another, it must be perceived (Jervis, 2017).

One of the main drives for Iran's Persian Gulf policy is the desire to reduce the US-sponsored balance of power and the actual US involvement in the region, and, related to this, to be recognized as an indispensable regional actor. Consequently, Iran has traditionally been calling for a "regionalization" of collective security, that is, the creation of a mechanism for cooperation on shared security issues.

Throughout Rouhani's presidency, the government has consequently introduced a few concrete initiatives of constructive engagement, such as WAVE and HOPE, as well as a few strategies of discursive persuasion to build confidence and increase Iran's regional and international legitimacy. These initiatives aimed at normalizing of relations not only with neighboring Persian Gulf states but also with the international community in general. However, despite the overall positive reception of WAVE and the positive reception of HOPE by some Persian Gulf_states, the initiatives have not yet delivered the expected results. The realization of the proposed treaties has constantly been hindered by the rivalry that cuts the region into two: the Saudi-Iranian rivalry (Perteghella, 2019).

Actors' perceptions often diverge from two sources: (1) objective reality and (2) the perceptions of other actors. In other words, international pressures are counterproductive when a country desires to protect itself against attacks; the threats heighten the perceived danger (Jervis, 2013). This reality can explain why Iran's foreign minister clearly defends ballistic missile tests in front of a press conference in Australia in 2016 and says Iran reserves its right to defend itself. Before that, Javad Zarif, Iran's foreign minister and chief negotiator in the 2013–15 nuclear talks, echoed many of the same motifs in a YouTube video just a few days before the Joint Comprehensive Plan of Action (JCPOA), was concluded. In

the video, he criticized international powers for what he described as their misplaced focus on maintaining the sanctions on Iran: "[My negotiating partners] have seen that eight years of aggression by Saddam Hussein and all his patrons did not bring the Iranian nation—that stood all alone-to its knees. And now, they realize that the most indiscriminate and unjust economic sanctions against my country have achieved absolutely none of their declared objectives but instead have harmed innocents" (Tabatabai & Samuel, 2016; Zarif, 2015). Making promises credible is generally harder than making threats credible, and the history of mutual mistrust between the United States and Iran has made it even harder (Jervis, 2013; Pillar, 2016).

The different and conflicting nature of the actors involved in the Iranian nuclear crisis has led to their paradoxical behaviors. Germany, France, the United Kingdom, and the United States perceive it as a big threat, while China and Russia classify it as moderate (Shayan, 2011). The difference between the Iranian political system and all the other 5+1 actors has blurred Iran's real intentions and could potentially exacerbate the nuclear tension (Ghavam, 2014). The fact that P5+1 and Iranians would describe the issue differently from one another highlights the importance of perception and bias. Thus, nuclear energy provides a unique empirical case, as the internal Iranian state and its political structure (polity) are a big conundrum for many outsiders and Iranians alike. This underscores the need for scholarly research on this subject.

9. Technological Dimensions

Nuclear power accounts for 10.2% of global primary energy supply (WNA, 2020), and it tends to dominate debates on energy and climate policy. Nuclear power is a technology that brings with it both risks and rewards (Sovacool et al., 2016). This is partly because the issues raised by nuclear power are especially complex, multidimensional, and uncertain.

They include:

- Radiation, safety, and human health
- Nuclear weapons proliferation
- Nuclear waste disposal and inter-generational equity
- Technology choice and performance
- Public support for large-scale, capital intensive investments with long lifetimes
- The mix of benefits for and threats to national energy security

As the argument goes, if Saudi Arabia is at risk due to Iran's

nuclear program, the added risk of continuing with its own domestic program is negligible. Such a decision can also alter the strategic decisions being made within any given country. As mentioned in the introduction, nuclear energy in France was a strategic decision to counter the hegemony of the Soviet Union and the US superpowers.

