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ENERGY AND ENVIRONMENT IN TURKISH-BULGARIAN RELATIONS

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Abstract

This paper focuses on the changing role of energy and environment in Turkish-Bulgarian relations since the second half of the 2010s. The energy ties between the two countries strengthened since then after reaching at least two critical milestones. The first is the synchronous integration of Turkey's electricity grid to the EU power transmission network, and the second is the TurkStream natural gas pipeline that extends towards Bulgaria. These two crucial developments necessitated Turkey's energy laws to be in harmony with the EU regulations. On the other hand, Turkey's environmental policies are not fully harmonious with the EU policies and rules, and bilateral environmental relations remain relatively immature. This paper aims to analyze the main aspects of the energy, environment, and water policies in Turkish-Bulgarian relations and identify reasons for the challenges in the issue areas in the regional environment. The main research question of the paper is whether the main weaknesses in the implementation of environmental sustainability policies are related to governance issues in the countries. To answer this question, this paper compares the three aspects of Turkey's energy and environment relations with Bulgaria, i.e., natural gas trade, electricity trade, transboundary rivers. The methods used include examining fundamental laws, regulations, documents, and reports of the energy and environment regulators. The authors investigate the perceptions and opinions of the people, politicians, media, civil society, and political parties about energy trade and transboundary water issues. The paper argues that joint transboundary initiatives, strong incentives for cooperation, and the existing regulations in place since the early 2010s are insufficient to successfully implement environmental policies. Instead, government effectiveness is crucial for achieving a sustainable regional environment.

Keywords: Energy policy, Environmental policy, Natural gas trade, Electricity trade, Transboundary rivers

Introduction

Turkey and Bulgaria are neighboring countries with long-lasting political ties as well as a shared natural environment in the Balkan Peninsula. Water, energy, and

environmental policies have been integral parts of this shared history and have been undergoing a significant transformation since the 2000s, during and after the European Union (EU) membership process of Bulgaria and Turkey. The transformation accelerated in the 2010s, with the strengthened bilateral cooperation in electricity and natural gas transfers. On the other hand, bilateral environmental relations remained relatively immature, and as a result, the sustainability of the regional environment was jeopardized. While Bulgaria's accession to the EU directly and blatantly impacted its national and regional energy and environment policies, Turkey still has to deal with the EU in energy and environment subjects in the accession process, which necessitates Turkey to harmonize its legal and institutional framework with the EU regulations.

This paper analyzes the energy and environment relations between Turkey and Bulgaria by focusing on the role of the EU and the accession process. The paper argues that the sound relations in natural gas and electricity between Turkey and Bulgaria are boosted by a favorable business environment and mutual economic gains. On the other hand, as energy and environment constitute a nexus, the developed energy relations will more likely have spillover effects on the environmental sphere, especially regarding the transboundary rivers in the Balkans. Based on the relationship between sustainable development and good governance practices (van Zeijl-Rozema et al., 2008), the main hypothesis of this paper is that joint transboundary initiatives, strong incentives for cooperation, and the existing regulations in place since the early 2010s are insufficient to successfully implement environmental policies. Instead, government effectiveness is crucial for achieving a sustainable regional environment. In parallel, the main research question of the paper is whether the main weaknesses in the implementation of environmental sustainability policies are related to governance issues in the countries.

The main framework of this paper is shaped in accordance with the nexus approach that scrutinizes energy and environment as an interrelated complex. According to the nexus approach, the environmental and energy issues should rely on "multisectoral" and "multistakeholder processes" on multi-state or regional levels (Keskinen et al., 2016, p. 14). As numerous works in the literature suggest (Ackerman & Fisher, 2013; Biswas, 2008; Gleick, 2014; Gonzalez et al., 2020; Hussey & Pittock, 2012; Siddiqi & Anadon, 2011; Sovacool & Sovacool, 2009; Walsh et al., 2015), policies on water or the environment impact energy policies, and vice versa. Furthermore, in the area of energy and energy supply, in particular, "the interconnectedness of energy markets and their supply routes requires close coordination between neighbour countries to ensure the security of supply" (Grishin et al., 2021). Transboundary river basins, multi-state energy settings, and shared regional environment, therefore, constitute a system that needs to be evaluated as a whole on state, bilateral, and regional levels.

In order to achieve the scientific goals, this paper applies the following methods and approaches: historical approach, analysis of the content of legal documents and

news articles, secondary processing of quantitative data, and expert assessments. The energy and environment experts in Turkey and Bulgaria provided invaluable perspectives via in-depth interviews conducted by the authors. The interviewees are bureaucrats at the energy ministries and regulatory bodies in both countries, politicians, and academicians. The processed quantitative data is from the national statistical institutes of Turkey and Bulgaria and energy regulators.

