

THE ROLE OF NUCLEAR POWER ON ENERGY SECURITY

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Abstract

With the increase of globalization, the problem of a country is no longer limited within its own borders but has begun to affect other states as well. With this increasing globalization and population, the rising energy demand has also increased the tendency towards nuclear energy, but we can say that the desire for this nuclear power is an indisputable power demand for the states. The role of nuclear power in energy security is huge, because of the irresistible desire for this power. However, the first source of concern here is that the states that will have nuclear energy have the potential to increase it to nuclear power later on. When security concerns come into play for the states, diplomatic negotiations may not be the only way. This is where the deterrence action comes into play, and the combination of nuclear power with the idea of deterrence is a golden trump card for the states. In this study, the relation between being nuclear power and security to be analyzed, the concept of the security and the energy security to be discussed and the role of the nuclear deterrence to be explained within the history of the treaties. In the article, an answer is sought to the question of whether nuclear energy, which emerged as a solution to energy security, will also transform into nuclear power and endanger international security, and this problematic situation has been evaluated in parallel with current developments.

Keywords: Nuclear Power, Security, Deterrence, Energy Security.

NÜKLEER GÜCÜN ENERJİ GÜVENLİĞİNDEKİ ROLÜ

Öz

Küreselleşmenin artmasıyla birlikte bir ülkenin sorunu artık kendi sınırları içerisinde kalmamış, diğer devletleri de etkilemeye başlamıştır. Yaygınlaşan bu küreselleşme ve nüfusla birlikte artan enerji talebi nükleer enerjiye olan eğilimi de güçlendirmiştir ancak bu nükleer enerjiye duyulan istek devletler için tartışılmaz bir güç talebidir diyebiliriz. Nükleer enerjinin enerji güvenliğindeki rolü, bu güce yönelik karşı konulamaz arzu nedeniyle çok büyüktür. Ancak burada ilk ortaya çıkan endişe kaynağı ise nükleer enerjiye sahip olacak devletlerin sonrasında bunu nükleer güce yükseltme potansiyelinin ortaya çıkmasıdır. Devletler için güvenlik kaygıları devreye girdiğinde, diplomatik müzakereler tek yol olmayabilir. Caydırıcılık eyleminin işler hale geldiği yer ise burasıdır ve nükleer gücün caydırıcılık fikriyle birleşmesi devletler için altın bir kozdur. Üstelik bu koz öyle bir güçtür ki günümüz dünyasının hegemonik güçleri olan ABD, ÇHC ve RF'ye karşı bile caydırıcı bir argümandır. Bununla birlikte

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bahse konu küresel güçlerin son dönemde bazı anlaşmaları askıya almaları veya anlaşmalardan çekilmeleri küresel güvenlik algulamalarını derinden değiştirmiştir. Bu çalışmada nükleer güç olma ve güvenlik ilişkisi incelenecek, güvenlik ve enerji güvenliği kavramı tartışılacak ve nükleer caydırıcılığın rolü antlaşmalar tarihi ile birlikte açıklanacaktır. Ayrıca, enerji güvenliğini sağlamada nükleer enerjiye olan ihtiyacın neden arttığı somut örneklerle vurgulanacaktır. Makalede, enerji güvenliğine bir çözüm olarak ortaya çıkan nükleer enerjinin, aynı zamanda nükleer güce dönüşerek uluslararası güvenliğe hanel getirip getirmeyeceği sorusuna cevap aranmış ve bu durum güncel gelişmeler paralelinde değerlendirilmiştir.

Anahtar Kelimeler: Nükleer Güç, Güvenlik, Caydırıcılık, Enerji Güvenliği.

Introduction

Nuclear weapons have changed the fate of the world. In addition, thanks to these weapons, it is important for people to live in an environment of peace and order, although the effects of wars are not as intense. People have used weapons for protection and hunting since ancient times. However, over the years, these weapons have developed a lot, and with the discovery of gunpowder, they have begun to create different dimensions and heavy effects. The weapons in question are nuclear weapons the most effects. Because it literally has the power to destroy the world. For this reason, Einstein says that if there is another world war after World War III, undoubtedly a nuclear one, it will be the end of civilization and people will eventually use the most primitive weapons (Science News, 2007).

Towards the end of the Second World War period, studies for the nuclear weapons started in Germany. Although German scientists tried to keep their work secret, United States of America (US) government and scientists were aware of Germany's work and started working on nuclear weapons. The emergence of nuclear weapons, which had a great impact on energy security, dates back to this period. With the emergence of nuclear weapons, the balance of power in the world has changed and a security threat has emerged on the states. Before the Cold War, the security need was for the borders of the states, and this security need was proportional to the military needs (Lebow and Stein, 1995, p. 162-165).

However, the conflicts and distrust of the states with each other in the international arena increased considerably due to the increasing globalization and polarization after the cold war. Thereby, security issues moved to multidimensional fields. With the need for security moving to a multidimensional field and increasing globalization, countries are no longer able to stand up to some threats on their own. To give examples of these threats: hunger and poverty, terrorism, political and economic crisis... Each and more of these threats are no longer limited within countries but have become international threats. With the increasing energy demand after the Cold War, new security risks affecting energy security and many other areas

have increased considerably. With globalization, a new era has begun, or we can say that energy and power wars have begun (Leveringhaus, 2018, p. 79-80).

Although nuclear weapons were used twice at the end of World War II, they have maintained their important place in the field of international politics since then, especially with their deterrent and terrible effect. At the end of the Second World War, the first examples that come to mind are the bombs dropped by the US on the cities of Hiroshima and Nagasaki on 6 and 9 August 1945 for the surrender of Japan. Therefore, it was politically successful and humanly terrifying, as it prompted Japan to surrender after the bombings (Niebuhr, 1959, p. 212-215).

As a result of the troubles, collapses and destructions caused by the Second World War, European countries were in a difficult situation. For this, a power was needed that could direct the economic, military and political potential and power of Europe, which decreased after the Second World War. For this reason, the USA and the USSR, which represent the bipolar system that can direct the politics and economy in the world, have emerged. The cold war, which was the period when these two superpowers were at war with each other, was not a hot war between them, but a process of establishing power superiority and an arms race. For this reason, the political order of the Cold War period after the second world war was shaped according to the world view of the bipolar system (Blackwell, 2020, p. 29-31).

