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TPQ

## Turkey's Energy Nexus: Discoveries and Developments


Atlantic Council
IN TURKEY

**Alparslan Bayraktar**
Energy Transition in Turkey

**Sandra Oudkirk**
Energy Abundance, Security & Diplomacy: The US Approach

**Interview with Richard Morningstar**
The Legacy of the Southern Gas Corridor

**Khazar Ibrahim**
TANAP: An Influencer Well Beyond Energy

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Renewable Energy Investment in Turkey: Between Aspiration And Endurance

Melanie Kenderdine • Matthew J. Bryza • Brenda Shaffer • John M. Roberts • Simone Tagliapietra • Luciano Poli • Ellen Wald

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# FROM THE DESK OF THE EDITOR

We are proud to present our readers with this special issue of TPQ, published in collaboration with Atlantic Council IN TURKEY, which revolves around energy dynamics in Turkey and its neighborhood, in the context of a shifting geopolitical landscape. This issue's authors evaluate key trends and drivers that are shaping the regional energy landscape—from the Caspian to the Mediterranean—and their wider implications for stability and prosperity. Our authors also share their insights on the choices ahead for Ankara's policymakers as Turkey continues to advance a sustainable energy transition and attempts to reach its energy and climate targets.

In his article, the Deputy Minister of Energy and Natural Resources of Turkey, Alparslan Bayraktar, assesses milestones and challenges in the country's energy transition and lays out the vision that is driving Turkey's future energy policies. In an effort to reduce the country's reliance on imports and meet increasing domestic demand, Turkey started implementing major market reforms during a period stretching from 2002 to 2017, which the Deputy Minister calls "Transition 1.0." During this period, Turkey's energy sector underwent a considerable transformation, asserts Bayraktar, including developing a competitive market model in parallel with privatizing generation and distribution assets. These efforts provided an important foundation for "Transition 2.0," which began in 2017 with the introduction of a new comprehensive policy called the National Energy and Mining Policy (NEMP), explains the Deputy Minister. Through NEMP, Turkey is pursuing policies surrounding security of supply, localization, and predictability in the markets—together which will make markets more competitive, incentivize renewable energy investment, and reduce overall carbon emissions. The Deputy Minister underscores that through a variety of interlinked measures, Turkey is advancing towards meeting its ambitious energy and climate goals ahead of the 2023 centenary of the Republic.

In her article, Sandra Oudkirk, Deputy Assistant Secretary for the US Department of State's Bureau of Energy Resources, provides an overview of the US approach to energy security and diplomacy, highlighting that energy has traditionally occupied a central role in American foreign policy. Elaborating on the three goals of the Trump administration's international energy policy—export promotion, energy access, and energy security—Oudkirk opines that in each of these areas, the US is broadening the "economic and social benefits of free, fair, and transparent energy markets" and thereby promoting global peace, prosperity, and development. With regard to export promotion, Oudkirk draws attention to the fact that the US is a leader in producing, consuming, innovating, and exporting energy, which in turn strengthens the energy security of its allies and partners. The author highlights the important role of US LNG,

which is projected to grow in export capacity by 2020. There is significant impetus to achieve the second goal, energy access, due to the fact 1.1 billion people lack access to electricity, points out Oudkirk. Thirdly, the US is committed to bolstering energy security to protect global energy infrastructure from cyber and physical threats, as well as the diversification of energy sources, supplies, and routes, underscores Oudkirk. Together, these priority areas comprise a holistic energy policy which recognizes the centrality of energy in America and its allies' future.

In an exclusive interview conducted by Ellen Scholl, Deputy Director of Atlantic Council's Global Energy Center, Ambassador Richard Morningstar reflects on US energy diplomacy, the legacy of the Southern Gas Corridor, and the project's long-term impact on energy security. Morningstar, the Founding Chairman of the Global Energy Center and a Board Director at the Atlantic Council, meditates on the energy dialogue that dominated the 1990s, which was focused on diversifying sources of oil supply and routes from Russia and the development of Caspian resources. In his capacity as special adviser to the president and secretary of state for Caspian Basin energy diplomacy, Morningstar was instrumental in facilitating the construction of the Baku-Tbilisi-Ceyhan pipeline through diplomacy with Azerbaijan, Georgia, and Turkey. Commenting on the Southern Gas Corridor, Morningstar underlines the fact that the project contributes to the diversity of gas supply sources and transit routes to Europe, which renders it critical to European energy security on a whole. However, for the project to reach its full potential in the long-term, it will need to expand to include additional gas supplies from other sources including additional Azeri gas, KRG gas, Eastern med gas, and perhaps gas from Turkmenistan, argues Morningstar. The author emphasizes Turkey's critical role in the Trans-Anatolian Natural Gas Pipeline (TANAP) of the SGC and opines that the US-Turkey energy relationship is durable despite frictions in other areas. Finally, Morningstar comments on the successful completion of TAP, asserting that while progress has been stymied by political developments, he is confident that Shah Deniz gas will arrive on schedule.

In his second contribution to TPQ, the Ambassador of Azerbaijan to Turkey, Ibrahim Khazar, discusses the importance of TANAP, which was officially inaugurated in the summer of 2018. The Ambassador explains that as a key link in the Southern Gas Corridor, TANAP will deliver 6 billion cubic meters of gas from Azerbaijan to Turkey and 10 billion to Europe per year, and as such will contribute significantly to European energy security. Likewise, TANAP's influence will extend beyond the sphere of energy, opines the Ambassador, to impact trade, regional security, and predictability of the international system. The Ambassador emphasizes that the fruition of the pipeline owes to the endurance of the Turkey-Azerbaijan relationship, which involves a multi-faceted energy partnership. As co-investors in the project, both Azerbaijan and

Turkey have underscored their willingness to play larger roles in the regional energy scene. Very crucially as well, with TANAP, Turkey's ambitions of becoming a natural gas hub are coming into closer focus, argues the Ambassador.

Delving into the role of renewables in the Turkish energy sector, David Livingston, Deputy Director of Climate and Advanced Energy of the Atlantic Council's Global Energy Center, takes stock of the challenges facing the country in fully capitalizing on its renewable energy potential. Livingston underlines the fact that Turkey has an abundant and diversified renewable energy resource base, which endows the country with several baseline advantages. The government has already revised its renewable target to 50 percent of all electricity production by 2023 considering the country exceeded 30 percent renewable generation by mid 2018, highlights Livingston. In this regard, there is significant potential for rooftop solar, wind power, and the so far underexploited resource, geothermal development. However, Livingston argues that there are several limitations to the further development of renewable sources, including a still-evolving policy framework and balancing a desire for domestic value chains against prohibitive domestic content requirements. Overcoming these challenges will be crucial for maintaining growth in the renewable energy sector and achieving the country's 2023 targets.

Melanie Kenderdine, a nonresident Senior Fellow at the Atlantic Council's Global Energy Center and a Principal at the Energy Futures Initiative in D.C., evaluates Turkey's broader vision of becoming a regional energy hub, as well as policies the government should contemplate in line with this ambition. Establishing a robust hub hinges on the continued diversification of Turkey's natural gas supplies, the support for additional production from different sources in the region, the resolution of geopolitical tensions, and market liberalization, argues Kenderdine. While positive steps have been taken to privatize Turkey's electricity and gas markets, Kenderdine asserts that energy market reforms need to be deepened so as to allow for more competition in the Turkish market, which is currently controlled by state-owned oil and gas company Botaş. The author concludes that making structural changes in the country's energy sector and advancing towards being a natural gas hub will unlock numerous advantages to Turkey's national economy, as well as contribute to its energy security.

Matthew J. Bryza, a Non-Resident Fellow of the Atlantic Council, focuses on the Eastern Mediterranean as a principal theater in the effort to discover and harness new energy resources. Bryza points out that just as Azerbaijan, Georgia, and Turkey developed patterns of cooperation in the 1990s surrounding the exploitation of Caspian energy resources, so too is there a burgeoning strategic alignment emerging between Israel, Cyprus, and Egypt in response to hydrocarbon developments in the East Med

today. While Turkey is a key player, tensions between East Med littoral states and Ankara raise the risk of its exclusion from a regional cooperation framework, opines Bryza. He points out that the discovery of the massive Zohr natural gas field off Egypt's coast and the Calypso field in the Republic of Cyprus' Block 6 have positioned both Egypt and Cyprus to become energy hubs. While these discoveries have strengthened energy relationships between Cyprus, Israel, and Egypt, they have sharpened disputes with Turkey, which as Bryza explains, has taken an aggressive stance toward hydrocarbon exploration in Cypriot waters. Pragmatic leadership from Ankara and enhanced cooperation with Brussels is important if Turkey wants to prevent its exclusion from lucrative energy deals in the region, concludes Bryza.

Also taking stock of Eastern Mediterranean energy dynamics in her article is Dr. Brenda Shaffer, Senior Fellow at the Atlantic Council's Global Energy Center in Washington, D.C., and a visiting researcher and professor at Georgetown University. Shaffer, who is the author of *Energy Politics,* argues that rather than being an impetus for peace and the resolution of regional conflicts, hydrocarbon discoveries have in fact been a source of conflict—many of which involve Turkey— in the Eastern Mediterranean. Furthermore, Dr. Shaffer maintain while that key states in the region— including Turkey, Egypt, and Cyprus—are aspiring to become gas hubs, the distinction confers little geopolitical value, and in fact, brings economic risk. In the midst of continued regional competition, there are a few positive opportunities, maintains Shaffer. These include the game-changing impact of the Zohr gas field discovery off Egypt, potential for energy diplomacy between Turkey and Israel, and an Israel-Egypt gas export deal, which would enable gas from Israel's offshore to be piped to Egypt. Despite the optimism, geopolitics often acts as a spoiler, stresses Shaffer.

In his article, John M. Roberts, a Senior Fellow at the Atlantic Council's Eurasia Center and Global Energy Center, analyzes the economic ties between Turkey, federal Iraq, and the Kurdistan Region of Iraq (KRI). Set against the background of fierce regional conflicts and tension, Roberts argues that the energy relationship between Turkey and the KRI was extremely important for both countries, including the region at large. However, following the Kurdistan Regional Government's (KRG) referendum on independence in September 2017, relations between Erbil and Ankara have become strained, causing a major collapse of both KRI oil exports and revenues, as well as a rapid loss of the majority of the Kirkuk region and most of the Kirkuk oil field to Baghdad. Additionally, Roberts touches upon Russia's role in the KRI, highlighting that Russia's Rosneft stands to play an increasingly important role while Turkish investments continue to diminish. Lastly, Roberts highlights the growing power of the federal government in Baghdad, which will play a significant role in handling the revenues derived from the sale at Ceyhan of oil produced in the KRI, not to mention

the use of KRI infrastructure for Baghdad's own resumption of exports from Kirkuk to Ceyhan.

Assessing the Turkey-EU energy relationship in his article, Simone Tagliapietra, a Research Fellow at Bruegel and an Adjunct Professor of Global Energy Fundamentals at the Johns Hopkins University SAIS Europe, argues that while bilateral relations have been beset with political difficulties, climate and energy relations constitute a bright spot. Tagliapietra, who is also a Senior Researcher at the Fondazione Eni Enrico Mattei research institution, weighs the benefits for both Turkey and the EU of refocusing the bilateral cooperation on elements of the "Positive Agenda," which include renewable energy, energy efficiency, nuclear energy, and carbon markets. EU-Turkey cooperation on nuclear energy can be further developed through integrating Turkey into the framework of the European Atomic Energy Community (Euratom), points out Tagliapetra. On carbon markets, the EU can offer unique institutional support to Turkey. And in the field of renewables, cooperation could be deepened beyond European financial support for renewable energy projects in Turkey given the potential but still limited development of this energy source, argues Tagliapietra.