1. The analysis of EU accession and regional agreements

1.1 Turkey

In its relations with the neighbors, the governments of Turkey have prioritized high-political issues such as national security or regional trade (Elver, 2010, p. 16), and the environmental problems are mostly ranked low on the agenda of the diplomats. The international agreements on water and the environment have often been a source of concern over sovereignty. As a reflection, the Turkish governments did not sign some essential international environmental agreements such as the 1992 UN Water Convention and the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses. On the other hand, the EU accession process has been a critical element that pushed Turkey to revise its environmental policies. Since the opening of the environment chapter in 2009, Turkey has amended many environmental laws (Delipınar & Karpuzcu, 2017). Nevertheless, a complete compliance status was not achieved to harmonize Turkey's national environmental laws with the EU, as repeatedly indicated in the *Turkey Report*s of the European Commission between 2015 and 2020.

Transboundary river basins are a vital part of the environment chapter. As a candidate for full membership to the EU, Turkey is bound with the EU Water Framework Directive. According to Article 4 of the Directive, the member states shall ensure the "good status" of the water bodies within the EU no later than 2015. The river basins should be managed according to the geographical, instead of political, boundaries. For this to be achieved, the "river basin districts" must be established. Following the Directive, Turkey defined six river basins and 25 sub-river basins. The international river basins determined by the Turkish water authority (Directorate of Water Works) are the Asi, the Fırat, the Dicle, the Çoruh, the Aras, and the Maritsa-Ergene river basins (Moroglu & Yazgan, 2008, p. 275). In addition, Turkey drafted a new water law with the involvement of government institutions, non-governmental organizations, academia, and foreign experts (Delipınar & Karpuzcu, 2017; Tarım ve Orman Bakanlığı, 2019). However, this law was not enforced as of 2021.

According to Article 13 of the Water Framework Directive of the EU, the member states shall produce a "river basin management plan for the river basins." If the river basin extends beyond the boundaries of the EU, the member states "shall endeavor to produce a single river basin management plan, and, where this is not possible, the

plan shall at least cover the portion of the international river basin district lying within the territory of the Member State concerned" (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy, 2000). However, as the next section discusses, despite joint projects and efforts, some significant regional environmental issues such as water pollution and flooding remained unresolved because of a lack of coordination in basin-wide integrated water resources management in the transboundary Maritsa river.

In the subject of energy, Turkey's progress towards EU *acquis* is relatively faster. The EU accession process necessitates Turkey's energy markets to be liberalized and opened to the private sector. To begin with the electricity sector, the involvement of the private sector in electricity production and transmission activities, which started in the early 1980s, gained pace in the 1990s (laws enforced in 1994, 1996, 1997, and 1999) and the 2000s (Çetintaş & Bicil, 2015, p. 10). In 2001, the Electricity Market Law (Elektrik Piyasası Kanunu, 2001) was introduced (which was amended in 2005 and 2012) to increase competition and liberalization of the electricity market. Also the same year, a regulatory body was established for the electricity markets in Turkey. A brand new Electricity Market Law has been in force since 2013 (Elektrik Piyasası Kanunu, 2013), intending to give the public sector solely the regulatory role (Uzlu et al., 2011; Yüksek & Kaygusuz, 2006; Yüksel, 2008). In addition, critical legal regulations were made in 2005 and 2011 to increase renewable sources in electricity generation. These regulations aimed to increase Turkish electricity prices' competitiveness in the European market (Carafa, 2012).

The liberalization wave of the energy sector in the 2000s impacted Turkey's natural gas market as well. In 2001, the Natural Gas Market Law was introduced (Doğal Gaz Piyasası Kanunu, 2001). With this new law, private sector companies were allowed to import natural gas. The public sector natural gas company, BOTAŞ, which held the monopoly to sign contracts with natural gas suppliers, handed over its assurances to the private sector companies through auctions (BOTAŞ, 2012). The legal amendments and regulatory changes mentioned here facilitated the increase of energy trade with the EU, which forces its members to sustain trade relations with private companies within a functioning free market mechanism instead of government-owned enterprises.

1.2 Bulgaria

As an EU member state, Bulgaria transposed all EU legislations and acts concerning energy, environment, and water and is currently in compliance with the EU *acquis*. In terms of environment, official reports suggest that Bulgaria transposed the Union's legislation and covered the requirements under Chapter 22 on the environment (European Institute, n.d.). Nevertheless, the implementation of some of the rules and laws continues to pose challenges after the accession. One of the most

significant problems related to the environment is air quality. Such unresolved problems often increase the pressure from the EU institutions on Bulgarian governments. For instance, at the end of 2020, the European Commission applied to the Court of Justice on the ground that Bulgaria "systematically and continuously failed to comply with the limit values for particulate matter (PM10) and to adopt appropriate measures to keep the period of exceedance as short as possible" (European Commission, 2020).

The compliance in terms of water was in early stages in the 2000s. According to the monitoring report on the state of preparedness for EU membership of Bulgaria and Romania dated 26 September 2006, Bulgaria still had to make changes in the Law on Water to fully adopt the EU Water Framework Directive (CEC, 2006, p. 30). Although the legislation was not fully transposed at that time, significant progress had been made in the pre-accession process. In fact, during this time, Bulgaria adopted the EU principles on water basin management alongside the establishment of river basin management districts and the relevant authorities (Tuntova, 2012). Bulgarian territory was divided into four river basin districts (RBD) for basin management: Danube RBD, Black Sea RBD, East Aegean Sea RBD, and West Aegean Sea RBD. Three of them share water with Bulgaria's neighboring states, and one is a national river basin – Black Sea RBD (European Commission, n.d.).