With the end of the two-block system, it would be wrong to even think that the importance of nuclear weapons has decreased and that only one of these weapons has disappeared. Because the RF, which is experiencing great political, ethnic and social problems today, and more than that, has experienced problems in terms of conventional military resilience until recently, the primary reason why it can be in a position to shape the international system today is the nuclear weapons it possesses (Kimball, 2012, p. 4).

It can be said that, as a result of some developments that emerged after 1991, when the bipolar international system came to an end, there were or should be significant changes in nuclear strategy. First of all, the disappearance of the Soviet Union and the Warsaw pact brought about a marked restraint and softening in the nuclear rivalry between Washington and Moscow. In addition, because of different agreements signed between the parties, there has been a significant decrease in the stocks of nuclear weapons in the hands of both states. Therefore, the distance between these states and states such as the People's Republic of China (PRC), France and the United Kingdom (UK) has decreased. However, there has been a certain increase in the number of states that have nuclear technology in recent years. All these developments point to some new formations on the subject (Chyba and Legvold, 2020, p. 222-28).

In recent years, weapons of mass destruction have become more important than conventional weapons, such as chemical and biological weapons. Chemical and biological weapons seem to be an important alternative for underdeveloped states that do not have the opportunity to have nuclear weapons, since their production costs are much lower than nuclear weapons and their production technologies are much easier (Santoro, 2005, p. 22-24).

Nuclear weapons, which lead to very important developments in military technology and strategy in our age, consist of two main elements. These are the nuclear warhead, that is, the bomb, and the missile, which is the means of sending. Today's conflict is tense and no state dares to use nuclear weapons even in wars. Because it is in the mind of every state that there will be consequences and effects that no state can benefit from. However, countries/states with nuclear weapons do not have the same responsibilities as the risk of using these weapons. Thus, it is unclear when nuclear weapons will be used (Kroenig and Gibbons, 2016, p. 138-143).

The above-mentioned nuclear weapons consist of two basic elements, one is a bomb and the other is a missile. This bomb element was tested in 1945 in the US. Likewise, it was tried by the Soviet Union in August 1953. Then the bomb was produced by PRC, UK and France. The feature that distinguishes these bombs from others is their excess of destructive power. The bombs dropped on Hiroshima and Nagasaki in 1945 were around 15-20 kilotons. About 15 years later, the Soviet Union tested a 61-megaton bomb. As a result, in 1994, the number of nuclear warheads in the world reached almost 20,000 (Clapson, 2019, p. 97-99).

Indispensable for states with nuclear weapons, or wherever nuclear is present, are means of sending. An atomic bomb or hydrogen bomb owned by a state cannot stand alone. Because weapons only have a function when they can be used against a certain target. They are the means of sending an atomic bomb to a target and transforming that bomb into a nuclear weapon. There are two means of sending nuclear bombs to the target; these are planes and missiles (Thomas-Noone, 2016, p. 1-6).

Airplanes are the oldest vehicles used to deliver nuclear bombs to targets. In the early days, airplanes were not suitable for making atomic bombs a strategic weapon in terms of features such as speed and carrying capacity. Using airplanes as a vehicle for the delivery of nuclear weapons has different advantages and disadvantages compared to missiles. Of course, the main advantage will be that they can be used by a human and can be recalled at any time, they can be easily changed in their targets, they can be used in more than one target. The main disadvantage is that their speed is lower. On the other hand, the lack of hiding and protection possibilities of aircraft from submarines makes them easily destroyable targets. Therefore, it may be one of the reasons why airplanes are used less than missiles (Becker, 2020, p. 117-121).

Missiles using nuclear weapons as a means of sending, on the other hand, have unmanned sending features that can move very quickly thanks to the large propellant power provided by rocket engines with different capacities. Therefore, it can be given as an example of the V-2 rockets developed by the Germans during the second world war. In addition, it can be expressed in two important categories in terms of ballistic missiles in stocks of great powers today: Intercontinental Ballistic Missiles and Ballistic missiles launched from submarines. These types of missiles have gained various dimensions with the development of technology, and at the same time, they have greatly increased the ability of the superpowers in the technological race to destroy each other (Clarke, 2020, p. 55-58).

Despite all the reductions in the nuclear weapons capacity available today, it has the power to destroy the world many times over. In a general mandate war, victory can be thought of as achieving a positive and negative result aimed at subjugating the enemy. One of the most classical ways for states to use military power to influence each other and at the same time achieve their goals based on this power is to deter the other side from attack or resistance without actually using this power. In order for a state to discourage its nuclear rival from using this power, first of all, it must have a sufficient amount of nuclear weapons. In fact, states use nuclear weapons to strengthen their defense capabilities. For this reason, they want to increase and develop their nuclear weapons in order to protect themselves from the dangers to their own people, lands and independence. However, they are not only trying to stay that way, but also trying to protect the nuclear weapon in question. The crises experienced during the Cold War never turned the race for power supremacy between the two superpowers into a hot war, and there was no reason for them to use their nuclear weapons against each other. The crises experienced can be expressed briefly as follows; 1950 Korean War, 1974 Cyprus island case, 1959 Berlin Crisis and 1962 Cuban crisis (Grausam, 2016, p. 141-44).

The first goal of the Cold War era USSR was to rapidly increase its nuclear armament, and at the same time it made extra efforts not to lag behind the USA. On the other hand, the most important policy pursued by the USA towards the expansionist Soviets was a long-term, durable and careful power policy. But tensions and disagreements between the two superpowers encompass the struggle between the military and its ideological expansion. Thus, when the two superpowers realized that they could not engage in dialogue with each other, they created a military solution threat environment with nuclear weapons and technologies (Kaysen et al., 1991, p. 96-99).

In today's world, the role of nuclear power in energy security is huge, because of the irresistible desire for this power. However, the first source of concern here is that the states that will have nuclear energy have the potential to increase it to nuclear power later on. When security concerns come into play for the states, diplomatic negotiations may not be the only way. This is

where the deterrence action comes into play, and the combination of nuclear power with the idea of deterrence is a golden trump card for the states. Furthermore, this trump is such a trump card that it is a deterrent force even against US, PRC and RF which are the hegemonic powers in today's world. In this study, the relation between being nuclear power and security to be analyzed, the concept of the security and the energy security to be discussed and the role of the nuclear deterrence to be explained within the history of the treaties. In the article, an answer is sought to the question of whether nuclear energy, which emerged as a solution to energy security, will also transform into nuclear power and endanger international security, and this problematic situation has been evaluated in parallel with current developments.

