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FACULTY OF SOCIAL SCIENCES

Institute of Political Science

Department of Security Studies

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2023 **Bengi Kolay**

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Akkuyu Nuclear Power Plant and Energy Diplomacy: How Construction of the Akkuyu Nuclear Power Plant affected Energy diplomacy between Turkey and Russia? A process Tracing Approach.

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Declaration

1. I hereby declare that I have compiled this thesis using the listed literature and resources only.
2. I hereby declare that my thesis has not been used to gain any other academic title.
3. I fully agree to my work being used for study and scientific purposes.

In Prague on 31.07.2023 Bengi Kolay

References

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Abstract

In 2010 a contract was signed between Russian Rosatom and Turkey to build the first Nuclear Power plant (NPP) in Turkey called Akkuyu NPP. The aim of this thesis is to analyze energy diplomacy between Turkey and Russia in context of the construction of Akkuyu. By analyzing energy diplomacy in the context of Akkuyu NPP gives a better understanding of bilateral relations, national interest, economic considerations and security concerns. To study this, explaining the outcome type of Process Tracing (PT) was used as it allows analyses within a case. Akkuyu NPP in itself is unique as it is the first NPP that is built on Build Operate and Own (BOO) principle that is technically owned by the Russian Federation. Three hypotheses were formulated and tested. As a result, out of three hypotheses two were proven. The first hypothesis that argued that the construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest was conclusively proven but had some plausible indications. Hypothesis two and three demonstrated that construction of Akkuyu was affected by energy diplomacy and economic considerations and Akkuyu NPP has negatively affected energy diplomacy between Turkey and Russia. From PT results and literature review combined it can be further plausible to say the following arguments. Russia with the help of the Akkuyu NPP project has increased leverage over Turkey on energy and other national interests. Second, even with challenging conditions of Akkuyu NPP Turkey sees Akkuyu NPP as a benefit for its own interests. Third, Russia utilizes energy diplomacy for its various national interests. Fourth, Rosatom has a different agenda and is perceived with more soft power elements that are able to generate a "pull". And lastly, Turkey by accepting challenging conditions of Akkuyu NPP might be investing in the bilateral relation to acquire future advantages with Russia. The organization of the thesis is as such, a literature review that covers: Turkish Russian bilateral relations, Russian foreign and energy policy, security considerations, and Akkuyu Nuclear Power Plant's background and significance. Theoretical framework covers concepts of diplomacy and energy. Followed by a methodology part that explains the process tracing, tests and logic behind it. Then the Process tracing that involves seven steps and a hypothesis testing which are: Straw in the wind, hoop test, smoking gun test and doubly decisive. Then a rating scale for the process tracing results, followed by findings and discussion.

Abstrakt

V roce 2010 byla podepsána smlouva mezi ruským Rosatomem a Tureckem o výstavbě první jaderné elektrárny (JE) v Turecku s názvem JE Akkuyu. Cílem této práce je analyzovat energetickou diplomacii mezi Tureckem a Ruskem v souvislosti s výstavbou Akkuyu. Analýza energetické diplomacie v kontextu JE Akkuyu umožňuje lépe pochopit bilaterální vztahy, národní zájmy, ekonomické úvahy a bezpečnostní zájmy. Ke studiu bylo použito vysvětlení výsledku typu Process Tracing (PT), protože umožňuje analýzy v rámci případu. JE Akkuyu je sama o sobě jedinečná, neboť je první JE postavenou na principu Build Operate and Own (BOO), která je technicky ve vlastnictví Ruské federace. Byly formulovány a testovány tři hypotézy. Výsledkem bylo, že dvě ze tří hypotéz byly prokázány. První hypotéza, která tvrdila, že výstavba JE Akkuyu byla Ruskem použita jako nástroj energetické diplomacie k prosazování národních zájmů, nebyla jednoznačně prokázána, ale měla některé věrohodné indicie. Druhá a třetí hypotéza dokazovaly, že výstavba JE Akkuyu byla ovlivněna energetickou diplomacií a ekonomickými hledisky a že JE Akkuyu negativně ovlivnila energetickou diplomacii mezi Tureckem a Ruskem. Na základě kombinace výsledků PT a přehledu literatury lze dále věrohodně tvrdit následující argumenty. Rusko s pomocí projektu JE Akkuyu zvýšilo vliv na Turecko v oblasti energetiky a dalších národních zájmů. Za druhé, Turecko i přes náročné podmínky JE Akkuyu vnímá JE Akkuyu jako přínos pro své vlastní zájmy. Za třetí, Rusko využívá energetickou diplomacii pro své různé národní zájmy. Začtvrté, Rosatom má jinou agendu a je vnímán s více prvky měkké síly, které jsou schopny vyvolat "přitažlivost". A konečně, Turecko přijetím náročných podmínek JE Akkuyu možná investuje do bilaterálního vztahu, aby získalo budoucí výhody s Ruskem.

Uspořádání práce je takové, že obsahuje přehled literatury, který zahrnuje: Turecko-ruské bilaterální vztahy, ruská zahraniční a energetická politika, bezpečnostní hlediska a pozadí a význam jaderné elektrárny Akkuyu. Teoretický rámec zahrnuje pojmy diplomacie a energetika. Následuje metodologická část, která vysvětluje sledování procesu, testy a logiku, jež za ním stojí. Poté následuje sledování procesu, které zahrnuje sedm kroků a testování hypotéz, které jsou: Sláma ve větru, test obručí, test kouřící pistole a dvojí rozhodování. Dále hodnotící stupnice výsledků sledování procesu, po níž následují zjištění a diskuse.

Keywords

Energy Diplomacy, Energy Security, Coercive Diplomacy, National Interests, Akkuyu Nuclear Power Plant, Rosatom, Turkey, Russian Federation, Turkish –Russian Relations, Process Tracing.

Klíčová slova

Energetická diplomacie, energetická bezpečnost, nátlaková diplomacie, národní zájmy, jaderná elektrárna Akkuyu, Rosatom, Turecko, Ruská federace, Turecko - Ruské vztahy, Process Tracing.

Title

Akkuyu Nuclear Power Plant and Energy Diplomacy: How construction of Akkuyu affected Energy diplomacy between Turkey and Russia? A process tracing approach.

Název práce

Jaderná elektrárna Akkuyu a energetická diplomacie: Jak výstavba elektrárny Akkuyu ovlivnila energetickou diplomacii mezi Tureckem a Ruskem? Přístup založený na trasování procesů

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1 INTRODUCTION

Turkey in 2010 signed a deal with Russian Rosatom to build the first nuclear power plant in Turkey. Turkey has been trying to build a NPP since the 50's and there has been a big desire to build a NPP as it was seen as a sign of modernity in early years of the republic. In later years it became a question of energy demand. Currently, Akkuyu NPP is expected to finish in 2023 symbolically 100 years after the establishment of the Turkish Republic. The Akkuyu NPP is an achievement, as it is the first NPP in Turkey, but many have stated the reservation regarding the conditions of the operation of NPP. Akkuyu NPP is fully owned by the Russian Federation and will be based on the Build Operate and Own (BOO) type of NPP. Turkey has limited control on the NPP and has a fixed contract, Russia will sell the electricity produced from four units to Turkey based on a fixed long term contract that is currently expected to last for 15 years with a fixed price that is considered expensive.

The Akkuyu NPP is a unique project, as it is the first nuclear plant that will not be transferred by the end of the construction to Turkey, Russia will continue to own the NPP and control the matters regarding it. The already existing status quo between Russia and Turkey will most probably be affected by the Akkuyu NPP. Energy matters had been a focal point of Turkey- Russian relations even before the Akkuyu NPP and is expected to change the status quo of the relation and energy diplomacy between them that further affects various topics such as bilateral relations, national interests, diplomacy, energy diplomacy and security. The Akkuyu and interconnected topics have not been studied and have not been analyzed fully. Energy diplomacy in relation to Turkey and Russia has not been fully studied either and has a limited literature. To study this the research question was formulated as such: Akkuyu Nuclear Power Plant and Energy diplomacy between Turkey and Russia ? A Process Tracing Approach. Energy diplomacy allows us to study various topics including bilateral relations, national interests, diplomacy and energy security.

Thus the outline of the thesis was formulated as such, a literature review including topics: Turkey- Russian relations over the years, Russian Foreign & Energy Policy, Security, Turkey's Energy policy, and Akkuyu NPP background and significance. Theoretical framework includes definitions of energy diplomacy, Diplomacy and Security, and

understanding energy diplomacy in more depth. Methodology which gives a background information for understanding how PT works and logic behind it. Then, PT steps for three hypotheses including straw in the wind, hoop test, Smoking gun test, Doubly Deceive tests which help to prove or disprove assumptions regarding the construction of Akkuyu and energy diplomacy. Lastly findings and discussion which evaluates the overall thesis findings and what can be assumed and understood from the research, followed by conclusion.

For the research PT was used as a qualitative analysis method. Specifically explaining outcome process tracing was used as Akkuyu NPP in itself is a unique case and in depth analysis within the case was the aim. PT in simplest terms tries to prove or disprove assumptions by hypothesis testing. For hypothesis testing there are seven main steps. Identifying hypothesis, establishing timeline, constructing causal graph, identifying counterfactual outcomes, finding evidence to support primary hypothesis and finding evidence for the secondary hypothesis. For this case, Ricks and Liu (2018), steps for the PT were used and for tests in steps six and seven, Collier (2011) was used, as they are complementary and relatively easier to follow and understand.

Lastly, Energy diplomacy is an important topic that covers various topics ranging from security, diplomacy, and national interest. In order to better understand energy policies of states, and interests, energy diplomacy should be also analyzed. As it covers not only energy related matters but also other matters that can be focal matters of the state.

Three main contributions are expected from this thesis. First in depth analysis of T-R energy diplomacy with regards to Akkuyu. Second, proving or disproving assumptions affects the construction of Akkuyu. Third, based on proven assumptions, literature review and indications from results create new assumptions, on various topics that could further expand knowledge regarding energy policies and T-R relations.

2 LITERATURE REVIEW

TR and RU dynamics are interconnected and multifaceted. The topics included in the literature, aims to give a basis for understanding Turkey Russia dynamics in the context of Akkuyu NPP. The following topics were included in the literature: TR-RU bilateral

relations starting from 1992 till 2022. Russian foreign and energy policy and its relation to Turkey. Security concerns were also added as energy security and traditional security concepts are also relevant in understanding energy diplomacy between TR-RU. Followed by Akkuyu NPP history and significance.

2.1 Turkish –Russian Bilateral Relations

Turkish Russian (T-R) relations can be divided into four main parts, which are pre Cold War- Cold War era, After Cold War 1992-2002 and the 2002-2009 flourishing years of cooperation and 2009 till 2022. Historically, the Tsarist Russia and Ottoman Empire were rivals. After the dissolution, Turkey and Russia were the first countries to sign friendship agreement in 1925 but was not renewed in following years, due to creation of the Soviets and Turkish republic, with progress of different ideologies Turkey and Soviets were divided into different blocks. Turkey being relatively a new country and having a big powerful Soviet neighborhood has made Turkey choose the Western block to balance out and create possibilities to maneuver in the political and security sphere. But even before the dissolution of the Soviets there was an attempt to acquire some level of cooperation including energy matters. In 1984 agreement was made on the purchase of natural gas and agreement entered into force in 1987, establishing "the basis for economic cooperation between Turkey and Russian Federation" (Arafat & Alnuaimy, 2011, p. 122) After the dissolution of the Soviets the relations started to grow significantly and rapidly.

2.1.1 1992-2002

The era after the Cold War for both countries was vast in terms of developing relations. "During the relatively brief period of 1992 to 1996, 15 agreements and protocols were signed between Russia and Turkey covering issues such as scientific, technical, educational, cultural and economic cooperation, and the exchange of armed forces personnel"(Aktürk, 2006, p. 340). The swift development in relations was aided to an extent by the dissolution of the Soviets. After dissolution, Russia was not a hegemon anymore and had its own economic and political challenges which created an atmosphere for both countries to be regional actors. Where Russia was weak as a new state and Turkey has been developing into a stronger state.

Before the dissolution the balance was between a hegemon and a regional actor, but after the fall of Soviets balance was more or less between two regional actors. Both countries saw each other as possible partners in various topics. And both have compromised on certain issues establishing trust for further cooperation. According to Aktürk, there are five main reasons that can be attributed to the development and improvement of T-R relations after the Cold War. First, Turkey abolishes the expansionist policy of Turkic ethnics far abroad in Central Asia. Second, Russia supplied the military items that NATO had reservations on to Turkey. Third, both countries helped fight separatism and terrorism. Fourth, the common aim was to stabilize the Caucasus region and lastly both countries opposing the Iraq war. (Aktürk, 2006, p. 345) These reasons have allowed for establishment of trust and bases for development of cooperation in the following years and has given a swift start for bilateral relations.

2.1.2 2002-2009

The JDP (Justice and Development Party, AKP in Turkish) government came into power in 2002 and Russia at first had reservations on JDP having conservative and islamic values that Russia feared could turn into issue due to JDP supporting Chechen movements due to similar islamic values that both to an extent JDP and Chechen movement shared. But the JDP government made it clear that their islamic values would not grow into a fundamentalist movement. On the contrary the relationship continued to grow. Abdullah Gül and JDP government have established a positive image of themselves and argued that "Our aim is to show the world that a country which has a Muslim population can be also democratic, transparent, and modern and cooperate with the world."(Gül's interview in Turkish daily news, cited from Arafat & Alnuaimy, 2011, p. 110). Many official documents were signed and many official meetings were conducted. For example, the document of "Action Plan to develop cooperation between Russia Federation and Turkey "(Arafat & Alnuaimy, 2011, p. 109) establishes official agreements that will enable further cooperation between two countries. Following this agreement another seven important agreements were signed as well. Additionally to official documents, the trade has also grown exponentially. "Trade exchange between Russia and Turkey has doubled thirty-five times in the last ten years. Thus, Turkey has occupied the fifth place in the list of Russian

trading partners, … while Russia become the first trade partner to Turkey beating Germany."(Arafat & AlNuaimy, 2011, p. 115)

2.1.3 2009-2022

The following years the nature of the relationship still remains multidimensional but a more profound effect of Putin and Erdoğan on foreign policy can be seen. And a shift towards more strategic and utilitarian relationships and a move towards similar values against the West can be observed. Rival opinions and stances also emerge with the Syrian civil War as Turkey and Russia support opposing sides. After the dissolution of the Soviets, Yeltsin's government's aim was to incorporate Russia with the West. The aim also continued with Putin's government in early 2000's, but was eventually abandoned as it was not successful, and it was reflected in security documents starting from 2009. (Morales, n.d.)

Turkey also had some disappointments with the West and the EU but even with relativefallout between Turkey and EU, Turkey to an extent kept the relationship with EU for economic and trade purposes, and hence has followed a dual policy of both Europe and Russia. Thus in this year the dual policy of Turkey can be seen, trying to keep good relations on both sides. These years have also been challenging the relationship between Turkey and Russia. In 2009 V. Putin proposed Bluestream 2 project but it was never realized then another project was proposed (Daly, 2009), The Turkstream, that would directly supply natural gas from Russia to Turkey. The development of relations has continued but with the Syrian War relations soured especially it worsened dramatically in 2015 with Turkey shooting down the SU-24. As a result Russia has stopped the Turkstream project and similarly stops of Akkuyu NPP projects were also considered but not realized most probably due to Russia's own investment in Akkuyu. Putin even made a statement saying "decision on Akkuyu will be purely commercial" (Reuters , 2015) After the incident embargoes were put swiftly in effect and Russian officials also made various statements to harm Turkey in various topics. Statements such as it is not safe to go for a summer vacation in Turkey, were made as many Russians go on vacation to Turkey. For context, in 2014, 3.2 million Russian Tourists visited Turkey, and Russian tourists generated significant revenue for Turkey (Rainsford, 2015) These decisions created the lowest level of bilateral relations. The normalization took place a year later in 2016

summer, where for the first time after the jet shootdown that government officials met. Also shortly after the meeting the construction on Turkstream resumed.

Relations improved with the 2016 coup attempt in Turkey. Russia was one of the first countries to respond and show support for Erdoğan. This was meaningful for Erdoğan as the US has waited quite long to show support for elected Erdoğan, US waiting to respond has demonstrated that they are not that fond of Erdoğan and were possibly waiting for the coup to be successful. They took a long time to release a statement (Aktürk, 2019), while Russia was swift enough to respond for the democratically elected Erdoğan, which improved relations with Russia and made Turkey face towards Russia more than the West. And the nature of the relationship has remained in status quo even with the Russian Ukrainian war, where Turkey remained neutral towards both countries, as both countries are important for Turkey and choosing one side would be catastrophic. Turkey even tried to be the mediator for both sides, as balancing strategy is crucial for Turkey.

2.2 Russian Foreign Policy & Energy Policy

2.2.1 Russian Foreign Policy

After the dissolution of Soviets, with Yeltsin the aim of Russia to incorporate itself in the international order and values towards West were friendly, Russian perception of West and NATO has changed in 2007 & 2009 where in official state documents Russia saw NATO, EU, the West in much negative way and has started to move away from them. (Morales, n.d)Similarly Turkey has also been very keen towards West during early 2000's but due to growing differences from EU and West has distanced themselves to an extent.(Çelikpala, 2019, p. 7) Russian Foreign Policy goal over the years where we can see distancing from the West, FP aims to demonstrate Russia as a strong influential regional power that has capabilities to shape certain events in their favor. This can be attributed to differences Russia has faced after the fall of Soviets. Where the perception of strong united Soviets has fallen and economical challenges were faced and certain groups have fought to become independent and has created an image of a "weak" state. Which Russia could not allow as it was seen as a humiliation. The soviets lands were seen as the "initial borders' ', originally. Russia in this sense felt already devastated as losing vast lands. On top of it 90's Checen movements, economical challenges unables to receive certain help from the west

has made Russia seek different aims from Foreign Policy. Thus, FP dominates by aims of regaining the image of a strong country & and also regaining the old lost power and influence in a regional scene, this is clearly reflected on Russia's revisionist policies to Post Soviet countries such as Ukraine, Georgia and supporting of Transnistria, South Ossetia, Donbas etc.(Riegl & Doboš, 2023) Russia wants to keep the sphere intact and valid, especially in the Post Soviet sphere.

The Turkey aspect of Russian Foreign Policy is naturally a bit different. The basis of the relationship to an extent relies on mutual gains, interdependence and utilitarianism. Both parties define the nature of the relationship as "strategic" in official statements. (Erdoğan & Medvedev, MFA, 2011) The relationship is not based on heartfelt emotions. The relationship has many constraints such as having opposite views even supporting rivalry parties such as in Syria. And yet the relationship is sustained even though values clearly do not align. Both countries have distanced themselves from the West in the post decade, Turkey being a NATO member, Russia sees an opportunity to counterbalance NATO through Turkey who is still an important NATO member. Second Russia's sphere is enhanced by strategic relationships via the relationship with Turkey. Russia has already created a strong sphere of influence in Syria. Being able to shape certain policies in Turkey for its benefit is enhancing the Russian sphere of influence in a strategic location.

2.3 Russian Foreign and Energy Policy

The Russian Foreign policy and energy policy are strongly interconnected. In this application Turkey is no exception but it should be noted that, Turkey compared to Post Soviet countries has not faced extremes of coercive diplomacy. Which in brief can be defined as the use of the threat of force in a way that changes the actions of others, usually for the benefit of its own.(Bilgin, 2021, p.21 cite of Byman and Waxman)For example Turkey has never had cuts of natural gas flow compared to Ukraine who had massive energy security issues. Currently, this can be attributed Russia's aim of demonstrating themselves as "reliable source of energy " even after UA-RU war broke out, NG gas flows continued and even increased at some point (Szlulecki, K., & Overland) The point is Turkey has seen halts and many difficulties but has not faced the same endurances as some Post Soviet countries because, first Russia's image of a reliable energy resource, second

Turkey is not in the same sphere of influence compared to Post Soviet countries, but still a relevant actor. Thus levels of coercive diplomacy played differ significantly.

2.3.1 Russian Nuclear Energy Policy Towards Turkey

Russian nuclear Policy towards Turkey is inline with energy policy and foreign policy but in addition has more soft power elements included. The overall aims of Russia towards Turkey can be summarized as such: diversifying energy sources, more influence in the region, Turkey as a possible ally in the region, influencing a NATO member country, soft power element, generation of additional money, modernisation of supply, increased leverage on other issues and interdependency.

2.3.2 Soft Power Element of Rosatom

The elements of soft power are seen not only as a "reliable company" but also the impression that it aims to create through the joint company Akkuyu JSC. For example in Rosatom's annual report activities for the workers in the Akkuyu project, and sending students to study in Russia to later come back and work on Akkuyu. (Akkuyu Nükleer Rosatom, n.d.) These examples are demonstrations of Rosatom in a heartfelt way that might influence the way it's perceived by other potential clients. Rosatom's annual report for example states, "Employees of Akkuyu NPP participated in the event for the first time. Over the 3 days broadcast of the nuclear games garnered over 176,000 views"(Rosatom, 2021, p. 311). Thus Rosatom wants to be perceived differently as a plausible normal company that has local activities as any other company. Compared to Gazprom which has a much stronger perception of hard power elements. Rosatom follows a different policy that aims to distance itself from other government owned energy companies to create a different perception of itself and thus the soft power element is much more prominent.