As concerns Bulgaria's EU accession and the requirements to the country in the area of energy, three significant transformations can be identified: 1) closing of four nuclear power plant units, 2) liberalization of the electricity market and natural gas market, and 3) restructuring of a coal-fired power plant (European Institute, n.d.). Before the EU accession, Bulgaria fulfilled the first task, and by the end of 2002, units 1 and 2 of Kozloduy NPP were closed. Before the accession, at the end of 2006, units 3 and 4 of Kozloduy NPP stopped operating (European Commission, 2011, p. 34). According to the Bulgarian authorities, liberalization of the electricity market is following the requirements of the EU. It is carried out in stages to create conditions for competition between electricity producers and freedom for consumers to choose their suppliers. However, it seems that Bulgaria's liberalization of its electricity market in line with the European regulations is in delay compared to the other member states, and to a great extent, the liberalization steps are not complete or are perfunctory. Currently, "the electricity market in Bulgaria follows a hybrid model, in which part of the transactions for the sale of electricity are concluded at regulated prices approved by the regulator, and the rest is traded on the liberalized market at freely negotiated prices" (Andreeva, 2015, p. 46). A step towards liberalization was made in 2019 under the Directive 2019/944 (5 June 2019) on common rules for the internal electricity market. Thus, the Bulgarian electricity companies need to sign a contract for energy supply on the free market (Republic of Bulgaria Ministry of Energy, n.d.).

The EU membership of Bulgaria also requires liberalization of the natural gas market. This process is challenging because of the "existence and operation of

Bulgargaz and Bulgartransgaz" (Hiteva and Maltby, 2014, p. 128). According to Hiteva and Maltby (2014), these state-owned companies present an obstacle to the liberalization of the gas market in Bulgaria and the EU's energy security strategy. The low level of independence of these two bodies can undermine the EU's Third Energy Package implementation. Furthermore, these intermediaries can damage free competition by influencing market participants (Hiteva and Maltby, 2014). The restructuring of a coal-fired power plant is an ongoing process related to other issues such as the liberalization of the energy market. It also has social aspects related to employment in the energy sector (Gocheva, 2021).

1.3 The bilateral agreements and institutions

Turkey and Bulgaria signed the first agreement on transboundary river management and cooperation in 1968. Other agreements such as those in 1993 and 1998 covered water purchases of Turkey from Bulgaria and the electricity trade. Cooperation between Turkey and Bulgaria in the use of transboundary water resources was stressed in a joint declaration of the environment ministers on cooperation in the field of water resources in 2012. Besides these agreements and joint declarations, there have been some joint projects between the three riparian countries on water quality and flood prevention (Sağlam Köşker, 2015; Tuncok, 2015). There have been extensive EU-led projects as well. For instance, Turkey and Bulgaria have undergone significant cooperation under Interreg Program between 2014 and 2020. This program provides pre-accession assistance to the candidate countries (Interreg, 2018). It covers the shared environment between Turkey and Bulgaria and will continue in the sixth term 2021-2027, financing "projects related to the development of sustainable tourism and environment" (Interreg, 2018).

The Law on Waters adopted in 1999 established the basis of bilateral cooperation of Bulgaria with its neighbors (Ministry of Regional Development and Public Works, 2020). According to this legislation, Bulgaria "shall participate in development and coordination in cooperation with other countries of policies, programs, and strategies of transboundary waters on the grounds of principles." A crucial part of transboundary cooperation is the early warning systems for floods (Tuncok, 2015). The cooperation with Turkey on transboundary rivers focuses on the Maritsa, the Arda, and the Tunca river basins. According to the data of the Regional Dialogue on Transboundary Water Resources Management in Southeastern Europe (GWP-Med, n.d.), since 1979, water in these river basins was monitored by five stations in Turkey and four in Bulgaria. From 2005 to 2008, under the Phare program, Bulgaria developed a project on capacity improvement for flood forecasting and early warning for the Maritsa and the Tundja (Tunca) rivers. A system for flood analysis and an early alert was developed to support the Bulgarian and Turkish water authorities (Phare MRDPW, 2021).

Bulgaria and Turkey have numerous bilateral agreements and joint projects on the environment and transboundary rivers. On the other hand, there are

no intergovernmental or regional organizations specializing in the integrated management of transboundary water resources. Examples from other parts of the world show that permanent intergovernmental bodies specializing in river basin management may facilitate water-related environmental issues (Sakal, 2020). The analysis of the bilateral agreements here shows that both countries' legislative organs took some crucial steps to establish grounds for regional cooperation to solve the regional environmental problems. Lack of coordination, the absence of established regional institutions on the environment, and the reluctance of policy implementation complicate the solution of continuing environmental issues, which are summarized in the next section.