The nuclear energy in the Persian Gulf seems ready for significant growth in nuclear electricity. The first main 1000 MW nuclear reactor was constructed by Iran in Bushehr, which is also the first in the Middle East. It has been connected to the grid and started power generation on September 3, 2011, after many years of construction (Dolat, 2020). Two further designed units are planned for Bushehr powerplant, Bushehr-٢ □□□□□□□□□ □onstruction in December 2016 (Dolat, 2017, 2019). According to the World Nuclear Association, Tehran has plans or proposals to build six nuclear reactors near the coasts of the Persian Gulf and the Gulf of Oman (WNA, 2021a). Saudi Arabia has announced plans to provide 15% of electricity from nuclear power plants by 2040 (WNA, 2021b). The United Arab Emirates (UAE) has two nuclear reactors in operation and two under construction at the Barakah nuclear power plant. The two units will be put into operation in August 2020 (WNA, 2021c). Egypt, Turkey, and Jordan are trying to develop nuclear power at their own pace.

Though nuclear energy in the Middle East has not taken off as expected, it is unlikely to grow or spread rapidly. The main reason is the high capital costs that make electricity generation by a nuclear reactor more expensive per kilowatt/hour to generate with natural gas or coal (Lister & Qiblawi, 2019). The cost is not a big obstacle for energy exporters and the oil-rich countries. Instead, the security and proliferation risks associated with nuclear power are very real, especially in the Middle East, where technology learning by practice is growing in the region and elsewhere. Overcoming the obstacles to nuclear power will require large investments in technology, regulatory institutions, education, and training. Besides all the, unprecedented regional cooperation will also be needed. In current political circumstances, such cooperation remains a distant prospect.

After the Fukushima accident on March 11, 2011, fears for nuclear safety reached the Middle East, making them more realistic. The accident at the Fukushima NPP did not change the interest in the benefits of nuclear energy in response to rising energy demand, low-carbon environmental governance, and diversification of energy sources. Bahrain, Oman, and Kuwait abandoned their

nuclear plans. The NPP plans were already problematic in these tiny countries; for instance, Bahrain's territory is half as large as the evacuation zone set up in Japan after the Fukushima accident (Khlopkov, 2017). The governments of Jordan and Egypt halted their nuclear development in the face of significant public opposition, although in both cases the projects were resumed. In the same year, the Bushehr-1 reactor started up to reach its first power and was grid-connected in early September (WNA, 2021a).

A significant risk of nuclear activity is that nuclear facilities are also military targets. This region has experienced severe wars in recent years, including the Persian Gulf War in 1990 and the overthrow of Saddam in 2003. Another negative factor for the development of nuclear energy in the region is the emergence of the ISIS government in 2013 in Iraq and Syria, with widespread influence in the entire region. These wars have in most cases backfired, and there is no regional dialogue forum on protecting nuclear power plants from attacks, and terrorist attacks or other regional security issues. Even today, plans to attack Iran's nuclear facilities are undoubtedly pending at more than one or two military headquarters. A list of these actions from May 2022 to the present can be found in one of the reports of the United States Institute of Peace (USIP, 2023).

Table illustrates an overall view of the reactors in the Persian Gulf region at present and in the near future. The long-vision outlooks are not tabulated here in a conservative scenario with 16 reactors. The location of these units by 2030 is shown in (WNA Information 2021 on Google Map by the Author)

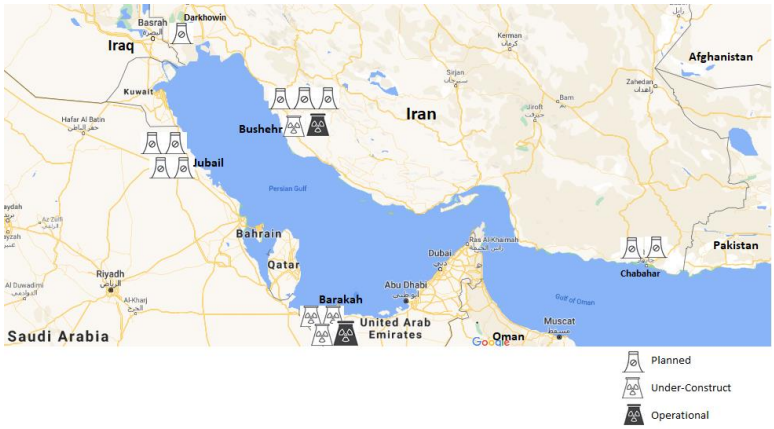
Figure.