2.4 Security Considerations of Turkey and Russia

2.4.1 Turkey's Energy Policy

Turkey's main energy aim is to utilize the domestic energy resources, increase energy efficiency, and have a reliable price in energy that can be sustained in the long term.

increasing energy security and energy supply, specifically, emphasis on, sustainable, secure, high quality, and affordable pricing for energy demand. (*Orta Vadeli Program (2023-2025)*, n.d) Turkey has several official documents regarding energy strategy and policies. The energy strategy documents are mainly vague and lack needed details. Documents also are very similar in nature even though the documents have different purposes. All documents underline the need for utilizing domestic energy resources such as coal and renewables. Current strategies regarding energy are mainly till 2023,with exception Medium term strategy action is planned to be fulfilled till 2025. The main strategy documents and plans will be analyzed to understand current and possible future energy strategy of Turkey. The following documents were examined: Presidency yearly program for 2023, 2019-2023 strategic plan of Ministry of Energy and Natural Resources, Development program of 2019-2023, National action plan for energy efficiency 2017-2023, Medium term program for 2023-2025. (SSB, n.d. Stratejilerimizle & Türkiye, n.d.,*On Birinci Kalkınma Planı 2019-2023*, n.d., *Orta Vadeli Program (2023-2025)*, n.d *ULUSAL ENERJİ VERİMLİLİĞİ EYLEM PLANI 2017-2023*, n.d.)

The Presidency yearly program for 2023, first and foremost emphasizes is to increase energy security through increasing renewable energy development, increase the capacity to produce Renewable energy sources. And increase energy efficiency. This is mainly attributed to the need to increase energy security but more specifically, Turkey's energy demand grows in parallel with Turkey's growth thus it is important to be able to supply accordingly with the growing demand , here the emphasis is on energy supply security. Other strategies also underline increased route diversity, LNG ports and ships that would also potentially increase overall energy security. Furthermore, Nuclear facilities will also be a further strategy to diversify energy source, research & development for nuclear facilities will continue. The main goal is to be able to supply, continue secure, high quality, payable energy.

On the very first pages of the 2019-2023 strategic plan of the Ministry of Energy and Natural Resources written in bold emphasis on domestic energy sources, and more renewables. They identify seven strategies: Achieve sustainable energy demand security, prioritize and increase energy efficiency, increase institutional and sectoral capacities, increase global and local participation through energy and natural resources. Develop in energy, natural sources in terms of technology and application. Increase predictability in the energy market. And lastly increase sustainable mining and its capacity. (Stratejilerimizle

& Türkiye, n.d.,) Thus we can see strong emphasis on trying to increase energy security. Development program of 2019-2023, highlights sustainable, secure, high quality, and affordable pricing for energy demand. And lastly, the Medium term program for 2023-2025 stresses shifts towards renewables in all sectors, this is partially due to the EU strategy aim to shift quickly to renewables to have less dependency on Russian gas. Turkey sees the EU as one of the most important partners, in many ways, thus it is important to develop systems to ensure continued partnership, and partnership opportunities.

Thus there is a common strategy, there are slightly different emphases on each program or strategy, but to summarize, the goal is to increase overall security of energy and energy demand. This will be tried to achieve through development of renewables, capabilities of RES and fossil fuel storages. The increase in RES and sustainable coal use are aiming to decrease dependency on countries.

Turkey has been highly dependent on natural gas. In the beginning of 2000's to 2010's most of the natural gas came from Russia, to decrease dependency Turkey has been implementing policies to decrease the dependency and increase Energy Security. These strategies include diversification of energy sources, Turkey has started to get larger amounts of gas from Azerbaijan, Iran, through pipelines and LNG from Nigeria. (EPDK, 2020) Turkey has also been increasing its storage capacity. (Daily Sabah with AA, 2022) First to increase energy security in case there is limited gas supply and second Turkey's first and most important goal is to become an energy hub (Cayir Ervural et al., 2018) Turkey wants to utilize its strategic location, as it is located between the Middle East, Asia, Europe, Central Asia and North Africa. Also Turkey is located in near proximity to big natural gas importers such Russia.This has pushed Turkey to focus on LNG terminals more compared to other energy goals. Other important energy goals include, "Minimizing the negative environmental impacts of the activities in the energy area, Increasing the share of the renewable energy resources within the energy supply, Increasing Energy Efficiency" interestingly according to Cayir Ervural et al. the least important is "Using the nuclear energy technologies within the energy supply"(p. 11) Even though Nuclear technology and NPP has been promoted on many levels, and has been used as an election promise in 2002 when JDP first came into power and similarly the same strategy is used for 2023 elections stating that the JDP government has built a NPP in Turkey.

The SWOT analysis of Turkey is interesting, strengths include strategic location, many minerals are abundant in Turkey, great potential for renewables, and somewhat strong transit pipelines. Weaknesses include, high inflation, growing economic challenges, dependence on imported natural gas which is almost 80 %.(IAE, 2021) Turkey has limited success so far on utilizing pipelines as Turkey has limited say in the price of the gas passing and unable/ or limited amount from passing tariffs. (IAE, 2021) Turkey has aimed to become an energy hub, but has become mainly just a transit country, especially in the Turkstream and TANAP project, even though Turkey has to an extent decent relations with both Azerbaijan and Russia. The storing capacity is also questionable. (IAE, 2021)

Opportunities include increased energy efficiency, and great potential for renewables and Hydrogen. Hydrogen is currently considered by EU as a possible alternative for becoming carbon neutral. (European Commission, RePower EU 2022) The EU has been working increasingly on this issue as it has decided to cut Russian gas and become zero net emissions with the start of Ukrainian Russian War. (European Commission, RePower EU 2022) Hydrogen would still need to be transferred thus it creates a great opportunity for Turkey, as Turkey has always tried its best to be integrated with EU's systems as well. Turkey sees the EU also as an important actor and neighbor that is indispensable and that could benefit Turkey on many levels but especially for realizing the energy hub dream. (Cayir Ervural et al., 2018)

Threats include, dependency on fossil fuels, use of coal, growth of population and high dependency on Russian natural gas. Turkey is still very dependent on fossil fuels. And one of the main sources is Russia. Turkish and Russian relations have always been complicated and strategic dependency between two countries serves both sides but not always positively . But in the case of damaged relations Turkey might suffer more as there is an element of security of supply. Turkey has been aiming to diversify natural gas suppliers ver the years but still Turkey is highly dependent on Russian energy sources. Thus making a threat for Turkey as there is strong reliance on Russia and its natural gas. To increase energy security Turkey has been using more coal. (IAE, 2021)Because there is an abundance of coal domestically it makes Turkey less reliable on others but its carbon emission is another problem and could potentially hurt the environment in the future. Rapid population growth, internal migration and unplanned urbanization, is another threat that should be taken into account. Turkey has been growing in terms of population and additionally refugees and migration from Syria, Afghanistan etc has also

increased population. This sudden increase could threaten energy supply, as it is criticall to be able to supply all who live in Turkey. But unclear political agendas and lack of detailed planning strategies could severely damage the amount of energy supply and energy security.

2.4.2 Economic Considerations

After the Cold War Trade relationships between Russia and Turkey have developed swiftly and across many spheres. “Significant relationships have evolved in the areas of trade, investment linkages and construction activities, as well as tourism and labor flows” (Öniş & Yılmaz, 2016, p.6) This has evolved into a structure of interconnectedness and asymmetric interdependence which favored Russia. The growing trade relations have made Turkey more and more dependent on Russia due to major differences between trade deficits. Which can be seen in Figure 1 and 2. Turkey imports much more than Turkey exports to Russia. Additionally, the resources imported from Russia are crucial as Turkey is dependent on natural gas, and tourism brings significant revenue for Turkey, which has become an essential part of revenue source. Turkey has been trying to balance interdependence. For example, “ although foreign direct investments occupy a relatively low share in bilateral economic relations, the recent trend indicates that Turkish firms have started to invest significantly in Russian markets.”(Oniş & Yılmaz, 2016, p.8). But even with attempts to lessen interdependence, Turkey is still very fragile towards any economic policy change from Russia. (Köstem, n.d.)

Figure 1: Turkey's Import and Export with Russia

Source: TÜİK

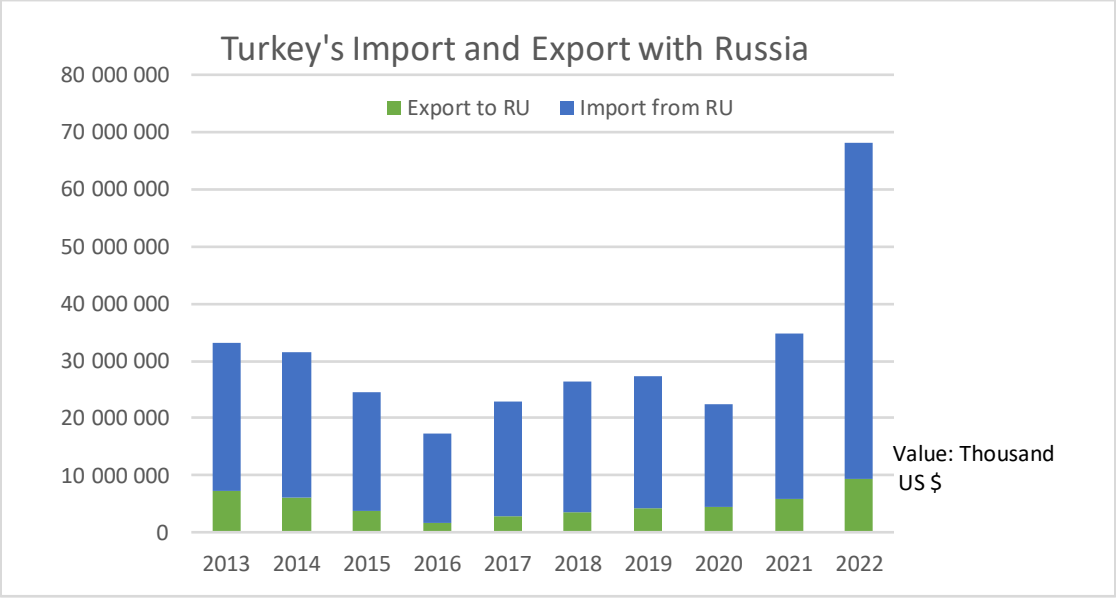
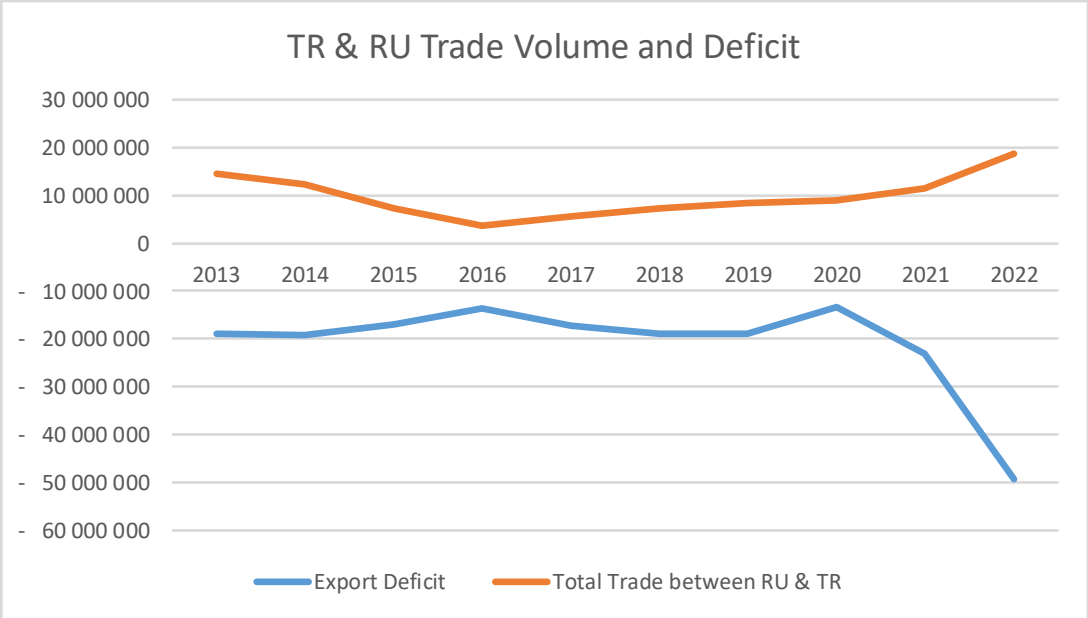


Figure 2: TR & RU Trade Volume and Deficit

Source: TÜİK



These economic considerations and economic relations make Turkey vulnerable to Russian demands and punishments. The jet incident in 2015 has demonstrated consequences of asymmetric interdependence. For example, Russia has put various embargos that hurt Turkish economy, and statements about Turkey not being safe for tourism has affected

Turkey deeply. “Russian tourists spent an estimated US$ 3 billion in Turkey in 2014. Only seven hundred thousand Russian tourists visited Turkey in 2016, despite the gradual normalization of relations that had started in the summer of 2016.”(Köstem, p. 13)

The asymmetric interdependence also enhances the threat perception for Turkey, as Turkey has much more to lose in the economic sphere compared to Russia, which can be seen from export import ratios and trade deficit which can be seen in tables …
The tables illustrate that Turkey considers the trade and economic considerations with Russia in decision making. As Russia has potential to damage the economy of Turkey with relatively little damage for its own economy.

2.4.3 Energy Dependency of Turkey

Construction of Akkuyu NPP increases energy dependency on Russia. The already dependence on natural gas which Turkey has been decreasing but has again increased due to cheaper prices of gas after the Russian Ukrainian war. Russia increases asymmetrical interdependence through the help of Akkuyu. The Akkuyu was signed as a BOO project, which means that Turkey owns the land that NPP was constructed on but nothing else is owned by Turkey. The electricity from nuclear power will be produced by Russia and sold by Russia. The agreement also states a long term of contract that leaves Turkey small wiggle room. “70% of electricity from units 1-2 and 30% of electricity from units 3-4 respectively for 15 years from the date of commercial launch of each of the 4 units at a weighted average price of US cents 12.35 per kWh. The planned electricity output for the four units is at least 33.1 billion kWh per year”(A case study of a Russian international project: Turkey’s Akkuyu project, 2012). Also currently known prices might be too expensive as Turkey gets its electricity much cheaper almost 50 % cheaper (Yetkin, 2022, 05:23-06:00) This creates an increased interdependence which also enables Russia the possibility to use coercive diplomacy for its benefit in the future. Turkey with Akkuyu NPP has created an image of a more diversified energy mix, which initially would also increase energy security, but has achieved quite the opposite as the dependency is on Russia, which Turkey is already dependent on natural gas and other economic relations.

2.4.4 Price of Electricity

There are few open sources found regarding the price of electricity produced. Almost all sources state that the price for electricity is high. According to US deputy chief mission to Ankara in 2008, Doug Silliman price of electricity in 2008 when tender was being discussed to cancel, the first price was 27 cents approximately for Kwh. After some discussions the tender was canceled by TETA first and followed by the council state of Turkey. Then later attempts were again made to "tender" to work and the price was revised as 19.187 cents approximately. It was again canceled. And to make the project work legal frameworks were established and price was set at 12.35 cents per Kwh which is the current known price. (Wikileaks, Silliman, 2008) The "Official Gazette" or *"Resmi Gazete"* in Turkish also states that 12.35 cents per Kwh is the price but not including value added tax. The Official Gazette also states that the maximum price of electricity can be 15.33 cents. More specifically it states, "Annual variation of electricity price within the tariff scale agreed between TETAŞ and the project company, being an integral part of the PPA, shall be calculated by the Project company in order to ensure the payback of the Project, taking into account the price limit at the maximum level of 15.33 US cents per KWh."(Resmi Gazete, 2010 p.9) Additionally, the price for electricity provided by EPIAŞ, which is a company that operates the energy markets and sells electricity to electricity transfer companies. The average price that EPIAŞ sells to other companies is at 125 Turkish Kurush. (According to 30th of July 2022) and if calculated by the same exchange rate it is approximately 221 (12.35 US cents) Kurus from the Akkuyu's electricity. Meaning it is almost twice expensive. And with the current devaluation of Turkish Lira it will with it.

2.4.5 Diversification of Energy Sources and Modernization of Supply

Both energy exporting and importing countries view energy security as a part of their energy agenda. Russia in energy security focuses on "demand security"(Massalin, p.7) Similarly to energy importing countries as they try to diversify their energy imports, Russia aims to diversify its exports to secure diverse energy exports in energy security. Energy exports for Russia remain an important role as they also generate part of the needed budget. "An example of this interconnection is shown by Russia itself, where natural gas exports of 2018 accounted for more than 7% of the country's national budget revenue and

3.7% of its GDP, with the latter figure almost coinciding with official defense spending."(Massalin, p.8, cited from Mae, 2020) Rosatom in this way creates a loophole and opportunity for Russia to diversify its energy demand and thus energy security, as the embargos are not implemented for nuclear energy.

Russia also wants to utilize energy through modernization."The national program development of the nuclear power and industry complex targets a 53% growth in overseas revenues by 2020 and a 14.9 % growth in the industries contribution to the volume of GDP"(Aalto vd., 2017 , p.390). And this also includes the nuclear sector as well. "The Russian government 2008 concept of long term Socio-economic development until 2020 names high technology industries as a major driver of future economic growth. However, high technology so far accounts for only 3% of GDP, including the nuclear sector"(Aalto vd., 2017 , p.390). Thus Rosatom creates a modernization that could help acquire more money for the national budget and at the same time diversify its demand for increased energy security.

2.4.6 Turkey's Geopolitical Significance for Russia

Turkey remains an important country for Russia as it is located in a strategic location and remains an important NATO member. Turkey has had fallouts with NATO and Russia sees this as an opportunity to counterbalance it. This is especially focal considering Russia has been losing its influence to NATO and the EU in Eastern Europe and Baltic countries. Güler describes this as such "Kremlin aims to enhance its dialogue with Ankara in order to pull on indispensable NATO member state for further away from such an influence The recent decrease in Ankara's level of interaction and cooperative relationship with Washington is a perfect and timely opportunity for Moscow to increase its own area of activity."(Güler, 2020, p. 67,68) Furthermore, the opportunity of gathering intelligence regarding NATO activities and policies also has a plus for Russia.(Güler, 2020) The same could be said about the EU as well, an act of counterbalance is beneficial for Russia in terms of sphere of influence.

2.5 Akkuyu Nuclear Power Plant project: Background and significance

Nuclear Energy has been a challenging topic in Turkey. Turkey's attempt to acquire nuclear energy can be traced back to the 1950's. (Udum, 2010) Turkey has tried many times over 60 years but has failed till 2010. Different reasons can be attributed for failure to build a NPP. Reasons include, political instabilities, changes of governments, budget issues and anti nuclear movements etc. The process for trying to build a NPP in Turkey has been a long process, which can be divided into 50's 60's, 80's and 90's and lastly 2000's with the JDP government. The main reason for wanting to build NPP can be attributed 2 main reasons, in the first 30 years it's mainly due to idea of modernization, that NPP will enable a modern country as technology and innovation is seen as crucial for development of the country, this can be traced back to Atatürk's invision of a modern Turkey. (Kaba, 2016) Eventually the reasons shifted from wanting a NPP to concerns of growing population and growing demand for energy in the following 30 years. Currently, Akkuyu NPP is expected to be operationale in 2023.

2.5.1 1950's and 1960's

In 1953 "Atoms for peace" proposal by Einsenhower was promoted for using nuclear energy for peaceful purposes. Which has officially started Turkey's journey for Nuclear technology and energy. Critical information was given to Turkey in regards to nuclear technology energy that has enabled Turkey to start working on nuclear energy technology, as a NATO member and western ally,

In light of this information Turkey decided to sign an agreement with the U.S. which was "cooperation on the civilian use of atomic energy in 1955."(Udum, 2010, p. 111) This has created bases for different actors from government and non governmental, academia, and scientists to work on nuclear energy and technology matters. After a short period of time a research reactor was built in 1956. New departments were opened to develop and learn in various fields related to nuclear power. Such as, the Nuclear research and Training Center (ANAEM) that was opened in 1967. Also additional reactors were built to learn and develop in the field. For example "The TR-1 reactor was used for 15 years to produce

radioisotopes, and several neutronic experiments. To meet the gradually rising demand for radioisotopes, it was shut down in September 1977." (Udum, 2010, p. 112)

According to Udum, the education system became systematic with the creation of the Nuclear Energy Institute in Istanbul Technical University (İTU-NEE) in 1961(p. 113). As a result of trying to develop in the nuclear power field, it eventually created a group of educated personnel by 1987. Turkey first declared that it wanted to build a NPP in 1960's, after first evaluation study in 1965, "A consortium composed of an American, a Swiss and Spanish firm advised EİEİ (Elektrik İşleri Etüd İdaresi) (Udum, 2010, p. 113) Report created by consortium stated that government could potentially start by 1970's to start the construction of the first nuclear power plant. But due to political challenges , and change in the authority of nuclear power from EİEİ to Turkish Electrical Authority and "lack of strong political commitment failed to generate a decision to start construction (Udum, 2010, p. 114)

2.5.2 1970's

In 1970's another attempt was made to build a nuclear power plant, NPP department was established under the Turkish Electrical authority (TEK) and it was decided that Akkuyu was chosen as a region in 1974 for the construction, During this period several lands were also examined for construction Such as Sinop. The Mersin / Akkuyu region was considered a good place as it did not have a dense population, was much less prone to earthquakes and had access to the Mediterranean sea. (Udum, 2010, p. 114). Additionally, "circular area with a 1.2 km-diameter is left uninhabited, and the area with 18 km in diameter following that circle is chosen according to the sparse population."(Udum, 2010, p. 115). By the end of 1970's there were also protests and oppositions growing against Akkuyu. Which can be marked as the first anti-nuclear movement in Turkey that would continue to grow.