2. Regional water and environmental issues

The Maritsa river basin is densely populated, and the agricultural and industrial activity is high. Large cities such as Plovdiv, Stara Zagora, Haskovo, Pazardjik, and Edirne within the Maritsa river basin increase environmental stress (Skoulikidis et al., 2009, p. 436).

In the Maritsa river basin, a paramount concern about the regional environment is water quality since the late 1980s. The primary sources of river pollution from the Bulgarian side in the 1990s were mining, especially around the Topolnitza river, and industrial activities, particularly around the cities Pazardjic and Plovdiv, as well as around Dimitrovgrad and Stara Zagora (Sadovski, 1992, pp. 309–310). From the Turkish side, Edirne province and nearby industries produce pollution. Malkara, Keşan, and İpsala contribute to the contamination of water through agricultural and urban wastewater drainage. The population density and agricultural activity are higher on the Turkish side of the basin (Dimitriou & Mentzafou, 2016, p. 7). Agricultural activities and the use of chemicals in agriculture, especially in Edirne and Plovdiv, as well as around Haskovo and Harmanlı, increase the level of contamination. Also, domestic wastewater treatment in the whole basin is unsatisfactory (Nikolaou et al., 2008, p. 310; Skoulikidis et al., 2009, pp. 436–437).

Flooding is another issue of concern in the Maritsa river basin. Heavy rainfall or fast snowmelt are the most common causes of most floods in the basin (Nikolaou et al., 2008; Stoyanova & Artinyan, 2010). Also, uncontrolled water release from the dams in Bulgaria (Darama, 2009) and the small islets in the riverbed established by sediments that reduce the river's water capacity deteriorate the situation even further (Sağlam Köşker, 2015, p. 7). Observations show that since the 1960s, floods became more frequent, and the water loads during floods have been higher (Roelevink et al., 2010, p. 4). The successive inundations in 2005 (four floods in a year), 2006, and 2007 revealed the importance of transboundary water management and cooperation among the riparians. Climate change exacerbated the situation, along with the dam management policies of Bulgaria (Angelidis et al., 2010, p. 2471). Proper and

collaborative management of the dams may prevent floods downstream (Angelidis et al., 2010, p. 2483; D. Yıldız, 2015).

With support from the EU, a flood forecasting early warning system was installed in November 2008. The system collects hydrological data, processes, and publishes them online (Phare MRDPW, 2021). Despite efforts, floods in February 2010 and 2015 caused severe damage in Edirne (Sağlam Köşker, 2015, p. 10). To prevent further devastating floods, a joint dam project near Suakacağı village in Turkey has been on the agenda of the Turkish and Bulgarian authorities since 1968. A protocol was signed between Turkey and Bulgaria in July 2006 for the construction of the Suakacağı (or Tunca) Dam (Radikal, 2007). The project showed little or no progress since then (Bitti, 2020).

Another problem is salty seawater intrusion in the mouth of the Maritsa river because of reduced flow. Especially when water flow is less than 30 cubic meters per second, salty seawater can flow up to 35 kilometers upstream in the Maritsa river in the reverse direction. One reason for the water flow reduction is dams located on the Bulgarian side (Sağlam Köşker, 2015, p. 12; Samsunlu et al., 1996, p. 447). In general, it is observable that the water of the Balkan rivers has been reduced significantly since the 1950s. A drought occurred in the late 1980s and the early 1990s, which further decreased the water flow (Skoulikidis et al., 2009, p. 439). Historical data indicate a downward trend in the mean annual water discharge of all rivers in Turkey since the 1970s (M. Yıldız et al., 2007, p. 136). During the drought periods, Turkey buys water from Bulgaria to maintain irrigated agricultural activities in Edirne (Sağlam Köşker, 2015, p. 12).

3. Regional energy trade

In the sphere of the environment, significant regional environmental problems remain despite bilateral agreements, joint declarations, and projects. On the other hand, there is closer cooperation between the two countries in the field of energy, and the trade volume tends to increase. As this section discusses, the EU accession process and membership negotiations, as well as EU institutions, have a considerable impact on this situation. Cooperation in the field of energy is progressing faster due to increasing business opportunities and mutual economic gains through energy trade. The high-level energy cooperation contributes to the diversification of natural gas supplies, liberalization of the energy markets, and decarbonization of the energy sector of Europe (CSD, 2016). This section discusses the relations regarding natural gas and the bilateral electricity trade relations in the process of EU accession.

3.1 Natural gas

Substantial changes in the regional natural gas relations occurred predominantly in the second half of the 2010s. These changes increased bilateral energy cooperation

and altered the regional dynamics of energy politics. In 2018, two critical natural gas pipelines, the Trans-Anatolia Natural Gas Pipeline (TANAP) and TurkStream, were completed (Geropoulos, 2018; Sevim, 2013). Both pipelines have extensions to Bulgaria. The former, TANAP, is the central part of the Southern Gas Corridor Project (SGC) to deliver natural gas from the Caspian Sea towards Europe (SGC, 2021). The interconnection between the Bulgartransgaz of Bulgaria and BOTAŞ of Turkey aims to achieve a more competitive natural gas market and integration (Bulgartransgaz, n.d.). The interconnection with Turkey is also related to establishing the Balkan Gas Hub in 2019 in Bulgaria (Balkan Gas Hub, 2019).