Table (2): Nuclear Reactors around the Persian Gulf: operational, under construction, and planned units BY 20230

Country	Name	Nuclear Reactors Capacity in MWe		
		Operational	Under-construction	Planned
Iran	Bushehr-1	۹۱۵		
	Bushehr-2		۱,۰۵۷	
	Bushehr-3			۱,۰۵۷
	Bushehr-4			۱,۱۰۰
	Bushehr-5			۱,۱۰۰
	Chabahar (Makran)-1			۱۱۰
	Chabahar (Makran)-2			۱۱۰
	Darkhowin-1			۳۶۰

Country	Name	Nuclear Reactors Capacity in MWe		
		Operational	Under-construction	Planned
Iran Sub-Total		۹۱۵	۱,۰۵۷	۳,۸۱۷
United Arab Emirates	Barakah-1	۱,۳۴۵		
	Barakah-2		۱,۴۰۰	
	Barakah-3		۱,۴۰۰	
	Barakah-4		۱,۴۰۰	
UAE Sub-Total		۱,۳۴۵	۵,۲۰۰	
Saudi Arabia	Jubail			<2,900 (not finalized)
Total		۲,۲۶۰	۶,۲۵۷	(3,817 to ۶,۷۱۷)

Source: (WNA information 2021 (WNA, 2021a, 2021b, 2021c))



(WNA Information 2021 on Google Map by the Author)

Figure (3): An Overall View of the Nuclear Reactors Around the Persian Gulf Region by 2030

The fear of the proliferation of nuclear weapons in the Middle East is closely related to the troubled history of nuclear weapons programs in the region. Israel, which has not signed the Non-Proliferation Treaty (NPT), allegedly acquired nuclear weapons in the late 1960s. For decades, all the states in the region have allegedly supported the resolutions of the United Nations General Assembly to demand the creation of a zone free of nuclear weapons and other weapons of mass destruction (WMD). But progress toward that goal has been thwarted almost every time by the major players (Malin, 2017).

10. Regional Balancing Strategies

A zone free from weapons of mass destruction in the Middle East is an important but distant goal. Cooperation in strengthening nuclear safety and security through regional workshops and peer review of the provisions already in force, discussions on regional management of nuclear waste, and the creation of coordinated response agencies to disasters that develop maneuvers in nuclear accidents and terrorism scenarios would be a good starting point.

A central irony of the failure of Saudi Arabia and Iran to improve their relationship and settle outstanding disputes is that the two nations are in many ways well suited to be strategic and economic partners. Saudi Arabia and Iran share several important interests, including the entirely free flow of oil in the Persian Gulf in the past 40 years, stability in Iraq and Yemen, and the exploitation and secure transit of oil and gas resources. In many ways, these shared interests outweigh areas where the two states' interests are opposed.

The Saudi-Iranian relationship is now at a critical junction: choices that are made in the coming months and years about the situation in the Persian Gulf , North Syria, Yemen, and other urgent issues will shape what is possible in the relationship over the longer term. A nuclear-armed Iran or relationships with third parties, especially Israel, will also have a critical impact on the future course of Saudi-Iran relations.

Substantial perceptual biases complicate any effort to improve regional relations. Any significant improvement in the relationship will require a sustained effort by leaders on both sides, the dedication of state resources and political capital to the task, and a great deal of good luck. The payoffs from this effort, however, could be great. Several observers, in fact, view such an outcome as inevitable, whether shortly or over the longer term. Such a conflict would almost certainly prove to be very costly for both sides. It would also set back Iranian relations even further while greatly reducing the chances of a rapprochement in the foreseeable future. However, the identification of the different sources of perceptual bias in the volume helps to illuminate several promising paths forward.

Identifying and better emphasizing these can help overcome the tendency of both sides to portray the Iran-US conflict in the dual format of "either with us or against us" (Carnegie, 2002). The states have passed up several important opportunities to improve relations by failing to acknowledge these commonalities. Interpersonal ties

and networking among nations' cultural, scientific, and political elites play an important role in international relations. Such contacts helped to establish regional networks, or "epistemic communities," that spread ideas and helped to reshape misperceptions and poorly informed assumptions. The regional countries purposely promoted such contacts and exchanges in the belief that greater openness would not only promote improved understanding but could spread democratic political values more effectively than coercion and conflict (Haas, 1992). In addition, such an exchange could help to improve each side's knowledge about how the other's political system operates. Establishing direct lines of communication and enhanced diplomatic channels.