In his article, Luciano Poli, the Area President for Turkey, India, Middle East and North Africa at the Dow Chemical Company, stresses the importance of inclusiveness, efficiency, and competitiveness in Turkey's energy future, while providing a perspective from a major global actor in the energy industry, Dow Chemical Company. According to Poli, conservation of energy, diversity of energy consumption, and growth in renewable energy production are important pillars of a sustainable energy future for the world. The author also notes Turkey's efforts for diversifying its energy supply through hydro, wind, and solar power alternatives as well as geothermal and biomass power productions. While meeting growing demand in Turkey's energy market and focusing on sustainability at the same time is a challenging task, Turkey has the potential to reach its designated energy goals for 2050 through continued investments, steady policies, and a qualified workforce, the author concludes.

In her piece, Dr. Ellen Wald, a Senior Fellow at the Atlantic Council's Global Energy Center, takes stock of energy cooperation between Turkey and Iran within the context of the Western sanctions regime. Wald explains that Turkey and Iran have a history of prioritizing their economic relations over political divergences, which is reflected by the fact Turkey continues to buy large amounts of oil and gas from Iran to meet growing domestic energy needs and diversify its resources. By providing Iran with much-needed investment, Turkey has helped lessen the economic pressure of Western sanctions. Wald argues that Iran and Turkey will continue to cooperate as both countries' currencies have been devalued against the dollar so it benefits them financially

to avoid the use of the dollar in energy trade. Likewise, it is in Turkey's best interest to continue to import Iranian oil as breaking contracts with Iran would impose great expenses on Turkey. Furthermore, Iran and Turkey's large Kurdish population and geographic proximity mean that it could potentially use Turkish currency within its own borders.

This fall, TPQ organized two roundtables held in Istanbul. On 9 October 2018, we held a roundtable discussion titled "Differing Visions for Turkey-EU Engagement" at the Palais de Hollande, which was supported by the Consulate General of the Kingdom of the Netherlands. The newly appointed Ambassador of the Netherlands to Turkey, Marjanne de Kwaasteniet, provided opening remarks. Following TPQ's Spring 2018 issue on the same topic, the conversation revolved around the prospect of a reset of relations between Turkey and the EU and the trajectory of the bilateral relationship. Topics discussed by the panel included the prospect of Customs Union reform, security cooperation dynamics, structural problems of the accession process, and the implications of Turkey's economic crisis for its relationship with the EU.

On 5 November 2018, TPQ held a roundtable discussion titled "Combating Disinformation and the Cyber Threat," which was supported by NATO's Public Diplomacy Division. The Friedrich Naumann Foundation and the Israeli Consulate in Istanbul were partners. After an opening speech by the US Consul General in Istanbul, Jennifer L. Davis, the conversation revolved around the proliferation of digital information, its toxicity for democracies, and the challenges facing policymakers in identifying and mitigating disinformation campaigns.

We would like to extend a special thanks to Atlantic Council IN TURKEY, the team in Istanbul, and the fellows who contributed to this issue from the Atlantic Council's Global Energy Center in Washington D.C.

An important acknowledgement goes to the premium corporate sponsor of this issue, Tüpraş. In addition, we would like to thank our online sponsor, Garanti Bank. We also appreciate the continuing support of our other sponsors: Dow Turkey, Halifax International Security Forum, QNB Finansbank, Socar, TEB, and Turcas Petrol.

On an editorial note, I would like to thank our publisher, TPQ's advisory board, editorial team, and staff, for supporting me in my role as Editor in Chief. My thanks also go to all the contributors of TPQ whom I have had the privilege of working with. I will be transitioning into an advisory role for the next issue of TPQ, and look forward to continuing to play an active role in the journal and its future direction.

A very special acknowledgment goes to our long-standing media partner, Hürriyet Daily News, for the outreach they continue to provide.

As always, we are indebted to the authors of this issue for sharing their expertise and opinions. As our readers, please share your feedback.

Süreya Martha Köprülü

# Foreword by Atlantic Council

Dear Friends and Colleagues,

It is with great pleasure that the Atlantic Council launches this special issue with Turkish Policy Quarterly (TPQ) to explore Turkey's energy sector prospects. I would like to thank TPQ for the opportunity to cooperate on and highlight this important topic.

The energy sector is one of the main locomotives of the Turkish economy with significant strategic implications. In 2010, the Atlantic Council began its work in Turkey through the Atlantic Council Energy and Economic Summit; an annual flagship event held in Istanbul. Since then we have been encouraging increased cooperation to tackle regional energy challenges, while supporting the opportunities.

Turkey is a country with few domestic fossil fuel resources of its own. It needs to ensure its supply security through diversification coupled with efforts to boost domestic production including through renewable energy, an area in which Turkey is rich in potential. Meanwhile, Turkey is an ideal and growing market for producing countries and well positioned to capitalize on recent discoveries, such as natural gas in the Eastern Mediterranean, as well as on global trends, such as the expansion of liquid natural gas.

Straddling the continents of Europe and Asia, Turkey's strategic location between energy producing countries in the Middle East and Caspian regions and major consumers in Europe, offers it the potential to act as a bridge and contribute to European energy security. The first stage towards harnessing this potential was completed in June 2018 with the inauguration of the monumental Trans-Anatolian Pipeline (TANAP) which is expected to soon connect with Europe. Beyond Turkey's role as a transit country, Turkey also has the potential to develop into a natural gas hub by combining various sources of supply and adopting liberal institutional frameworks.

As fossil fuel prices continue their emergence out of cyclical lows and return to the spotlight, a renewed sense of focus is needed to capitalize on the opportunities through infrastructure, investment and diplomacy and ensure greater prosperity throughout the region. Therefore, I believe it is a timely and important moment to take stock of Turkey's energy landscape and dynamics with this issue.

In 2018, the Atlantic Council launched the Atlantic Council IN TURKEY Program to increase our engagement with Turkey through our programming work and

publications on a range of topics from energy to economics & business and security with a focus on issues of mutual interest and importance to the United States and Turkey. I am very proud to be including articles from both the Turkish Ministry of Energy and Natural Resources and the United States Department of State in this special issue.

As director of the Atlantic Council IN TURKEY, I would also like to thank my colleagues at the Atlantic Council's Global Energy Center and our team in Istanbul for their superb contributions and help in making this publication a success. Based in Washington D.C., the Atlantic Council's Global Energy Center promotes energy security by working alongside government, industry, civil society, and public stakeholders to devise pragmatic solutions to the geopolitical, sustainability, and economic challenges of the changing global energy landscape.

Finally, our work would not be possible without the support of our partners. Thank you for believing in our mission and us.

Sincerely,

Defne Arslan
Turkey Representative
Atlantic Council

# ENERGY TRANSITION IN TURKEY

*Turkey has undergone a major transition in its energy market between 2002 and 2017. During this period, the government focused on regulation and policymaking and made great strides in market reforms and investments in the renewable energy sector. After 16 years, the government announced a new transition period by presenting the National Energy and Mining Policy (NEMP). This policy is a set of objectives and goals based on three main pillars: security of supply, localization, and predictability in the markets. Through NEMP, Turkey aims to achieve energy self-sufficiency, regional supply security, and facilitate stronger international collaborations. This new era in energy policy is expected to elevate Turkey from a powerful regional actor to a global one.*

Alparslan Bayraktar*

TURKISH POLICY QUARTERLY
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* Alparslan Bayraktar is the Deputy Minister of Energy and Natural Resources of Turkey and the Chairman of the World Energy Council, Turkey.

Today, the energy world is undergoing an inevitable transition to green energy alternatives. In this regard, it is essential to understand which global trends are driving energy transition. Energy demand is shifting towards the East; mainly China and Southeast Asia. According to the International Energy Agency's (IEA) World Energy Outlook 2018 (WEO 2018),[1] in the year 2000, more than 40 percent of global demand was in North America and Europe and 20 percent was in Asia. This is expected to be reversed by 2040. For the last two years, the electricity sector has attracted the highest amount of investment compared to other sectors. Within the electricity sector, two-thirds of total installed capacity additions have come from renewables, setting a record high with 178 GW of additional capacity last year. For the first time, electric vehicles (EV) sales exceeded one million in 2017. The main motivation for these trends is decreasing unit production costs. Among most of the new energy technologies, EV battery costs have decreased fastest in recent years.

In the past, two main motivations were driving major energy discussions: security of supply and climate change. However, current discussions are evolving beyond these issues. New phenomena are emerging; namely, decarbonization, decentralization, digitalization, and diversity. Increasing awareness led to innovations on both institutional and technical fronts. These innovations made energy markets more resilient through better pricing, new and cleaner technologies, and increased energy efficiency. New sustainable solutions and demand responses were also incorporated into the policies of many countries. While major transformations are underway, the global energy sector is also facing tremendous challenges. These include fundamental changes in market design and business models through decentralization and digitization. There are still remaining questions over electrification's capacity to meet demand and the availability of power systems.

The recent trade-related turmoil in the world and its effects on the energy sector have brought energy security into prominence, particularly for energy importing countries. Energy security largely depends on sufficient investments. The IEA's

[1] International Energy Agency, "World Energy Outlook 2018," https://www.iea.org/weo2018/

World Energy Outlook highlights that investment decisions taken today determine how energy supply and demand will unfold tomorrow. The report mentions that a 44 trillion dollar investment in the global energy supply and 23 trillion dollars in energy efficiency is required to cover the estimated growth in energy demand through 2040. Foremost among the prerequisites to attract investment is a political and regulatory certainty.

There are also major uncertainties emanating from both the rapid market changes and the geopolitical dimensions of unconventional gas and LNG supply. Moreover, how a possible renegotiation process of the Paris Agreement will shape the future of climate talks remains an open question. Beyond uncertainty in energy and environmental policy, we are also experiencing uncertainties in other policy areas at global and regional levels including trade, monetary, security, and immigration.

> *"In the past, two main motivations were driving major energy discussions: security of supply and climate change."*

In line with the global transition discussed above, Turkey has also gone through a major transition since 2002, which I refer to as Transition 1.0 throughout the article. Opening the market to competition while meeting the increasing demand was not an easy process, but I believe that strong political commitment, vision, and stability made it possible. During this transformation, the government's role has shifted more towards regulation and policy-making. In 2017, 16 years following the first transition period, the Ministry of Energy and Natural Resources announced its National Energy and Mining Policy. I call this policy Transition 2.0 due to its comprehensive approach ranging from energy to industry to employment.

***Turkish Energy Transition 1.0***

Turkish energy markets can be described by two main characteristics which are also the major challenges being faced. The first one is a growing demand. According to the IEA, Turkey will likely see the fastest medium to long-term growth in the field of energy among IEA member countries, while the second challenge in the market is the dependency on imports. Import dependency ratio is almost 70 percent in primary energy resources.

To meet this growing demand while dealing with import dependency, Turkey decided

to transform its energy markets and started implementing major market reforms. The main objectives were to establish financially viable, stable, transparent, and competitive markets under independent regulation to ensure reliable and affordable energy supply to consumers in an environmentally friendly manner. These objectives are based on several laws and covering most aspects of the relevant European Union (EU) acquis. According to the EU's Turkey 2018 Report,[2] "Turkey has continued to align with the EU acquis. As regards the internal energy market, good progress was made on the electricity market and good progress can be reported on renewable energy and energy efficiency."

During the last 16 years, the Turkish power market attracted more than 60 billion dollars in investment. Whole investment was made by domestic and foreign private companies. In addition, the entire distribution system was privatized through the transfer of operating rights for the next 30 years. In the last 16 years, total installed capacity has grown from 30 GW to 88 GW. More importantly, the share of Independent Power Producers (IPPs) in the market went up from 25 percent to more than 75 percent. These have all been achieved without any long-term purchasing power agreements and only through renewable feed-in-tariffs. Just last year, 8222 MW capacity was added with over 50 percent of renewables. Additionally, Turkey integrated its power network with the European network and neighboring countries' grid during the same period. The integration helps to expand the ability of peak load management, reduce strain on the grid, and limit the use of the more expensive and often least efficient plants.