1. THE CONCEPT OF SECURITY AND ENERGY SECURITY

The phenomenon of security can be defined as a term originating from the concept of "se-curus", which means being able to live away from all worries, dangers and worries. In addition to being a Latin word, this word entered English as "security" and is used in this way today. Security has been one of the most basic needs of all people throughout history. In this respect, it has always been an important example for survival and the continuation of the lineage. However, slightly different from today's understanding, it was carried out with primitive tools and equipment to protect it from external dangers in the early days. After transitioning to centered life and people starting to live in a social way, on the other hand, with the development of technology, the concept of security, the tools and methods used conceptually, have also changed. Security has traditionally been more associated with states than people or planet earth. Since the seventeenth century, when the current state system began to emerge, security has been most widely understood and practiced with reference to the interests and needs of states. Today, the concept of security refers to a broad term covering from energy security to nation, individual, environment, food, cyber or information security. Therefore, the risks and troubles that arise in every field are considered as security problems (Zwierlein and de Graaf, 2013, p. 9-16).

Melvyn P. Leffler (1990), within the scope of his studies on national security, dealt with security, one of the basic principles of foreign policy, through the classical approach. However, he did not see security as a matter of external threats only. As a matter of fact, from his point of view, national security has been shaped as a phenomenon that creates an impact between actors with various characteristics by referring to different external and internal factors. Therefore, he argues that the concept of national security should be protected from external threats and dangers, based on an old approach to the concept of national security. It is now possible to consider the concept of security at various levels of analysis, extending from the individual to the whole planet, beyond the state, which is the first actor in the field of international politics.

In this context, it is possible to talk about a series of thoughts and approaches that no longer see security as merely the protection of a country's political borders against military threats or taking measures to prevent world wars at the system level. For this reason, the aim of security in the narrow sense is understood within the framework of taking precautions in a way that is closely related to the survival and continuation of the nation/national state and never needs to protect the homeland. For example, it can be said that such a security concern played a role in the US's intervention in the struggle in Europe during the First and Second World Wars. However, it does not seem easy to determine the boundaries of the concept of security in terms of a state's foreign policy. When we look back in terms of national security history, it has been an example of the US after the Second World War (Shull and Wark, 2021, p. 9-10). However, in the early days, interests and threats also entered the political sphere in a closed way, which provided the state's affairs. However, in the years when the bipolar system was intense, the concept of national security was used in the internal and external structures of the countries that were party to the North Atlantic Treaty Organization (NATO) to protect them from the threat of communism. Therefore, this concept has started to be taken as a reference when explaining the domestic and foreign policies of the states. On the other hand, in some cases, a country can increase its security measures so much that this situation can directly put its own security, existence and integrity of its country in a monolith. The best example of this is the USSR (Rühle, 2019, p. 1-4).

It can follow two basic ways in terms of ensuring the security of a state. The first way would be to deter the party or parties that pose a threat to its own security. The other second way is to protect yourself by taking defensive measures. In cases where deterrence methods cannot prevent the other side from attacking, the defending side will fight with different means at its disposal to reduce the power of the aggressor and to minimize the damage he/she has done or can inflict. A game of either complete winning or complete loss of a state's security element can make it seem like logic. For example, the demilitarization of the western bank of the Rhine during the two world wars created a security concern for Germany, while it created a positive situation for France in terms of security (Arbatov et al., 2005, p. 59-63).

While the phenomenon of security throughout history differs according to the social value, culture and various freedoms of the geography that states take as their location, on the other hand, there are always security problems, disagreements and conflicts between individuals, groups and states. As a matter of fact, when international events are viewed from this perspective, security in general goes back to the ancient Sumerian States, which were in the first periods before Christ. In the 16th century BC, it was the Hittites who needed the concept of security to be established and preserved their first monarchical structure. In addition, the Battle of Kadesh, which emerged due to the tensions and disagreements between Ancient Egypt and the Hittites in

1340 BC, and the Treaty of Kadesh, which was used as the first written document after, provided a security border between the two civilizations (Santosuosso, 1996, p. 424-28).

Among the elements of national security, economic, social, and environmental issues are the first to stand out. In addition to this, events that create insecurity problems such as infectious diseases, environmental disasters, drought, hunger, poverty, migration, and refugees, as well as terrorism posing a global threat, are increasing. The attacks on the trade towers in the USA in September 2001 caused a change in the understanding of security. After these attacks, the process of war/fight against terrorism, which is seen as a threat to the security of the USA and creating fear in other states, has begun. Due to this situation, dozens of ongoing negativities have emerged and the leading of these negativities have been/are ethnic conflicts, religious wars, smuggling, terrorism, and organized crime. It should not be forgotten that emerging threats have reached a global scale and it has been understood that no state can fight alone. Therefore, it can be said that although states do not always and everywhere agree, they still struggle together (Koshy, 2002, p. 1319-21).

And according to Brauch (2011), security is the situation of being free from a potential threat or danger. This means that security aims to create a safe environment. In addition, according to Baylis (1987), security is the military capability, ability, duty, and strategies that should be developed against the threats against their own survival in terms of states.

So, the concept of security, in my interpretation, appears wherever the feeling of insecurity exists. The demand for security arises as a result of threats to the assets of international actors, such as individuals, states, or organizations.

The demand for energy has increased considerably with the increase in population, which is a kind of problem today, and with the advancements in information and technology. Energy, which is a basic need for people to survive, was generally provided by coal since the beginning of the 20th century, but over time coal has transferred its importance to oil and natural gas (Fattouh et al., 2021).

Moreover, due to the fact that these energy resources are located in certain places in the global sense, it is possible to see conflicts between countries to have these energy resources in the past and today. Two-thirds of the world's natural gas and oil resources, which are mostly used in industry and military fields, are located in the Middle East region. In the regions where these energy sources are located, there are important commercial sea routes and passages for the realization of energy trade (Chuliá, 2019, p. 174-79).