Where large-scale cooperation is too difficult to achieve, smaller confidence-building measures can be used to promote an atmosphere of cooperation, foster diplomatic contacts, lower domestic political barriers to negotiation, and reduce suspicions. Confidence-building measures should be pursued as a routine part of any effort to improve regional relations and reduce sources of perceptual bias.

11. Conclusion

This paper focuses on Iran's nuclear program in the geopolitical environment of the Persian Gulf. This study offers new contributions in two areas: first, in the study of Iranian nuclear energy, and second, in international relations. With these distinctions, the dimensions of the causal model depicted in Source: *Taliaferro, "Neoclassical Realism and Resource Extraction: State Building for Future War," in Neoclassical Realism, the State, and Foreign Policy (Cambridge, UK: Cambridge University Press, 2009), p. 213, fig.* ۷.۲.

Figure frame what suggest the policy trends or strategies of Iran's nuclear diplomacy towards the Persian Gulf. This is an illustration of the cause-and-effect approach in the Neoclassical Realism scheme applicable in this article, which shows externally the structural, technological, and psychological dimensions.

Empirically, the study has been synthesized into three key variables in which neoclassical realist linkages are particularly significant in a causal approach: the level of vulnerability of the countries as the independent variable (geopolitics, peak oil, and US-led international pressures), the foreign policy induced by the distribution of power as the dependent variable (regional balancing strategies), and technological and psychological support for

collective hegemony impacts on decision-makers as an intervening variable. The author considers this theoretical framework as a lens through which Iran's foreign policy and the political dynamics that drive it can be better understood and explained.

The main contribution was a discussion over diplomacy focused on regional energy competition and cooperation: bilateral energy diplomacy, the increasing necessity of multilateral energy diplomacy and regional governance, major international mechanisms, the present context and features of Iranian nuclear diplomacy, the gradual maturity for deep participation in regional nuclear governance, and Iran's growing power role in regional nuclear governance.

References

Amanpour, C. (1998). Khatami suggests warmer relations with U.S. Retrieved January 31, 2020, from http://edition.cnn.com/WORLD/9801/07/iran/

Bardi, U. (2019). Peak oil, 20 years later: Failed prediction or useful insight? *Energy Research and Social Science*, (*48)*, 257-261. https://doi.org/10.1016/j.erss.2018.09.022

Bayar, T. (2019). Multiple dualities: Seeking the patterns in Iran's foreign policy. *All Azimuth*, *8*(1), 37-54. https://doi.org/10.20991/allazimuth.456272

Bosch, O. (2006). Iran and the Traffickers. *Chatham House The Royal Institute of International Affairs*, *62*(5), 6-8. Retrieved from https://www.jstor.org/stable/40477599

BP. (2019). *Statistical Review of World Energy*. *BP Economics*. Retrieved from https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf

Burkhard, B. S., Wenig, E., Albright, D., & Stricker, A. (2017). *Nuclear Infrastructure and Proliferation Risks of the United Arab Emirates, Turkey, and Egypt*. Retrieved from https://isis-online.org/isis-reports/detail/nuclear-infrastructure-and-proliferation-risks-of-the-united-arab-emirates/

Buzan, B., & Wæver, O. (2003). *Regions and Powers: The Structure of International Security*. *Cambridge University Press*. New York: Cambridge University Press.

Campbell, C. J., & Laherrere, J. H. (1998). The End of Cheap Oil.

Scientific American, 9. Retrieved from https://nature.berkeley.edu/er100/readings/Campbell_1998.pdf

Carnegie. (2002, October 7). The Bush Doctrine. Retrieved from https://carnegieendowment.org/2002/10/07/bush-doctrine-pub-۱۰۸۸

CBS News. (2018). Saudi crown prince: If Iran develops nuclear bomb, so will we - CBS News. Retrieved February 21, 2020, from https://www.cbsnews.com/news/saudi-crown-prince-mohammed-bin-salman-iran-nuclear-bomb-saudi-arabia/

Česnakas, G. (2010). Energy Resources in Foreign Policy: A Theoretical Approach. *Baltic Journal of Law & Politics*, *3*(1), ۳۰-۵۲. □□□□□://□□□.□□□/۱۰.۲۴۷۸/□۱۰۰۷۶-۰۱۰-۰۰۰۳-□