During Transition 1.0, market activities were unbundled and the vertically integrated state monopoly model was turned into a well-functioning competitive market model together with the privatization of generation and distribution assets.

### *Turkish Energy Transition 2.0*

The points discussed above refer to past developments and achievements, but the reality is that Turkish energy markets are still in a transition period. Liberalization and intensive investments are ongoing amidst climate change challenges and sustainability and security concerns.

The Ministry of Energy and Natural Resources announced a comprehensive policy in 2017: The National Energy and Mining Policy (NEMP). The new approach brought by these policies marks the second transition period, Transition 2.0, of the Turkish energy market. This policy clearly defined the strengths, shortcomings,

[2] European Commission, "Commission Staff Working Document: Turkey 2018 Report," 17 April 2018, https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20180417-turkey-report.pdf

threats, and opportunities of the Turkish energy sector. Based on detailed analyses, NEMP was established based on three main pillars: security of supply, localization, and predictability in the markets.

Investment in infrastructure is essential to maintain security of supply. For infrastructure investment in the energy market, Turkey is investing extensively in power grids both at the transmission and distribution levels. When it comes to the gas market, the main objective is to make gas networks and relevant facilities capable of delivering more gas in any direction with the least cost. Investments in the energy sector must continue to meet growing energy demand and ensure a sustainable energy future. In line with this goal, there are three priorities for the energy sector in the upcoming period: financial sustainability, political sustainability, and inclusiveness. These three policy aims are the key elements of a viable investment environment. Turkey has been experiencing the results of these policies for the last decade. According to the World Energy Trilemma Index 2018,[3] an annual report published by the World Energy Council, "Turkey's energy security score has improved relative to other countries and as part of the measure of supply diversity." According to the report, Turkey's energy security rating in 2018 rose 15 places compared to last year.

> *"During the last 16 years, the Turkish power market attracted more than 60 billion dollars in investment."*

Through predictability in the markets, Turkey aims to achieve a more competitive structure in the energy sector and create the right price signals for investors. Right price signals are crucial due to their power to translate into affordable energy prices for households, the commercial sector, and the industry. Delivering affordable prices to our industry would, in turn, enable the sector to become more competitive in the global arena.

The third dimension of NEMP is localization. Turkey is increasing the relatively low share of domestic coal in its energy mix through clean coal technologies. In renewables, Turkey has even more ambitious goals. Renewable energy sources are steadily increasing its share in the world energy mix. Given the concerns regarding climate change, the world energy sector has been in a transition for more than a decade. Taking into account the potential of renewable energy sources to mitigate

[3] World Energy Council, "World Energy Trilemma Index 2018," October 2018, https://www.worldenergy.org/publications/2018/trilemma-report-2018/

greenhouse gas emissions, almost all countries in the world prioritized renewable energy in their agenda. Turkey has also successfully utilized renewable sources. After triggering renewable energy investments through feed-in tariffs-based renewable energy sources support mechanism (YEKDEM), elaborated in December 2010, Turkey announced a new strategy. This entails a "renewable energy resource zone (RE-ZONE) competition mechanism," which encourages investors not only to build power plants but also to manufacture renewable energy equipment in Turkey. Through our newly established RE-ZONE model, we are aiming to both utilize renewable resources and at the same time reduce our current account deficit with locally manufactured content requirement. Additionally, the projects will bring new employment opportunities into the region, as well as business opportunities to our small and medium-sized enterprises.

Two RE-ZONE competitions of solar and wind for 1,000 MW each were completed with historic low prices. The installed capacity of renewable energy sources excluding hydro has reached 13,328 MW, representing 15 percent of the total installed capacity by the end of August 2018. With the realization of RE-ZONE projects, Turkey will be one of the renewable energy technologies and equipment supplier countries in its region. Currently, installed wind capacity for wind and solar is around 7,000 MW and 5,000 MW, respectively. Turkey is planning to add 1,000 MW capacity for each solar and wind, annually, adding 20,000 MW of wind and solar capacity in total within 10 years. In addition, 28,133 MW of hydro capacity is planned to be increased to 34,000 MW during the same period. Turkey also has targets to utilize geothermal and biomass sources to the energy mix with a capacity of 1,500 MW and 1,000 MW, respectively.

Within the scope of NEMP, strategies prioritizing energy security, domestic resources, market predictability, and strengthening international collaborations were put into effect. The recent plans and developments were implemented according to these policies.

### *Recent Plans & Developments*

According to the IEA, fossil fuels will continue to be the world's primary energy sources until 2040. As Turkey is a net oil and gas importer, recent policies have a particular focus on hydrocarbon exploration. Deep-sea drilling activities are being conducted by Fatih drilling vessel initiated in the Mediterranean since September 2018. A second deep-sea drilling vessel is planned to start its activities in the upcoming months. In addition, Barbaros Hayrettin Paşa and Oruç Reis vessels will continue offshore seismic studies in the Black Sea and Mediterranean. The Eastern Mediterranean is a promising region considering the recent oil and gas discoveries.

Any finding of oil or gas reserves would support Turkish energy security and in case of reaching a significant reserve, this would be a game-changer for the region.

Globally, we are witnessing changing dynamics in the gas market as well. Following the shale revolution in the US, new explorations in the Mediterranean and other regions make gas not only abundant but also competitive. Flexibility is enhancing in all aspects including contract durations, take or pay requirements and pricing formulas. For instance, contract durations tend to get shorter and hub-pricing is replacing oil-indexed prices.

> *"With the realization of RE-ZONE projects, Turkey will be one of the renewable energy technologies and equipment supplier countries in its region."*

Apart from the exploration activities, Turkey made important enlargements to its natural gas infrastructure. We currently have two underground storage facilities, Silivri and Tuz Gölü, with a total capacity of 3.3 bcm. Private companies, as well as BOTAŞ, will continue to make investments to expand our underground storage capacity. Two floating storage regasification units (FSRU) were commissioned in 2018. With the expansion of the two existing LNG terminals, total LNG injection capacity has reached 117 mcm per day. Furthermore, the transmission capacity of natural gas networks has extended to more than 300 mcm per day with a target to reach 400 mcm per day with future extensions. Turkey also aims to increase its natural gas storage capacity to at least 20 percent of its annual consumption.

Domestic coal and lignite constitute only 13 percent of Turkish total energy mix. Turkey has approximately 18.5 billion tons of coal reserves. Although our domestic coal has its own technical challenges, we recently had a very successful tender for 800 MW Çayırhan Thermal Power project. Considering the developments regarding clean coal technologies, Turkey has plans to tender certain fields for using electricity generation up to 5,000 MW. Furthermore, studies concerning liquefaction, gasification, and enrichment of domestic coal are ongoing. Turkey has firm plans for adding nuclear power to its energy mix. The Akkuyu province in Mersin was selected as a location for the first nuclear power plant which will be called Akkuyu Nuclear Power Plant (Akkuyu NPP). Akkuyu NPP is designed under a Build-Own-Operate model and will have 4 800 MW total capacity within four units. The construction license of Akkuyu NPP was granted and the first unit is planned to become operational by 2023. A new regulatory authority was established to regulate the nuclear energy sector.

Energy saving and energy efficiency initiatives can significantly contribute to energy security, the mitigation of import dependency risks, the protection of the environment, and combatting climate change. Energy saving and energy efficiency can be considered as alternative energy sources which are crucial elements of national strategies and energy policies of 2023. Turkey announced the National Energy Efficiency Action Plan in early 2018 which sets out actions to implement a reduction of 14 percent of primary energy consumption by 2023, via a strategy which includes 10.9 billion dollars of planned investment. The return of total projected investment is expected to be 30 billion dollars until 2033. Sectoral measures set out in the plan include buildings and services, energy, transport, industry and technology, agriculture, and cross-cutting areas. According to the plan, Turkey aims to save 23.9 million tonnes oil equivalent of its final energy consumption.

### *Concluding Remarks*

This article has discussed Turkey's strategies and actions driving its energy transition. Many of these ambitious plans prioritize securing energy supply, reducing adverse economic impacts of increasing energy imports, making markets more competitive, and increasing investments primarily on renewable energy on both a small and large scale. In this regard, I would like to point out major areas that will shape the country's energy transition and provide opportunities for new investments:

- Offshore exploration of oil and natural gas activities will continue. Turkish Petroleum will be more active in drilling operations in the near future.
- We are expecting national oil and gas exploration and production companies to become very active through international partnerships.
- Assets have recently become very attractive to foreign investors. Therefore, many mergers and acquisitions are expected to occur in the near future.

The Turkish energy market has gained a lot of maturity in terms of competitiveness primarily due to successful market reforms carried out during transition periods. Therefore, any new player planning to enter the market, whether through an LNG, nuclear, natural gas or renewables project should be competitive. Additionally, some of our gas supply contracts are expiring in 2020. Thus, we are at a very important stage to renegotiate or make new contracts on competitive terms.

Finally, our approach to new projects is based on three main principles according to which all stakeholders should mutually benefit and all risks should be fairly allocated. More importantly, any project should contribute to Turkey's national and regional supply security as well as to regional peace, stability, and prosperity.

# ENERGY ABUNDANCE, SECURITY & DIPLOMACY: THE US APPROACH

*US foreign policy has long recognized the centrality of energy to international economic development, peace, and security. President Trump's National Security Strategy builds on this tradition while focusing on three areas: export promotion, energy access, and energy security. In each of these areas, America seeks to broaden the economic and social benefits of free, fair, and transparent energy markets and to oppose those who would use market power to advance malign political objectives.*

Sandra Oudkirk*

TURKISH POLICY QUARTERLY
Fall 2018

* Sandra Oudkirk is a Deputy Assistant Secretary for the US Department of State's Bureau of Energy Resources.

The Trump administration's National Security Strategy published in December of 2017, articulates three goals for America's international energy policy: export promotion, energy access, and energy security. These goals recognize that energy stands at the nexus of national security and foreign policy because free markets drive economic growth, and diversity in energy sources and routes can prevent countries from using their energy resources for malign political purposes.

America's focus on energy in foreign policy is not new. The State Department has recognized energy as critical to US foreign policy for well over a century. However, the prominence of energy in US diplomacy has grown over the last several decades. The State Department established the Bureau of Energy Resources in 2011 to advance this effort. In May 2018, the Senate confirmed the bureau's first Assistant Secretary, demonstrating the bipartisan recognition in Congress and throughout the government of the critical role energy diplomacy plays in US foreign policy.

***Export Promotion***

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***PROMOTE EXPORTS:*** *The United States will promote exports of our energy resources, technologies, and services, which helps our allies and partners diversify their energy sources and brings economic gains back home. We will expand our export capacity through the continued support of private sector development of coastal terminals, allowing increased market access and a greater competitive edge for US industries.*

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US diplomats have traditionally promoted US exports. In the 1800s, the State Department worked to secure markets abroad for US oil and kerosene, some of the United States' largest exports at the time. In today's era of energy abundance, the United States holds a central position in the global energy system as a leading producer, consumer, innovator, and, once again, exporter of the full suite of energy technologies, services, and fuels. The United States will continue to promote the export of its energy resources, technologies, and services to allies and partners. We are

committed to expanding our capacity to export oil and gas while continuing to lead the world in developing and deploying innovative and efficient energy technologies and renewable energy equipment and services.

US energy exports strengthen the energy security of our allies and partners and promote environmentally and financially sustainable growth. The United States will continue to be a reliable producer, supplier, and partner. We will not "shut off the gas" when others need it the most. Our goal is to keep markets open, transparent, and free of manipulation and political coercion.