Many countries have aimed to have the mentioned energy resources and energy routes, thus, many conflicts have arisen for this reason, because with the new age, energy means power and wealth. For example, one of Germany's main policies during the Second World War was to have energy resources, so

it occupied Alsace-Lorraine, which it lost in the First World War because this region was loaded with coal and iron deposits that could meet its energy needs throughout the war (Herwig, 2002, p. 681-84).

Another example is the US invasion of Iraq on March 19, 2003. This invasion was started with the code name 'Operation Iraqi Freedom' and the alleged reason for the invasion was announced to the world to prevent Iraq from producing Weapons of Mass Destruction (Mueller, 2010, p. 39-42)

The reason for the act of the US is based on the 'securitization' theory of the Copenhagen School. According to this theory, states may have the right to use force if any problem is brought under the name of a security problem. This means that the purpose of the US invasion of Iraq is based on the so-called security problem, but in fact, there are other goals behind this invasion. These goals lead us to the conclusion that America wants to have rich petroleum deposits from Iraq. As it can be understood from here, it has become a goal for states to have energy, therefore, the need for security has also manifested itself in the field of energy security (Ciută, 2009, p. 301-307).

According to offensive realism, nuclear supremacy is one of the ultimate goals of states and especially great powers to ensure nuclear hegemony. Thus, if a state secures nuclear supremacy, non-nuclear adversaries, due to the anarchic structure of the international system, will attempt to change the status quo by acquiring their own nuclear arsenals. During the Cold War, suspicion and security dilemmas drove the US and the Soviet Union into a grueling arms race to secure nuclear superiority, power advantage, and a balance of nuclear terror, with no winners and losers, but, with mutual assured destruction (MAD) in a possible nuclear confrontation for both great powers. Thus, despite the bilateral Soviet missile crisis in Cuba (1962), the Cold War era came to an end in the early 1990s, without the superpowers using conventional forces in direct conflict with each other (e.g. Vietnam, Korea, Budapest, Iraq, Afghanistan)

In an anarchic international system, in which the law of power prevails and "the strong imposes what its power allows and the weak yields as much as its weakness requires", states must themselves ensure their survival. In a world dominated by MAD, the asymmetric power of nuclear weapons is balanced by the fear of nuclear escalation, making the balance of land power the most important and integral part of military power. The anarchy and insecurity of the multipolar international system justifies the possession of nuclear weapons as a means of intimidation in the hands of states or leaders who even have the intention of using them.

2. NUCLEAR DEVELOPMENT AND SECURITY (USSR-USA)

The Second World War started with Germany's invasion of Poland in 1939 and ended with the US attack Hiroshima and Nagasaki with atomic bombs in 1945. After the Second World War, there was a power gap in the world order.

This power gap situation in the world order ended with the formation of the bipolar order. The parties of this bipolar order were the USA and the USSR, which were called superpowers. Power competition has started between these two poles and this power rivalry has rarely led to hot/direct conflicts (Vuving, 2020, p. 13-17).

However, in general, the power rivalry between these two states was in the form of sanctions (political, economic) and show of force (nuclear tests, developing military forces, etc.). These displays of forces were the biggest factor in the emergence of the arms race. The arms race took place mostly over the nuclear field. In general, this period without hot/direct conflicts is called the "Cold War Period" (Paterson, 1986, p. 6-10).

At the beginning of the cold war period, the US had made great progress in terms of nuclear power. However, upon the development and testing of the intercontinental missile system by the USSR, the nuclear balance between these two states began to be established. The thought that nuclear weapons held by these two superpowers would cause great destruction and loss in a possible use prevented hot/direct conflicts that may occur between the two superpowers. Although there was no hot conflict in the period, many political problems arose due to nuclear weapons. The Cuban Crisis of 1962 is one of these political problems (Laffey and Weldes, 2008, p. 555-59)

In 1959, Fidel Castro, a communist politician, took the presidency of Cuba. Castro's common ideology with the USSR strengthened the relations between the USSR and Cuba during Castro's presidency. With these strengthening relations, the USSR placed its own guided missiles on Cuban soil. The reason why the USSR placed its own missile systems on Cuban soil was to threaten the security of the USA by placing missiles in a region close to the USA against the missile systems placed by the USA in Turkey. These activities in Cuba, which is located in the south of America, so close to US and under communist rule, disturbed and mobilized the American government (Blight et. al., 1987, p. 171-74).

In 1962, the then US President John F. Kennedy disclosed the USSR missile systems deployed in Cuba and demanded the dismantling of the missile systems. Immediately after, by Kennedy's order, Cuba was besieged from the sea and the ships carrying the nuclear missile materials of the USSR were prevented from going to Cuba. After this event, Nikita Khrushchev, who was the head of the USSR at the time, made a statement in 1961 that the USSR missiles in Cuba would be dismantled in return for the dismantling of the missile systems placed in Turkey by agreement with the USA. Kennedy's response to this statement was that in response to the dismantling of the missiles in Cuba, the blockade on Cuba would be lifted and Cuba would not be invaded. Following these statements, the Cuban Crisis came to an end with the USSR dismantling its missiles in Cuba and the USA stopping the siege and withdrawing its troops (Miller and McAuliffe, 1994, p. 25-29).

After the Cuban Missile Crisis, American-Cuban relations remained tense throughout the Cold War. The USA continued its economic and diplomatic sanctions against Cuba, while Cuba strengthened its cooperation with the Soviet Union and socialist bloc countries. The Cuban Missile Crisis offers important lessons for leaders in crisis management and decision-making. President Kennedy's evaluation of different options by establishing a special advisory committee and starting negotiations with the Soviet Union enabled the crisis to be resolved through diplomatic means. This shows that leaders should act carefully and rationally in their decision-making processes. During the crisis, there was a lack of direct communication between the United States and the Soviet Union, which led to an escalation of tensions. In order to solve the crisis, secret diplomacy traffic has started and confidence-building steps have been taken. This shows the importance of communication in international relations and that confidence-building steps are effective in solving crises. The Cuban Missile Crisis was an event that drew attention to the dangers of nuclear weapons and accelerated the disarmament processes. Nuclear arms control and disarmament agreements made after the crisis are accepted as important steps in terms of world peace and security (Weaver, 2014, p. 167-81).