Bulgarian authorities see the natural gas connections with the SGC through an extension from Turkey as a vital aspect of energy supply security (Republic of Bulgaria Ministry of Energy, 2015). At the same time, Bulgarian authorities plan to use the TurkStream pipeline (instead of using the pipeline that passes through Ukraine and Romania) as the primary supply source (%90 of Bulgarian natural gas demand (CSD, 2020)) as of 2020. Using the TurkStream pipeline as the primary source will reduce transit costs for Bulgaria (RFE/RL, 2019), making it a transit country after accomplishing the Balkan Stream pipeline towards Serbia and Hungary that will pump the natural gas from the TurkStream (Nenov, 2020).

According to the Bulgarian prime minister Boyko Borisov, "the [TurkStream] project would allow Bulgaria to become a main gas distribution center" (3e News, 2019). Another aspect of the Turkey-Bulgaria cooperation is the 2018 bilateral cooperation agreement signed between the countries' energy regulators, which aims to increase the region's energy security (Energy and Water Regulatory Commission, 2018). The Bulgarian deputy minister of energy, Zhecho Stankov, on this occasion, stated that "the communication between BOTAŞ and Bulgartransgaz is very good" and that the "energy flows are increasing with time, which is helping both countries" (Şengül, 2018).

The TurkStream and its Bulgarian part Balkan Stream are seen as an aspect of increasing Russian dominance in the European natural gas market. Therefore, the United States (US) government has long been against it, and these two projects are subject to US sanctions (Blank, 2021; Russia Monitor, 2020). Despite severe criticism from the EU and the US, the Bulgarian government is determined to complete the Balkan Stream (Conley et al., 2016). The energy policy is tightly related to geopolitical issues. Some believe that the TurkStream and the Balkan Stream can deepen the Bulgarian dependency on Russia (CSD, 2020).

As concerns the Bulgarian energy system, its strategic geographical position is a prerequisite for successful diversification (Ganev, 2009). Tchalakov and Mitev believe that Bulgaria has two options – 1) to have an independent energy system, which means local, less import, new energy technologies, and efficiency; or 2) to defend the country's position as a key energy hub in the Balkans (Tchalakov & Mitev, 2019). Instead, Petar Petrov, a Bulgarian energy expert, believes that the future of Bulgarian

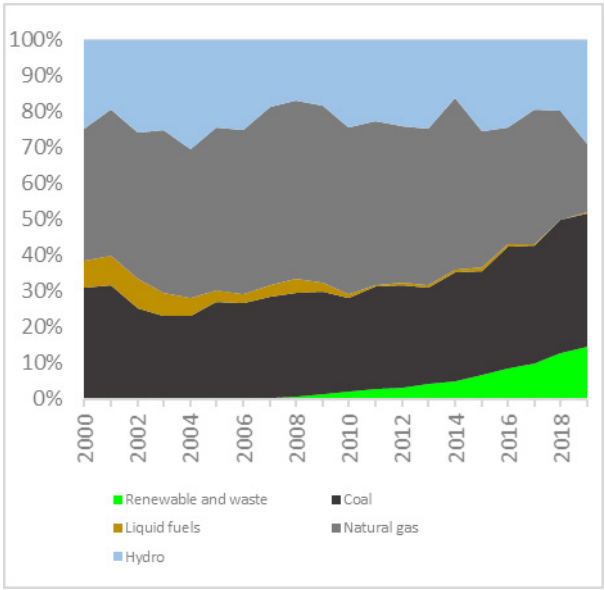
energy policy should be focused on its position as a Southeastern entrance to the EU (personal communication of the authors). In this regard, bilateral cooperation with Turkey is of extreme significance.

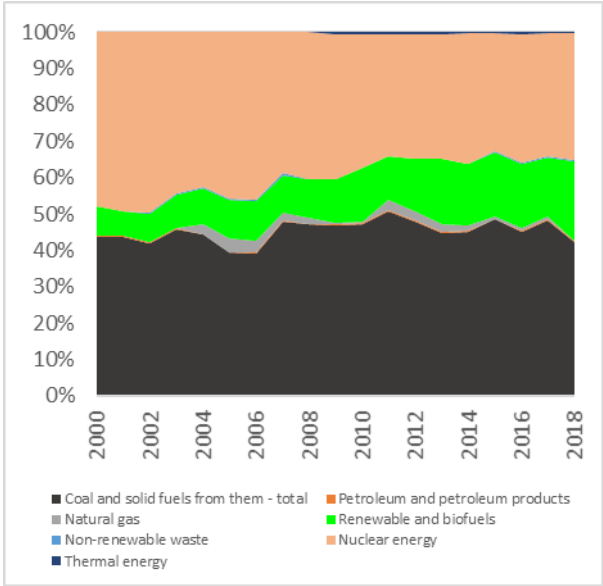
3.2 Electricity

In the field of electricity, the bilateral relations between Turkey and Bulgaria have been quite strong. The increase of renewables in the electric energy generation in both countries following the EU environment policies has added another dimension to the bilateral electricity trade relations. Both countries have revised their electricity generation practices and trade policies per EU *acquis,* and the transboundary energy transfers became possible through the EU institutions and a joint electricity market.