> *"The US holds a central position in the global energy system as a leading producer, consumer, and innovator."*

US energy exports help contribute liquidity to global energy markets while providing greater choice to purchasers worldwide. Crude oil exports from Houston-Galveston represent 70 percent of US crude exports, and in August, exports from these facilities surpassed imports for the first time ever. As with oil exports, increased US LNG exports foster competition, which means a better deal for all of the world's energy consumers. Market conditions determine the ultimate destinations of US LNG cargoes. Although Latin America has been the traditional market for US natural gas exports, in the last two years, roughly half of the 300 LNG tankers that departed US shores landed in Asia to meet its growing demand. There is more US LNG on the horizon. By 2020, the United States will be approaching nearly 85 billion cubic meters (bcm) a year in LNG export capacity, up from 21.7 bcm in 2017.

***Energy Security***

***ENSURE ENERGY SECURITY:*** *The United States will work with allies and partners to protect global energy infrastructure from cyber and physical threats. The United States will support the diversification of energy sources, supplies, and routes at home and abroad. We will modernize our strategic petroleum stocks and encourage other countries to develop their own—consistent with their national energy security needs.*

The United States has long supported the energy security of our allies and partners, including through multinational energy cooperation. Secretary of State Kissinger

confronted the geopolitical issue of energy security during the oil embargo of the 1970s by convening our European and Japanese allies to form the International Energy Agency in 1974. The IEA is a linchpin of global US energy and economic security due to its ability to mobilize coordinated releases of strategic oil reserves held by the US and major allies. Turkey, one of the founding members of the IEA, has played a key role in that institution since its inception. IEA members are required to hold oil reserves equal to 90 days of their oil consumption, giving the IEA the flexibility to respond to crises. Coordinated IEA emergency responses were deployed to great effect during the Gulf War, compensated for Libyan oil cutoffs in 2011, and provided Americans ready access to global oil supplies when our Gulf of Mexico oil industry was idled by Hurricanes Rita and Katrina.

We see four key aspects to energy security: diversification of energy supplies by country of origin, path of delivery, and fuel types (including renewables); market liberalization and energy policy; cyber and physical security of critical energy infrastructure; and countering malign actors.

***Diversification***

Europe offers a case study on the importance of supply diversification. Russia has and can continue to use its position as Europe's primary supplier of natural gas to exert political influence on vulnerable countries by cutting off gas supplies. Investments in new energy infrastructure – in gas interconnectors, reverse flow technologies, LNG terminals, Floating Storage and Regasification Units (FSRUs), renewable sources such as wind and solar, battery storage technology, and via efficiency improvements – have enhanced the resilience of Europe's energy markets, but much work remains to be done. For example, Lithuania's deployment of an FSRU enabled the first supplies of non-Russian natural gas to flow to the Baltic States, thus ending the Baltic region's status as an energy island and compelling Russia to play by market rules. By contrast, many countries in Southeastern Europe remain entirely or almost entirely reliant on imports of Russia gas to meet their energy needs.

The United States has promoted energy diversification in Europe for decades. America's strong support of European energy diversification predates our recent exports of natural gas. For instance, we have and continue to strongly support the 40 billion dollar Southern Gas Corridor, a monumental project to bring gas from the Caspian Sea to European energy markets, despite the lack of direct US investment in the project. The importance of the Southern Gas Corridor depends in part on each country's perspective. For Azerbaijan and other potential suppliers – including Turkmenistan, Iraq, and countries in the Eastern Mediterranean – the Corridor means access to Europe's vast energy market and thus an opportunity to generate

stable export revenues over the long-term. For consumers in Turkey and in Europe, the Corridor means enhanced long-term energy security and greater competition because the project can reduce those markets' reliance on a single source of gas. The Southern Gas Corridor is also significant as a model. The successful start of the Southern Gas Corridor demonstrates what can be accomplished when energy producers and energy consumers share a common purpose and are united in its pursuit. We can enhance energy and economic security, generate jobs and long-term revenues, and build trusting partnerships across political lines. The Southern Gas Corridor thus serves as an example to the world of how critical energy resources can be responsibly and efficiently developed, and brought to world markets.

*"The United States has promoted energy diversification in Europe for decades."*

Compare this with the Russian approach to natural gas pipeline projects, including Nord Stream 2 – which would run from Russia to Germany via the Baltic Sea – and a second line of TurkStream – which would run from Russia to Europe via the Black Sea and Turkey. These projects would maintain or possibly expand Russia's already dominant share in Europe's gas markets, which Russia could then use to its political advantage. Unlike in the United States, Russia's chief gas supplier to Europe, Gazprom, is an extension of the Russian state. The Russian government has repeatedly used Gazprom to achieve geopolitical goals. In 2006, 2009, and 2014 Gazprom cut off gas deliveries to Ukraine and countries that rely on gas transited via Ukraine; other times, it cut off gas deliveries exclusively to Ukraine. Gazprom's leadership hopes to entirely bypass Ukraine as a gas transit state by the end of 2019. This would deprive the country of an important deterrent against further Russian aggression and critical gas transit revenues.

Given its track record of using energy as a political weapon, we believe Europe should and must diversify its energy supplies so that it can effectively respond to a possible disruption in gas deliveries from Russia. Doing so would mean that Europe could continue to import gas from Russia without running the same grave political risks that it does today. In short, adequate diversification could help take geopolitics out of Europe's energy supplies.

Several projects could help Europe move in the right direction. Pipeline interconnectors between Greece and Bulgaria, Bulgaria and Serbia, and an FSRU off

Croatia's coast could bring genuine diversification of gas supplies to countries in Southeastern Europe. Development of Romania's offshore gas resources could likewise change the facts on the ground, bringing greater competition to European energy markets. Completion of the Trans Adriatic Pipeline, the final leg in the Southern Gas Corridor, is also vital since without access to Europe's energy markets the potential of that project cannot be realized. Turkey, which receives over half its gas imports from Russia, stands out as a regional leader in terms of building the capacity to respond to a possible disruption in gas deliveries. In addition to expanding its two LNG terminals and Silivri underground gas storage facility, it has leased two FSRUs and is considering a third. Turkey is also in the process of constructing a new underground gas storage facility at Tuz Gölü, which should significantly enhance its ability to meet growing peak winter demand.

### *Market Liberalization*

The United States supports, often with technical assistance programs, efforts by our allies and partners to create an enabling legal and regulatory framework that facilitates investment in energy infrastructure and liberalizes markets. Market liberalization and infrastructure diversification often must be undertaken in tandem. Without third-party access provisions, monopoly pipeline operators can crowd out their commercial rivals and stifle competition. The successful European effort to unbundle pipeline operator ownership from upstream producers and downstream gas trading entities demonstrates how policy choices can open markets and improve optionality. Successive US administrations have strongly supported the core tenets of the European Energy Union and the EU's Third Energy Package as a means of achieving an open, competitive, and liberalized gas and electricity market in Europe.

### *Cyber and Physical Security*

Even the most well-diversified critical energy infrastructure, operating under the most open and liberalized market rules, is vulnerable to cyber and physical attacks, whether from state-sponsored or non-state actor threats. Coordination between and among governments and the private sector to share best practices, lessons learned, and technical expertise is a crucial way of maintaining these critical systems. It is a matter of national security to make sure that no actor can threaten the operation of energy systems.

### *Malign Actors*

Russia has shown through its aggressive actions that it rejects the post-Cold War order. Its aggression in Ukraine, earlier in Georgia, and most recently its use of a military-grade chemical weapon in the United Kingdom are the most obvious

demonstrations that Moscow is willing to undermine norms within the existing international system.

Russia's efforts have extended beyond traditional military campaigns to encompass a suite of hybrid tools that are used to gain influence and undermine stability. This includes Russian use of commercial and business entities, often through energy development and deals, to coerce other nations. Projects such as Nord Stream 2, and the additional line of TurkStream that would serve European markets, are Russian vehicles of malign influence and disinformation. Strengthening regulatory oversight and public anti-corruption institutions can help build domestic resilience to Russian malign influence activities.

> *"Europe should and must diversify its energy supplies so that it can effectively respond to a possible disruption in gas deliveries from Russia."*

Iran uses the proceeds of its oil exports to fund destabilizing activities throughout the Middle East via support for terrorist organizations, rogue militias, and other dangerous non-state actors. Iran's oil revenues fund war, terror, and violence that continue to kill and displace countless civilians. In the oil sector alone, Iranian-supported proxies have launched dozens of ballistic missiles at targets including oil refineries and related infrastructure, and directly attacked oil tankers transiting the Bab al-Mandeb just this year.

Iran and its Revolutionary Guards have for decades threatened to use military force to close the Straits of Hormuz through which roughly a third of all seaborne oil trade passes. Such threats to close one of the world's most vital shipping lanes should not be tolerated by any country, even if so many have now grown used to Iran's reckless rhetoric.

***Energy Access***

***ATTAIN UNIVERSAL ENERGY ACCESS:*** *The United States will seek to ensure universal access to affordable, reliable energy, including highly efficient fossil fuels, nuclear, and renewables, to help reduce poverty, foster economic growth, and promote prosperity.*

Today, 1.1 billion people lack access to electricity. Access to energy is a key foundation for economic and political stability, and energy poverty exacerbates development and security challenges across the globe. The United States has an "all of the above" energy strategy in which individual cities and states satisfy their energy needs through the mixture of hydrocarbon, renewable, nuclear, and future energy technologies that best suit their particular circumstances. We recognize that diverse communities and differing geographies and climates will require different solutions. There is no one-size-fits-all answer. Similarly, we support countries taking the energy development path based on their self-determined needs.

> *"Even the most well-diversified critical energy infrastructure is vulnerable to cyber and physical attacks."*

Along with energy access, good governance is also in our national security interest, particularly when working with less developed, resource-rich nations. This is especially true for the United States and China. As the two largest energy-consuming countries in the world, we must produce, distribute, and use energy responsibly. All consuming countries must act transparently and according to international best practices.

In July 2018, Secretary Pompeo announced Asia EDGE (Enhancing Development through Growth and Energy) as the energy component of the United States' Indo-Pacific Strategy. Asia EDGE is the US government framework for synchronizing all of our Indo-Pacific energy security efforts across the Interagency, including technical assistance, diplomatic engagement, and cooperation with like-minded partners and allies. It will promote resilient, diversified energy markets, transparent trade and investment practices, and open and competitive markets. While the Secretary dedicated an immediate 50 billion dollars to Asia EDGE activities in 2018, these funds are just the beginning. With Asia EDGE, we will continue our work with Indo-Pacific partners, and industry to import, produce, move, store, and deploy energy resources. We will promote the ability of firms from all nations to compete on equal footing through transparent commercial tendering and bidding processes. We will advocate for all countries to be free to develop their own energy resources free from outside pressure and interference.

### *Energy as a Catalyst for Cooperation*

Global markets and energy resource supply chains are fundamentally linked, and cooperation is essential to achieve a sustainable energy future. This is especially notable for a field that is itself driven by transformative developments in science and technology. In this sense, energy has a special role to play in foreign policy, because energy is a sector where countries can work together to develop practical, technical solutions to political problems.

Natural gas has the potential to transform both developed and developing economies worldwide. Energy, and in particular recent discoveries of natural gas, can catalyze collaboration in otherwise challenging environments. For example, in the Eastern Mediterranean, offshore discoveries in Egypt and Israel have redefined regional relationships as governments seek to work together. We hope that recent discoveries off Cyprus can be equally transformative. The successful exploration, production, and export of natural gas in the Eastern Mediterranean will require political cooperation and economic integration.

Unfortunately, the South China Sea is one region where maritime and territorial disputes have inhibited offshore exploration and development of hydrocarbon resources. Based on US Geological Survey data, the South China Sea contains over 2.6 trillion dollars in unexploited oil and gas reserves. The United States firmly supports the right of every country to commercially develop offshore hydrocarbon resources in accordance with international law and stands firmly opposed to any other nation's use of coercive tools to prevent the exploitation of natural resources.