3. LIMITATION OF NUCLEAR WEAPONS BY TREATIES

After this crisis, states took action on the danger of nuclear weapons. In this context, an agreement was signed in Moscow in 1963 in which the parties were England, the USA, and the USSR. The name of this agreement is the "Partial Nuclear Test Ban Treaty". The arms race between the two-superpower states continued despite this agreement, and the two states secretly increased their underground testing. In 1969, these two states sat at the same table again for the purpose of the agreement, and the Strategic Arms Limitation Talks-I (SALT-I) started. After many negotiations and a series of agreements signed, these negotiations ended with the Treaty of SALT-I signed in 1972. Because of the negotiations and agreements, limitations were imposed on the USA and the USSR on nuclear weapons. After improving bilateral relations, Strategic Arms Limitation Talks-II (SALT-II) started in Geneva in 1972. Again, after many negotiations and a series of agreements, the negotiations ended with the Treaty of SALT-II, which was signed in 1979. This agreement limited the nuclear weapons capacity of both states to a certain number. However, when this agreement was rejected by the US Congress, the two states started new negotiations on nuclear weapons under the name Strategic Arms Reduction Treaty-I (START-I). The negotiations ended with the signing of the treaty in 1991. Immediately after the signing of the START-I agreement, START-II negotiations began in 1991. The purpose of the START-II negotiations was to ban the use of multiple independently targetable re-entry vehicles (MIRVs) on intercontinental ballistic missiles (ICBMs). These negotiations ended with the signing of the START-II agreement in 1993 between US-RF. With the

disintegration of the USSR in 1991, the tension between the USA and the USSR ended and the cold war period ended (Wells, 1992, p. 280-84).

With the USSR's acquisition of nuclear weapons during the Cold War period, the USA determined its policy by aiming to equate the USSR's inventory with its own inventory. However, in the period from the post-cold war period to the early 2000s, the US abandoned the view of nuclear power as a weapon used for offensive purposes or as a tool to create political superiority, since there was no equivalent competitor to deter. Instead, it has acted with the aim of improving its defense with nuclear weapons and establishing political partnerships. However, these policies did not last long and with a terrorist attack in the USA on September 11, 2001, the US government started to work to radically change its security policies. Collaborating with Russian Federation (RF) against the states that gained their independence from the USSR and possessed nuclear arsenals is one of the nuclear weapons policies of the USA after the cold war. Keeping good relations with PRC, preventing the advancement of developing states such as Islamic Republic of Iran (Iran) in terms of nuclear weapons, and the creation of an environment that could interfere with the internal affairs of nuclear power states such as Republic of India (India) can be given as examples of the policies of the USA in 2001 and after (Buchan, 2002, p. 230-42).

With the disintegration of the USSR, one of the superpowers during the Cold War, the RF took its place. RF could not be as active as the USSR in the nuclear field. Chemical and nuclear weapons in the hands of RF in the post-cold war period were inherited from the USSR. RF, which stated that it will safely destroy the nuclear and chemical inventory in its hands with the agreements, postpones this situation due to the economic and security problems. Additionally, RF, which did not have an active nuclear policy at the beginning of the post-Cold War era, stated that it would not hesitate to use its nuclear power for national security and deterrence in the near future (Sagan and Turco, 1993, p. 369-73).

4. NUCLEAR DEVELOPMENT AND SECURITY (OTHER STATES)

After the Second World War, during the cold war, nuclear weapons were seen as a deterrent and a guarantee of security. In addition, nuclear weapons were also seen as a means of establishing political supremacy. Within the scope of this idea, an arms race started between the superpowers of the period, the USA and the USSR. This arms race was about nuclear weapons and arsenals. The superpowers thought that they ensured their security with the possession of nuclear weapons and that they had a deterrent for other states. However, while the superpowers ensured their security, a great threat emerged for the states with low/insufficient military potential. As a result, nuclear weapons, which were seen as a security element after the Second World War, were also an equal threat (Deudney and Ikenberry, 1992, p. 134-138).

Other states, which do not want nuclear power to be monopolized by the US and USSR, have wanted to take their own security measures against the nuclear threats created, have also started to conduct research in the nuclear field. We can classify these states as "great powers", "states on the way to becoming a nuclear power" and "states that want to become a nuclear power".

PRC is a country included in the classification of great powers. Studies on the nuclear field in PRC began in 1955. The reason for these studies was that the USA and the USSR were seen the monopoly of nuclear power and a security threat. The purpose of the studies was depending on Chinese desires to determine policies for its own national security. PRC conducted its first successful nuclear test in 1964, 9 years after it started working in the nuclear field. Subsequently, after a series of successful tests, PRC strengthened its nuclear inventory. With this increasing nuclear power, PRC has become the third nuclear power in the world after the USA and the USSR. By reaching this status, PRC has become one of the powerful states with deterrent policies in the international arena (Haynes, 2016, p. 27-32). The US policies regarding PRC have softened with Chinese dominance in the nuclear field. In addition, until the early 2000s, PRC sold nuclear infrastructures, equipment, and materials to other states in the name of maintaining peace. With the signing of the Additional Protocol to the Nuclear Non-Proliferation Treaty in 2002, this policy of PRC has changed (Basrur, 2015, p. 9-11).

The Nuclear Non-Proliferation Treaty (NPT), which was presented for the signing of other states after was signed by USA, USSR, and United Kingdom (UK) in 1968, and was not signed by PRC and French Republic (France), which were in the classification of large states in the first period. This agreement, which aims to stop the nuclear exchange between the states, was not signed by France and PRC in the early stages of its being submitted for signature, because ensuring national security with independent nuclear power is one of the aims of both countries. In addition, these two states, which wanted to increase their status in the nuclear field and worked in this context, wanted to be rewarded for their efforts rather than being restricted (Scarlott, 1991, p. 690-696).

UK, participated in this arms race by starting nuclear studies in 1945. However, UK could not achieve success individually in its nuclear tests and made its first successful test in 1952 with the help of the USA. Afterward, UK, which followed a peaceful policy, became the country that supported the disarmament initiatives most, with the idea that there is no threat if there is no insecurity (Oakes, 1993, p. 357-59).

India, in the first place, was not among the signatory states to the nuclear disarmament agreement and started its studies on nuclear weapons in the 1930s. In 1974, these studies were concluded and India, which is in the classification of states on the way to becoming a nuclear power, conducted a successful nuclear test. With a series of nuclear tests in 1998, it attracted the attention of many countries and became one of the states with deterrent tools

in the international arena. India's nuclear policy was aimed at deterring and dominating its neighbor Islamic Republic of Pakistan (Pakistan) (Suri, 2008, p. 1020-29).