Since the early 2010s, Turkey has embraced a policy of achieving sustainable energy supply security with domestic and renewable sources (Akpınar, 2013; Berkun, 2010; Koç, 2014). In parallel, the share of renewables in total installed capacity has increased since the mid-2000s (*Figure 1*). With the revised energy policy of Turkey focusing on renewables, an increase in both clean and sustainable electricity production is aimed and encouraged, in parallel with the EU energy policies (Erdogdu, 2011, p. 694; Yuksel & Kaygusuz, 2011, pp. 4140–4143). Some legal arrangements in the 2000s and 2010s and government guarantee mechanisms facilitated the investments in renewable electricity (Kucukali & Baris, 2009, pp. 3874–3876).

Figure 1. *Electricity production in Turkey (left) and Bulgaria (right), according to the sources*





Source: Authors' calculations, based on data from the national statistical institutes of Bulgaria (NSI, 2021) and Turkey (TurkStat, 2021a).

The European Green Deal sets the direction of the environmental policies of the EU member states. Formally, renewable energy has been a priority for Bulgaria, but it seems that there is a lack of commitment to its values and goals. The renewable energy policy of Bulgaria was marked by inconsistency, which is a result of the protection of private financial interest. Thus, Bulgaria's challenges in this area persist (Andreas et al., 2018). Nevertheless, *Figure 1* shows that the share of renewables and biofuels increased from 7.9 percent in 2000 to 21.6 in 2018. In thousand tonnes of oil equivalent, they increased from 776.5 in 2000 to 2584.3 in 2018. According to Zhecho Stankov, former Bulgarian deputy minister of energy, by 2030, the energy from renewables may reach 30 percent (personal communication of the authors).

The electricity pool that enables electricity transfers between Turkey and the EU is the European Network of Transmission System Operators for Electricity (ENTSO-E), first established at the end of 2008 in Brussels. It encompasses 42 electricity transmission operators of 35 countries. One of the main objectives of ENTSO-E is increasing the share of renewables in European electricity production (ENTSO-E, 2019a). Under the ENTSO-E mechanism, Turkey's electricity transfers with Bulgaria occur through two high-voltage transboundary interconnectors (*Table 1*).

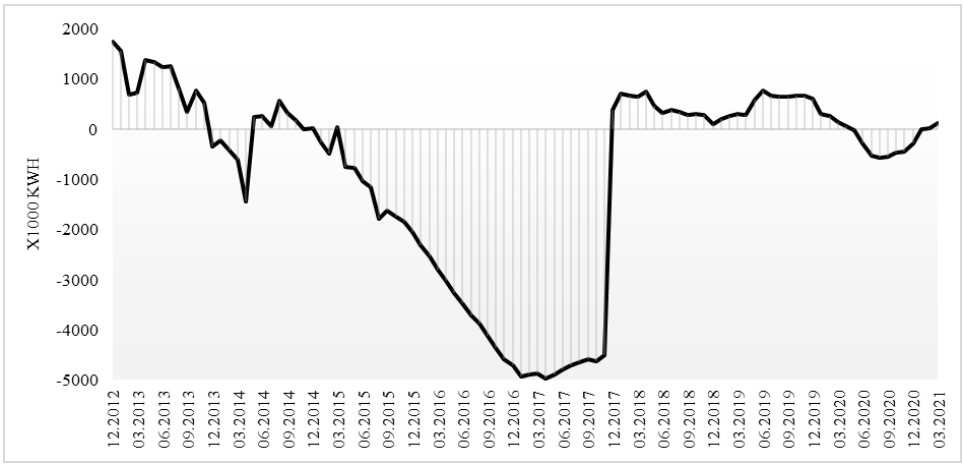
Table 1. *Electricity interconnections between Turkey and Bulgaria*

Interconnection	Capacity	Length
Hamitabat (Turkey) – Maritsa East (Bulgaria)	400 kV	158 km
Hamitabat (Turkey) – Maritsa East (Bulgaria)	400 kV	149 km

Source: (TEİAŞ, 2019).

The initial works began in September 2010 to integrate Turkey's network to the European ENTSO-E network. After initial technical tests, limited capacity transfers between ENTSO-E and the grid of Turkey began in June 2011. These limits were increased after April 2013. In the meantime, Turkey's import capacity from the ENTSO-E system was increased to 650 megawatts while its export capacity was set at 500 megawatts (ENTSO-E, 2019b; TC Enerji ve Tabii Kaynaklar Bakanlığı, 2016, pp. 78–79). In April 2015, a long-term agreement was signed between Turkey's state-owned electricity transmission company (TEİAŞ) and ENTSO-E Regional Group Continental Europe. In January 2016, TEİAŞ joined the group of ENTSO-E member countries as an observer member (TEİAŞ, 2019). In 2016 and 2017, Turkey's electricity imports from Bulgaria reached to peak level. Between January 2018 and April 2020, Turkey became a net exporter of electricity to Bulgaria (*Figure 2*). This situation, especially at the beginning of 2020, was widely discussed in Bulgaria because Bulgaria became a net importer of electricity (Gocheva, 2020; Mediapool, 2020; Tsanev, 2020).