### *Conclusion*

Energy plays a vital role in American foreign policy. The United States has long recognized the centrality of energy to international economic development, peace, and security. President Trump's National Security Strategy builds on this tradition while focusing on three areas: export promotion, energy access, and energy security. In each of these areas, America seeks to broaden the economic and social benefits of free, fair, and transparent energy markets and to oppose those who would use market power to advance malign political objectives. We see energy diplomacy as a means of arriving at win-win solutions that advance global peace, prosperity, and development. The United States will continue to strongly support free, fair, and transparent energy markets and oppose those who seek to turn them into instruments of malign influence and tools of political and economic coercion.

# THE LEGACY OF THE SOUTHERN GAS CORRIDOR

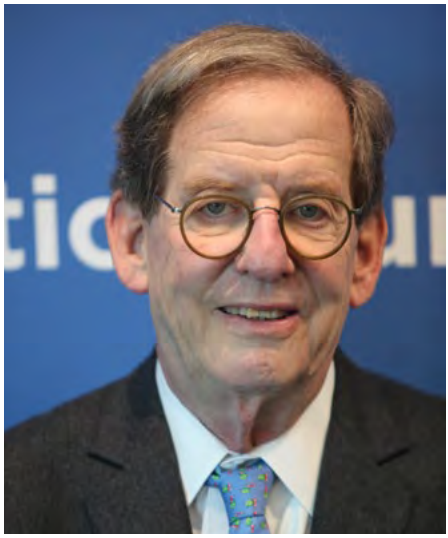
*In an exclusive interview conducted by Ellen Scholl, Deputy Director of the Atlantic Council's Global Energy Center, Ambassador Richard Morningstar reflects on his contributions to US energy policy in the Caspian region, which resulted in the realization of the Baku-Tbilisi-Ceylan pipeline. Ambassador Morningstar also touches on the importance of the Southern Gas Corridor for European energy security and major breakthroughs in the development of the Trans-Anatolian Natural Gas Pipeline (TANAP). Morningstar emphasizes that the inauguration of TANAP in the summer of 2018 represents a key milestone for the Southern Gas Corridor, a priority of the European Union and the United States, and a major success for Turkey.*

## Interview with Richard Morningstar*

TURKISH POLICY QUARTERLY
**Fall 2018**

* Ambassador (ret.) Richard Morningstar is the Founding Chairman of the Global Energy Center and a Board Director at the Atlantic Council. He served as the US ambassador to the Republic of Azerbaijan from July 2012 to August 2014. This interview was conducted by Ellen Scholl, Deputy Director at the Atlantic Council's Global Energy Center.

***When did you first get involved with the Southern Gas Corridor?***



My involvement goes back to the 1990s—an interesting time in the broader conversation about oil security and pipelines in the region. At the time, we were not talking about the Southern Gas Corridor, but the idea of the Southern Corridor as a whole. While the current discussion on the Southern Gas Corridor really focuses on the security of gas supply and alternative transit routes from Russia, the conversation in the 1990s was focused on alternative sources of oil supply and routes, also vis-à-vis Russia.

The focus on the Southern Corridor and energy transit routes really took center stage in the mid-1990s as then-Azeri President Heydar Aliyev signed the "contract of the century" with international oil companies to develop resources in the Caspian. Since that time, supporting the development of Caspian resources and the furthering of the Southern Corridor has been a bedrock of bipartisan policy through successive US presidential administrations of both parties. This policy rested on three key goals or pillars:

1. To create multiple pipeline routes and corridors to provide options and increase the diversity of supply;
2. To foster the independence of the newly independent states of the Caspian region through support for political, economic, and energy security;
3. To encourage and help facilitate strong relations between Turkey and the countries of the region.

As far as my involvement, I was serving as special adviser to the president and secretary of state on assistance for the newly independent states of the former Soviet Union during the mid-1990s. While I covered a range of issues in that position, energy issues were a big part of the efforts at that time. The conversation on Caspian resources intensified during that period, particularly the debate over what pipelines might bring Caspian oil to the world market, elevating Caspian energy issues to the top of the agenda.

Given the increasing importance and intensity of the debate over Caspian energy throughout the decade, I spoke to then-Deputy Secretary of State Strobe Talbott and Leon Fuerth, who served as national security advisor to Vice President Gore, both of whom were committed to this issue. I suggested to them that there be one person responsible for further US policy in the Caspian region. Much to my surprise, they not only took my point, but responded: well if you think it is so important, you can be the person.

*"Through much diplomacy with Azerbaijan, Georgia, and Turkey as well as the energy companies involved in the Caspian, one big win was the Baku-Tbilisi-Ceyhan pipeline becoming a reality."*

So, I became special adviser to the president and secretary of state for Caspian Basin energy diplomacy in early 1998. Through much diplomacy with Azerbaijan, Georgia, and Turkey as well as the energy companies involved in the Caspian, one big win was the Baku-Tbilisi-Ceyhan pipeline becoming a reality. This took a while, but it happened. I am proud to have been very involved in something that truly counts as a success story in the development of Caspian energy and in US energy diplomacy efforts.

Thanks to my many trips through Turkey, Azerbaijan, Georgia, as well as throughout Central Asia, I have always felt a very strong commitment to the region. And this experience in the 1990s was just the beginning—I returned to the government in 2009 to become the special envoy for Eurasian energy. Since that time, the United States has had a very strong commitment to the Southern Gas Corridor and European energy security.

It is also important to point out that this project benefitted not just from the engagement on the part of the United States as well as Turkey, Georgia, and Azerbaijan, but also thanks to cooperation between the United States, the European Union, and individual member states. The Southern Gas Corridor is designated as a Project of Common Interest by the European Union, and as such has received not just political but also financial support.

***What is the importance of the project to European energy security?***

The Southern Gas Corridor is critical to European energy security, as the project contributes to the availability of a diverse source of gas supply and transit routes to Europe. Azeri gas produced at Shah Deniz provides an additional source of supply, while TANAP provides an additional route through Turkey, and TAP brings the gas to Greece, Italy, Albania and possibly other states. This project, an incredibly complex undertaking, contributes to a more competitive market in Europe and alleviates and mitigates reliance on a single supplier.

> *"For the Southern Gas Corridor to be truly successful it will have to expand beyond the initial 10 billion cubic meters scheduled to go to Italy."*

While the project has achieved a huge milestone, for the Southern Gas Corridor to be truly successful it will have to expand beyond the initial 10 billion cubic meters scheduled to go to Italy. Over the long-term, the project will have to add additional supplies from different sources, such as additional Azeri gas, KRG gas, gas from the Eastern Mediterranean, and maybe even Turkmenistan. The latter is a possibility I have long said will not happen in my lifetime, but recent developments in the Caspian are certainly interesting and the European Union has included the long-awaited but yet to be constructed Trans-Caspian pipeline as part of its Projects of Common Interest list.

What, or whether anything changes following the historic agreement in summer 2018 on the status of the Caspian remains to be seen, and likely will continue to keep the Caspian at the forefront of conversations about the Southern Gas Corridor and European energy security more broadly.

***What were some of the most important breakthroughs or developments along the way that enabled the successful construction of TANAP?***

First and foremost, the SGC required cooperation between the participating countries and parties. The long negotiations between Azerbaijan, SOCAR, the Shah Deniz Consortium, and Turkey to agree on transit fees was critically important so the resolution of that issue constituted a major breakthrough.

Successful development of Shah Deniz, a very difficult, technologically complex

project, as well as the efficiency and cost savings achieved during the construction of TANAP pipeline were also instrumentally important. This project is truly impressive and is needed proof of the viability of large-scale projects in an era when many large infrastructure projects have faced difficulties.

The final decision to develop TAP to transport the gas to Europe was also a major breakthrough. This contribution to European gas supply is an important element.

***How important is Turkey's role as both transit country and importer of gas from Shah Deniz?***

Turkey's role is obviously crucial. Turkey has been hugely supportive of the TANAP pipeline and was able to successfully negotiate with all the parties on transit fees. These relationships are very important and have proved durable and lasting. No matter the ups and down in the US-Turkey relationship, energy has and continues to be a key area of cooperation and shared interest. Turkey has long expressed its interest in being a key country for energy transit and an energy crossroads linking regions. The success of gas through TANAP helped prove its credibility in this respect.

*"No matter the ups and down in the US-Turkey relationship, energy has and continues to be a key area of cooperation and shared interest."*

***Looking forward, what should we be paying attention to in Italy regarding the successful completion of TAP?***

Resolving the landing place at San Foca in Italy is of critical importance. This is the last piece of the puzzle, the final step for the successful completion of the project. The pipeline became tied up in the recent election, particularly at the local level, and embroiled in larger issues related to populism. Unfortunately, there also seems to be some misinformation about the risks associated with pipeline construction and transit, which are being addressed through public engagement.

Ultimately, while there have been some political developments that have raised some concerns, I am confident that there will be a successful resolution to the issue and gas to Italy on schedule. We will likely have a better sense of this over the course of the fall. While I am optimistic, I also stress the importance of an expedient resolution to these issues so as not to delay the project and the successful arrival of Shah

Deniz gas in Europe. Efforts should be made by all parties to promote the resolution of this issue, and to preserve Italy's reputation as a reliable place to do business.

***Looking beyond the initial capacity of the Southern Gas Corridor, if the project expands in capacity as anticipated, what other gas suppliers might be interested in supplying the project?***

Additional gas from Azerbaijan is first and foremost an avenue of additional supply and expanded capacity. There are also a lot of other interesting options but we will have to wait and see how projects develop in the Eastern Mediterranean, which is a critical energy region and source of new gas potential, as well as the development of gas in the Kurdish Region of Iraq, and maybe even gas from Turkmenistan.

While the future of gas supplies in the region remains to be seen, one thing is for certain. Turkey has played an instrumental role in getting this project off the ground. Its efforts to create and maintain cooperation among the parties involved and its relationship with Europe and the United States have helped ensure the success of the Southern Gas Corridor and enhanced European energy security.

# TANAP: INFLUENCER WELL BEYOND ENERGY

*The enduring importance of the Turkey-Azerbaijan relationship is anchored in a shared history, as well as economic, cultural, and political ties. In particular, joint energy projects have played a large role in deepening relations and consolidating mutual interdependence between Ankara and Baku. The launching of the Trans-Anatolian Natural Gas Pipeline (TANAP) in summer 2018 represents a milestone in that regard. In this article, the author argues that TANAP's influence goes well beyond the energy sphere; it will contribute to strengthening Turkey's geostrategic position, boosting trade, shoring up regional security, and generating positive momentum for the international community.*

Khazar Ibrahim*

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* Khazar Ibrahim is the Ambassador of Azerbaijan to Turkey. The views in the article are strictly his own views and do not represent the position of the government.
** TANAP in the title of the article is a reflection of all the global transportation and energy infrastructure projects between Azerbaijan and Turkey in the last two decades.

Some 10 years ago, when I wrote for TPQ on the energy security of Europe, the salient argument at the time was that the rapidly growing European market was in serious need of Caspian energy resources.

Today, this claim still rings true, but there is a lot of add-ons beyond energy. Europe's energy demands are high, but so are its needs to deal with the migration crisis and navigate the uncharted waters of emerging, multipolar, global economic, financial, and security systems. If between 2008 and 2014, the number of asylum seekers in the European Union countries averaged around 200,000 per year, that number averages now around one million.[1] Europe comfortably sailed within the free trade system led by the United States over the last half-century. However, it is now having to adjust to a contrary US policy which favors more protectionism and external sanctions. US President Donald Trump "has shaken the foundations of global trade, slapping steep tariffs on billions of dollars' worth of goods from the EU, Canada, Mexico, and China."[2] Turkey was among the victims too.