2.5.3 1980

1980's were once again an attempt to build a NPP but failed due to proliferation & political concerns. Several companies came to evaluate and report about the feasibility for NPP.

Two places were considered, Akkuyu and Sinop. According to Udum (p. 116), Sinop was considered infeasible and risky. The Turkish government asked several companies to bid, "Energy of Canada Limited (AECL), Siemens-KraftWerk Union (KWU) of Germany and General Electric (GE) of the United States were asked to submit bids" (Udum, 2010, 116) and in 1983, the negotiations with AECL, KWU and general electrics started (Udum, 2010, p.116). General Electric has reported that Sinop was considered risky and unfeasible. Even though the government sought to build two NPP's both in Sinop and Akkuyu.

Sinop was considered risky as it was not studied in full detail. And the region was prone to Earthquakes. (Udum, 2010, p. 116) Due to this reason the American company left and Turkey continued with other candidates, which were Canadian and German firms. Later the government decided that it would change the project from Turn key to Build Operate Transfer. But this has also affected negatively on firms, and has "discouraged the KWU and General Electric".(Udum, 2010, p. 117)

On the basis of the turn-key agreement, it was agreed that a Pressurized Heavy Water Reactor (PHWR) and PWR would be built in Akkuyu, and then two BWR power plants in Sinop"(Udum, 2010, p. 117) But this attempt has also failed because the Canadian firm believed the BOT type of operation was too risky for Turkey (Udum, 2010, p. 117). Additionally the Canadian Company (AECL) has faced difficulties in acquiring needed finance from the Banks, thus resulting inability to secure needed funds (Udum, 117). Thus with another failed attempt Turkey tried again with another company, to establish another contract. The Argentin company was considered in 1988 (Udum, 2010, p.117). "The agreement foresaw transfers of technical assistance, such as front-end nuclear fuel cycle research and development, and research on power and research reactor planning, construction, quality assurance, operation and regulation"(Udum, 2010, p. 117) but this attempt has also failed mainly due to political concerns with Argentina, the same could be argued for other failed attempts during this period. Concerns range from fear that Turkey similarly as Pakistan will acquire Nuclear Weapons even though Turkey has ratified use of nuclear for peaceful purposes. Contract could not be secured with the German company most probably due to increased relations between Turkey and East Germany (Udum, 2010, p. 119). After these attempts Turkey in a way accepted its faith and even dissolved the TEK as it was seen as no longer needed. (Udum, 2010, p.118). Additionally, the Chernobyl incident in 1986 has brought attention to nuclear safety and with relation to its

environmental concerns, which further made it difficult to pursue a NPP. Chernobil also gave a start to many anti-nuclear platforms in Turkey and has acquired quiet support and made people rethink about nuclear energy sources and has created strong bases for anti-nuclear opposition in Turkey.

2.5.4 1990

1990's are another failed attempt to build a NPP in Turkey. "A 1992 Energy Ministry report presented nuclear power as an indispensable option to prevent the energy shortage in the following two decades." (Udum, 2010, p. 121) The government saw NPP as a way of dealing with energy shortage. It can be also observed that the 1990's were also the time where the shift from modernization ideals to the need for additional energy sources for increased energy security. The government also wanted to utilize domestic sources that could further decrease dependency. "The period between 1996 and early 1997 was the initial phase of the bidding process, and during that time, it was reported that theAtomic Energy of Canada Limited (AECL) tried to convince Prime Minister Necmettin Erbakan on the grounds that the Canadian technology would render Turkey self-sufficient in nuclear power, because it used natural uranium instead of enriched uranium, by which TEAŞ could exploit domestic uranium resources."(Udum, 2010, p. 122)

Government in this period changed tactics and started work on creating a more positive public opinion to create a chance to build a NPP due to growing Anti-nuclear opposition. A contract was signed with a South Korean firm, for consultancy (KAERM) to build a NPP in Akkuyu (Udum, 2010, p. 122). The bids were open during 1996-1997. 1990's were also politically challenging times for Turkey and as a result few governments and coalitions were formed during 90's. "The Energy Minister of the new coalition government under Ecevit's premiership, Cumhur Ersümer, from ANAP was very determined for the establishment of the nuclear power plant in Akkuyu."(Udum, 2010, p. 123)

But the project was unable to receive the needed funds and the coalition government faced accusations of corruption on other topics, this has created a fear that corruption accusations would also affect the NPP project. The government feared that "This in turn, would strengthen the arguments on corruption and would extend the criminal activity web to irritate some ministers, and as a result would destabilize the coalition.(Udum, 2010, p.

125) This has resulted in postponing the project and focusing on other renewable sources, especially considering Turkey had sufficient room for improvement and increasing capacity in other renewable sources. At the same time anti nuclear movement has become even more profound and reached a national scale (Udum, 2010, p. 126)

2.5.5 2002

In 2002 a new government was elected, The JDP. JDP's campaign for elections included the promise of building NPP in Turkey as it would diversify the energy mix and increase energy security with diversification (Udum, 2010, p. 126). "In 2004, the Energy Ministry Revived the nuclear project and launched studies for a long-term and comprehensive nuclear power program."(Udum, 2010, p. 126). Also an agreement was ratified between Turkey and USA via parlement on use of nuclear energy for peaceful purposes in 2004. (Udum, 2010, p. 126) The JDP government had high expectations for NPP, JDP government wanted to build a NPP that would be operationale by 2012 with 5000 mw capacity (Udum, 2010, p. 127). Nuclear energy was also deemed highly important due to growing population & thus growing demand in energy. "The ETKB report warned that Turkey's dependence on foreign resources was around 72%, and if no measures were taken, this would increase to 80%."(Udum, 2010, p. 127). The urgency element has pushed the JDP government to take action. The Energy ministry has also added to their plan to utilize other sources of energy such as coal which Turkey has in abundance and utilize other renewable energy sources to limit the energy dependence. NPP was seen as "cheap and reliable access to energy"(Udum, 2010, p.127). The JDP government after being elected has underlined the "environmentalist" aspect of nuclear energy to gain support from the public as well. According to Udum JDP's nuclear energy policy can be summarized as such : "That nuclear energy was cheap and environment-friendly, which would boost Turkey's development, and would help establish the high-technology products and infrastructure."(Udum, 2010, p. 128) an official nuclear policy was created by the ministry of energy with emphasis not only on energy but other sectors such as technology and medicine that would also benefit from development of nuclear technology. Additionally, issues on radioactive wastes and studies were addressed as well to acquire more positive response from the public. (Udum, 2010, p. 129). The opposition parties have opposed to JDP but in the end "While the licensing work was continuing for the Sinop site, the government opened the tender (which it calls a "competition") for Akkuyu (which

already had a license) and on September 24, 2008, some six consortiums responded, with one company filing a proposal: The Atomstroyexport-Inter Rao-Park Teknik consortium."(Udum, 2010, p.131). The other candidates "presumably were dissatisfied with guarantees and subsidies and had expected Treasury guarantees"(Udum, 2010, p.131) And there was a limited budget which was also a challenge.

The proposed project was "Four units of VVER1200 (AES-2006) design reactors, which is the Russian type pressurized water reactor. The nominal electrical power of each unit proposed for Akkuyu would be around 1200 MWe, and the total power of the nuclear power plant composed of four units would be approximately 4800 MWe."(Udum, 2010, p. 131). In 2009 the evaluation of the process was completed and was fined suitable for Turkey. It was then double checked via TETAŞ (the authorized institution) but there were concerns over the price of electricity from nuclear, as it was considered too expansive even though a consensus was reached that NPP investment would be expansive. " offer was 21.16 cents per kWh, which far exceeded the expectations for an economical energy investment. Although it was acknowledged that nuclear power plant investments were expensive, this price tag was unaffordable for the government and did not meet the policy criteria of cost-effectiveness. The acceptable price would be in the range of 10-12 cents."(Udum, 2010, p. 131,132)

2.6 Conditions of Akkuyu NPP

In 2010, an official agreement was signed between Russia and Turkey and a joint company was created, Akkuyu Nuclear Joint Stock Company, that would build and operate the Akkuyu NPP. Akkuyu NPP which has created the first official start on work on the first NPP in Turkey. Even though the start of the project after so many failed starts could be considered success, the conditions for Akkuyu and contract are far from perfect. Akkuyu is the first example of Build Operate Own (BOO) . Technically Turkey does not own anything except the land that Akkuyu NPP is located. Turkey has a limited budget for NPP thus " Initial financing is being provided by the Russian side. The key shareholder—Rosenergoatom—is a subsidiary of Rosatom State Corporation. It holds 93% of the project company shares. INTER RAO UES and JSC Atomstroyexport hold 3.5% each, and JSC Atomtechenergo and Atomenergoremont hold 0.1% each. Eventually, up to 49% of shares

may be transferred to other investors. The total cost of the project is not to exceed USD 20 billion, with a payback period of about 19 years, and a total operational lifetime of 60 years."(A case study of a Russian international project: Turkey's Akkuyu project, 2012) The contract states that the Turkish government, TETAŞ gives guarantee that it will purchase energy from the NPP. The fixed term is as follows, " purchase a fixed amount of electricity (70% of electricity from units 1-2 and 30% of electricity from units 3-4 respectively) for 15 years from the date of commercial launch of each of the 4 units at a weighted average price of US cents 12.35 per kWh. The planned electricity output for the four units is at least 33.1 billion kWh per year"(A case study of a Russian international project: Turkey's Akkuyu project, 2012). Agreement also states that some students will be sent to Russia for educational purposes.

The price currently in 2023 is too expensive for Turkey to purchase, Turkey approximately buys its electricity 50% cheaper compared to 12.35 US cents. (Yetkin, 2022, 05:23-06:00) Many have opposed Akkuyu NPP as it defeats the purpose of cheap and less reliance on others. For example, Kılıçdaroğlu who is the leader of the main opposition has clearly stated that this project will not provide affordable prices and will actually decrease energy security as Turkey will have to buy electricity from Russia for a long term, which Turkey is already dependent on due to natural gas imports. Additionally, the risks of a nuclear plant will be relevant as it is physically located in Turkey.

Additionally, Russia is known to use energy matters for its benefit. Even though Turkey has never had cutbacks of Russian gas like Ukraine, there are other examples that could be considered as sticks and carrots tactics from Russia.(Newnham, R., 2011) For example Turkey faced many difficulties during the SU-24 incident, that has resulted on stop of Turkstream project for a while that aimed to get Turkey gas directly from Russia by passing Transit of Ukraine, Akkuyu project similarly faced similar possibility of stopping the project, some sources (Reuters, 2015) stated that were halts during the SU-24 jet incident, but was probably less prominent then Turkstream project as Russia was the main financier and by 2015 has already put sufficient resources into Akkuyu project from its own pocket making it much more difficult to stop it. Putin has also made a statement that "decision on Turkey NPP will be purely commercial"(Reuters, 2015).Which creates a plausible argument for not stopping the construction of Akkuyu. Thus it's questionable

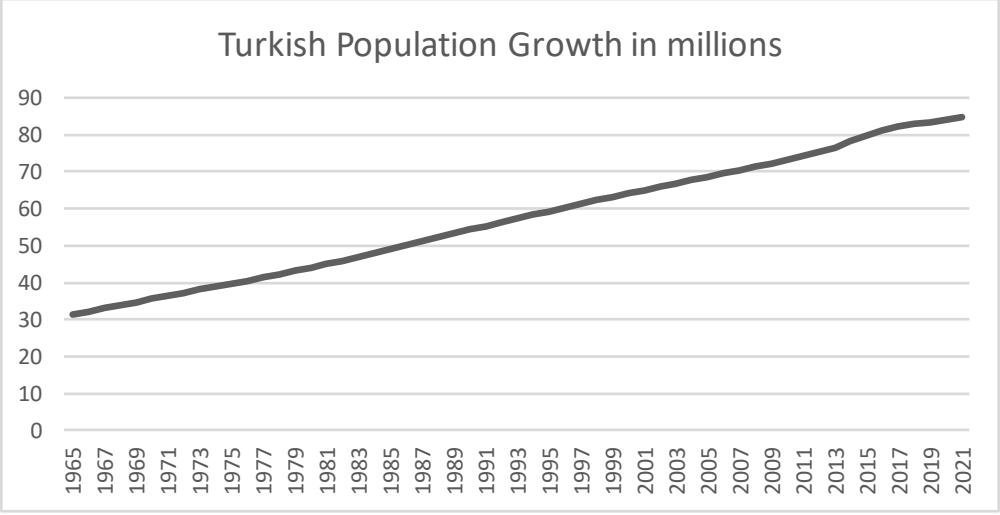
whether Akkuyu will actually provide benefits for Turkey or create less energy security and more challenges for energy diplomacy and bilateral relations.

2.6.1 Motivations and Interests of Turkey and Russia from Akkuyu NPP

2.6.2 Motivations and Interests of Turkey

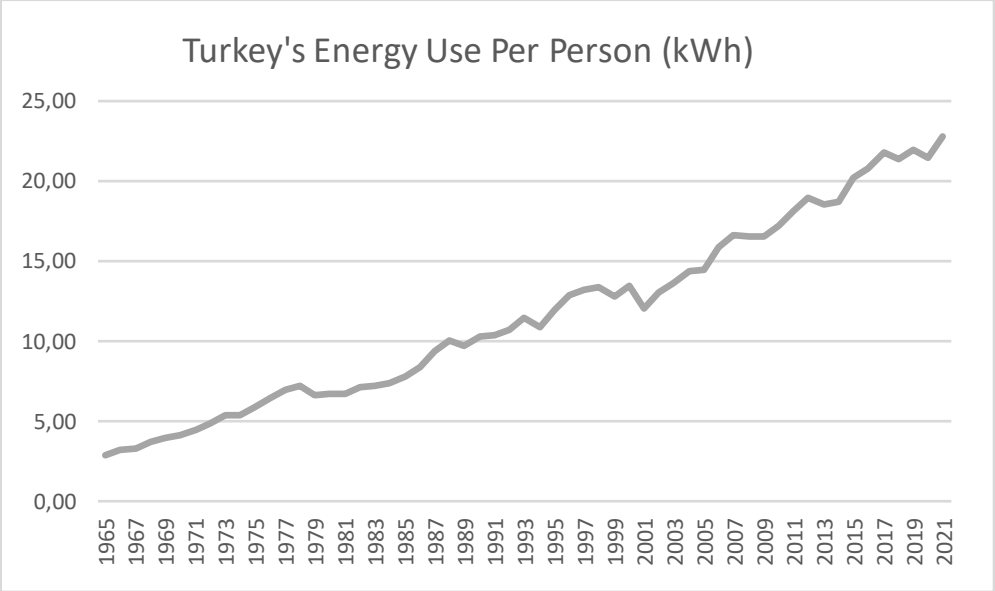
The motivation for the construction of Akkuyu for Turkey can be divided into three main factors. First, growing demand for energy, Second, the historical factor of wanting to be modernized through innovation and technology and lastly, JDP motivation of showing Turkey as a progressed country via nuclear energy capabilities. Turkey has been growing exponentially in population over the years, since the 90's it was known that energy supply might be an issue. Figure 3 and 4 demonstrate the population growth and energy use which are directly proportional. The dependency on fossil fuels and dependency on countries has been a concern as Turkey has a big population that continues to grow. Population of Turkey in 1950 was 20.98 million, in 2021 it was 84.78 (Roser et al., n.d.), the growth will only continue thus a need for an increased amount of available energy sources will be needed. The founder of Turkey, M.K. Atatürk has always envisioned a prosperous country that would develop on the basis of intelligence and technology. This has created a mindset in the early 60 and 70's to improve Turkey through technological innovations, this has created a natural interest for nuclear technology and energy and has fueled the attempt to acquire nuclear energy and technology.

Figure 3: Turkish Population Growth in millions



Source: OurWorldInData

Figure 4: Turkey's Energy Use per Person (kWh)



Source: OurWorldInData

Today this cannot be observed but yet it has created groundwork for establishment for nuclear technology, which can be observed in the years 50,60's and 70's. JDP's aims can be divided into two parts as JDP in the beginning of 2000's and 2020's are very different in nature. When the JDP first started its election campaign, construction of the NPP was one of the things that the JDP had promised. In the early 2000's JDP was conservative, to an extent had religious values and yet progressive in other aspects such as economy. In a way conservative values were kept but the progressive element was also there. JDP saw a NPP as a way of demonstrating a modern Turkey and the needed energy demand was also in consideration. Current JDP government sees Akkuyu NPP as a way of influence and a way of demonstrating to people what great things have been achieved through the "new" Turkey. In a way it's similar to Russia's perception abroad as a strong country but only more profound on the domestic level.

2.6.3 Motivations and Interests of Russia

For Russia three motivations can be identified, first aim to diversify energy export, second increase influence in the region, and the third create a positive outlook for Rosatom. Russia similarly has been trying to diversify its energy exports, to increase energy security. Russia's energy sources are important for the GDP, with the Russian Ukraine war, the EU

has decided to cut off Russian gas leaving Russia with limited energy export opportunities. The sanctions applied for Russia are mainly for gas and oil, the nuclear energy and technology has not been influenced. Russia even before the war has been aiming to increase its energy export sources through the help of Rosatom. With war it become even more focal to diversify its energy export. Second motivation for Russia is increased influence through Turkey. Russia's Foreign policy goals include increasing the sphere of influence. Turkey as a NATO country that has been distancing itself from the "West" makes a great opportunity for Russia to increase cooperation and sphere of influence in Turkey. Turkey also borders Syria and Caucuses which make Turkey even more attractive. To achieve this construction of Akkuyu NPP has been a great method to increase cooperation and thus a sphere of influence. Rosatom, even though fully owned by Russia, demonstrates a different perspective compared to Gazprom. Russia through Rosatom creates a positive outlook for possible clients and demonstrates itself as a reliable source of nuclear energy and technology. The soft power element is much more seen in the nuclear sector, it's similar to what Russia has been implementing in Svalbard/Barentsburg (Rivera, 2018, p. 210), where more soft power policies demonstrate a reliable partner and make itself more attractive for others for future works. It should be also noted that Russia's operation of nuclear technologies are vast and are capable of doing so from the start to the end, meaning all stages of operationalization and realization is in Rosatoms capacity to do so. Which gives Russia a huge advantage as a project fully can be realized by one main company at an acceptable price. These reasons are the main motivators for both Turkey and Russia to work and cooperate on Akkuyu NPP. The dependency is asymmetrical and in favor of Russia that make up the reasons for motivation for the construction of Akkuyu NPP.

3 THEORETICAL FRAMEWORK

3.1 Introduction to the Framework

The purpose of this study is to understand how construction of Akkuyu NPP has affected energy diplomacy between Russia and Turkey. The framework will try to use both energy diplomacy and energy security to better understand relations between T-R and further energy diplomacy. The relations nature is interconnected with various topics, which makes

it challenging to explain the “phenomena” with a single framework. Thus the framework will use energy diplomacy and energy security to better understand and grasp the phenomena. The literature has different interpretations for the Russian Turkish relations. It's multifaceted and has different aspects depending on the issue. Energy diplomacy, strategic partnership, neo realism, constructivism, energy security are one of the frameworks that enable us to understand a relationship better, even though the number of frameworks could be increased. It should be also noted because the nature of the relationship currently has more strategic and functional values, naturally energy diplomacy and energy security used in the framework also leans on functional and strategic aspects. The Akkuyu NPP is also the first of its kind making it a unique case. Its uniqueness makes it difficult to understand as a phenomena and more frameworks should be looked for further research.