Figure 2. *Turkey's net electricity energy exports to Bulgaria, 12-month aggregate*



Source: (TurkStat, 2021b).

The EU directives necessitate the members to increase the share of renewables in the final consumption of energy. Turkey's participation in the ENTSO-E system is a critical step in achieving environmental goals for the EU. The 2009 and 2018 EU directives on promoting renewable energy use allow the EU member states to *import* renewable electricity from outside the EU to increase their shares in renewable energy consumption. These regulations drove Turkey to integrate the electricity market with the EU. For Bulgaria, importing electricity produced from renewable resources became a viable policy option to reach the goals defined in the relevant directives (Sakal, 2020).

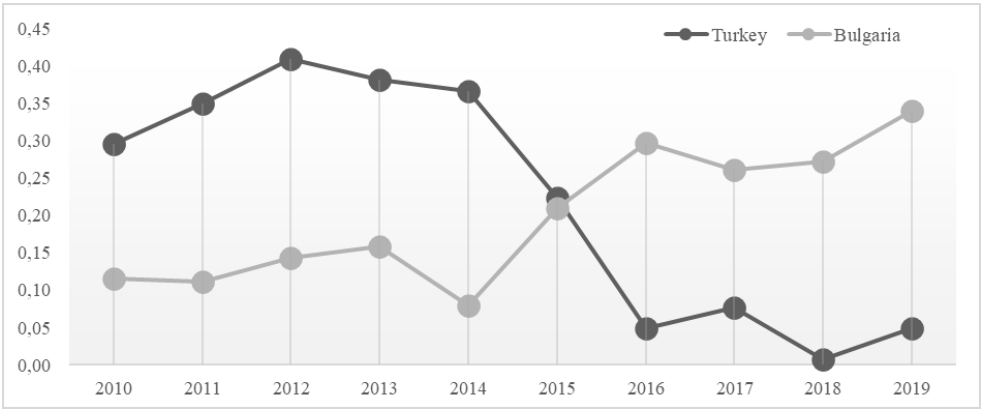
Energy experts estimate that, as of 2020, approximately 50 percent of exported electricity of Turkey to the EU is from renewable sources (Personal written communication, 9 September 2020). The Energy Market Regulatory Authority of Turkey prepared a bylaw to enable the trading of documents that guarantee renewable energy sources. This mechanism, designed in harmony with the EU Guarantees of Origin system (Kaya, 2020), is introduced in Turkey in mid-2021 (EPİAŞ, 2021; Personal written communication, 9 September 2020). With the introduction of this system, Turkey's electricity trade volume with Bulgaria is expected to increase.

One can infer from the analysis in this section that EU environment policies and its directives on renewable energy facilitated the liberalization of both countries' electricity and natural gas sectors and increased the use of renewables in energy generation. The EU-facilitated legal and institutional changes further progressed the sound energy relations between the two countries.

3.3 Quality of governance

In order to test the main hypothesis in this paper and obtain some initial results about the relationship between the "quality of governance" and the "successful implementation of environmental policies," we used data from the World Bank, concerning the rule of law and government effectiveness in Turkey and Bulgaria. Furthermore, we examined the results of both countries in the Global Competitiveness Reports, performed by the World Economic Forum (Figures 3, 4, and 5).

Figure 3. Dynamics in Estimate Government Effectiveness: Turkey and Bulgaria, 2010-20

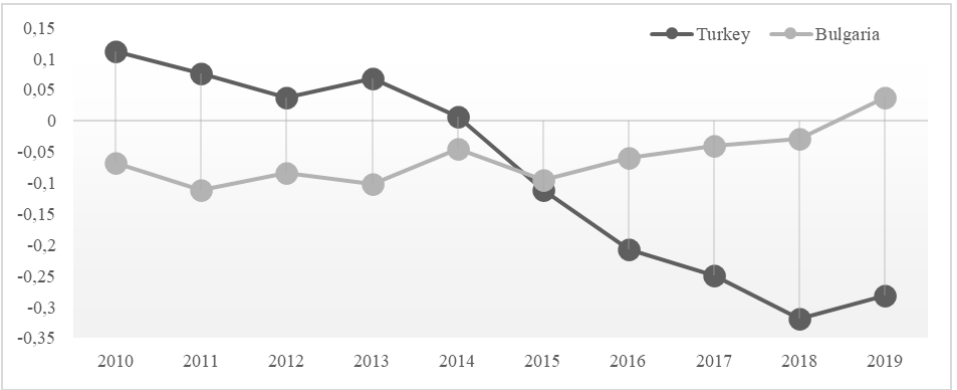


Source: (World Bank Worldwide Governance Indicators, 2010-2019).