Definitely, given the above-described complicated economic and political backdrop, TANAP constitutes a breather for the European energy market. As part of the Southern Gas Corridor, together with the Trans-Adriatic Pipeline (TAP), 72 percent of which is completed, TANAP will supply 31 billion cubic meters of natural gas to Europe annually.[3] But even the United States hinted to the broader importance of the project. TANAP will contribute to the energy security of Europe and Turkey, Deputy Assistant Secretary of State Sandra Oudkirk told reporters in Ankara adding that "the US has not invested in TANAP and will not get commercial benefits from the project, but Washington supports the project because it promotes diversification of energy supplies and energy security."[4]

Meanwhile, the very presence of leaders from other countries at TANAP's June 2018 inauguration and their strong statements[5] is an indication that the project's importance extends beyond the energy sphere. Other notable areas include trade, security, and predictability. For trade, TANAP will straddle geography from Beijing

[1] "Asylum applications (non-EU) in the EU-28 Member States, 2006–2017," Eurostat Statistics Explained, https://ec.europa.eu/eurostat/statistics-explained/index.php/Asylum_statistics

[2] "Trade wars, Trump tariffs and protectionism explained," *BBC*, 26 July 2018, https://www.bbc.com/news/world-43512098

[3] Luke Coffey, "Turkey Strengthens Energy Security of Europe," *TRT World*, 5 June 2018, https://www.trtworld.com/opinion/turkey-strengthens-energy-security-of-europe-17993

[4] Arye Gut, "Trans-Anatolian Gas Pipeline (TANAP) Will Bring Azerbaijan Gas Resources To Europe," *The Jerusalem Post*, 21 June 2018, https://m.jpost.com/Blogs/News-from-Arye-Gut/Trans-Anatolian-gas-pipeline-TANAP-will-bring-Azerbaijan-gas-resources-to-Europe-560036

[5] Socar Midstream, "Official opening ceremony of TANAP," 12 June 2018, http://www.socarmidstream.az/news/tanap-opening-ceremony/

to London and will make it an all-inclusive (contrary to "zero-sum" mentality) zone. For security, the pipeline will range from Syria to Afghanistan and tackle all-threatening (WMD, migration, crime, etc.) phenomena. For predictability, it will further forge the regional bonds for the global benefits.

*"TANAP's importance extends beyond the energy sphere."*

***Trade***

In late 2017, the Baku-Tbilisi-Kars (BTK) railroad was inaugurated in Azerbaijan. It initiated a missing link for the revival of the shortest Modern Silk Road connecting Europe and the Far East. As the European Commision puts it "the European Union and China are two of the biggest traders in the world: China is the EU's second-biggest trading partner while the EU is China's biggest trading partner."[6] Since most of China's exports to Europe are in telecommunications, BTK can facilitate better trade in this field using a newly constructed Alyat seaport in Azerbaijan. Located 65 kilometers south of Azerbaijan's capital city of Baku, "the new port is emerging as a full-fledged intermodal transportation hub and free trade zone that's primed to become a major station along the New Silk Road…spanning the Eurasian landmass, from China to Europe."[7]

***Security***

10 years ago, the prospects for a stable Afghanistan were judged with relative optimism. Today, there are different realities. There are "huge achievements in just 8 years," said NATO Secretary General Rasmussen in 2008, "but the reality is that this mission cannot continue forever, and it should not continue forever."[8] Fast forward 10 years and the Secretary General Stoltenberg holds that "there are many problems in Afghanistan, and that it is extremely important to be aware that there is no easy way out of those problems. We see violence. We see the Taliban. We see ISIS... There are many problems."[9]

Former Aghan President Hamid Karzai said "...Once we are on our feet with our own

[6] "China," The European Commission, http://ec.europa.eu/trade/policy/countries-and-regions/countries/china/

[7] Wade Shepard, "An Inside Look At The New Crossroads Of Eurasia: Azerbaijan's New Port Of Baku," Forbes, 3 November 2016, https://www.forbes.com/sites/wadeshepard/2016/11/03/an-inside-look-at-the-new-crossroads-of-eurasia-azerbaijans-new-port-of-baku/#1dec07b53a49

[8] "Transcript: NATO Secretary General Rasmussen - First Major U.S. Speech," Atlantic Council, 2 September 2009, http://www.atlanticcouncil.org/news/transcripts/transcript-nato-secretary-general-rasmussen-first-major-u-s-speech

[9] "Speech by NATO Secretary General Jens Stoltenberg," NATO, 21 June 2018, https://www.nato.int/cps/en/natohq/opinions_156142.htm

economy, with our mineral resources, with our businesses, with Afghanistan becoming a hub for transportation in Central Asia and South and West Asia...Afghanistan will remain a strong and good and economically viable partner with the United States and our other allies."

Starr and Kuchins argue that one of the most promising ways forward for the US and NATO in Afghanistan is to focus on removing the impediments to continental transport and trade across Afghanistan's territory.[10] Since TANAP's source of energy is Azerbaijan's Shah Deniz from the Caspian sea, TANAP will subsequently contribute to regional prosperity and security in the Caspian region, including Central Asia and Afghanistan.

A decade ago, Syria was among the more developed countries of the Middle East. Today, it is a failing state on the verge of collapse with widespread atrocities and use of weapons of mass destruction against civilians. Turkey is directly affected and fully engages the challenge. The country hosts millions of refugees and conducts military operations in Syria, while no other country has a large number of troops on the ground or borders the country.

Speaking at the inauguration of TANAP, President Erdoğan said: "With TANAP, Turkey has assumed a critical role in every link of the value chain extending from producer to final consumer and is no longer a transit country. Our country is now one step closer to its vision of becoming a hub of regional energy lines thanks to TANAP."[11] The project is an important step for Turkey to become a regional energy hub if Turkey can fully liberalize its gas market. Aside from the project, other energy infrastructure projects, such as liquefied natural gas facilities and storage facilities can help Turkey to become an energy hub.[12]

Not only will TANAP make Turkey an energy hub, but it will also seriously contribute to the country's general development. A more prosperous Turkey also means a better life for the roughly three million Syrian refugees in Turkey. It will definitely influence the life in neighboring Syrian provinces; thus, contributing to a more stable future of the region.

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[10] S. Frederick Starr and Andrew C. Kuchins, "The Key to Success in Afghanistan A Modern Silk Road Strategy," Central Asia-Caucasus Institute, May 2010, https://www.silkroadstudies.org/resources/pdf/SilkRoadPapers/2010_05_SRP_StarrKuchins_Success-Afghanistan.pdf

[11] "'Our country is now one step closer to its vision to become a hub of regional energy lines thanks to TANAP,'" Presidency of the Republic of Turkey, 16 August 2018, https://www.tccb.gov.tr/en/news/542/94485/-our-country-is-now-one-step-closer-to-its-vision-to-become-a-hub-of-regional-energy-lines-thanks-to-tanap-

[12] "Poised to boost Europe's supply security, TANAP to start first gas delivery June 12," *Daily Sabah*, 11 May 2018, https://www.dailysabah.com/energy/2018/05/11/poised-to-boost-europes-supply-security-tanap-to-start-first-gas-delivery-june-12

***Predictability***

The Azerbaijan-Turkey axis has been building positivity for the region over the last two decades. Together, the Baku-Tbilisi-Ceyhan (oil pipeline), Baku-Tbilisi-Erzurum (gas pipeline), BTK (railway), and TANAP gas pipeline convey a positive and strong message to the outside world that despite obstacles, here we will only create opportunities.

*"The Azerbaijan-Turkey axis has been building positivity for the region over the last two decades."*

Despite abundant threats to disrupt the BTC, it was completed and runs well. When the US Congress declined to financially support the Baku-Tbilisi-Kars railroad—on the grounds that it circumvented Armenia—and Georgia lacked the resources for its part of the railroad, Azerbaijan stepped up and Turkey supported its completion. As Shephard explains, the Baku-Tbilisi-Kars railroad was completely financed by Azerbaijan and Turkey because "the World Bank, the Asian Development Bank, and the European Bank for Reconstruction and Development declined to support the project and instead preferred rebuilding the old route through Armenia."[13] To illustrate, the 178-kilometer section of the railroad was funded with loans from Azerbaijan's State Oil Fund.[14]

It has been almost seven years since TANAP was announced at the 3rd Black Sea Energy and Economic Forum in November 2011. "While European leaders inevitably claimed some of the credit for putting the pipeline firmly on the regional agenda, most of the praise was deservedly taken by the leaders of Azerbaijan and Turkey, who co-invested in the project."[15] The cordial relations between two Presidents, their strategic vision, and political will is a time-tested formula for the predictable success of globally significant regional projects.

I personally and very proudly witnessed the military parade on September 15th in Azerbaijan's capital Baku to mark the 100th anniversary of its liberation, with the participation of Turkish President Recep Tayyip Erdoğan as well as President of the Republic of Azerbaijan Ilham Aliyev. This was yet another message to the world of

[13] Wade Shephard, "How Azerbaijan, Georgia, And Turkey Subverted Russia And Isolated Armenia With New Railway," *Forbes*, 30 October 2017, https://www.forbes.com/sites/wadeshepard/2017/10/30/new-silk-road-azerbaijan-georgia-and-turkey-unite-over-new-rail-line-armenia-further-isolated/#39a01c313aff

[14] Wade Shephard, 2017.

[15] Joseph Philips, "Trans-Anatolian Gas Pipeline (TANAP): No Longer A Pipe Dream," *Business Excellence*, https://www.bus-ex.com/article/trans-anatolian-gas-pipeline-tanap-no-longer-pipe-dream

two brotherly nations standing strong and promoting peace in the region.

This year, four joint military exercises took place between Azerbaijan and Turkey with each country's military jets flying in another's airspace.

The number of Azerbaijani students in Turkey reached 17,000 and there are 4,000 Turkish students studying Azerbaijan. The growing cooperation between our two countries in educational endeavors strengthens the bonds between our young people. Many former students are in key government, business, or academic positions with the ability to impact and shape decision making.

In the uncharted waters of modern global affairs, there indeed seems to be a stable line connecting some of the most important parts of the world. Regionally, Turkey and Azerbaijan are at the core of most multilateral formats: Georgia, Iran, Pakistan, Ukraine etc. Furthermore, the Azerbaijan-Turkey coalition facilitates infrastructure, energy, and political projects that are paving the way for a more stable and prosperous region, hence, a better and more predictable world. Much will depend on how much this historic momentum of positivity is harnessed by the international community for its own gains.

# RENEWABLE ENERGY INVESTMENT IN TURKEY: BETWEEN ASPIRATION AND ENDURANCE

*Turkey is endowed with some of the richest and most diverse renewable energy resources in the world. These resources are well-suited to help address some of the country's most compelling energy security, sustainability, and fiscal challenges, but a stable economic and policy environment is necessary. The challenging financial conditions of 2018, combined with a still-evolving policy framework for renewable energy, calls into question whether the country's explosive renewable energy growth will continue over the coming years. Through a combination of prudent economic management, calibration of policy mechanisms to grow both large-scale and small-scale renewables, and an open orientation towards trade and investment, Turkey can still provide a compelling model for clean energy growth as it searches for success stories ahead of the Republic's centennial in 2023.*

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Turkey has been, for much if not all of its history, a country of liminality, straddling cultures and continents, balancing modernity with traditionalism. It should come as no surprise, then, that its status in the architecture of international climate change governance, and indeed its status in the global energy transition, is similarly ambivalent. And yet, despite this ambivalence, the sheer logic of renewable energy investment in Turkey continues to push in a positive direction, despite a number of headwinds both foreseeable and unforeseeable.

The climate imperative for Turkish renewables development remains ambiguous at best. Turkey participated in the December 2015 Paris climate conference, submitting a target of reducing its greenhouse gas (GHG) emissions by 21 percent below business as usual in 2030.[1] Despite the Paris Agreement's elimination of the anachronistic distinctions made between developed and developing countries, Turkey was able to negotiate a special status, exempting it from any obligations to provide climate finance to poorer nations.[2] It went on to sign the Paris Agreement in April of 2016.