3.2 Context of Energy Diplomacy

There are more studies on the nature of the relationship rather than energy diplomacy. Even though energy relations are a result of energy diplomacy that is conducted by high ranking statesmen. Most of the literature emphasizes the development of the relations rather than diplomacy conducted. After the Cold War dissolution of the bipolar world and Russia losing its hegemonic status, this naturally weakened Russia and in the meantime Turkey was emerging as a middle regional power thus allowing the growth of bilateral relations. Thus by the 90's and 2000’s both countries were in close spheres in terms of capabilities and power. (Kubicek, P., 2022)

But this does not explain direct development of the ties after the dissolution , Turkey could continue to work on relations with the West as it has been emerging as a more “regional middle power”. Kubicek states that the development could be further explained by Russia willing to supply the needs of Turkey which EU and NATO did not consider. Especially in the 90's where Turkey was facing difficulties with various terrorist groups and needed military equipment for security reasons. Which Russia did supply, in return Turkey has also stopped the support for Checen movements which further consolidated the relationship and established further trust. (Kubicek, P. , 2022, p.786)

Another explanation is based on a functional factor: the close geographical proximity between Turkey and Russia has opened new opportunities. Considering the energy element it's much easier to acquire gas from Russia than the West. Simply due to close proximity of available sources and amounts. Similar arguments could be told about the Russia factor, Turkey currently with 89 million population offers a great market for a new country. Utileterain factors also encompass the EU and NATO not supplying needed material for Turkey such as the S400 missile system (Kubicek, P., 2022, p. 790) and Russia giving it with much more ease. Both parties have something to gain from the relationship. Many articles point out that the nature of the relationship in essence is strategic rather than heartfelt.

3.3 Energy Diplomacy, Energy Security, and Coercive Diplomacy

Diplomacy similarly to security studies has expanded and now includes new types of diplomacy such as Energy diplomacy. In order to understand energy diplomacy we should first understand diplomacy. There are vast and different definitions of diplomacy. The thesis will define diplomacy as "Speech act, written or spoken performed by a state representative to influence events in the international system"(Trager, 2016,p.206) It is different from foreign affairs as the events influenced by a state representative aims to change the international system rather than few actors that would fall under the category of foreign affairs. (Trager, 2016,p.206). It's quite fitted definition as both countries' relationship aim is to "influence events" usually for certain interests of the states, and according to Wang and Xu definition of "Energy diplomacy as the name implies refers to the diplomatic activities associated with the energy acquisition and use. In other words, the term entails both energy and diplomatic activities" (2022, p.44)

Similarly energy security is difficult to define and has many definitions. According to Sovacool et al. They have found 45 different definitions of Energy security (p.3) It's difficult to define ES as the energy can mean different things for different actors depending on the needs and security concerns. For example a country who is dependent on energy imports and a country who is exporting energy resources will have very different understanding of energy security. Both Turkey and Russia see diversification is a key factor in energy security. Turkey aims to diversify the resources to decrease dependence on one single supplier, while Russia aims to secure revenue from energy by diversifying the

energy exports, especially after the invasion of Ukraine which has become even more crucial for Russia. Thus CNA's definition is best suited for both cases and gives a perspective on energy security of Turkey and Russia to an extent as both countries put emphasis on the diversification element in energy security. CNA's definition is as such "Diversity, or a mix of fuel sources; stability, or stable sources of reserves and technology; intelligence, or the use of energy efficiency and smart meters; reliability, or having strong distribution networks; electrification of ground transport through plug-in hybrids; and bio-based mobility liquid fuels for military applications and aviation"(Sovacool, B. K. (Ed.), 2010, p.3)

Coercive diplomacy should be also defined as Russia uses energy matters as a means and even weapon to acquire certain interests, which can be observed especially in Post Soviet countries. The coercive diplomacy that Turkey faces is much different in nature compared to Post Soviet countries as Russia's aims to acquire spheres of influence in Post Soviet territories and Turkey is a different case. Coercive diplomacy is an important element for Turkey as use of it can be seen through Rosatom which compared to other state owned companies uses more soft power elements. But even with the aim of more soft power projection, there is still use of coercive diplomacy. Which is important to understand in the context of Turkey and energy.

According to Byman and Waxman, coercive diplomacy is the use of the threat of force in a way that changes the actions of others, usually for the benefit of its own. "The strategy is most successful when threats are not even carried out, it seeks to avoid escalation by convincing the adversary that non compliance is too costly." (Bilgin, 2021, p.21) What makes coercive diplomacy different from other actions is that there are elements of "demand, a threat and time" followed by "strict deadline for adversary to change its behavior" (Bilgin, 2021, p.22) The best Coercive Diplomacy, is the one where the threat is not carried out but demands are being met, if the threatened party does not believe the legitimacy of the threat logically, the demands will not be met and coercive diplomacy will fail. (Bilgin, 2021, p.22)

Turkey has unbalanced interdependence with Russia, as mentioned before in economic considerations. The unbalanced interdependence is in favor of Russia, meaning Russia has less to lose compared to Turkey. The areas of interdependence are vast and crucial for Turkey, these could be summarized as, dependency on natural gas, trade imbalance,

tourism and nuclear technology. Any problem in these sectors causes Turkey a tremendous amount of resources. The unbalanced interdependence can enhance the threat perception as these sectors are crucial for day to day life and affect other spheres life. Thus, Russian use of coercive diplomacy is in a way a great tool to acquire certain interests from Turkey. Thus, with minimum effort in terms of carrying out the threat, Russia can acquire vital interests due to unbalanced interdependence with the help of coercive diplomacy.

3.4 Understanding Energy Diplomacy

Energy Diplomacy encompass many areas including energy security, economy and various interests its a broad framework that has emerged with "oil trades and development of large scale partnerships"(Wang & Xu, 2022, p.44) It has eventually become indispensable element of statecraft, and has close relation with the security, economy and other vital interests of the state.

With increased energy matters, energy diplomacy also takes more space in the international sphere. But increased use of energy diplomacy was not reflected in academic literature, there are limited sources in literature especially in terms of concept. This also leads to limited amounts of definitions and understandings but interestingly, Russia has defined Energy diplomacy in its own terms which from " A review of Russian policy by Wang Haiyun, for International Petroleum Economics journal, in October 2006, quoted the seminal Russian expert, Stanislav Z. Zhiznin's definition. Energy diplomacy, Zhiznin said, is defined as "the practical activities that government departments need in order to achieve their international energy policy objectives. These departments include those in charge of international economy and energy. In many cases, energy companies find their own role in these activities." (Wang & Xu, 2022, p.45)

Wang and Xu define it in similar terms but also encompass other actors as well but state is the main actor. Energy diplomacy is "a kind of diplomatic activity dominated by the state, and engaged in by them, along with energy enterprises and other relevant actors, to guard a nation's energy stability through the use of diplomatic resources. Energy diplomacy can also be an activity in pursuit of other national interests based on energy relations. Energy diplomacy is an essential aspect of a country's overall diplomacy, of which economic diplomacy is a primary aspect." (Wang & Xu, 2022, p.45) The definition is fitted for both Turkey and Russia as the thesis will talk about Turkey's use of energy diplomacy for other

interests as almost as an investment towards the Turkish Russian relations. Similarly, Russia also uses energy as a means of acquiring interests. Which makes this definition suited for both countries.

The main difference between diplomacy and energy diplomacy according to Wang & Xu "Energy diplomacy should submit to and serve the needs of the overall national diplomacy, and accept their norms and guidance. Generalized, regulative, purposeful and submissive are the important features that distinguish energy diplomacy from other diplomatic activities. These four characteristics ought to be expressed when "energy diplomacy" is defined" (Wang & Xu, 2022, p.46)

Energy Diplomacy is a broad term that includes events that are also outside the scope of energy matters. It could be used as a "coercive diplomacy" that might help acquire the wanted interests in various fields. Russia is prone to use "coercive diplomacy' ' as a way of acquiring interests. Newnham similarly talks about energy leverage of Russia, the cases he gives as an example are, gas cut offs to Ukraine, different gas prices to Baltic countries. Georgia. Armenia and Belarus for example have much cheaper prices of gas as they have better relations with Russia. Newnham calls these sticks and carrots tickets. (Newnham, R., 2011)

The nuclear energy diplomacy of Russia is leaning towards more softer aspects and to an extent soft power and smart power elements can be seen. Russia's aim has been to increase its revenues through technology (Aalto, P., Nyyssönen, H., Kojo, M., & Pal, P. , 2017, p.389) and one of them is through nuclear technologies. The embargos on natural gas and other fossil fuels have been implemented but nuclear has been exempt (Szulecki & Overland, 2023). Rosatom has been specifically creating a different perception of itself as its a serious revenue source, and also wanting to advance in technology (Szulecki & Overland, 2023) Rosatoms capabilities to build operate and be able to conduct all the steps from start to the end, and in the price range it offers creates a positive dimension of Rosatom and a logical choice for many to consider. Rosatom has been also trying to use other elements such as sporting events and other social activities for its perception that can be seen in annual reports of Rosatom and Akkuyu website.(Rosatom, 2021, p. 311) The thesis will not argue that Rosatom or Russia is using Soft Power, but there are points that could be considered as soft power elements. Nye defines soft power as such, "getting

others to want the outcomes that you want—co-opts people rather than coerces Them ...Soft power rests on the ability to shape the preferences of others. (Nye, 2004, p.20)

Gazprom and Rosneft have different perceptions and Russia aims to keep Rosatom in a different sphere where soft elements are much more visible. It is not to say that Rosatom or Russia uses soft power specifically by Nye's definition of soft power, the actions of Rosatom cannot be considered fully soft power as it has coercive elements as well as soft elements that have a pull. For example the Aleksey Overchuk and İçtaş issue had elements of coercive diplomacy, which was used to acquire certain interests. Soft Power does not include coercive elements that Russia also presents via Rosatom. Thus it's better to use the term soft power elements rather than soft power. To an extent there is both the responsible, cooperative and capable Rosatom that is able to pull, but when needed uses other coercive tactics to acquire interests.

3.5 Turkey-Russia Energy cooperation & Key Actors Involved in Energy Diplomacy

Turkeys and Russia's cooperation is multifaceted and energy could be argued to be one of the most important aspects. Energy cooperation has grown with the dissolution of the Soviets, but especially after Putin came into power. As Putin wanted to acquire the energy market back into the hands of the government rather than privately owned companies which was the case in the 1990s in Yeltsin's presidency . Putin believed that energy should be utilized for the benefit of the government as it creates a sphere of influence and power compared to Yeltsin's idea of privatization. (Newnham, 2011, p.136) The cooperation on energy matters started even before the dissolution of Soviets in the 80's with the agreement on the Supply of Natural Gas" between Turkey and the Soviet Union (Arafat & Alnuaimy, 2011, p. 122) then in 1999 the Turkish-Russian Intergovernmental Joint Economic Commission was created to increase the energy and economic cooperation between T-R. (Özdal et al., 2013) In 2001 construction of the Blue stream started and Russia's goal was to diversify the routes for natural gas. And Turkey gets the needed energy demands. It's also a direct route making it easier to supply natural gas directly from Russia to Turkey. Next year an agreement was made between T-R on a delivery protocol. The agreement protocol was signed for 25 years and 16 billion meter cubes per year would be delivered

via the Blue Stream project“ (Kanapiyanova, Z. K., n.d.) . Then in 2006 the talks regarding South Stream project was discussed but was not realized which also included Balkan countries as well, but due to EU energy legislations it was not realized (BBC, 2014) As a alternative Turkstream was proposed and contract was signed in 2016 which was supposed to be done earlier but due to SU-24 jet incident relations deterred significantly and only after normalization of relations the contract was signed properly and construction started in 2017 and finished in 2022.

In the meantime, the Akkuyu project was also a part of energy cooperation for T-R. Thus considering the newly established relations after the USSR, the energy cooperation has developed quite fast. There are vast amounts of actors that enable energy cooperation to happen via energy diplomacy. All of the actors one way or another related strongly to the government, for example Zooteva who was appointed as Chief Executive Officer of AKKUYU NUCLEAR JSC in 2019(*AKKUYU NUCLEAR ROSATOM*, n.d.) has strong relations with the Russian government. Actors conducting energy diplomacy are looking out for the interest of the state. In Akkuyu actors range from presidents, ministers, ambassadors and chief executives all are very high ranking officials who conduct one way or another the energy diplomacy between the two countries.

3.6 Objectives and strategies of energy diplomacy for Turkey & Russia

Both countries use energy diplomacy to acquire an interest. Usually these interests fall under the energy and energy security category but other fields also come up as the relation in nature is multifaceted and interconnected. For example issues on SU -24 and stopping of Turkstream project and unconfirmed stops of Akkuyu NPP project (Reuters, 2015).

The interests of the T-R in energy are closely related to energy security for each country. Russia has vast amounts of natural gas but has currently due to the war has limited options for selling NG, to sustain the budget from export of energy resources Russia has been aiming to diversify its exports and has been exploring the new options for energy revenue one of them is Nuclear energy. Nuclear energy has not been a subject of the embargos and makes a significant amount of revenue. (Aalto et al., 2017) Turkey also similarly but for different reasons wants to diversify its energy portfolio. Turkey is highly dependent on

the fossil fuels which most of them supplied by Russia. Diversification is key for ensuring better energy security for Turkey. The case of Akkuyu in terms of energy security is a big question mark, for Turkey in particular.

On the other hand, a great example of energy diplomacy between T-R as it increases the cooperation and relations between Russia. Construction of Akkuyu NPP was a successful project for the JDP government as it is the first ever NPP in Turkey. Attempts to build a NPP has been a desire for a long time in Turkey since 50's. By establishing a first NPP it demonstrates the capabilities of JDP and capability of Turkey. The talks regarding Akkuyu has also shown that it is important for JDP and President Erdoğan. For example, in two presidential elections, the first one in 2002 and the 2023 in both construction of Akkuyu were used as a presidential campaign. But study done by Cayir Ervural et al. argues that use of nuclear technology and nuclear energy are the last prioritized topic even though it is represented as one of the important elements in energy matters. (Cayir Ervural et al., 2018,p. 11). Meaning, the Akkuyu NPP might be used as a positive perception domestically rather than a functional purpose of producing needed energy.

Energy security aspect of Akkuyu is also a relevant issue in the matter. In the 90's one of the high ranking state officials stated that the use of nuclear power is crucial as the growing demand of energy of Turkey will become a crucial security issue in the future. (Udum, 2010, p.121) Thus NPP is an indispensable energy source for securing stable energy sources. The Akkuyu NPP project to an extent fulfills this as the demand has grown with increase in population. The other energy security aspects such as, diversification of source, fixed price, increased dependency are other vital energy security matters regarding Akkuyu NPP. Due to the nature of the contract and the operation type which is Build operate and own , the Akkuyu NPP is fully owned by Russia and Turkey has a very limited say in the way things are managed. For example in summer of 2022 Içtaş company was fired and Turkish workers were fired as well, approximately 15 000 people were fired and were asked to leave in 15 days. (Yetkin, 2022, 05:23-06:00)Another issue is the price for electricity the contract is fixed and the price even though has been negotiated (Udum, 2010, p.131) the current price is still too expensive for the purchase, additionally the long term contract for 15 years is leaving Turkey little space for possible maneuver. And lastly because Turkey is already highly dependent on Russian NG, the additional Akkuyu NPP project serves the opposite of diversification and actually increases dependency on Russia

as Akkuyu NPP is owned by Russia. Similarly, the main opposition leader, Kemal Kılıçdaroğlu has stated that Akkuyu NPP will only increase energy dependency and serve Turkey in a non feasible way. (Yetkin Report, 2022)

These factors point to Akkuyu NPP being an interest and cooperation matter for Turkey rather than an energy security matter. Energy security to an extent important but other factors such as increased cooperation with Russia and interconnectivity with other issues plays a role in Turkey's perspective on energy security and the way energy diplomacy is conducted. Turkey focused on perception in domestic spheres and creating opportunities for further cooperation in various fields, Russia on the other hand has acquired via energy diplomacy, diversified energy revenue source, and has increased its perception of Rosatom as a reliable company.

4 METHODOLOGY

4.1 Understanding Process Tracing

For Methodology, qualitative analysis methodology will be used. More specifically process tracing will be used to analyze the chosen case. This method will help to see whether potential causes actually have an effect on dependent variables. Process tracing will try to demonstrate in this case that independent variable (x), dependent variable (y) actually have causality. Each “step” between x and y will be examined and analyzed, to make sure there is indeed causality and in particular order. More specifically arrows will be examined on an empirical level and will try to prove them in order to demonstrate that there is indeed causality. This will allow research to have less room for assumptions and descriptives. X happens and causes Y. To understand what happened that has caused the Y outcome the events and arrows should be understood. Arrows are essentially the causal links that enable the outcome of Y. Which also helps understand the specific case that is being examined which can be seen in figure 5, a similar figure can be seen in Beach & Pedersen, 2019, p. 30.

X →A→B→Y

X: Dependent V.

Y: Independent V

A & B : Events

→ : Causal linkages

Figure 5: Elements of Process Tracing

Process tracing is a qualitative method, but when looking for mechanical evidence other methods such as quantitative and mixed methods might be used. In the thesis I will try to use three main evidence types, which can be also referred as one of the steps in process tracing, which are: Pattern, sequence, trace and account evidence. Pattern evidence refers to statistical patterns and overall data. For example consumption of gas over the years, amount of RES energy consumption, prices of gas etc. Sequence evidence will look at "chronological events" underlying in fact that a particular event happened to cause another event, and in fact there is a linkage. Trace evidence which will look at the quantity of meetings and official visits of parties made. And account evidence will look at, what was discussed in the meeting, an analysis of content of the empirical data.

Process Tracing is a type of methodology that aims to observe casualties between independent variable (X) and dependent variable (Y). Process Tracing originally was used in the medical field where it helped to identify casualties, it helped to demonstrate there are in fact linkages and causalities between independent and dependent variables and not just assumptions or educated guesses. PT also to an extent enables us to test presumed hypotheses and ideas which in result create deterministic knowledge. There are three variations in PT for social sciences, Theory testing PT, Theory building PT and explaining outcome PT. (Beach & Pedersen, 2019, p.4). For explaining the outcome type of PT aim is to create a sufficient explanation how the independent variable ended with the dependent variable (Y) and what happened in between. Explaining the outcome type of PT aims to acquire a minimum amount of knowledge that is sufficient to explain the outcome or the event. Explaining the outcome type of PT as it can be understood as aiming to understand specific phenomena within a specific case.

4.2 How Process Tracing is Different from other Methods

Most case studies methods involve comparing cases with other cases. PT mainly aims to understand the phenomena within the case. Cases in itself can also be unique and can be studied within itself for acquiring knowledge."Process-Tracing seeks to make with in case inferences about the presence (absence of causal mechanisms in a single case studies, whereas most small n methods attempt cross case inferences about casual relationship" (Beach & Pedersen, 2019, p. 4)

This naturally creates a very different methodology from other case centric methodologies that usually aim to compare based on most different or similar cases to acquire knowledge. In this sense PT enables us to examine and understand underlying principles in more detail compared to case comparison methods/methodologies within the case.

4.3 Different Types of Process Tracing Methods

The different variances in PT arise from the fact that they all have some logic to understand linkages. But different research goals naturally create different methods for analyzing. As stated PT has three variants, Explaining outcome purpose is answering to "what mechanistic explanation accounts for outcome?" (Beach & Pedersen, 2019, p. 12) which is case centric. Other variants aim to identify if theory is functioning accordingly or not, or trying to improve theory by testing. It should be noted that case centric studies (explaining outcome) could be also used for theory testing and theory building, but the focus of the research would be different, it would give another dimension to the existing research.

4.4 Causal Mechanisms

Beach & Pedersen define "causal mechanism as a theory of a system of interlocking parts that transmits causal forces from X to Y" (p. 29) Another definition cited by Beach is a "mechanism is a set of interacting parts - an assembly of elements producing an effect not inherent in any one of them" (Beach & Pedersen, 2019, p. 29 cited from Hernes 1998, p.78). There is an independent variable and dependent variable and something in between those instances an "energy" or event happens that causes the dependent variable to be

present. In simpler terms a causality happens. Term mechanic refers to being systematic for the ability to study and observe. Thus systematic casualties are mechanisms that create the dependent variable. Beach also takes into account that causal mechanics can be different in nature, not all causal mechanisms might have the same effect on dependent variables. "They are necessarily neutral transmission belts. A small trigger can have disproportionate effects as the forces are amplified through a causal mechanism. A strong cause also can have its effect muted through a causal mechanism (Beach & Pedersen, 2019, p. 29) Causal mechanisms are important as they help understand the reason events or situations are caused in a certain way.