The assessment of the government effectiveness of Turkey and Bulgaria shows that in the first half of the examined period, Turkey performs much better than Bulgaria (Figure 3). This explains why the implementation of policies regarding the transboundary rivers did not gain much success due to Bulgaria's weakneses in the government's effectiveness.

However, in 2014 the trend reversed. Since then, the government effectiveness scores of Turkey decreased, and of Bulgaria progressively increased. In 2014, both countries underwent significant political changes related to elections. In Turkey, there were presidential elections that strengthened Erdogan's governmental power but at the same time increased the gap between social structures and altered the existing institutional infrastructure. In the same year, Bulgaria had general elections, and in a similar manner, the power of Boyko Borissov was strengthened. Nevertheless, the effect on the government's effectiveness was the opposite.

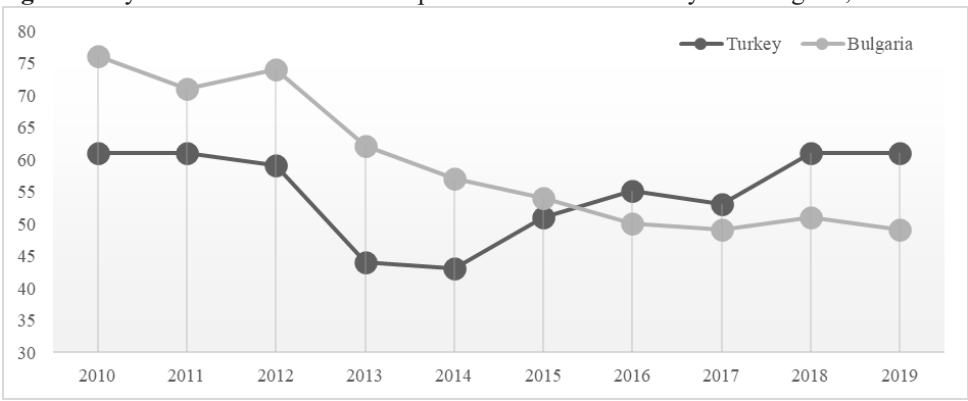
Figure 4. Dynamics in the Rule of Law: Turkey and Bulgaria, 2010-2019



Source: (World Bank Worldwide Governance Indicators, 2010-2019).

As concerns the rule of law, the trend is somewhat similar, and the change in the trend takes place in the same year – 2014. Since then, the evaluation of the rule of law in Turkey decreased, while in Bulgaria, it increased (Figure 4).

Figure 5. Dynamics in the Global Competitiveness Index: Turkey and Bulgaria, 2010-2019



Source: (World Economic Forum, 2010-2019).

Concerning the competitiveness of the countries, there is an association between government effectiveness and the rule of law. Figure 5 presents the ranks of Turkey in Bulgaria in the Global Competitiveness Index. We presented the data for ranks and not for scores because the scoring system changed in 2018. The results show that Bulgaria progressively climbed in the ranking since 2012. The association with the transformation of the political environment is clearly demonstrated in Turkey's results.

Conclusions

Turkey and Bulgaria made good progress in harmonizing their domestic energy laws and regulations with the EU directives, especially with the impact of the EU membership process. On the other hand, the level of harmonization in the environmental laws and regulations remained relatively low. Furthermore, the transposition of legislation in Bulgaria is highly formalized, and the practical dimensions are underestimated. Turkey's historical ties with regional countries and its candidate status to the full membership to the EU are decisive in its energy and environment policies. Its ties with the EU made positive contributions to energy and environmental issues. Following the EU acquis, Turkey made significant changes in its environmental laws and institutions. Turkey's integration with the European electricity grid is an essential contribution in terms of increasing the energy security for both Europe and Turkey. This high level of integration before Turkey's full membership to the EU would bring closer cooperation opportunities in other problematic areas, particularly in terms of environment, between Turkey and Bulgaria.

The close bilateral cooperation in the field of energy, especially close cooperation in natural gas, is stimulated by mutual economic gains and the involvement of the relations of both countries with Russia. Although TurkStream does not precisely offer the expected diversification options, its reversibility is an excellent opportunity for Bulgaria. As some issues regarding the shared environment between Turkey and Bulgaria remain despite efforts and support from the EU, this paper argues that the cooperative bilateral relations in the energy field between Turkey and Bulgaria will have positive impacts on the policies regarding the shared environment. This process will be stimulated by the EU directives and the continuation of the accession process. With the encouragement of the EU, the governments of both countries will more likely prioritize environmental sustainability and perceive the sustainability policies as an essential pillar of national, mutual, and regional economic development.

As concerns our central hypothesis and research question, both countries contribute in some way to the existence of challenges in policy implementation because of insufficient government effectiveness. The current study can be further expanded by examining the administrative capacity index of state administrations and finding a meaningful connexion between the implementation of environmental, energy, and water policies.

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