Another country included in the classification of states that are on the way to becoming a nuclear power is Pakistan. At the same time, Pakistan and India are not parties of the NPT. Pakistan started its studies on nuclear in the 1970s and its nuclear policy was the same as India's nuclear policy. Immediately after India's tests in 1998, Pakistan also conducted a series of nuclear tests. The aim of the nuclear tests of Pakistan and India was not to be a world power, but to intimidate and dominate each other (Nichols, 2014, p. 56-62).

The State of Israel (Israel) is a state located in the Middle East and does not have many friends in its geography. Being aware of this situation, the Israeli state has determined its policies and strategies from the very beginning, taking this situation into account. In this context, armament is very important for Israel. Israel started its nuclear studies for national security and deterrence in the late 1950s and received all its support in the nuclear field from France (Brom, 2016, p. 99-105). In this context, bilateral agreements have been concluded in which both parties gain. Israel, which is not a signatory party of the NPT, also does not accept the inspections of the International Atomic Energy Agency and continues its nuclear tests and inventory reinforcements after VELA incident¹. (Cohen and Burr, 2020).

5. NUCLEAR ENERGY AND NUCLEAR POWER

Nuclear energy means the energy released as a result of fission, which targets the splitting of matter atoms, or fusion that purpose the joining of two separate atoms. With the Second World War, nuclear science developed and the energy that emerged because of fission was discovered in 1939. So, in 1943, the first controllable nuclear chain reaction realized and then the first atomic bomb called 'Trinity' and its test took place on November 16, 1945 (Wallace, 2016, p. 29-32).

Thereby, nuclear energy, which was discovered for the purpose of obtaining energy, has been transformed into a kind of weapon. At the end of World War II, US detonated the "Little Boy" uranium-based atomic bomb on Hiroshima on August 6, 1945. And three days later, it used its plutonium-based nuclear weapon, also known as "Fat Man", on Nagasaki, to end to war. Bombing Japanese cities of Hiroshima and Nagasaki, the power difference between USA and other states was unveiled and it was accepted by the whole world that the USA was a hegemonic military power (Leffler, 2005, p. 65-66).

Nuclear power has great importance here because it has been revealed in the history of the world that the destructive capacity of nuclear weapons is

¹ A satellite that captured flashes in 1979 close to South Africa and that incident was assumed that was a Israeli nuclear attempt.

many times higher than the capacity of an army. In this way, nuclear energy has become a target to be reached for power. On the other way together with the nuclear power show of the US on Japan, and even in the years after the attack, the destructive effect of nuclear weapons on the environment and biological life has also been revealed, apart from the destructive power of nuclear weapons on humans (Walker, 1990, p. 111-114).

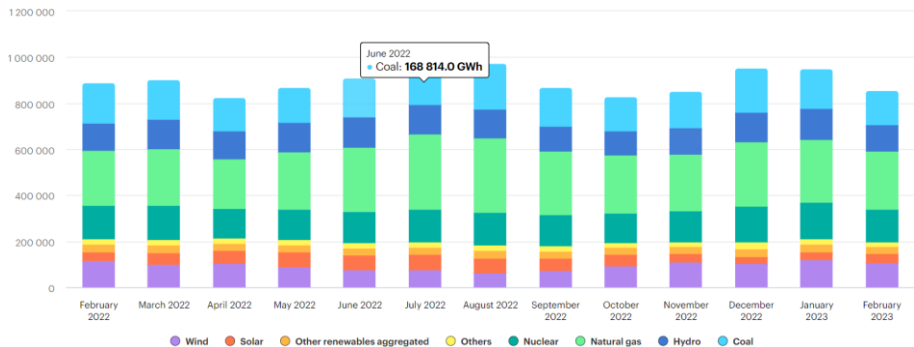
Wherewith these important historical developments, even today, to have nuclear power means to have a privileged position on the international system and to have the deterrent power or element that we will discuss in the next section. This means that achieving nuclear power is desirable by states. Besides, there are many situations that can prevent having nuclear power, but the most important of them is not having sufficient scientific and technological resources and becoming a potential threat to other states in the international balance of power.

We should note that it is interesting that US realized the first electricity production from nuclear energy in 1951, while aiming to use nuclear energy as a weapon, then finding out the electricity production (Schulz, 2006, p. 59–63).

As a result of the oil crisis in the early 1970s, the demands for the establishment of nuclear power plants increased with the thought that nuclear energy could produce more and cheaper energy than oil and coal. Even today, although there are individuals and organizations that oppose the establishment of nuclear facilities as a result of accidents such as the 1979 USA, Three Mile Island, and 1986 Russia, Chernobyl, 2011 Japan, Fukushima disasters. Such occasions do not reduce the desire of states on nuclear power and energy (Phillips, 2001, p. 131-133).

It is crucial to mention that, according to the sources of the International Energy Agency in 2022 for OECD countries, 19-20% of the world's electricity is produced from coal, 29-30% from gas, 13-14% from hydroelectric power, and 14-15% from nuclear energy.

Figure 1. OECD Countries Electricity Production Resources



Kaynak: IEA, 2023a

Due to the rising energy prices as a result of the RF-Ukraine war, France, which met 70.6 percent of its electricity production from nuclear, took 10 European Union (EU) member countries with it and demanded that nuclear energy to be classified as a green investment (Reuters, 2022).

According to the Nuclear Energy Institute data, there are 443 reactors in the world with a total capacity of 393 thousand 226 megawatts. Approximately 105 thousand megawatts of this capacity are located in EU countries. Thus, EU countries account for 26.7 percent of the global nuclear energy capacity. France has the highest capacity with 61,400 megawatts among the countries that have made a request to the European Commission for nuclear energy to be accepted as a green resource. France provides 70.6 percent of its electricity production from this source with its 56 nuclear reactors. Among these countries, Slovakia has 82.3 percent, Hungary 48 percent, Bulgaria 40.8 percent, Slovenia 37.8 percent, Czech Republic 37.3 percent, Finland 34 percent and Romania. 20 percent is met by nuclear (The World Nuclear Association, 2023).