4.5 Ontology of Causality in Social Sciences

There are two main views on the nature of causality. Which are based on Hume & Descartes (Beach & Pedersen, 2019, p. 25) Hume argued that there are two ontological perspectives in which causality can be understood, probabilistic and deterministic. Probabilistic argues that "random" events and things happen that might or might not have an effect on the outcome. Beach describes, "Randomness can be the product either of an inherent randomness, where the social world is understood in terms of to quantum mechanic or of complexity (Beach & Pedersen, 2019, p. 26) Basically, the causality might be due to unrelated events, its effect causality just because it's randomly there (it just happened with no specific reason) or due to some reason, meaning something triggered something and a casualty has happened. Thus when having a probabilistic view we are not sure if it happened due to something (a complex outcome due to events in the social world) or just a random event that did not have any relation that happened to affect the outcome. On the other hand "The deterministic causality means a theoretical model where there is no error term (ie: no-random component)...if properly specified, a deterministic model should explain 100% percent of the variance of a given dependent variable" (Beach & Pedersen, 2019, p. 27)

In the PT, deterministic causality enables us to study the phenomena; While probabilistic causality cannot be studied or fully understood, due to the fact that "randomness" cannot be studied. Deterministic causality also allows us to make assumptions and learn much more compared to probability where progress can be achieved to an extent. In other words, deterministic causality allows more room for plausible knowledge to be found. This does

not initially mean the deterministic causality produces “correct” knowledge but it does create more room for knowledge and initially progress compared to probabilistic causality where there is no way of understanding if in fact it's caused by causality or randomness (Beach & Pedersen, 2019, p. 27)

4.6 Hypothetical Deductive Approach as a Framework

For the thesis PT was used as a methodology, a hypothetical deductive approach was used for the aim of creating a clear framework. Hypothetical Deductive approach (HDA), which aims to solve a hypothesis or understand if the hypothesis is correct or conducted in a scientific manner, using specific steps. There are various steps that could be implemented in different ways, in broad terms for the thesis it was used as such: observation, formulation, deductive, theory predictions, evaluation of results, iterative process. This framework enables a more organized way of PT. And does not serve the purpose of the main method or methodology. But the Process tracing itself has a very similar process that includes HDA steps and elements as their both nature to understand a phenomena. The observation was that Akkuyu NPP is a unique case study with various topics that are interconnected. The complexity of Akkuyu matters combined with Russian- Turkish Energy diplomacy should be further analyzed.

Hypothesis or educated guess was that the construction of Akkuyu NPP (independent variable in this case) has an effect on national interests, energy diplomacy, economic and population considerations (dependent variables). The thesis also specifically looked at how construction of Akkuyu has affected energy diplomacy negatively or positively. Initially the primary hypothesis was the main focus hypothesis as it was assumed that results of PT would be true with hypothesis 1 and 3, meaning the results would confirm hypothesis 1 and 3. And thus was named primary hypotheses. Secondary hypothesis also was considered, but was not initially the main focus nor it was assumed that the results would be true with hypothesis number 2, thus it was named secondary hypothesis. This resulted in the following hypothesis.

1. The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest. (Primary Hypothesis)
    a. The construction of the Akkuyu NPP was primarily driven by economic & population growth considerations, rather than energy diplomacy.(Rival Hypothesis)
2. The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations(Secondary Hypothesis)
    a. Construction of Akkuyu was affected by energy diplomacy but the primary driver was economic considerations. (Rival Hypothesis)
3. Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)
    a. Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia (Rival Hypothesis)

In the deductive process, the thesis tries to logically guess what are the expected outcomes and results from the hypothesis. From the first and second hypotheses, the assumption was that the construction of Akkuyu was driven by energy diplomacy. Which would result in certain energy or non energy related matters being met and possibly the construction of Akkuyu would further create new opportunities in energy diplomacy in near future. Thus from observations Akkuyu NPP even though important as it might have been assumed. Goals such as becoming an energy hub are much more vital goals for Turkey. Additionally, the conditions in which Turkey accepted Akkuyu NPP, stimulate as a reflection that construction of Akkuyu was made on grounds of acquiring additional investment for the future energy diplomacy goals between Russia and Turkey. To simplify, it was assumed that Turkey would gain leverage in the future in the matters of energy diplomacy because Turkey compromised a considerable amount of vital points in the Akkuyu NPP.

For hypothesis number three it was assumed that energy diplomacy between Turkey and Russia would be affected negatively. Assumption was based on Russia's sticks and carrots tactics, coercive diplomacy. Also the observation is that the nature of relationship is based mostly on functionality and utility rather than heartfelt, thus making compromises on

Akkuyu From Russia was not expected nor it would serve the energy diplomacy in a positive way, especially for Turkey.

In testing hypotheses explaining outcome PT was used, The steps for hypothesis were taken from Ricks & Liu, 2018. An initial test for casual interference was taken from Collier, 2011. This enabled a systematic conduct of hypothesis and casual interference testing. The steps are as follows: Identifying hypothesis, establishing timeline, constructing casual graph, identifying alternative event or choice, identifying counterfactual outcomes, finding evidence to support hypothesis. In the last steps there is hypothesis testing. Four tests are conducted: Straw in the wind, hoop test, smoking gun test, doubly decisive. The first six steps are needed to be done in order to properly analyze the hypothesis. The last step is finding evidence to support the hypothesis is also done for the rival hypothesis to make sure alternative explanations are also tested to get the full picture.

4.7 The Tests: Straw in the Wind, Hoop Test, Smoking Gun, & Doubly Decisive

The four tests enable to create sufficient evidence for affirming causal inference. (Collier, 2011, p.825) The four tests are able to prove and help eliminate the rival hypothesis. Each step forward has stronger implications for the hypothesis meaning the further the tests are passed the stronger the results are.

Straw in the wind test is the first test and is the first step in understanding hypothesis plausibility. ”Straw in the wind test … provide neither a necessary nor a sufficient creation for accepting or rejecting a hypothesis and they only slightly weaken rival hypotheses” (Collier, 2011, p. 826) In other words straw in the wind test demonstrates whether the hypothesis is in the right direction. Hoop test is the second test that enables one to understand the relevance of the hypothesis and “hoop tests set a more demanding standart” (Collier, 2011, p.826). By passing the hoop test it does not prove but it affirms the relevance of the hypothesis. “Compared to the straw in the wind test, passing the hoop tests has stronger implications for the rival hypothesis: it somewhat weakens their plausibility, without precluding the possibility that alternative hypothesis may be relevant (Collier, 2011, p.826) The smoking gun test, as the name implies refers to “incriminating evidence”. It implies that there is strong evidence that “provides a sufficient but not necessary creation for accepting the causal inference”(Collier, 2011, p.827) It also significantly weakens the

rival hypothesis but does not eliminate it fully. Doubly deceive test is the last test in PT and aims to prove the hypothesis and eliminate the rival hypothesis. This test also enables us to have sufficient evidence for affirming causal inference. It should be noted that sometimes tests can not reach a doubly deceive test as it may have not reached sufficient amounts of evidence. Thus sometimes there is a need to retest and it is quite common.

4.8 Data Used for Process Tracing

The data used in the thesis comes from various resources, data is also crucial for creating a legitimate chronological timeline. To conduct a successful PT there is a need to establish a timeline first. The data resources range from official state statements, interactions between high ranking officials, news articles, and academic research. For the initial chronological order first the Turkish Ministry of Foreign Affairs *"Dış Politika Kronolojisi"* or in English "*Chronology of Foreign policy"* (MFA, 2023, n.d.) was used to establish a basis for the chronological order of energy related matters and major events that might or might not affected energy diplomacy. Then news articles and academic research was also added to create a detailed chronological order. The news articles are a crucial part as they sometimes capture the events that states do not want to be affiliated with and do not want to include official statements. Which in result allows to create a data that has different perspectives, and not only Turkey or Russian perspectives.

Data for the thesis, is essentially events, then have been created in a chronological timeline. It serves few purposes, it organizes the data, ensures that events in fact took place in a specific order, and lastly ensures Process Tracing steps take place. The official statements were a starting point for creating a timeline, next major events were checked to create a basic timeline, next events in between the major events were also looked at as it ensures a fuller picture. Lastly, the events before construction of Akkuyu were added as they also enable us to understand the Turkish perspective of nuclear energy and technology. Possible limitations with data included the chronological events dont always include every event or "speech act" that is being spoken Thus the speech acts that are added in official websites serve the purpose of states interest making it to an extent biased. The news articles and other sources help eliminate the bias. But it is possible that some of the nature of official statements are biased and may affect data. Also it should be noted that there are limited open sources regarding Akkuyu matters and Rosatom. Both the Turkish

and Russian governments are hesitant to share more concrete information on the topic, there are some wikileaks which were classified and used in the thesis but still major knowledge about the contracts are not available to the public.

5 AKKUYU NPP CASE STUDY & PROCESS TRACE IMPLEMENTATION

In this chapter Research questions will be analyzed with an Explaining outcome type of Process tracing. There are three primary hypotheses and three rival hypotheses will be tested. The process tracing consists of seven steps and in steps six and seven, four tests are included which are: Straw in the wind test, Hoop test, Smoking gun test and doubly decisive test. The process tracing method and steps used are based on Ricks & Liu, 2018 and Collier 2011.

Research Question: Akkuyu Nuclear Power Plant and Energy Diplomacy, How construction of Akkuyu affected Energy diplomacy between Turkey and Russia ? A process tracing approach.

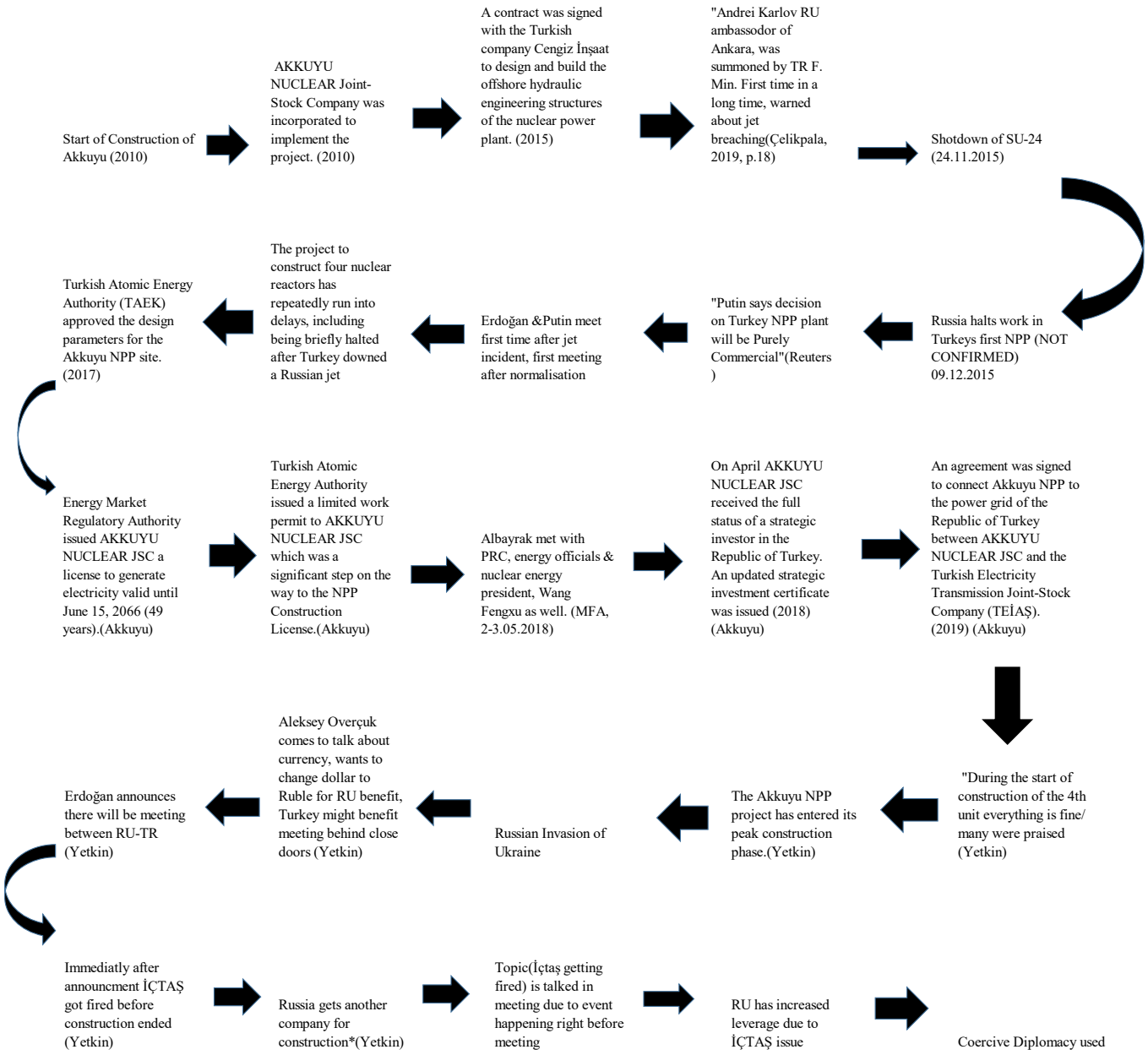
5.1 Step 1: Identify Hypothesis

1. The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest. (Primary Hypothesis)
    a. The construction of the Akkuyu NPP was primarily driven by economic & population growth considerations, rather than energy diplomacy.(Rival Hypothesis)
2. The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations(Secondary Hypothesis)
    a. Construction of Akkuyu was affected by energy diplomacy but the primary driver was economic considerations. (Rival Hypothesis)
3. Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)
    a. Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia (Rival Hypothesis)

5.2 Step 2: Establish Timeline

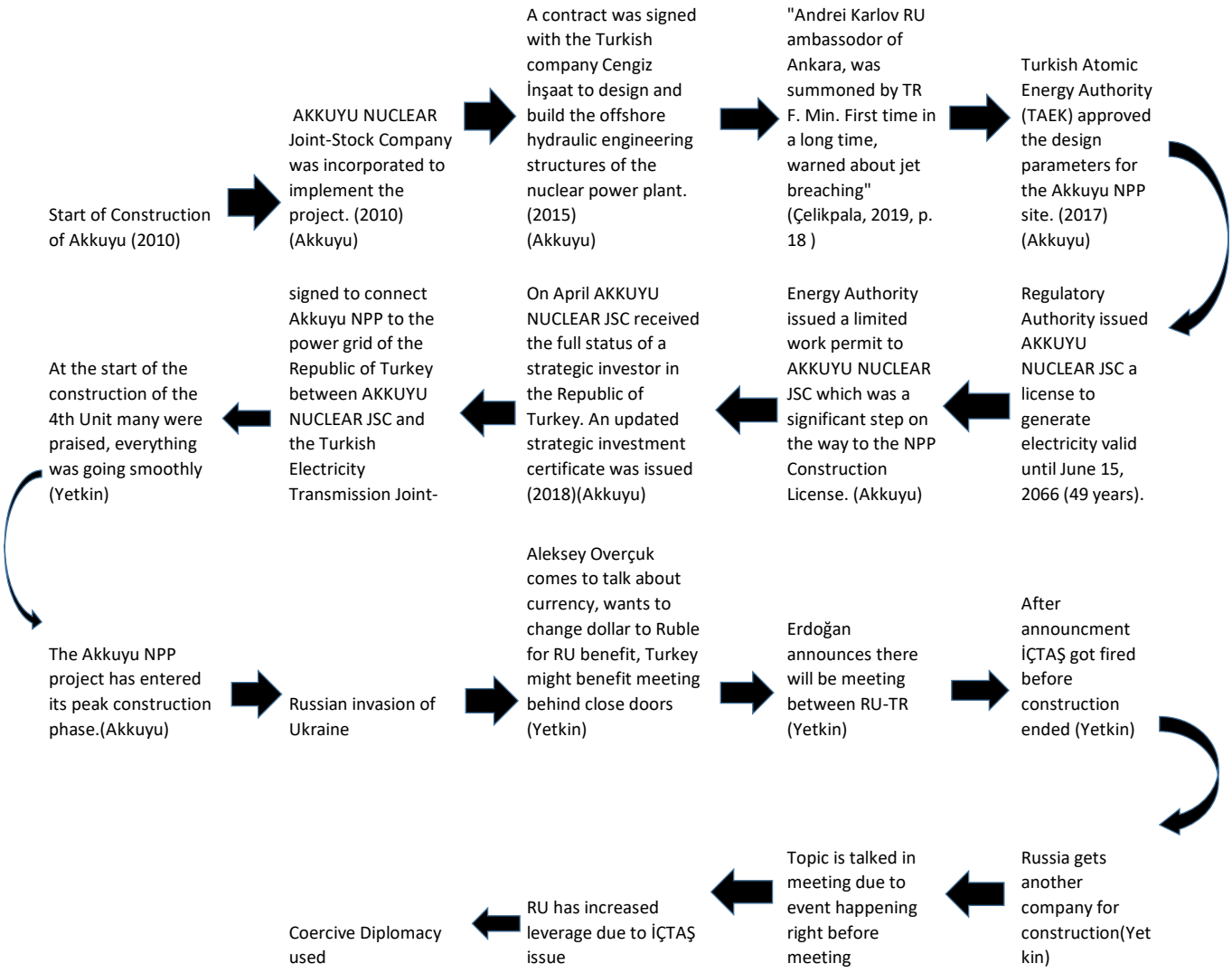
Refer to Annex B

5.3 Step 3: Construct Causal graph



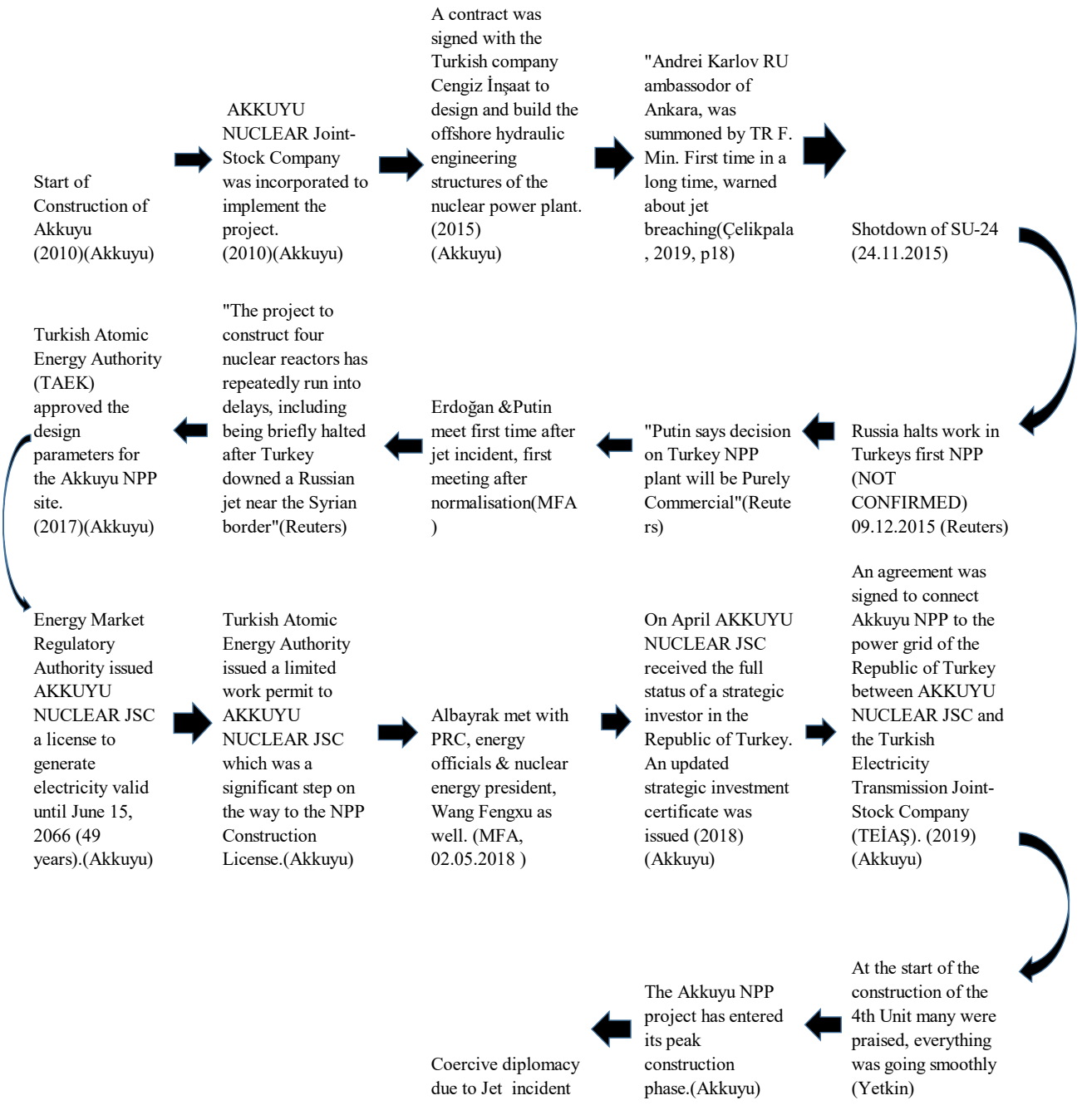
5.4 Step 4: Identify Alternative Event

Alternative Causal Graph for H1 & H2 SU -24 does not happen



5.5 Alternative Causal Graph for H1,H2

Alternative Causal Graph for H1&H2 Russia does not invade Ukraine



5.6 Step 5: Identify Counterfactual Outcomes

Alternative 1

Jet incident does not happen > No halts on Akkuyu > Albayrak does not go looking for alternatives > RU- UA war starts > Coercive diplomacy done by via Alexey Overchuk.

Alternative 2

Russia does not invade UA > Alexey Overchuk does not come to discuss currency >

Two alternatives that might happen, because firing of İçtaş might be or not related to Alexey Overchuk coming to discuss currency.

İçtaş gets fired (because it's not related to Alexey Overchuk) > Meeting between Erdoğan and Putin > Putin has leverage on the issue > coercive diplomacy.