However, Ankara has left the Agreement unratified, arguing that at the time of the Paris Agreement, France had promised it access to international climate funds to assist with meeting its Paris commitments and that the prospective withdrawal of the United States from the Paris Agreement threatened the provision of such funds.[3] It left the November 2017 UN climate conference early, reportedly unsatisfied with the pace of progress over funding the Green Climate Fund from which it hopes to draw.[4] Moreover, Turkish climate negotiators have recently led an increasingly vocal group of countries that argue all nationally determined contributions (climate commitments) should be voluntary in every way, including being exempted from any formal quantification exercises to measure their significance.[5]

Luckily, however, the logic of capitalizing on Turkey's renewable energy potential does not rely exclusively, nor even primarily, upon fulfilling the country's voluntary

[1] Climate Action Tracker, "Turkey: Pledges and Targets," 2018, https://climateactiontracker.org/countries/turkey/pledges-and-targets/

[2] Michael Schneider, "A Tangled Case – Turkey's Status under the UNFCCC and the Paris Agreement," *International Center for Climate Governance*, No. 53 (July 2017), http://www.iccgov.org/wp-content/uploads/2017/07/53_A-Tangled-Case-%E2%80%93-Turkey%E2%80%99s-Status-under-the-UNFCCC-and-the-Paris-Agreement.pdf

[3] Stefan Wagstyl, "Turkey Push for Climate Funds Adds to Concerns about Paris Accord," *Financial Times*, 9 July 2017, https://www.ft.com/content/bbef9a42-64c0-11e7-8526-7b38dcaef614

[4] "İklim Konferansında Türkiye Rest çekti," [Turkey gives ultimatum in the environment conference] *Habertürk,*, 19 November 2017, https://www.haberturk.com/iklim-konferansinda-talepler-kabul-edilmeyince-turk-heyeti-rest-cekti-1719729

[5] Simon Evans and Jocelyn Timperley, "Bonn Climate Talks: Key Outcomes from the May 2018 UN Climate Conference," *Carbon Brief,* 11 May 2018, https://www.carbonbrief.org/bonn-climate-talks-key-outcomes-from-the-may-2018-un-climate-conference

climate commitments. Indeed, the logic for further development of renewables is rooted firmly in a robust and diversified renewable resource base, acute energy security concerns, and an increasingly supportive renewable energy policy framework. Despite these tailwinds, the country faces a number of challenges in fully capitalizing upon its renewable energy potential, including proper implementation of the policy framework, balancing a desire for domestic value chains against prohibitive domestic content requirements, and challenges related to the recent financial crisis and currency weakness.

> *"The sheer logic of renewable energy investment in Turkey continues to push in a positive direction, despite a number of headwinds both foreseeable and unforeseeable."*

Turkey displays the highest average energy demand growth of all OECD countries over the past 15 years, and its domestic energy production meets only around one-quarter of its total energy use. The country's energy import costs are also rising amid rising oil prices, increasing 37 percent in 2017 to more than 37 billion dollars, or nearly 16 percent of its total import value.[6] And, while there is some debate over Turkey's own estimates—comprising the "business as usual" scenario in its climate commitments—that its energy demand will double from 2016 to 2026, it is clear that it is on pace for continued energy demand growth, so much so that the country's long-stated ambitions of becoming a major natural gas trading hub have been stymied by its own domestic use of most new pipeline capacity into the country.[7] Over the past decade, Turkey has turned into one of the most attractive energy investment destinations globally, with a variety of different energy technologies and opportunities in play. Over the next five years, aggregate energy sector investment needs are expected to be around 110 billion dollars, double the pace of the previous decade.[8]

In light of these dynamics, Turkish policymakers are pursuing a variety of strategies to meet rising demand, reduce import dependence, and bolster the country's energy security. Alongside coal, natural gas, and some nuclear investment, renewables are playing a large role in this strategy. The country is blessed with an abundant

[6] Ebru Sengul, "Turkey's Energy Import Bill up by 37% in 2017," *AA Energy*, 1 February 2018, https://www.aa.com.tr/en/energy/finance/turkeys-energy-import-bill-up-by-37-in-2017/18644

[7] Emre Tunçalp, "Turkey's Natural Gas Strategy: Balancing Geopolitical Goals and Market Realities," *Turkish Policy Quarterly,* Vol. 14, No. 3 (Fall 2015), pp. 67-79, http://turkishpolicy.com/files/articlepdf/turkeys-natural-gas-strategy-balancing-geopolitical-goals-market-realities_en_9097.pdf

[8] "Energy and Renewables - Invest in Turkey," http://www.invest.gov.tr/en-US/sectors/Pages/Energy.aspx.

renewable energy resource base, one that is broad and diversified across solar, wind, geothermal, and hydro resources in a way that few other countries enjoy.[9] With only the wind turbine technology available to the mass market today, let alone future improvements, Turkey has 150 GW of viable, installable wind power capacity.[10]

### *History of the Renewable Energy Framework*

A 2009 Electricity Energy Market and Supply Security Strategy Paper set forth a clear mandate for the government to take steps to increase the share of renewable energy in the power sector, which was soon followed by Turkey's first major national renewable energy targets, established in its 2010–2014 Strategic Plan. These included a goal of having renewables account for 30 percent of total electricity production by 2023 (an important year marking the centennial of the Republic of Turkey), and only included specific technology deployment targets for wind and hydroelectricity, both of which were foreseen as comprising the lion's share of the country's renewable growth to 2023.[11]

The 2015–2019 Strategic Plan held the 30 percent target constant, but added short-term, mid-term, and long-term targets for individual energy technologies, and this time included solar, geothermal, and biomass among them.[12]

The 2015–2019 Strategic Plan also implicitly recognized impediments to faster progress toward the target, in particular, grid interconnection issues for wind farms, as well as the relative dearth of large-scale renewable projects being developed, and included several new policies meant to accelerate renewable project development. Most significant was the issuance of new Renewable Energy Resource Area (YEKA) regulations by the Ministry of Energy's Renewable Energy General Directorate. The YEKA framework seeks to catalyze the development of the country's significant renewable energy potential by streamlining and permitting tender processes, opening up new land for project development, and generally enabling large-scale renewable development. In practice, it represents a "winner-takes-all" auction system.

In August 2018, Turkey revised upwards its renewable target to 50 percent of all electricity production by 2023, following upon data from the country's Energy

[9] Sybille Roehrkasten, Sonja Thielges, and Rainer Quitzow, eds. "Sustainable Energy in the G20," IASS Study, December 2016,
https://www.iass-potsdam.de/sites/default/files/files/iass_study_dec2016_en_sustainableenergyg20_0.pdf

[10] Tanay Sıdkı Uyar, "Barriers and Opportunities for Transformation of Conventional Energy System of Turkey to 100 % Renewable Community Power," in *Springer Proceedings in Energy*, 2017, p. 112.

[11] International Energy Agency, "Strategic Plan 2010," 27 October 2015, https://www.iea.org/policiesandmeasures/pams/turkey/name-24960-en.php

[12] International Energy Agency, "Strategy Plan 2015-2019," 1 December 2015, https://www.iea.org/policiesandmeasures/pams/turkey/name-148506-en.php

Markets Regulatory Authority (EMRA) showing that Turkey had already exceeded 30 percent renewable generation by mid 2018.[13] While hydro is the largest clean energy resource in the country's power mix, accounting for around 20 percent, in the month of August 2018 all non-hydro renewables accounted for roughly another 15 percent.[14] The government also announced that it intends to offer 10 GW of solar and 10 GW of wind tenders over the next decade, suggesting a continued pace of 1 GW of each per year under the YEKA system.

*"Turkey displays the highest average energy demand growth of all OECD countries over the past 15 years, and its domestic energy production meets only around one-quarter of its total energy use."*

The same month, as part of a broader economic "100-day action plan" unveiled by President Recep Tayyip Erdoğan amid the summer 2018 Turkish financial crisis, new tenders for three gigawatts (GW) of solar capacity representing just under five billion dollars in value were announced.[15] It remains unclear whether this three GW of solar capacity is additional to, or part of, the existing solar tender program planned over the next decade.

### *Rooftop Solar Opportunities*

Installed solar capacity in Turkey was at just under 3.5 GW at the end of 2017, from only 40 MW in 2014.[16] The majority of this represents unlicensed projects under one megawatt that qualify for a feed-in-tariff, and which have been primarily sited near-by commercial and industrial customers for self-consumption.[17] Unlicensed projects notably do not have a local-content requirement, but have also been excluded from accessing a more generous feed-in-tariff (19.6 cents per kWh versus 13.3 cents per kWh) afforded to projects with a certain quotient of domestic content.[18] To date, unlicensed projects also must access the grid through a connection agreement that is

[13] "Turkish Authorities Aim to Boost Renewable Power Generation to 50 Percent by 2023," *Daily Sabah*, 24 August 2018, https://www.dailysabah.com/energy/2018/08/25/turkish-authorities-aim-to-boost-renewable-power-generation-to-50-percent-by-2023

[14] "Electricity Generation in Turkey," *Turkey's Energy Atlas*, http://en.enerjiatlasi.com/electricity-generation/turkey/.

[15] "Erdogan Announces Turkey's 100-Day Energy Plan," *Anadolu Agency Energy,* 6 October 2018, https://www.aa.com.tr/en/energy/nuclear/erdogan-announces-turkeys-100-day-energy-plan/21122

[16] World Bank, "Turkey: Rooftop Solar Market Assessment," February 2018, http://documents.worldbank.org/curated/en/532211519629608085/pdf/TR-Rooftop-Solar-Output-P162236.pdf

[17] "Turkey's Solar Growth Continues despite Challenging Requirements on Recent Tender'," *PV Europe,* 26 January 2017, https://www.pveurope.eu/News/Markets-Money/Turkey-s-solar-growth-continues-despite-challenging-requirements-on-recent-tender

[18] World Bank, "Turkey: Rooftop Solar Market Assessment."

signed between the project developer and the relevant network operator.[19]

While the unlicensed model has succeeded in stimulating investment in ground-based projects just under one MW, the growth of these projects has slowed since the government made the relevant regulations more stringent in March 2016. Furthermore, the entire unlicensed framework was perceived as providing insufficient incentives and regulatory streamlining in order to promote smaller rooftop solar systems. While the Turkish Solar Energy Association is forecasting total solar capacity to grow to 14 GW in 2023, the country is very unlikely to hit that target without significantly greater rooftop solar deployment.

New regulations were offered by the Energy Market Regulatory Authority in January 2018 to make it easier for the development of household scale (10 kW or less) rooftop solar in Turkey, including a net-metering style provision that would allow such facilities to sell back excess electricity to the grid at 13.3 cents per kWh. This was shortly followed by an amendment to tax statutes, also exempting the excess electricity sales of these small-scale solar facilities from income taxes.[20] These are welcome sources of support for a rooftop solar sector that has thus far underperformed its potential, particularly compared to other large solar markets such as China, Germany, and the United States. However, in order for this potential to be fully harnessed, further policy reforms, such as the removal of import taxes on imported solar PV modules used for rooftop projects and the establishment of a dedicated rooftop solar project credit facility through Turkey's commercial banking system, could be considered. These and other recommendations are succinctly captured in a recent report by the World Bank.[21]

### *Large Scale Solar and Wind Projects*

The government is counting on large-scale solar and wind mega-projects to play a more equitable role, alongside unlicensed projects, in achieving the country's ambitious renewable targets.

Tenders were successfully held for both solar and offshore wind under the YEKA system in 2017. The wind tender, worth around one billion dollars, was particularly impressive, with a consortium of Siemens Gamesa Renewable Energy and two Turkish firms—Kalyon Enerji and Türkerler Holding—winning against seven other bidders to develop 1,000 MW of onshore wind across multiple sites at a tariff of

[19] "Turkey's Renewable Energy Market and Investment Opportunities," *Invest in Turkey,* April 2018, http://www.invest.gov.tr/en-US/infocenter/publications/Documents/RENEWABLES.ENERGY.INDUSTRY.pdf

[20] "Turkey's Renewable Energy Market and Investment Opportunities," April 2018.