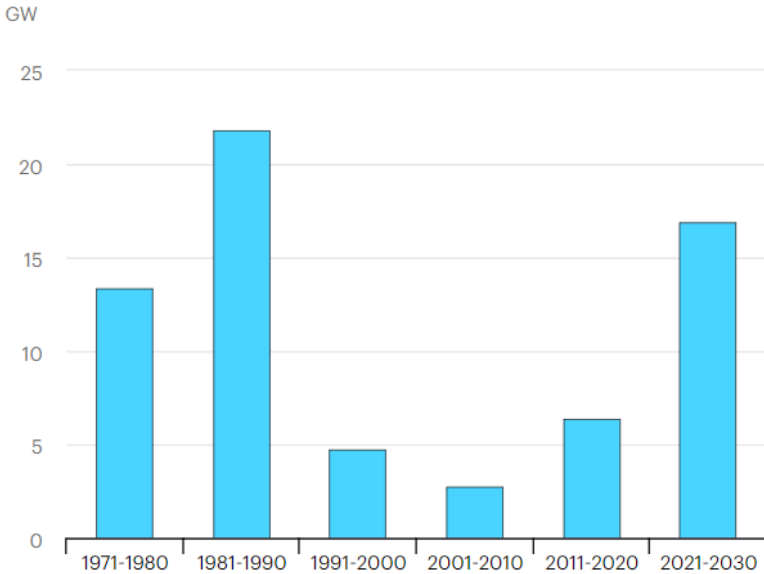
When the opinions expressed in favor and against nuclear power plants are synthesized, even if the installation costs are too high, the risk of accidents in the power plants is unsettling, the environmental and human health effects of a possible accident are excessive, and the effects of major accidents despite all safety precautions are taken, there is an increase in the prevalence of nuclear power plants due to the fact that they are both an affordable and guaranteed energy source compared to thermal and hydraulic power plants while the demand is increasing day by day.

Nuclear power plants established today provides a safer design: Cooling for 72 hours without outside human intervention, protection against aircraft crashes, passive safety systems, digital control rooms, modular equipment and system etc. Nuclear power plants, with their security systems, have an effect of only 1% of natural radiation. For this reason, agriculture, fishing and tourism activities around nuclear power plants and the people living in the vicinity are not affected by this situation (Kan, 2018, p. 4-9).

In electricity unit cost pricing, the cost of nuclear fuel is very low in total cost. Therefore, fluctuations in fuel prices will not affect electricity generation costs. In addition, uranium, the raw material of nuclear fuel, has spread to different geographies in the world. In addition, nuclear power plants do not emit greenhouse gases during operation (Gottfried, 2006, p. 1011–24).

Therefore, while providing energy supply, its impact on the climate crisis or climate change is minimal. In addition, the installation area per unit electricity production of nuclear power plants is quite small compared to all other power plants. So, its impact on agriculture, settlement and natural life is less than other options.

Figure 2. Global Nuclear Power Capacity Additions In The Net Zero Scenario, 1971-2030



Kaynak: IEA, 2023b

6. NUCLEAR DETERRENCE AND ENERGY SECURITY

The use of power as a kind of control mechanism is an action that has left its mark on history. For instance, it is an indisputable fact that the USA, today's one of hegemonic power, has been using its post-Cold War power as a kind of deterrence program since the World War II (Farrell, 2010, p. 820-823).

In the short meaning of deterrence is a military force strategy that aims to prevent a threat from an enemy subject through retaliatory action. During the Cold War, because of the polarization and nuclear race created by the two main actors, the USSR and the USA, deterrence was used to prevent the use of nuclear weapons. Thuswise, nuclear weapons have become a kind of security instrument that has both power and deterrence (Roehrig, 2017, p. 40-41).

From sociological point of view, this issue can be reduced to a simple example as follows: when a child in a neighborhood acquires a new toy gun, fear begins to spread over the other children that they will be hurt by this gun, and other kids require to get their trump cards against the child with a toy gun. They compete to get the same kind of toy gun or something of equal value that they can use. As a result of this competition, there would be those who can get some trump card against this toy gun in the neighborhood and those who cannot. As time went by, the need for toy guns, which is formed by the need for security among children, turns into insecurity and a security problem

begins between them, everyone would be ready to use their trump card against another (Siracusa, 2009, p. 2-8).

In a rough analogy, a toy weapon, namely a nuclear weapon or power, becomes a goal to be reached over time. This is where energy security problems begin and subdivide. For example, with India's acquisition of nuclear power in 1974, its neighbor and rivalry state Pakistan felt its own security threatened, so in the words of then-prime minister Zulfikar Ali Bhutto: "We will eat grass, even go hungry, but we will get one of our own (Atom bomb)..." (Singh, 1979). It is understood that their goal was to have nuclear power eventually. After that, in 1988, Pakistan became the world's seventh nuclear power (Cheema, 2011, p. 6-8).

Another instance is the phrase "Arabs may have the oil, but we have the matches!" of former Israeli Prime Minister Ariel Sharon, which clearly informs us of the deterrence and power characteristics of nuclear weapons (Heard, 2017).

It should also be noted that along with nuclear energy, new security issues have also been included in the agenda. The safety problems that nuclear power plants can cause are one of them. In other words, the areas where nuclear power plants will be established must be safe from natural threats such as earthquakes and human threats such as terrorism. In consequence of the terrorist movements that emerged with the increasing globalization, the concerns that such organizations could acquire nuclear power have also increased considerably, and the ideas that such criminal organizations may take actions to steal nuclear weapons or to obtain them from the black market have spread (Nuckolls, 1995, p. 1112-14).

As a result of natural threats, acts of terrorism, and security conflicts of states, negotiations, restrictions and agreements on the security of nuclear energy have been realized in the international arena. For example, in 1957 the International Atomic Energy Agency was established under UN mandate to limit the proliferation and destructive effect of nuclear weapons (Nadir, 2013, p. 3-5).

In addition to the previously unsuccessful nuclear proliferation restrictions, it was aimed to limit weapons of mass destruction, such as nuclear weapons, which were aimed to be developed with "2002 the Strategic Offensive Reductions (SORT) agreement" between the two giant powers, RF and the US. In 2010, this agreement was signed again under the name "New START" to restrict the two states till 2021 (Landau, 2012, p. 22-26). And this agreement extended by two sites for additional 5 years (US Department of State, 2023).