İçtaş does not get fired > money partially stays in Turkish company > no coercive diplomacy used.

Alexey Overchuk most probably offered change in currency in Natural gas contracts, and in return Turkey will get a bond of money (6.1 billion dollars worth) approximately for 2 years, that later would be used by Akkuyu Nuclear JSC for payment of various needs (Soylu, 2022). Other sources also stated that the allocation of the money was Putin's idea, as goodwill for the grain deal (Soylu, 2022) Turkey would have money in the bank and could use it for different needs in the meantime as Turkey needs it due to economical challenges. By firing of İçtaş, the money will now be allocated within Rosatom only and none of it will go to İçtaş, as the new company is also owned by the government of RU and Rosatom. Originally before the firing of the İçtaş money would have been also spent on İçtaş's expenses, but with firing İçtaş the money will be allocated only with in Russian Rosatom (Soylu, 2022)

5.7 Step 6 : Find Evidence to Support Primary Hypothesis

5.7.1 Straw in the Wind Test

H1 : The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest.

Clues: Shutdown of the jet, Alexey Overchuk coming to talk behind closed doors, allocation of 6.1 billion, challenges to cancel the 2008 September tender for Akkuyu NPP.

Inference: The shutdown of the jet led to (not confirmed) stop of the project. Alexey Overchuk came to discuss the currency of natural gas deals, later İçtaş was fired right before the Sochi meeting. And according to Silliman, Cancellation of the 2008 tender was a difficult choice for Turkey due to "close relations between Russia and Turkey in various sectors."(Wikileaks, Silliman, 2008) Which point to difficult conditions for Turkey to say no to the Project and process of the project ,as there are many obstacles such as relations in various sectors and some coercive actions with the help of energy diplomacy

Summary: This promising lead of a straw in the wind lends weight to H1.

5.7.2 Hoop Test

H1 : The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest.

Coercive diplomacy is used two times, Jet incident and RU-UA War.

Clues: Shutdown of the jet, Alexey Overchuk coming to talk behind closed doors. Everything is fine in fourth unit construction, Allocation of 6.1 bn. (Soylu, 2022)

Inference: The shutdown of the jet led to (not confirmed) stop of the NPP project.(Reuters, 2015) Alexey Overchuk came to discuss the currency of natural gas deals which later led to İçtaş getting fired right before the Sochi meeting. Additionally, everything was fine during the fourth unit construction opening, every one was fond of each other. (Yetkin, 2022)

Alexey Overchuk most probably offered change in currency in natural gas contracts, and in return Turkey will get a bond of money (6.1 billion dollars worth) approximately for 2 years, that later would be used by Akkuyu Nuclear JSC for payment of various needs including İçtaş's money and subcontractors. (Soylu, 2022) In the meantime, Turkey would have money in the bank as Turkey needs it due to economical challenges due to declining reserves. Initially it was seen as a "goodwill gesture" by Putin as Turkey helped with the grain deal. (Soylu, 2022)

Bidding for the bonds were opened by Rosatom, for "potential creditors to provide a $6.1bn credit line to finance Akkuyu Nuclear JSC, its subsidiary in Turkey….The official documents suggest the money would be used for four projects, including the purchase of equipment, payment for construction and installation works, and operation of the nuclear plant and four power units with VVER-1200 reactors" The interesting part, the bidding process done by Rosatom was open only for two days Monday and tuesday. And already on Friday same week evaluation of the bidding was complete raising the questions if Rosatom had already known the creditor. (Soylu, 2022)

By firing İçtaş, the money in the future will be allocated only within Russia and Rosatom as the new company which is called TMS ENERGY CONSTRUCTION JOINT STOCK COMPANY (in Turkish, TMS ENERJİ İNŞAAT ANAONİM ŞİRKETİ) is also owned by the government of RU and Rosatom. The company's name is Turkish but its center is in Moscow. Additionally, the founder partners are all connected to the Russian government, Rosatom and the Akkuyu consortium. (Yetkin, 2022, 05:23-06:00)

The fact that the TMS company was hired immediately after Içtaş being fired points towards money allocation only within Russia. Currently due sanctions applied from the war Russia cannot reach international loans.(European Council, n.d.) By firing the Içtaş and getting a new company that is also under Russian control might suggest that Russia aims to acquire more money for itself as it has limited options outside Russia. Implying that energy diplomacy is used as a way of acquiring a certain interest through the construction of Akkuyu.

Alternative Inference: Russia does not want to share the technology, which led to firing of İçtaş company in the last months of construction.

Alternative Inference 2: The firing of İçtaş might have been a separate issue, and its timing in relation to the Sochi meeting might have been coincidental as well as allocation of the money.

Summary: H1 passes hoop test as rapid firing of İÇTAŞ cannot be attributed to other factors as everything was fine in the construction of the fourth unit, showing it was a political issue rather than economic (Yetkin, 2022, 05:23-06:00) but does not eliminate alternative inference 1 and 2.

5.7.3 Smoking gun Test

H1: The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest.

Rival Hypothesis (H1a):The construction of the Akkuyu NPP was primarily driven by economic & population growth considerations, rather than energy diplomacy.

Clues: Shutdown of the jet, Alexey Overchuk coming to talk behind closed doors, allocation of 6.1 billion.

Summary: Hypothesis 1 demonstrates strong clues pointing to smoking guns, the alternative hypothesis also demonstrates strong clues. The Smoking Gun Test has not reached its objective to help eliminate the Alternative hypothesis.

5.7.4 Doubly Decisive

H1: The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest.

Rival Hypothesis(H1a): The construction of the Akkuyu NPP was primarily driven by economic & population growth considerations, rather than energy diplomacy.

Clues: Turkey is growing rapidly and there is a need for energy, Russia offers a good choice as it is relatively cheaper and has been in the nuclear sector. The price of electricity is approximately 2 times more expensive compared to what the government sells electricity for. If calculated for the year 2022 by the end of July one dollar was approximately 17,92 Turkish Liras (TL). With this rate kept in mind EPIAŞ who is responsible for managing the energy market in Turkey, on average sells electricity to electricity transfer firms from 125 Turkish kurus and calculated by July's rate of dollars electricity hypothetically sold by Rosatom would be approximately 221 kurus. Which is two times higher than what EPIAŞ sells it for. (Yetkin, 2022, 05:23-06:00).

Inference: The construction of Akkuyu by Russia is a logical choice but the price, long term fixed contract, and Russia owning the NPP question the rationality of Turkey accepting the project.

Opinion: The dual policy has probably played a role in choosing Russia, alternative options were “western” countries who did not think it was feasible but also rapid population growth, Russian expertise and strategic partnership played in favor of Russia.

Inference: The inference drawn here is that while the construction of Akkuyu NPP by Russia was a logical choice, the high price, long-term contract, and Russia's ownership of the NPP question the rationality of the decision. Therefore, the alternative hypothesis that the construction was not primarily driven by Russia's energy diplomacy goals cannot be completely rejected. The dual policy approach likely played a role in the decision-making process. The test does not help to eliminate the alternative Hypothesis.

Opinion: Both Hypothesis remain valid, and Hypothesis number 1, even though not proven, shows that there are in fact elements of energy diplomacy, pointing to that there might be a causal inference. Further research needed.

5.8 Step 7 : Find Evidence for the Secondary Hypothesis

H2: The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations.

Steps 2,3,4,5,6 are the same for H2 thus step 7 is the first stop after identifying the Hypothesis.

5.8.1 Straw in the Wind Test

H2: The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations.

Clues: The long process with the other possible companies to work on NPP failed during the 70’s and 80’s. Additionally, when the new government in early 2000’s opened for proposals to construct Akkuyu NPP there were only 6 companies interested but only one field out the bid, which was “The Atomstroyexport-Inter Rao-Park Teknik consortium” who got the bid. Thus it can be suggested that there was a limited budget and limited opportunities for Akkuyu construction. Rostatom might have been the cheapest and most doable solution. It could be also said that Turkey might prefer to work with Russia due to Yıldız’s comments, who was minister of energy in 2008 and have “told the ambassador

(refers to either US ambassador James F. Jeffrey or Silliman) He wants the projects to begin in 2010 and may need "to break some rules" to move quickly.(Wikileaks, Silliman, 2008)

Summary: This promising lead of a straw in the wind lends weight to H2.

5.8.2 Hoop Test

H2: The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations.

Coercive diplomacy is used two times, the Jet incident and RU-UA War.

Clues: Shutdown of the jet, Alexey Overchuk coming to talk behind closed doors. Everything is fine in 4th unit construction. Allocation of 6.1 bn. Additionally the construction of Akkuyu was planned to build, operate and own it, which is the first ever NPP to be done in this way.

Inference: The Akkuyu NPP technically will never belong to Turkey even though it is in territory of Turkey. Thus Russia has a leverage over the NPP pointing to increased leverage on energy diplomacy. The Build, operate and own it system also demonstrates that, Turkey is in need of additional energy sources, and with limited budget Turkey had to accept its offer as it cannot do without additional energy sources (According to JDP government) Thus they accept the Build operate and own system, because there is a need for additional energy. Decision might be due to the question of Energy security.

Alternative Inference/H2a: Construction of Akkuyu was affected by energy diplomacy but the primary driver was economic considerations

The challenges and long periods of time trying to find a suitable candidate for Akkuyu, show that economic factors were important points to consider. But the candidates during the 70's and 80's could not agree mainly due to political challenges and coup by the 80's. This has also made Akkuyu less popular. But with the JDP government opening the tender, only one bid was submitted which was Rosatom. This also points to first to economic challenges, but Silliman states that after revised failed tender of 2008 september for Akkuyu NPP, Yıldız announced that in 2008 August meeting between Putin & Erdogan statements were made regarding the stakes of Akkuyu, "that the Government of Turkey

(GoT) would take a 25 percent stake in the project in return for a lowered price, observers objected that more companies may have bid if these terms had been laid out at the start. The government thus faced the threat of lawsuits from companies if it went ahead with the 25 percent partnership deal, as well as the threat of lawsuits from the opposition if it went ahead with a deal at too high a price."(Wikileaks, Silliman, 2008). Yıldız's comments regarding Akkuyu should be also kept in mind as there is clear aim wanting to stick with Russia(Wikileaks, Silliman, 2008) Pointing to energy diplomacy as well. Even with limited options of Turkey with the companies with tender, the build operate and own is a big compromise and a big factor in energy diplomacy that could maybe be negotiated differently. Thus even though economic factors were important, there are also elements of energy diplomacy that cannot be left outside of considerations. Such as being the first ever NPP who has the model of Build it operate and own. More information is needed on how the contracts were written for more accurate understanding if the primary reason was economic.

Summary: Both economical factors and energy diplomacy remain valid. It's not clear whether it was mainly driven due to economic circumstances. More information needed. Hoop test has not eliminated alternative inference, but the main hypothesis remains valid.

5.8.3 Smoking Gun Test

H2: The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations.

Clues: Only the bidder being Rosatom demonstrates that Turkey had limited budget for the Akkuyu even with later talks to acquire 25% stakes of NPP, Turkey accepting the bid with devastating consequences also shows the urgent need for additional energy resources. This puts weight on economic factors in Akkuyu NPP. But does not fully prove it. The Akkuyu Nuclear JSC is fully owned one way or another by Russia or Rosatom. Turkey having no percentage in the company and Içtaş getting fired and Akkuyu model being also built to operate and own it, could be the result of bilateral relations and cooperation which also point to energy diplomacy as well.

Summary: Economic considerations and urgent need of additional resources point to economic factors playing a big role, the energy diplomacy aspect also plays a role due to

the type of contract ie: build, operate and own it. Because it is the first example of this type of NPP, it clearly has signs of energy diplomacy that might have played a role. Smoking gun test is passed but it would be ideal if there was more information on how the contracts were formulated.

Opinion: The smoking gun test is passed barely, it could be open to other interpretations. More info needed.

5.8.4 Doubly Decisive

H2: The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations

Rival Hypothesis (H2a): Construction of Akkuyu was affected by energy diplomacy but the primary driver was economic considerations

Clues: Turkey is growing rapidly and there is a need for energy, Russia offers a good choice as it is relatively cheaper and has been in the sector. The price of electricity is approximately 2 times more expensive compared to what the government sells electricity for. (Yetkin, 2022, 05:23-06:00). The only factor in Project of Akkuyu cannot be energy diplomacy, Turkey's urgent needs for energy show plausibility for both factors, economy and energy diplomacy are relevant. Thus we can eliminate the alternative hypothesis. And argue that the project was driven by both factors, rather than solely on economic factors. Countries are rational actors, thus factors of bilateral relations, cooperation and energy diplomacy have had to play a significant role as well.

Opinion: The Doubly Decisive test is passed but more information is needed.

Summary: Hypothesis number 2 is proven. The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations.

5.9 Process Tracing For Hypothesis 3

5.10 Step 1: Identify Hypothesis

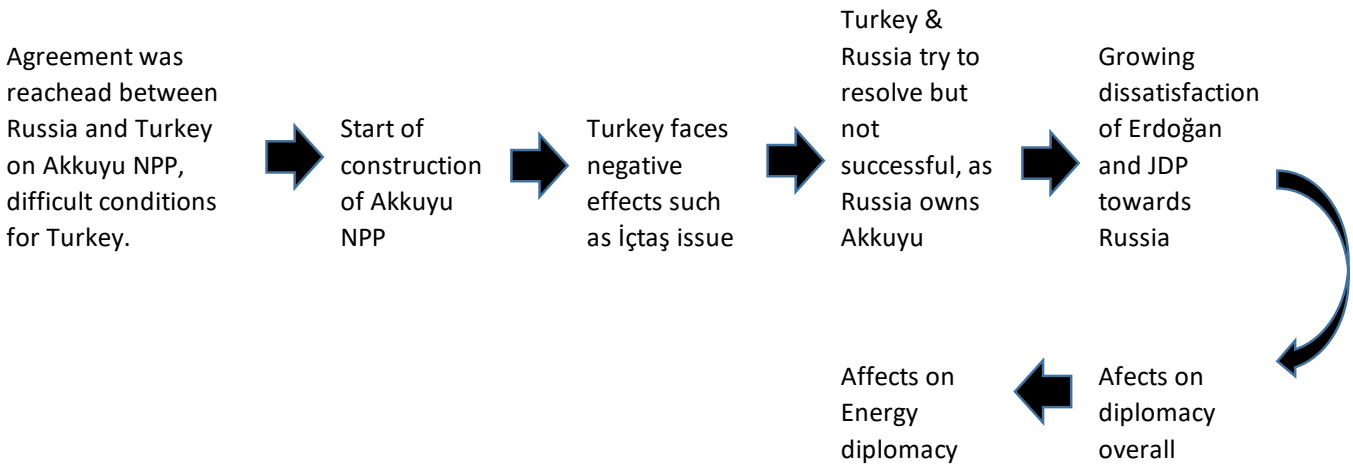
H3:Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)

H3a: Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia (Rival Hypothesis)

5.11 Step 2: Establish Timeline

Refer to the timeline for H1,H2.

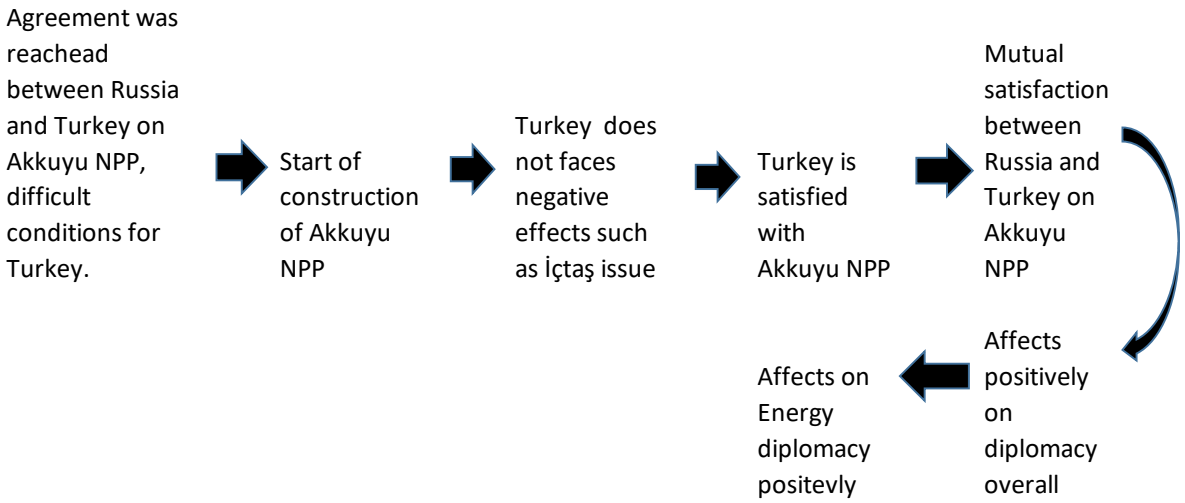
5.12 Step 3: Construct Causal Graph for H3



5.13 Step 4: Identify Alternative Event

Alternative events for the Hypothesis 3 and H3a would be the İçtaş issue, if the İçtaş issue did not happen, then there is a possibility that further energy diplomacy issues would not arise. The firing of the Içtaş company is the most relevant event that affects the causal graph.

5.14 Step 5: Identify Counterfactual Outcomes



The most important event that affected the outcome of energy diplomacy was the İçtaş issue. Thus if the İçtaş issue did not occur, the outcome might have been much different as well.

5.15 Step 6 : Find Evidence to Support Primary Hypothesis

5.15.1 Straw in the Wind Test

H3 : Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)

Clues: The high price of electricity, long term contract for purchase of electricity, Akkuyu NPP owned by Russia, Turkey having little to no say in Akkuyu NPP, the Build operate and own type of operation of NPP

Inference: There is increased dependence on Russia for the NPP and for a long time (15 years from the first reactor) leaves little space for maneuvering for Turkey. This may lead to decreased cooperation due to possible grievances and issues which may lead to negative energy diplomacy between them.

Summary: This promising lead of a straw in the wind lends weight to H3.

5.15.2 Hoop Test

H3 : Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)

Clues: Salliman stating that canceling the 2008 september tender was a difficult choice for Turkey due to close relationship between Russia and Turkey. Additionally, after İçtaş got fired, between Erdoğan and Akkuyu's Russian CEO Anastasia Zoteeva there were talks and were negative outbursts of Erdoğan regarding the issue. According to the Yetkin Report, "Akkuyu's Russian CEO Anastasia Zoteeva said, "This does not be over in a week and I won't wait for a week," Erdogan snapped at her saying "Remember that you are talking to the President of the country you are in"(Yetkin Report, 2022) A report was supposed to come out in approximately a month but after even a month it has not been published.

Inference: The issues regarding Akkuyu NPP have resulted in negative consequences of relations which can be seen from Akkuyu CEO Anastasia Zoteeva and Erdoğan.

Alternative Inference: "Russians are slowing things down due to resource exchange negotiations with the Treasury and Finance Ministry." (Yetkin, 2022, 05:23-06:00) The finance issues may take a long time as the money is considerably high and takes time to manage. But it does not explain why the report was not out even after a month.

Alternative Inference 2: The tenison might be also due to Turkish elections 2023, as it was a significant election for Turkey, JDP and Erdoğan. One of the election campaigns was "that the first two units would be commissioned in March 2023"(Yetkin Report, 2022) which could possibly explain the tension between Russian Akkuyu CEO Zoteeva and Erdoğan.

Summary: H3 passes the Hoop Test, either way even if the report was late for one week it does not explain why it was late for more than a month which was the initial issue as Erdoğan even brought up the topic with Putin meeting even with a full agenda on issues such as grain deal and Russia- Ukraine war. The Election promise is significant but the initial anger is most probably due to being late and with regards to Akkuyu NPP rather than keeping the promise, the election campaign had much more critical issues and Akkuyu NPP issue was put rather on the background and not on top of the agenda. For example, the electric "Turkish" car, called "TOGG" was demonstrated much more, which

also includes the renewable and modern aspect that the JDP government wanted to demonstrate before the elections that could have been similarly achieved via Akkuyu NPP.

5.15.3 Smoking gun Test

H3 : Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)

Clues: The Ministry of Foreign Affairs for the first time has stated that Akkuyu is owned by Russia and not Turkey, Dönmez also stated that there has been a rough patch in the progress of the construction. The problematic part is that the AA news agency has not put these statements of Minister Dönmez, but other agencies have included. Anadolu Agency (AA) is known for its close relationship to the JDP government. Another issue has been that there has been talks about Zapsu who is the only member of the board management that is Turkish, might be fired due to İçtaş and late report issue. (Yetkin Report, 10 August 2022)

Summary: The official representative (ie: Dönmez) has stated that there have been problems and the news agency has removed some parts of the talk to demonstrate a different lens of Akkuyu, pointing to that the progress is currently not going so well. The possibility of Zapsu who is the only Turkish representative on the board of management in Akkuyu being fired also points to the fact that the issues are severe.

Alternative Hypothesis(H3a): Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia

Clues: The overall construction was on time, Turkey will acquire the additional electricity production, and has increased cooperation between Turkey and Russia. Realization of a long wanted nuclear power plant that was made possible by Russia.