Dannreuther, R. (2010). *International Relations Theories: Energy, Minerals and Conflict POLINARES Working Paper n. 8.*

Dannreuther, R. (2015). Energy security and shifting modes of governance. *International Politics*, *52*(4), 466-483. https://doi.org/10.1057/ip.2015.4

Dolat. (2017, October 31). آغاز عملیات رسمی دو واحد جدید نیروگاه بوشهر | Official Operation of Two New Units of Bushehr Nuclear Power Plant. *Governmet of The Islamic Republic of Iran*. Retrieved from https://dolat.ir/detail/300728

Dolat. (2019). برگـزاری مراسـم بـتن ریـزی واحـد دوم نیروگـاه اتمـی بوشـهر | Starting the Construction of the Second Unit of Bushehr Nuclear Power Plant. *Government of the Islamic Republic of Iran*. Retrieved from https://dolat.ir/detail/330459

Dolat. (2020, June 22). نیروگاه اتمی بوشهر بـه شـبکه سراسـری بـرق کشـور متصـل شـد | Bushehr Nuclear Power Plant Was Connected to the National Electricity Grid. *Governmet of The Islamic Republic of Iran*. Retrieved from https://dolat.ir/detail/341514

Ehteshami, A. (2014). The foreign policy of Iran. In R. Hinnebusch & A. Ehteshami (Eds.), *The foreign policies of Middle East states* (second, pp. 261-288). Boulder, Co.: Lynne Rienner.

EIA. (2020). Iran Report on Petroleum and other liquids. Retrieved April 21, 2020, from https://www.eia.gov/international/analysis/country/IRN

Ghavam, A. (2014). Iran Nuclear Geopolitics in the Complex Interdependence Theory Framework. In *The Application of International Relations Theories* (pp. 355-384). Tehran: Donya-e-Eqtesad Publications.

Haas, P. M. (1992). Introduction: Epistemic communities and international policy coordination. *International Organization*, ۴۶(۱), ۱-۳۵. □□□□□://□□□.□□□/۱۰.۱۰۱۷/□۰۰۲۰۸۱۸۳۰۰۰۰۱۴۴۲

Hubbert, M. K. (1956). Nuclear Energy and the Fossil Fuel. *American Petroleum Institute*.

IAEA. (2017). Statement by IAEA Director General Yukiya Amano on Iran. Retrieved August 13, 2023, from https://www.iaea.org/newscenter/statements/statement-by-iaea-director-general-yukiya-amano-on-iran-۱۶-january-۲۰۱۷

IAEA. (2022). IAEA and Iran: Chronology of Key Events. Retrieved August 13, 2023, from https://www.iaea.org/newscenter/focus/iran/chronology-of-key-events

IEA. (2019). *World Energy Balances 2019*. *International Energy Agency*. Paris. Retrieved from https://www.oecd-ilibrary.org/energy/world-energy-balances-2019_3a876031-en

Jalilvand, D. R. (2019). Iran: an inward-looking gas giant. In J. Stern (Ed.), *The Future of Gas in The Gulf: Continuity and Change* (pp. 27-53). Oxford: Oxford Institute for Energy Studies.

Jervis, R. (2013, January). Getting to yes with iran: The challenges of coercive diplomacy. *Foreign Affairs*, *92*(1), 105-115.

Jervis, R. (2017). *How Statesmen Think: The Psychology of International Politics*. *Princeton University Press*.

Khlopkov, A. (2017, January 14). Nuclear Power in the Middle East-Valdai Club. Retrieved May 19, 2021, from https://valdaiclub.com/a/highlights/nuclear-power-in-the-middle-east-/

Kim, H.-C., & James, P. (2016). The Paradox of Power Asymmetry: When and Why Do Weaker States Challenge US Hegemony? *All Azimuth: A Journal of Foreign Policy and Peace*, *5*(2), 5-5. https://doi.org/10.20991/allazimuth.257674

Lister, T., & Qiblawi, T. (2019). Saudi nuclear program accelerates, raising tensions in a volatile region - CNN. Retrieved February ۲۱, ۲۰۲۰, □□□□ □□□□□://□□□□□□□□.□□□.□□□/۲۰۱۹/۰۴/۰۶/middleeast/saudi-arabia-nuclear-reactor-iran-tensions-intl/index.html

Loft, P. (2023, April 14). Iran's influence in the Middle East. *Commons Library*, pp. 1-27. Retrieved from https://commonslibrary.parliament.uk/research-briefings/cbp-۹۵۰۴/

Malin, M. B. (2017). Energía nuclear en Oriente Medio : más cooperación en seguridad. *Tendencias Economicas \ Afkar/Ideas*, ۵۰-۵۲.