Besides, US withdrew from Anti-Ballistic Missile Treaty (ABMT) in 2002 and from The Intermediate-Range Nuclear Forces Treaty (INF Treaty) in 2019 which were signed in 1972 and 1987 relatively. As a response to this, in accordance with the war in Ukraine, RF also made an attempt that suspending its participation to the last agreement signed 2021 namely New

START in February 2023 with a reservation that being abided by the number of the limits (UN, 2023).

In the last example, according to the Nuclear Non-Proliferation Treaty, which legitimized the possession of nuclear weapons by the five permanent members of the UN in 1968, the desire of other states to have nuclear weapons was tried to be controlled, except for these five states (USA, RF, PRC, UK, and France), this led to international conflicts, especially in energy security (Simpson, 1994, p. 36-39). To sum up, with the nuclearization races, deterrence movements, international balance flowing from energy security problems, and security movements have been realized.

Conclusion

The power gap formed after the World War II was filled by the USA and the USSR states. These two states entered into a power and arms race since there was no direct/hot conflict in this period, the period was named as the Cold War Period. In this period, after the USA's nuclear weapons tests in Japan, nuclear weapons competition started among the states that saw the effect of nuclear weapons. Nuclear weapons have been used as a deterrent between states. However, a security threat has emerged with the use of these weapons. This security threat is more relevant to non-nuclear states. Nuclear power, which is in the hands of states with nuclear power and can cause great destruction, creates an unsafe international arena for states that do not have nuclear power. In this context, states and organizations took action, disarmament negotiations were signed, and agreements were made. The main purpose is to provide a safe environment for non-nuclear states.

The spread of weapons of mass destruction and especially nuclear weapons has reached great proportions and is now a major international security issue. Some argue that the gradual proliferation of nuclear weapons can be a stabilizing factor in the modern international system, just as their deterrence contributed to stability during the Cold War. Others see incremental nuclear proliferation as posing serious risks in the hands of unstable states and fanatical or paranoid leaders whose motivations and intentions are unrelated to the balance of power. Already, since 1945, the proliferation of nuclear technology for military and civilian purposes has led to the production of nuclear explosive devices in a relatively short period of time, which has called into question the nuclear-armed states.

The fear of a nuclear destruction, dominant worldwide for decades, seemed to recede with the end of the Cold War. The possibility, that the tension between the major nuclear powers would lead to a nuclear conflict under the doctrine of MAD, has decreased for many years.

The US implemented a comprehensive nuclear security strategy based on international standards and aimed at reducing the international stockpile of weapons-grade nuclear material. These measures agreed reinforce the existing

institutional and political framework of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons, but also policies, mainly after the dissolution of the Soviet Union, aimed at preventing the possession of nuclear weapons or material by other states or terrorist groups. Also, this specific policy is a goal of the European Union's Common Foreign and Security Policy (CFSP) and was adopted in the Maastricht Treaty in 1992.

The Nuclear Security Summit (NSS) sessions and the aforementioned treaties and agreements are based on the logic that the fewer states in their possession nuclear weapons, the lower the risk of a nuclear destruction. This view has been harshly criticized, both by states that level the charge that the nuclear states wish to keep a closed club in order to maintain their superiority over the rest, and by some scholars, such as Kenneth Waltz, who argued that nuclear possession by more states would create a more stable world.

The motivations for acquiring nuclear weapons are related to the concept of power and the concept of security in the context of interstate relations. The security dilemma - although it is the cornerstone of the logic of balancing nuclear power - cannot justify the possession of these weapons one-dimensionally, because security is not exclusively linked to the acquisition and possession of nuclear weapons. Specifically, factors such as internal cohesion, economic power, efficient military power, as well as the position of a country at the international level can shape, strengthen or even weaken the concept of security. Here it is important to mention that the nuclear weapon is a deterrent compared to the aforementioned factors.

Mutual deterrence is based on blackmail and relates to the national interests of a state or its potential allies and adversaries. The threat of nuclear force is a tool of intimidation, making clear the catastrophic consequences of non-compliance. The increase in regional conflicts is an incentive for the countries involved to acquire nuclear weapons as a result of the balancing and deterrence mechanism.

Thus, the possession of nuclear weapons by small states is a power equalizer, because it acts as a deterrent to potential attacks against them by stronger states. A typical example is Iran, whose nuclear program the US tried to freeze for several years in cooperation with the European powers, under the pretext of the security vacuum that would be created in the Middle East and Iran's aggressive intentions, which would endanger their future. Also, several countries fund their allies' nuclear program to ensure nuclear protection, such as the government of Saudi Arabia providing funding to Pakistan to build its own nuclear weapons. Therefore, the countries that have nuclear arsenals are a powerful force with the ability to safeguard their interests and their military supremacy in the international environment.

With the increase of globalization, the problem of a country is no longer limited within its own borders but has begun to affect other states as well. With this increasing globalization and population, the rising energy demand has also increased the tendency towards nuclear energy, but we can say that

the desire for this nuclear power is an indisputable power demand for the states. The role of nuclear power in energy security is huge, because of the irresistible desire for this power. When security concerns come into play for the states, diplomatic negotiations may not be the only way. This is where the deterrence action comes into play, and the combination of nuclear power with the idea of deterrence is a golden trump card for the states. Furthermore, this trump is such a trump card that it is a deterrent force even against US, PRC and RF which are the hegemonic powers in today's world. To sum up, say that nuclear power is a tool with great effects that can support states to achieve the idea of sovereignty.

In this study, the relation between being nuclear power and security is analyzed, the concept of the security and the energy security is discussed, and the role of the nuclear deterrence is explained within the history of the treaties. The questions of whether nuclear energy has the potential to be transformed into nuclear power and then to endanger international security are tried to be answered. Actually, the answers are depending on the lessons learned through history and upcoming agreements which will be comprehending all the states rather than permanent members of UN. Regardless of this question, it is a reality that energy demand to be increased in the years and this rising demand creates a gap considering the low supply. So, this gap will be filled one way or another through renewable, green, hydrocarbon, nuclear etc. energy resources and with the acceptance of the nuclear energy as a green one, as we saw as a European attempt, this question will be out of scope. Then, the next debate could be only about the future of the nuclear energy and the necessities of it to have a peaceful environment.

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