Summary: From 2010 till 2023 most of the construction program was mostly on time, and till the fourth unit start of construction, everything was going smoothly and with no relevant problems.

5.15.4 Doubly Decisive

H3 : Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)

Clues: The operation type of Akkuyu "Build operate and Own" meaning it will be owned by Russia, the electricity price is too high, The issues regarding İçtaş, AA news agency not fully starting Minister of energy, Erdoğan and Putin meetings also demonstrate there are issues on Akkuyu.

Alternative Hypothesis(H3a):Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia

Inference: Overall there are both negative and positive sides, but it is clear to say that due to the nature of the Akkuyu operation system which is BOO, has more negative sides as it will harm Turkey and results in negative grievances and problems.

The alternative hypothesis can be eliminated on the ground that, negative sides of the Akkuyu and its effect on energy diplomacy outweigh the positive elements as demonstrated in previous tests. Thus the primary hypothesis is correct: the Construction of Akkuyu has negatively affected energy diplomacy between Turkey and Russia.

6 RATING SCALE

The aim of the rating scale is to measure the results, standardize and allow comparability between hypotheses. The rating scale is based on the results of the tests conducted in steps six and seven, in PT, which were: straw in the wind, hoop test, smoking gun and doubly decisive tests. The more tests hypotheses passed, the higher rating was given on a scale. Meaning the criteria of the scale is based on how many tests the hypothesis has passed. Additionally reservations were included in the rating scale as there could be bias originating from researcher. The hypotheses tested were also added for easier understanding.

1. The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest. (Primary Hypothesis)
    a. The construction of the Akkuyu NPP was primarily driven by economic & population growth considerations, rather than energy diplomacy.(Rival Hypothesis)
2. The construction of the Akkuyu NPP was driven by both energy diplomacy and economic considerations(Secondary Hypothesis)
    a. Construction of Akkuyu was affected by energy diplomacy but the primary driver was economic considerations. (Rival Hypothesis)
3. Construction of Akkuyu NPP negatively affected energy diplomacy between Turkey and Russia (Primary hypothesis)
    a. Construction of Akkuyu NPP positively affected energy diplomacy between Turkey and Russia (Rival Hypothesis)

	Straw in The Wind	Hoop Test	Smoking Gun	Doubly Decisive	Results	Results in numbers**
H1	Passed	Passed	Not Passed	Not Passed	Hoop Test Passed	2/5
H2	Passed	Passed*	Passed*	Passed*	Doubly Decisive Passed*	4/5
H3	Passed	Passed	Passed	Passed	Doubly Decisive Passed	5/5

* Preferably should be retested

** The grading criteria are based on a numerical scale, with 1 representing the lowest grade and 5 indicating the highest grade

1. Has not passed Hoop Test
2. Has not passed Smoking gun Test
3. Has not passed Doubly Decisive Test
4. Has passed all four tests with possible “subjectivity” originating from researcher
5. Has passed all four tests without any “subjectivity”

7 Findings and Discussion

7.1 Key findings and Relation to Research Question

Three hypotheses that were tested. Independent variables are construction of Akkuyu NPP and dependent variables are national interests of Russia, economic considerations , population growth, and energy diplomacy. Out of three hypotheses only one of them got minimum sufficient explanations which was hypothesis number 3. The outcome was that the construction of Akkuyu NPP negatively affected energy diplomacy. Hypothesis number 2 also passed all the tests but reservations were kept, ideally it should be tested again to acquire a minimum sufficient explanation. But even with reservations it still has strong implications for energy diplomacy and economic considerations. H1 has failed, but it passed the hoop test but was unable to pass smoking gun test, thus we can not conclude that Akkuyu NPP was used as a tool by Russia to promote its national interest. To circle back to the research question, construction of Akkuyu negatively affected energy diplomacy between T-R. The speech acts regarding the Akkuyu by officials all point out to negative affect. Additionally the various tensions between high ranking officials such as Zooeteva and Erdoğan, Putin & Erdoğan point towards construction of Akkuyu affecting energy diplomacy between T-R negatively. It could be argued that the negative effects are mainly for Turkey, but because the T-R relationship consists of two actors, even with one side affected negatively, affects overall energy diplomacy between T-R, thus resulting in negative energy diplomacy for the relationship.

7.2 Patterns and Relations among data

The data directly indicates the pattern. Especially for hypothesis 3. The data initially creates a timeline which later can be used to evaluate the chronological events properly and conduct tests accordingly. Some examples of patterns in data for hypothesis 3 can be identified as such. Zooeteva & Erdoğan tension, AA, Zapsu only member on the board management, Dönmez statements not matching with AA news agency, Erdoğan & Putin meeting, Içtaş & workers getting fired, Report regarding fired being late, Allocation of

6.1bn etc. Data or in the case chronological events are directly correlated with the outcome as the results are made up of various events.

Expectations from the test were partially fulfilled. Hypothesis 1 and hypothesis 2 have not fully fulfilled expectations, but combinations economic considerations, enrgy diplomacy and national interest still indicate importance as they have passed some tests. The PT has demonstrated that other factors such as economic considerations and population growth have also strong implications in choosing the way construction of Akkuyu NPP was decided. Hypothesis 3 has been assumed to negatively affect and outcome of results were as expected.

7.3 Contextualization of Findings

To contextualize with regards to relations to outcome, there are 3 perspectives to analyze, Turkish, Russian and T-R perspective. The Turkish perspective to Akkuyu is that it has been a long time goal to acquire a NPP, there 2 main reasons for wanting NPP. First, in the 50's the main motive was with a NPP , there would also be a "modern Turkey" as technology was seen as a pathway to "modern Turkey". After many failed attempts over the years with the 80's and 90's the motive shifted towards energy demand due to growing population. And it has become an energy security issue. With JDP also development of relations with Russia has also significantly improved with the help of dissolution of Soviets and compromise from both sides helped development of relations. Rosatom was the only company who had applied to auction bids for the construction of Akkuyu and had capacity to supply from start to finish relatively cheaply, compared to others. Turkey also saw this as a way of acquiring energy that it would need.

From the Russian perspective, from 2008 aim was to intensify income from technology including nuclear energy. Russia has not been very successful in fulfilling this goal as technological income has remained limited (Aalto et al., 2017, p.389). The Russian invasion of Ukraine has also pushed Russia to diversify its energy export including nuclear as it has not been affected in the same way as other energy resources. The main goal is to diversify exports to increase energy security. In relation to this also a different perception of Rosatom is aimed compared to other state owned energy companies like Gazprom.

Both sides have something to gain from the collaboration on Akkuyu. The conditions are of course for TR is not ideal but Turkey acquires additional energy sources, and Russia diversifies its energy export and utilizes its nuclear export. Which in results also develops energy diplomacy. Develops does not imply particularly in a positive context but in terms of increased energy diplomacy interactions between Turkey & Russia.

7.4 Alternative Explanations

Alternative explanations for the thesis have also been considered and implemented in the PT. The alternatives in the thesis are 1a, 2a, 3a. They have helped to eliminate hypotheses that were assumed correct. 1a, 2a, 3a usually helped in the smoking gun test step to disprove the hypothesis. Thus it can be said that rival hypotheses were critical in testing hypotheses. And have allowed considerations of different factors that might play a role in energy diplomacy.

7.5 The Relevance and Implications for the Research

The research is relevant as it encompasses different crucial topics in one sphere. Ranging from security to bilateral relations. To be more specific it covers energy security, economic interests, foreign policy, diplomacy, energy diplomacy, bilateral relations and international relations. The thesis relevance lies mostly in the fact that these topics interconnectedness makes them unique. Yet combinations of the topics also create vital components of the state/s. The Turkish and Russian interaction are also vital to better understand some dynamics of IR. Also results of PT enable us to assess new assumptions and new explanations that could further help in development of energy diplomacy and other related issues.

7.6 Relating Results Back to Existing Literature

The overall literature and results of the study are inline with the results. Even though the hypotheses tested are not all proven they indicate similar results with energy aims of both Turkey and Russia. Especially the Russian Energy policy and Russian nuclear policy

towards Turkey. As discussed in the LR three motivations can be identified for Russia. Diversifying energy exports, increased influence in the region and positive outlook for Rosatom. Not all hypotheses were proven but even passing the hoop test has some implications for the fact that Russia puts importance for its aims and goals in the energy sphere which is in line with Literature review. Results from hypothesis 2 also demonstrate similarities with literature review for the TR perspective. The goal of building NPP and economic considerations also played a role in decision making progress on to build NPP. Thus to an extent LR supports hypothesis 2. The 3rd hypothesis is directly inline with LR as the conditions of Akkuyu NPP indicated that it would affect energy diplomacy between TR negatively. And as PT results have shown, hypothesis 3 and LR related.

7.7 Picture of what can be understood from the Research

From knowledge combined with LR and Hypothesis testing it can conclude that energy diplomacy was affected negatively by Akkuyu construction especially for Turkey. Russia on the other hand has increased its leverage over energy matters. It is this important as Turkey should keep in mind the coercive diplomacy used by Russia. Which could further result in asymmetric interdependence, where Russia has more power and Turkey less on energy and outside of scope of energy matters, as the collaboration between T-R has been vast and may continue to develop.

The assumption that energy diplomacy is the main motivator for the construction of Akkuyu has not been proven. The economic considerations, Rosatoms ability to conduct each step of construction and other steps that are vital for acquiring electricity, indicate that the relationship has sides of mutual benefit even with unbalanced interdependency.

Additionally, the research has demonstrated that Russia uses energy diplomacy for other interests, outside the scope of energy matters. Which is also inline with Russian foreign policy. And uses different means to acquire the interests through the help of energy diplomacy. It should be also noted that Russian Energy policy overall has elements of both the coercive diplomacy and soft power elements. Both are means to acquire specific interest of the government. Rosatom in this case has been demonstrating mostly soft power elements. As Russia aims to create a different, more secure, liable and able Rosatom compared to Gazprom. Additionally, the ability to conduct from the construction to all stages of operation is creating a soft power element which other countries including

Turkey see as a big plus, which creates a “pull” towards Rosatom. Rosatom also tries to increase this perception by conducting some social events and activities that can be seen in the Rosatoms annual reports as well. The coercive elements are also used when needed to acquire specific interests. In a way it is similar to the Russian energy policy goal towards Svalbard/Barentsburg. Where both soft power elements are implemented but also hard power is also valid.

For Turkey, two things can be assumed by accepting conditions to Akkuyu. First, there is a strong desire to build a NPP which is motivated by JDP’s perception and growing energy demand. Second, it can be assumed that conditions of Akkuyu for TR indicate that Turkey might be investing into the relationship via accepting Akkuyu conditions to later gain other lavarages out of the relationship, possibly in other spheres such as economy, international arena etc. Third, the limited amount of options also pushed Turkey towards Russia and Rosatom. Turkey's lack of knowledge in the field of nuclear, and relatively acceptable price for construction and Rosatoms ability to conduct from start to finish left Turkey with very limited options.

7.8 Evaluation of Limitations on Research

Diplomacy overall is conducted usually on state to state level with high ranking officials. Because the study aims to understand energy diplomacy better. It was expected that data would mostly be acquired from high ranking official statements. But the data from speech acts or documents don't always reflect the situation as it is due to state interests which is reflected by the high ranking officials. In other words to protect the state interests, biased statements or no statements could limit the data acquired for the thesis. For example, the MFA website in the part “Foreign policy chronology”(“Dış Politika Kronolojisi” in Turkish) had saved very limited interaction between T-R, after the jet incident took place. Almost for a year there has been no interaction between T-R according to the official website, even though there have been interactions that can be found from various news sources. (Refer to Annex A) They have not been put on the official website as they are negative in nature and could be even considered “harmful" for the relationship. Thus the data acquired from official state websites are not always unbiased, and even present. To minimize the bias, news articles and other research was also included to create

a better data set and timeline for better research results. Additionally, Turkey and Russia are very hesitant to share more on the Akkuyu matters. Most of the documents are classified and there is little information available on the documents and the conditions of agreements. The used sources are all from open sources, which naturally limits the knowledge for analysis.

7.9 Validity of Results in Answering Research Question

The results of this research is still valid in answering the research question as: Hypothesis tested evaluate energy diplomacy, is it affecting negatively or positively (hypothesis 3). Hypotheses 1 & 2 have evaluated the role of energy diplomacy through construction of Akkuyu and how it affected energy diplomacy with events from real life interactions between states or state representatives. Even though it could be argued that it was obvious that energy diplomacy would be affected negatively, the PT has allowed us to see in detail the events and causal relationships that create casualties. And show in fact there is a causality between construction of Akkuyu NPP and energy diplomacy. Additionally, the proven assumptions allow new space for other possibilities to be considered especially in spheres of ED between T-R. Thus the research is still valid in answering the research question as it evaluates the ED between T-R, in terms of negative or positive. Second, through help of PT the chronological events that have led to negative outcomes can be seen. And lastly, the research through help of the PT enables to see what extent ED plays a role in the decision on starting the construction of Akkuyu NPP (Hypotheses 1 & 2)

7.10 Recommendation for Practical Implementation

Recommendations can be divided into three parts, knowledge exchange, reconsideration of diplomatic strategies and evaluation of power dynamics. The Akkuyu NPP is the first ever nuclear power plant in Turkey. And even though the NPP is owned by Russia, the knowledge exchange should be improved between Rosatom and Turkish workers. To create experts in the field that could be beneficial for possibly a new NPP or Akkuyu project and overall for Turkey in general. Similarly, the students who were sent to Russia to study Nuclear energy and nuclear technology should be granted work in order to benefit from their education and be beneficial for the project or future projects.

If possible, there should be a reconsideration of the Akkuyu NPP contract. It's unlikely this will happen but more leverage can be acquired through reconsideration of diplomatic activities. Specifically, in issues such as the amount of Turkish citizens who can work in the Akkuyu NPP, as it was already in the contract. Especially through diplomatic activities to benefit people as they will acquire jobs and knowledge expertise gathered from working. It would allow for a start in a path of possible self sufficiency regarding nuclear technology in the future. Turkey currently aims to use as many domestic energy sources as possible thus it would be inline with growing demand for Turkey to utilize nuclear energy by itself in the future without being dependent. Lastly, the current dynamics are in favor of Russia. Which leaves little space for Turkey to have a voice in this matter. Revaluating current power dynamics in terms of the Akkuyu case and overall diplomacy should be evaluated for possibly improved diplomatic strategies in the future that could potentially help in various decision making processes for Turkey.

7.11 Ideas for Future Research.

For future research, the energy security and diversification should be evaluated in more detail as it is a crucial element of energy matters for Turkey. Turkey will continue to grow in energy demand, the current energy policies are aiming for more use of domestic resources to become more self-sufficient. As it is critical for Turkey with continued growth in populations. Evaluation and analysis of the effect of Akkuyu on diversification and security should be also further analyzed in order to create a better picture of energy security and diversification for TR. Furthermore, this research aimed to look at the specific case with the help of exploring outcome PT. The next step would be to compare it to other cases and give more attention to Russian energy diplomacy through analyzing various NPP that were built by Rosatom. It could be done via Theory testing PT, theory building PT or comparative case methods. It would enable us to understand Russian energy goals and how Rosatom plays a role in it in more detail. It is important as Russia aims to continue to develop its revenue source from Rosatom and develop energy policy accordingly. Also, effects of coercive diplomacy in the long term could be analyzed for Turkey and Russia. The coercive diplomacy used for Post Soviet countries usually resulted in states distancing themselves from Russia. As Ryan states, "Coercive diplomacy has little long term currency in foreign policy... the victimized state will find whatever leverage it can counter the

bully... it fails to achieve its desired ends in the long run because of this strategy." (Rivera, 2018, p. 206) This long term effect has not been studied in full and could give more insights about the Turkey Russian dynamics and Russian foreign policy goals outside the Post Soviet sphere.

8 CONCLUSİON

In the thesis three hypotheses were tested. The construction of Akkuyu NPP was used as an energy diplomacy tool by Russia to promote national interest was not proven but it passed the hoop test, indicating some promotion of national interest. But the energy diplomacy tool is a vast topic and should be retested and was given 2/ 5 grade as the alternative hypothesis also was not disproven, and proper conclusion was not reached. The second hypothesis, the construction of Akkuyu NPP was driven by both energy diplomacy and economic considerations was proven by process tracing, but due to possible bias of the researcher a reservation was put and was given a rating of 4 out of 5. Ideally it should be retested but it did reach the minimum sufficient explanation, thus the second hypothesis is considered proven. The third hypothesis, the construction of Akkuyu NPP negatively affected energy diplomacy between TR & RU has been proven and has been given 5 out 5 on rating scale. Additionally, combined with knowledge acquired from hypothesis testing and literature review there are also few strong indications outside of the hypothesis testing. Which can be divided into five main points.
After looking at the actions of Russian foreign and energy policy for the case of Akkuyu. It can be said that foreign policy, energy policy and coercive diplomacy are all used within the scope of energy diplomacy to acquire interest in energy and other topics.

Russian interests are met and achieved through various tools and energy diplomacy is one of the tools. This can be seen through hypothesis 1, which is demonstrated in hypothesis testing and in literature review, even with hypothesis 1 not proven conclusively, it still carries compelling indications.. Thus energy diplomacy helps not only achieve interests regarding energy matters but also other interests of the state through help of energy diplomacy. Which by "Russian strategy of energy diplomacy, and foreign policy is inline with the actions Russia does. The hypothesis testing and literature review support this notion as well.

Hypotheses 2 and 3 help better understand the nature of the relationship between T-R, and help to understand more Turkey's reasons for accepting and choosing to work with Rosatom. Hypothesis 2 & 3 demonstrate that economic consideration and other interests including energy matters which are in the scope of energy diplomacy are both valid in the decision making process of construction of Akkuyu. For Turkey this means an additional source of energy which was one of the aims but also increased interaction with Russia.Turkey most probably aims to acquire other interests in the future through interaction with the help of Akkuyu NPP. Which might indicate two things, Turkey uses Akkuyu and energy diplomacy as a possible leverage for future possibilities with Russia. And based on interaction between Turkey and Russia, Turkey hopes to continue to develop or sustain a utilitarian type of relationship with Russia.

Energy security of Turkey and energy policy of Turkey are not inline with the decision on building the Akkuyu NPP. The current literature demonstrates that Turkey's aim is to increase the use of domestic energy sources and increase energy efficiency as the energy demand will continue to grow due to the growing population, meaning energy security is a relevant factor in energy policy and decision making. Official documents on energy strategy also emphasize the need for secure energy supply and the need to increase energy security in broad terms.
The aim is to increase energy security with the help of diversifying the energy resources with regards to policy aims. Additionally, Turkey has been trying to diversify its natural gas portfolio as it has been highly dependent on Russian gas. Turkey by accepting the Akkuyu conditions has technically become more dependent on Russia. Many have argued that there have been alternatives especially in renewables as Turkey has a great potential for renewables and has been increasing its RES capacity as well. The Akkuyu Project thus creates more dependency on Russia and decreases energy security overall due to increased dependency on Russian energy sources.

Russia’s energy security is similarly based on diversification, and with the help of Rosatom and energy diplomacy, Russia moves towards diversification. The Rosatoms soft power element and energy diplomacy conducted pulls towards Rosatom via soft power, possibly achieving a more diversified energy market. And the Russian-Ukrainian war has made Rosatom even more vital due to sanctions on other energy sources of Russia, and the

nuclear sector has not been affected as much . Thus it is logical to utilize the capabilities of Rosatom and profit it brings.Furthermore, Russia, by having a NPP in Turkey allows more interaction and closer proximity with Turkey. Which ought to have an effect on security. Turkey is a NATO member and is located in a strategic location which Russia is also interested in. The Russian interest in the Caucasus region and Middle East is part of it. And NPP helps create an enhanced influence sphere that Russia aims to create. Additionally, asymmetric interdependence is enhanced by Akkuyu NPP. And because asymmetric interdependence is in favor of Russia, it allows Russia to demand more through utilizing coercive diplomacy in energy and other interests.

Lastly, The Akkuyu NPP will remain an important element of energy diplomacy, security and many other issues between Turkey and Russia as the long term contract and the expected life expectancy of NPP is approximately 60 years. It seems that the Akkuyu will further create unbalanced interdependence and will spillover to other matters that are vital for Turkey. It will be important to include the Akkuyu NPP in other international and domestic matters as Turkey Russian interaction will continue to grow and could give new insights about the relationship and future Russian energy strategy. The interconnected nature of Akkuyu NPP ought to affect the future of energy diplomacy and much more in the sphere of Turkey and Russia.