Mason, R. (2015). *Foreign Policy in Iran and Saudi Arabia: Economics and Diplomacy in the Middle East* (1st ed.). New York, London: I. B. Tauris & Co. Ltd.

Mehr. (2006, December 8). ایران استراتژی همگرائی منطقه‌ای را به عنوان پایه ثبات بادوام دنبال می‌کند/ یکجانبه‌گرایی آمریکا درگیری بیشتری را در منطقه ایجاد می‌کند | Larijani: Iran pursues regional integration strategy as basis for sustainable stability / US unilateralism creates mor. *Mehr News Agency*. Retrieved from mehrnews.com/x5z4V

Nolte, D. (2010). How to compare regional powers: Analytical concepts and research topics. *Review of International Studies*, *36*(4), 881-901. https://doi.org/10.1017/S026021051000135X

Ó Tuathail, G. (1994). The critical reading/writing of geopolitics: Re-reading/writing Wittfogel, Bowman and Lacoste. *Progress in Human Geography*, 18(3), 313-332. https://doi.org/10.1177/030913259401800303

Orban, A. (2008). *Power, Energy and the New Russian Imperialism*. Praeger Security International.

Perteghella, A. (2019). Iran: An unrecognised regional power. In S. Giusti & I. Mirkina (Eds.), *The EU in a Trans-European Space: External Relations Across Europe, Asia and the Middle East* (pp. 133-155). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-03679-9_7

Pillar, P. R. (2016). The Role of Villain: Iran and U.S. Foreign Policy. *Political Science Quarterly*, *131*(2), 365-385. https://doi.org/10.1002/polq.12479

Ramazani, R. K. (2004). Ideology and Pragmatism in Iran's Foreign Policy. *Middle East Journal*, 58(4), 549-559. https://doi.org/10.3751/194034604783997123

Reuters. (2022, August 12). Iran may accept EU proposal to revive nuclear deal if demands met, IRNA reports | Reuters. *Reuters*. Retrieved from https://www.reuters.com/world/middle-east/iran-says-eu-proposal-revive-nuclear-talks-could-be-acceptable-2022-۰۸-۱۲/

Ripsman, N. M., Taliaferro, J. W., & Lobell, S. E. (2016). *Neoclassical Realist Theory of International Politics*. Cambridge, UK: Oxford University Press.

Rose, G. (1998). Neoclassical Realism and Theories of Foreign Policy. *World Politics*, 5(1), 144-177.

Schneider-Mayerson, M. (۲۰۱۵). □□□□ □□□: □□□□□□□□□□□ *Environmentalism and Libertarian Political Culture*. University of Chicago Press.

Schneider, M., Frogatt, A., Hazemann, J., Tadahiro, K., & Thomas, S. (2015). *The World Nuclear Industry Status Report*. *WNISR*.

Schneider, M., & Froggatt, A. (2004). *The World Nuclear Industry Status Report*. *WNISR*.

Schneider, M., Froggatt, A., Ayukawa, Y., Burnie, S., Piria, R., Thomas, S., & Hazemann, J. (2014). *The World Nuclear Industry Status Report*. *WNISR*.

Schneider, M., Froggatt, A., & Hazemann, J. (2012). *The World Nuclear Industry Status Report*. *WNISR*.

Schneider, M., Froggatt, A., Hazemann, J., Tadahiro, K., Ramana, M. V., Rodriguea, J. C., … Stienne, A. (2017). *The World Nuclear Industry Status Report*. *WNISR*.

Schneider, M., Froggatt, A., Hazemann, J., Tadahiro, K., Stirling, A., Johnstone, P., … Stienne, A. (2018). *The World Nuclear Industry Status Report*. *WNISR*.