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ANNEX

9.1 Annex A: Export, Import, Trade Deficit Data

	Export to RU	Total Export of Turkey	Import from RU	Total Import of Turkey	Export Deficit	Total Trade between RU & TR
2013	7 213 894	161 480 915	26 046 541	260 822 803	- 18 832 646	33 260 435
2014	6 170 452	166 504 862	25 411 700	251 142 429	- 19 241 248	31 582 153
2015	3 684 263	150 982 114	20 744 050	213 619 211	- 17 059 787	24 428 313
2016	1 792 916	149 246 999	15 467 237	202 189 242	- 13 674 321	17 260 153
2017	2 869 847	164 494 619	20 097 027	238 715 128	- 17 227 180	22 966 874
2018	3 652 603	177 168 756	22 710 751	231 152 483	- 19 058 148	26 363 355
2019	4 152 137	180 832 722	23 115 236	210 345 203	- 18 963 099	27 267 373
2020	4 506 681	169 637 755	17 829 309	219 516 807	- 13 322 628	22 335 989
2021	5 774 392	225 214 458	28 959 361	271 425 553	- 23 184 969	34 733 753
2022	9 342 796	254 169 748	58 848 948	363 710 575	- 49 506 153	68 191 744

Value Thousand US

Source : TÜİK, Exports by country and year (top 20 country in exports) (general trade system) & Imports by countries, 2013-2023 (general trade system)

9.2 Annex B: Timeline for Process Tracing

Date	Event	Event Description	Source
1953	"Atoms for peace proposal in 1953 initiated intrest to enter the nuclear age"		Kaba, 2016, p. 40
1955	“Bilateral agreement with the US on cooperation on th civillian use of the atomic energy”		Kaba, 2016, p. 40
1957	"Turkey become memeber of the International Atomic Energy Agency and constructionof small research reactors began"		Kaba, 2016, p. 42
1968	"Turkey and Nuclear has been considered important in the design of the nation since the second 5 year devolopment plan"		Kaba, 2016, p. 41
1977	"Talks started with Swedsh firms but were canceled in 1979"		Udum, 2010, p. 115
1982	"The Atomic Energy of canada Limited (AECC), Siemens- Kraft Werk Union (KWU) of Germany and Genral Electrics (GE) of the United States were asked to submit bids"		Udum,2010 ,p. 116
	The Statute No. 7405, on “Licensing Nuclear Facilities” entered into force in 1983. InNovember 1983, the negotiations with AECL, KWU and General Electric started.334		Udum, 2010, p. 116
August 1984	"in August 1984, there was an agreement, the government declared that it changed the basic provision of the tender from turn key to build-operate-transfer (BOT). However, it discouraged the KWU and General Electric. On the basis of the turn-key agreement, it was agreed that a PHWR (Pressurized Heavy Water Reactor) and PWR would be built in Akkuyu, and then two BWR power plants in Sinop"	"result of the Canadian government’s decision that the BOT was too risky.337 Then, the AECL also faced financial problems when it asked a loan guarantee from the Canadian government and	Udum, 2010, p. 117

		banks, and could not receive it from the former.338"	
26.04.1986	Chernobyl Disaster		
May of 1988	"Without a tangible result from the talks with Canadian and German firms, Turkey sought other cooperative ventures in the nuclear field, and signed a nuclear cooperation agreement with Argentina"	“The talks with Argentine firms could not advance because of the decision to appoint the former head of Argentina’s nuclear energy commission as the new ambassador to Turkey. This decision caused unease on the part of the United States, the Soviet Union, Germany and Brazil. The United States worried that this technology could be transferred to Pakistan”. 119 udum	Udum, 2010, p. 117

1988	"The new administration of the TEK closed the Nuclear Power Plants Department in 1988 on the grounds that it was no longer necessary"		Udum, 2010,p. 118
1992	"Energy Ministry report presented nuclear power as an indispensable .349 option to prevent the energy shortage in the following two decades."		Udum, 2010, p. 121
1995	"In 1995, TEAŞ, in order to make the preliminary analysis of the Nuclear Power Plant (NPP) tender, awarded a consultancy contract to a South Korean firm, the Korea Atomic Energy Research Institute (KAERI), for the construction of 1,200 MWe nuclear plant to be built in Akkuyu.352"		Udum, 2010, p. 122
1997	"The tender announcement specified that the bids would be turnkey and with 100% financing. In early 1997, TEAŞ announced the bidders to construct the .353 Akkuyu nuclear power plant The period between 1996 and early 1997 was the initial phase of the bidding process, and during that time, it was reported that them AECL tried to convince Prime Minister Necmettin Erbakan on the grounds that the Canadian technology would render Turkey self-sufficient in nuclear power, because it used natural uranium instead of enriched uranium, by which TEAŞ could exploit domestic uranium resources		Udum, 2010,p. 122
1997	"Erbakan government ended with a crisis in early 1997, he was succeeded by the Mesut Yılmaz government. Yılmaz was determined to strengthen relations with the United States. The United States, Germany and France stepped up their lobbying activities respectively for Westinghouse, and for the NPI (Nuclear Power International: The Siemens-Framatome Consortium)."354		Udum,2010 , p. 123
April of 2000	"The Energy Minister, Ersümer, declared the decision by the government to postpone the nuclear-plant project until July 2000 due to financial constraints as a result of the IMF-backed economic 363 program." 124		Udum, 2010, p. 124

25.07.2000	"The late Prime Minister Ecevit declared that the tender for the nuclear power plants was cancelled due to the shortage of funds to construct the power plant."		Udum, 2010, p. 124
2000	"The cancellation of the tender in 2000 gave confidence to the anti-nuclear movement."		Udum, 2010,p. 125
2004	Putin has warned about Turkey about Gülenist movement		Aktürk, 2019
14.01.2004	"Turkey and the United States agreed to cooperate on them civilian uses of nuclear energy, and the agreement was ratified by the Parliament on 2004".	and allocated funds for research on domestic technology. The most important issue was financing. 130 (about akp gov and npp)	Udum, 2010, p. 126
08.2008	"Yildiz announced, following Russian President Putin's August visit, that the GoT would take a 25 percent stake in the project in return for a lowered price, observers objected that more companies may have bid if these terms had been laid out at the start."	Government of Turkey (GoT)	Wikileaks, Silliman, 2008
24.09.2008	"While the licensing work was continuing for the Sinop site, the government opened the tender (which it calls a "competition") for Akkuyu (which already had a license) and on September 24, 2008, some six consortiums responded, with only one filing a proposal: The Atomstroyexport-Inter Rao-Park Teknik consortium".		Udum, 2010, p. 131

10.11 .2008	“Decision by the Council of State (Danistay) to suspend several articles of the regulation governing the tender, regarding land allocation, determination of offtake prices,and necessary bidder qualifications”		Wikileaks, Silliman, 2008
18.11 .2008	“On November 18, Yildiz told the ambassador he wants the projects to begin in 2010 and may need "to break some rules" to move quickly. When asked by the press about the new tenders, Yildiz said, "let's not call it a 'tender process' but a 'process.'"		Wikileaks, Silliman, 2008
20.11 .2008	“November 20, the Turkish Electricity Trading and Contracting Company (TETAS) canceled the September 2008 tender to build and operate Turkey's first nuclear power plant.”		Wikileaks, Silliman, 2008
24.11 .2008	“November 24, Nilgun Acikalin, deputy general director for energy affairs at the Ministry of Energy, told econ officer and specialist that whether the projects go forward through a tender process or some new public-private structure, the nuclear tender law will have to be revised significantly, which will impede the minister's goal of getting the projects underway in 2010.”		Wikileaks, Silliman, 2008
19.12 .2008	“TAEK announced that the evaluation of the proposal is complete, and confirmed that the proposal met the criteria. It was then submitted to TETAŞ, the authorized institution to open the third letter submitted by the consortium, which contained the price per kWh.”		Udum, 2010, p. 131
19.01 .2009	“TETAŞ declared that the Turkish-Russian consortium’s offer was 21.16 cents per kWh, which far exceeded the expectations for an economical energy investment.397 Although it was acknowledged that nuclear power plant investments were expensive, this price tag was unaffordable for the government and did not meet the policy criteria of cost-		Udum, 2010, p. 132

	effectiveness. The acceptable price would be in the range of 10-12 cents.”		
12.05 .2010	“The countries made a joint decision that Akkuyu nuclear power plant,. The relevant agreement was signed between the Government of the Russian Federation and the Government of the Republic of Turkey in Ankara on May 12, 2010.”		Akkuyu
13.12 .2010	“On December 13, 2010, AKKUYU NUCLEAR Joint-Stock Company was incorporated to implement the project to create the first nuclear power plant in the Republic of Turkey.”		Akkuyu
2014	“The Ministry of Environment and Urbanization of the Republic of Turkey approved the Environmental Impact Assessment (EIA) report for Akkuyu NPP construction project.”		Akkuyu
2015	“The ceremony of laying the foundation of the offshore hydraulic structures of the nuclear power plant was held.”		Akkuyu
2015	The Turkish Energy Market Regulatory Authority (EPDK) issued AKKUYU NUCLEAR JSC a preliminary license for electricity generation.		Akkuyu
2015	A contract was signed with the Turkish company Cengiz İnşaat to design and build the offshore hydraulic engineering structures of the nuclear power plant.		Akkuyu
30.09 .2015	Russian Military intervention in the Syrian Civil War Started		
19.11 .2015	"Andrey Karlov, RU ambassador of Ankara, was summoned by TR F. Min. First time in a long time, warned about jet breaching”		Çelikpala, 2019, p. 18

23.11.2015	“Putin said The Assad regime & PYD need to unite forces”		Anadolu Agency, 2015
24.11.2015	Shutdown of SU-24		BBC, 2015
9.12.2015	“Russia halts work in Turkeys first NPP “(NOT CONFIRMED)	Rosatom apparently stopped construction work	Reuters, 2015
17.12.2015	"Putin says decision on Turkey NPP plant will be Purely Commercial"		Reuters, 2015
15.07.2016	Coup attempt by FETO	Russia is one of the first to state support for elected president Erdoğan, the US was much slower and hesitant.	Aktürk, 2019
17.07.2016	Putin called Erdoğan about the coup, expressed condolences and wished for the restoration of order.		Aktürk, 2019
9.08.2016	Erdoğan &Putin meet first time after jet incident, first meeting after normalization		MFA, 2016
9.08.2016	"Putin: Ankara Makes Positive Decision on Resuming Akkuyu, Turkish Stream"		Sputnik International, 2016
24.08.2016	“Operation Euphrates, (against ISIS)		
15.06.2017	"The project to construct four nuclear reactors has repeatedly run into delays, including being briefly halted after Turkey downed a Russian jet near the Syrian border in November 2015. Ties have since normalized between the two countries and work on the plant has resumed."		Reuters, 2017

2017	“The Turkish Atomic Energy Authority (TAEK) approved the design parameters for the Akkuyu NPP site.”		Akkuyu
2017	“The Energy Market Regulatory Authority issued AKKUYU NUCLEAR JSC a license to generate electricity valid until June 15, 2066 (49 years).”		Akkuyu
2017	“The Turkish Atomic Energy Authority issued a limited work permit to AKKUYU NUCLEAR JSC which was a significant step on the way to the NPP Construction License.”		Akkuyu
2017	“A solemn ceremony of construction commencement took place at the Akkuyu NPP site within the framework of the limited work permit (LWP). Under the LWP, construction and installation work was started at all facilities of the nuclear power plant, except for buildings and structures related to the safety of the "nuclear island".”		Akkuyu
29.12.2017	“Turkey and Russia sign a deal on supply of S-400 missiles"		Gumrukcu & Toksabay, 2017
20.01.2018	Operation Olive Branch		
3.04.2018	“On April 3, 2018, a solemn ceremony of pouring “first concrete” into the foundation of the first power unit of Akkuyu NPP was held with the participation of the Presidents of the Russian Federation and the Republic of Turkey via videoconference from Ankara. The ceremony became an official kick-off of full-scale construction work on Unit 1.		Akkuyu
2-3.05.2018	Albayrak met with PRC, energy officials & nuclear energy president, Wang Fengxu as well.		MFA, 2018
17.09.2018	"Russia and Turkey agree to create buffer zone in Syria's Idlib"	"Idlib was resolved with an agreement btw RU-TR	Reuters, 2018

		presidents in Sochi”	
2018	“In April AKKUYU NUCLEAR JSC received the full status of a strategic investor in the Republic of Turkey. An updated strategic investment certificate was issued based on the law on the status of "Strategic Investment", which had entered into force on March 27, 2018. The status of a strategic investor provides for tax and customs benefits.”		Akkuyu
2018	“Turkish Atomic Energy Authority (TAEK) granted AKKUYU NUCLEAR JSC the main construction license to build Power Unit 1.”		Akkuyu
2018	“TAEK issued AKKUYU NUCLEAR JSC a limited work permit for the construction of Power Unit 2 of Akkuyu NPP.”		Akkuyu
2019	“Excavation works of the foundation pit for the facilities of Power Unit 2 began within the framework of the received LWP.”		Akkuyu
2019	“Concreting of the foundation of the reactor building of Power Unit No. 1 was completed. Package of documents was sent to TAEK to obtain the construction license for Power Unit 3 of Akkuyu NPP.”		Akkuyu
2019	“In May 2019 the construction of the Eastern (Vostochny) Cargo Terminal was completed, and the Ministry of Transport, Shipping and Communications of the Republic of Turkey gave the permission for its operation. The terminal is designed to receive bulky cargoes, building materials and equipment, including components of reactor facilities, at the construction stages and further during the operation of the nuclear power plan”		Akkuyu
2019	“AKKUYU NUCLEAR JSC was issued the main construction license for Power Unit 2 of Akkuyu NPP by the decision of the Board of the Turkish Nuclear Regulatory Authority (NDK).”		Akkuyu

2019	"An agreement was signed to connect Akkuyu NPP to the power grid of the Republic of Turkey between AKKUYU NUCLEAR JSC and the Turkish Electricity Transmission Joint-Stock Company (TEİAŞ). The conclusion of this agreement will enable AKKUYU NUCLEAR JSC and TEİAŞ to commence full-scale work on the Akkuyu NPP grid integration scheme to be comprised of 6 high-voltage transmission lines to connect Akkuyu NPP to the power grid of Turkey."		Akkuyu
8.04. 2020	"On April 8 The construction of Akkuyu NPP Unit 2 was officially started, the foundation plate of the reactor building was laid.""		Akkuyu
2020	"The drilling and blasting works planned within the scope of the foundation pit for the construction of nuclear island facilities in the construction area of Unit 3 started."		Akkuyu
2020	"The application documents required for obtaining the construction license of Akkuyu NPP Unit 4 were submitted to the NDK."		Akkuyu
2020	"Second tier of internal containment shell was installed at Akkuyu NPP Unit 1."		Akkuyu
2020	"Core catcher for Unit 2 delivered to Akkuyu NPP site."		Akkuyu
2020	"Reactor pressure vessel dry shielding, a safety component providing reliable NPP operation in emergencies including earthquakes of intensity up to 9 points, was installed at Unit 1"		Akkuyu
2020	"Concrete pouring of two buildings' foundation slabs completed at Akkuyu NPP Unit 2. Four steam generators for Unit 1 delivered to Akkuyu NPP site."		Akkuyu
2020	"Equipment of major importance for Unit 1 – the reactor pressure vessel – delivered to Akkuyu NPP site, having covered a distance of 3,000 kilometers."		Akkuyu

2020	“Installation of the core catcher vessel into design position completed in the reactor building of Unit 2.”		Akkuyu
2020	“The Board of Nuclear Regulatory Authority approved the issue of construction license for Unit 3 in favor of AKKUYU NUCLEAR JSC.”		Akkuyu
2020	“The first tier of the internal containment shell (ICS) was installed on Unit 2. The inner containment is one of the key elements of the containment safety system of the reactor compartment. It ensures imperviousness inside the reactor building under any operating conditions of the nuclear power plant. Support truss, which is one of the most important elements of the reactor shaft equipment, installed on Unit 1. Elements of the reactor shaft equipment of the Unit 2 were delivered to the construction site.”		Akkuyu
2021	“First heavy component of the turbine set for Unit 1 delivered to Akkuyu NPP site.”		Akkuyu
2021	“Unit 1 reactor pressure vessel installation is completed at Akkuyu NPP construction site. Installation of the reactor vessel is carried out using the "Open Top" technology.”		Akkuyu
2021	“Third and fourth tiers of the internal containment shell installed at Akkuyu NPP Unit 1 reactor building. Preparations for the construction of Unit 4 started at Akkuyu NPP site.”		Akkuyu
2021	“Second tier of internal containment shell and main elements of reactor shaft, including support truss and thrust truss, installed on Akkuyu NPP Unit 2.”		Akkuyu
2021	“The Board of Nuclear Regulatory Authority approved the issue of construction license for Akkuyu NPP Unit 4 to AKKUYU NUCLEAR JSC.”		Akkuyu
2021	“Construction of the foundation slab for the pump station of Akkuyu NPP Unit 1 began.”		Akkuyu

10.03.2021	“A solemn ceremony dedicated to the start of construction of Akkuyu NPP Unit 3 took place on 10 of March. The ceremony was attended by Russian President Vladimir Putin and Turkish President Recep Tayyip Erdogan via video conference. The event was held at Akkuyu NPP site with the participation of Energy and Natural Resources Minister of Turkey Fatih Dönmez, Russian State Atomic Energy Corporation Rosatom Director General Alexey Likhachev, AKKUYU NUCLEAR JSC CEO Anastasia Zoteeva and other officials. The leaders of the two countries launched the laying of the "first concrete" in the foundation of Unit 3.”		Akkuyu
24.02.2022	Russian invasion of Ukraine		
2022	“Fifth and sixth tier of the containment installed at the reactor Akkuyu NPP Unit 1.”		Akkuyu
2022	“A set of 4 steam generators for Akkuyu NPP Unit 2 was delivered to the East Cargo Terminal.”		Akkuyu
2022	“Welding of the reactor coolant pipeline at Akkuyu NPP Unit 1 has been completed.”		Akkuyu
2022	“The first large-size equipment - a core catcher - is installed in the reactor building of Unit 3 of the Akkuyu NPP.”		Akkuyu
2022	“The reactor pressure vessel is installed at Unit 2 of the Akkuyu NPP.”		Akkuyu
2022	“The sixth layer of the inner containment has been installed at Unit 1.”		Akkuyu
2022	“The second layer of inner containment was installed at Unit 3.”		Akkuyu
2022	“A temporary desalination plant has started operating at the Akkuyu NPP construction site.”		Akkuyu
2022	“An overhead crane was installed at the turbine hall of Unit 1.”		Akkuyu
2022	“There was a flushing of process systems to the open reactor at Unit 1.”		Akkuyu

2022	“The inner containment dome has been installed in the Reactor Building of Unit 1.”		Akkuyu
14.06 .2022	"Aleksey Overchuk come to Ankara to talk behind close doors"	cont. Talks about changing currency from dollar to rouble by bypassing embargo, Turkey needs investment, cheaper energy prices	Yetkin, 2022
17.07 .2022	4th Power Unit Opening Ceremony		T.C. Enerji Bakanlığı
21.07 .2022	“4th Power Unit Opening Ceremony everything is fine/ many were praised”		Yetkin, 2022
21.07 .2022	“On July 21, 2022, a ceremony was held to mark the start of construction of Unit 4. The Akkuyu NPP project has entered its peak construction phase.”		Akkuyu
25.07 .2022	"Rosatom Collected bids from potential creditors to provide a 6.1 billion credit line to finance Akkuyu Nuclear JSCA its subsidiary in Turkey"		Soylu, 2022
28.07 .2022	“TR - Rosatom decided to pursue the credit line1 day before its subsidiary Akkuyu Nuclear JSC canceled its contract with the TurkishRussian contractor Titan 2 İç İçta, citing various violations such as security and insurance."		Soylu, 2022
29.07 .2022	Erdoğan announces he will visit Putin in Sochi		Yetkin, 2022
29.07 .2022	After the announcement, the İçtaş company was fired.		Yetkin, 2022
30.07 .2022	“A contract was signed with TSM Energy Construction Industry Limited Company for the project, which is in its final stages of construction in Akkuyu, which will be Turkey's first nuclear power plant. Within the scope of the existing		CNN türk, 2022

	subcontracts in the Akkuyu NPP Project, all ongoing work has been transferred to TSM.”		
3.08. 2022	Middle E. Eyes Ragıp Soylu reported Rosatom had signed a deal with Gazprombank on this day		Yetkin, 2022
5.08. 2022	Meeting between Putin & Erdoğan in Sochi(Akkuyu issue was not resolved)		Yetkin, 2022
9.08. 2022	Erdoğan met with officials both from Rosatom & Akkuyu, the committee agreed that there would be joint report	Slow due to Russian resources exchange negotiations with Treasury and finance ministry	Yetkin, 2022
11.08 .2022	"The Ministry of Energy makes a statement regarding Akkuyu, it's not all perfect, we have faced some issues. "		Cumhuriyet , 2022
3.09. 2022	Putin and Erdoğan talked about Akkuyu report		Yetkin, 2022
14.09 .2022	"Rosatom published deal signed on August 3,	opens a line of credit to finance Akkuyu nuclear JSC, its subsidiary in Turkey.	Yetkin, 2022
13.10 .2022	At The Astana Meeting, Putin &Erdoğan , talking points were supposed to be UA & grain deals, but talked about Turkey and energy hub.		Yetkin, 2022
13.10 .2022	Supposedly, Russia even talked about constructing additional pipeline	but when asked to E. Min of Tr, he didn't even know this topic	Yetkin, 2022
29.10 .2023	Start producing electricity in Akkuyu		Tccb, 2022