Sharples, J. (2012). Russo-Polish energy security relations: a case of threatening dependency, supply guarantee, or regional energy security dynamics? *Political Perspectives*, 6(1), 27-50. Retrieved from http://www.politicalperspectives.org.uk/wp-content/uploads/PP_6-1_Russo-Polish-energy-security-relations-۲۳.□□□

Shayan, F. (2011). Ontological security interpretation of Iran's nuclear energy program: a multidisciplinary approach. *Journal of Alternative Perspectives in the Social Sciences*, *3*(3), 774-804.

Sovacool, B. K., Brown, M. A., & Valentine, S. V. (2016). *Fact and Fiction in Global Energy Policy: Fifteen Contentious Questions*. *Johns Hopkins University Press*. Baltimore: Johns Hopkins University Press.

Tabatabai, A., & Samuel, A. T. (2016). What the Iran-Iraq War Tells Us about the Future of the Iran Nuclear Deal. *International Security*, *42*(1), 152-185. https://doi.org/10.1162/ISEC_a_00286

Taliaferro, J. W. (2006). State Building for Future Wars: Neoclassical Realism and the Resource-Extractive State. *Security Studies*, 15(3), 464-495. https://doi.org/10.1080/09636410601028370

Taliaferro, J. W. (2009). Neoclassical realism and resource extraction: State building for future war. In S. E. Lobell, N. M. Ripsman, & J. W. Taliaferro (Eds.), *Neoclassical Realism, the State, and Foreign Policy* (Vol. 15, pp. 194-226). Cambridge, UK: Cambridge University Press.

The Economist. (2018, February 8). An unenriching debate - How a Saudi nuclear reactor could accelerate an arms race | Middle East and Africa | The Economist. *The Economist*. Retrieved from https://www.economist.com/middle-east-and-africa/2018/02/08/how-a-saudi-nuclear-reactor-could-accelerate-an-arms-race

The IAEA Director General. (2010). *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran (GOV/2010/62)*.

Ulrichsen, K. C. (2021). Evolving Threat Perceptions and Changing Regional Dynamics in a "Post-GCC" Era. In M. Zweiri, M. M. Rahman, & A. Kamal (Eds.), *The 2017 Gulf Crisis: An Interdisciplinary Approach* (pp. 131-144). Springer Nature Singapore Pte Ltd.

Urquhart, S. B. (2009). Introduction. In D. Leimbach (Ed.), *A global agenda: Issues before the United Nations 2009-2٠١٠*. □□□ □□□□: United Nations Association of the United States of America.

USIP. (2023, June 1). Israel: The Iran Threat & Options. *United States Institute of Peace*. Retrieved from https://iranprimer.usip.org/blog/2023/jan/25/israel-iran-threat-options

Van De Graaf, T., & Sovacool, B. K. (2020). *Global Energy Politics*. Polity.

von Hirschhausen, C. (2017). *Nuclear Power in the Twenty-first Century - An Assessment (Part I). DIW Berlin, Discussion Paper No. 1700*. Berlin, Germany. Retrieved from https://ssrn.com/abstract=3113150

WNA. (2020). Nuclear Power Today | Nuclear Energy. Retrieved February 14, 2020, from http://www.world-nuclear.org/information-library/current-and-future-generation/nuclear-power-in-the-world-today.aspx

WNA. (2021a). Nuclear Power in Iran. Retrieved May 17, 2021, from https://world-nuclear.org/information-library/country-profiles/countries-g-n/iran.aspx

WNA. (2021b). Nuclear Power in Saudi Arabia - World Nuclear

Association. Retrieved May 18, 2021, from https://world-nuclear.org/information-library/country-profiles/countries-o-s/saudi-arabia.aspx

WNA. (2021c). Nuclear Power United Arab Emirates. Retrieved May 18, 2021, from https://www.world-nuclear.org/information-library/country-profiles/countries-t-z/united-arab-emirates.aspx

Yergin, D. (2012). *The Quest: Energy, Security, and the Remaking of the Modern World*. Penguin Books.

Zakaria, F. (1999). *From Wealth to Power: The Unusual Origins of America's World Role*. book, Princeton, NJ: Princeton University Press.

Zarif, M. J. (2015). Iran's Message: Our Counterparts Must Choose between Agreement and Coercion. Retrieved December 11, 2019, from https://iranprimer.usip.org/blog/2015/jul/03/zarif-video-message-vienna