[21] World Bank, "Turkey: Rooftop Solar Market Assessment."

3.48 cents per kilowatt-hour (kWh). This was significantly below the global average cost of six cents per kWh for onshore wind in 2017 as reported by the International Renewable Energy Agency (IRENA).[22] A separate solar tender, worth 1.4 billion dollars, was won by Hanwha Q Cells of South Korea in partnership with Kalyon Enerji, and will involve the construction of a 1 GW project in central Turkey at a tariff of 6.99 cents per kWh.[23] This, too, represents attractive pricing considering that the global average levelized cost of utility-scale solar observed by IRENA was 10 cents per kWh in 2017.[24]

> *"In August 2018, Turkey revised upwards its renewable target to 50 percent of all electricity production by 2023, following upon data showing that Turkey had already exceeded 30 percent renewable generation by mid 2018."*

2017 was thus a pivotal year not only in proving out that there would be significant interest in the new YEKA system for tendering pre-identified territory for large-scale renewable projects, but also that the energy costs realized through the auction system would be competitive against both coal and nuclear, other resources backed by the government as solutions to energy security concerns. A major lignite coal tender for a project in Çayırhan in 2017 produced an agreed electricity cost of 6.04 cents per kWh, only narrowly less expensive than the solar project and far costlier than the wind project. And the Akkuyu nuclear plant, the first unit of which is scheduled to be delivered in 2023, has a locked-in electricity price of 12.5 cents per kWh for 70 percent of its production, with the remainder being sold on the spot market.[25]

Early in 2018, the second wave of renewable energy tenders under the YEKA system was announced, one for solar and another for offshore wind. Candidate regions for the 1 GW solar tender include Hatay along the southern coast, Niğde in Central Anatolia and Şanlıurfa in southeast Turkey, while candidate regions for the 1 GW

[22] International Renewable Energy Agency (IRENA), "Renewable Power Generation Costs in 2017," 2018, Abu Dhabi, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_2017_Power_Costs_2018.pdf

[23] Hanwha Q. Cells, "Kalyon Enerji Consortium Awarded the Tender to Construct Region's Largest 1 GW Solar Power Plant in Turkey," *PR Newswire: News Distribution, Targeting and Monitoring*, 23 March 2017, https://www.prnewswire.com/news-releases/hanwha-q-cells-kalyon-enerji-consortium-awarded-the-tender-to-construct-regions-largest-1-gw-solar-power-plant-in-turkey-300428308.html

[24] International Renewable Energy Agency (IRENA), "Renewable Power Generation Costs in 2017," 2018, Abu Dhabi, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_2017_Power_Costs_2018.pdf

[25] World Nuclear Association, "Nuclear Power in Turkey," http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/turkey.aspx

offshore wind tender include Saros, Kıyıköy and Gallipoli in northwest Turkey.[26]

For future tenders to be successful, the government will need to ensure sufficient interest, participation, and competition. This will not necessarily be easy, as the scale and "winner-take-all" risk of the tenders, significant domestic content requirements, and some degree of regulatory unpredictability all contribute to limiting interest among developers. To the degree that the government can loosen some domestic content requirements, promote further ease of grid interconnection, and provide long-term certainty on feed-in-tariffs, this will help to ensure continued interest in the licensed YEKA project tenders for years to come.

### *Geothermal Energy Opportunities*

Geothermal also represents a promising and underexploited resource base for Turkey, though it has a long history, with the first geothermal electricity production coming from the Kızıldere field starting in 1974.[27] The country has over 1,000 geothermal springs, with around 80 percent of them concentrated in Western Anatolia. The vast majority—90 percent—of these sites are suitable for direct thermal applications, while around 10 percent are potentially suitable for electricity generation.[28] The government has long played an active role in the development of its geothermal sector, and resource administration was divided between the federal government, which led on research projects and those for power generation, and provincial governments, which led on geothermal for heating and direct use.[29]

Since the introduction of a feed-in-tariff and more explicit renewable energy policy framework, however, Turkey has grown its installed geothermal capacity significantly. Over the past decade alone, geothermal has grown from only 30 MW in 2008 to currently ranking fourth in the world, at 1.2 GW total.[30] Notably, the country's previous target of 1 GW of geothermal by 2023 has already been exceeded.

Can Turkey's geothermal sector continue its rapid expansion? Policymakers certainly hope so. The former General Manager of the General Directorate of Renewable

[26] Nuran Erkul, "Turkey Names Candidate Areas for 2nd Renewable Tenders," *Anadolu Agency Energy*, 26 March 2018, https://www.aa.com.tr/en/energy/solar/turkey-names-candidate-areas-for-2nd-renewable-tenders/19385

[27] Ali Kindap et al., "Privatization of Kizildere Geothermal Power Plant and New Approaches for Field and Plant," 2010, https://www.geothermal-energy.org/pdf/IGAstandard/WGC/2010/0708.pdf

[28] "Republic of Turkey Ministry of Energy and Natural Resources - Geothermal," http://www.enerji.gov.tr/en-US/Pages/Geothermal

[29] Sanyal et al., "Comparative Analysis of Approaches to Geothermal Resource Risk Mitigation," World Bank (italik), 2016, http://documents.worldbank.org/curated/en/621131468180534369/pdf/105172-ESM-P144569-PUBLIC-FINAL-ESMAP-GeoRiskMitigation-KS024-16-web.pdf

[30] "Global Geothermal Capacity Reaches 14,369 MW – Top 10 Geothermal Countries, Oct 2018," *Think GeoEnergy - Geothermal Energy News*, http://www.thinkgeoenergy.com/global-geothermal-capacity-reaches-14369-mw-top-10-geothermal-countries-oct-2018/

Energy announced at a conference in April 2018 that the government would set a new 2030 geothermal target of 4 GW, and would also take additional steps to promote further development of geothermal direct thermal applications, as well as diversification of geothermal electricity production beyond Western Anatolia.[31]

> *"Geothermal represents a promising and underexploited resource base for Turkey."*

In order to hit or even exceed these targets, however, Turkey will need to attract additional private entities and capital into a sector that has traditionally been dominated by public investment. Much of the challenge pertains to the particular risk profile of geothermal, which differs significantly from other renewable resources such as solar or wind. The uncertainty associated with prospective geothermal resources cannot be resolved without the expenditure of significant up-front capital in order to drill exploratory wells, often two or more in order to accurately assess the ultimate yield of a site. In this sense, it can be considered more similar to oil and gas, and yet the modeling capabilities that exist in oil and gas are far more mature and developed than those for a smaller and more immature sector such as geothermal.

Until 2013, all but one of the geothermal projects developed in Turkey were developed on sites that had already been de-risked and proven suitable by the government and subsequently put out for tender.[32] Over time, however, the inventory of such de-risked sites will be exhausted and new approaches will be needed. The geothermal plant at Gümüşköy commissioned in 2013 was the first instance of a private firm, BM Holding, taking on significant financial risk to explore and develop a previously-unproven geothermal site, incurring early stage costs that accounted for one-quarter of the project's 50 million dollars total.[33] The European Bank for Exploration and Development (EBRD) played a key role in financing early-stage exploration through a domestic Turkish lender. Going forward, new approaches such as geothermal resource risk insurance, a pioneering "risk sharing mechanism" backed by the World Bank, and enhanced geothermal technologies—perhaps driven in part by collaborations with US research projects—will be critical to ensuring the

[31] "Turkey Remains Bullish on Geothermal Development Setting New Target of 4,000 MW by 2030," *Think GeoEnergy - Geothermal Energy News*," http://www.thinkgeoenergy.com/turkey-remains-bullish-on-geothermal-development-setting-new-target-of-4000-mw-by-2030/

[32] Padraig Oliver and Martin Stadelmann, "Public Finance and Private Exploration in Geothermal: Gümüşköy Case Study, Turkey," 2015, p. 33, https://climatepolicyinitiative.org/wp-content/uploads/2015/03/SGG-Report_Public-Finance-and-Private-Exploration-in-Geothermal_Gumuskoy-Turkey1.pdf

[33] Oliver and Stadelmann (2015).

continued growth of geothermal in Turkey.[34]

### *Maintaining Growth amid Challenging Conditions*

Despite Turkey's prolific renewable resource base and the propitious wave of renewable investment in recent years, the country's renewable sector faces a number of challenges as it evolves to become a fundamental pillar of the economy and the backbone of a more constructive climate policy orientation.

Turkey's steep domestic content requirements ambitions, aimed at lofty ambitions at developing an indigenous renewable manufacturing capacity, present one such challenge. Turkey is considered to have the strictest local content requirements for renewables of any country in the world, first applied to the government's initial solar tender under the YEKA system, along with a prohibitive 50 percent tariff on solar panel imports in July 2016.[35] This initial foray was seen as successful, however, with the winning Kalyon-Hanwha consortium building an integrated solar manufacturing facility in an industrial park outside of Ankara to support its one GW solar project.[36] The facility has a capacity of 500 MW of ingot and wafer production, 650 MW of solar cells, and 800 MW of solar panels, set to begin production in late 2018, and with room to scale further.[37]

The Turkish government is now attempting to achieve the same indigenization of manufacturing and supply chains in the wind sector, where successful bids require a local content requirement of at least around 60 percent for onshore wind and slightly less for offshore wind projects.[38] Although there is already a Turkish industrial base capable of constructing at least some towers, blades, foundations, and other components for wind power in the country, further work will be needed to establish a robust manufacturing platform capable of both exports to the broader region as well as further R&D to advance wind energy productivity.[39]

The ultimate costs and benefits of the domestic content effort are still uncertain, with Turkey facing a particularly uphill battle in the solar sector. China currently has

[34] "Türkiye Jeotermal Risk Paylaşım Mekanizması," [Turkey's Geothermal Risk Sharing Mechanism] http://rpmjeotur-kiye.com/en/homepage/

[35] "Turkey Seeking Renewables Industry With Make-It-Here Rules," *Bloomberg,* 22 November 2016, https://www.bloomberg.com/news/articles/2016-11-22/turkey-seeking-renewable-energy-industry-with-make-it-here-rules

[36] "Turkey Launches First Solar Cell Integrated Factory," *Hürriyet Daily News*, http://www.hurriyetdailynews.com/turkey-launches-first-solar-cell-integrated-factory-124575

[37] "Kalyon-Hanwha PV Factory to Start Production by End-2018 - Report," *Renewablesnow.com*, https://www.chinadialogue.net/article/show/single/en/10775-China-s-solar-industry-is-at-a-crossroads/

[38] "Local Content a Key to Turkish Offshore Wind Tender," *Offshore Wild Journal,* 20 June 2018, https://www.owjonline.com/news/view,local-content-a-key-to-upcoming-turkish-offshore-wind-tender_52205.htm

[39] Offshore Wild Journal (2018).

market share of between 55 percent to 72 percent of the global value chain, from polycrystalline silicon to final solar module assembly.[40] With 2018 poised to be the first year in history in which the global solar market contracts at a time when China's own solar manufacturing continues to ramp up, the local content requirements may ultimately lead to higher solar development costs, and thus higher electricity prices for consumers, than would otherwise be the case with a more free-market approach. However, Turkey maintains a competitive and diversified manufacturing economy, as well as an educated workforce, and so it may be willing to pay such costs in order to find an appropriate, strategic niche in the global solar value chain. Persistent weakness in the Turkish lira also enhances the competitiveness of local Turkish equipment, labor, and processes, a point that paradoxically leads well into the next major challenge facing Turkish renewables investment.

> *"Turkey is considered to have the strictest local content requirements for renewables of any country in the world."*

The recent economic volatility in the Turkish economy, and the associated solvency challenges of Turkish utilities, has also presented significant challenges for renewable development. A recent report by Boston Consulting Group and TÜSİAD, the Turkish "Electricity Producers Association," found that the Turkish electricity sector has accumulated $95 billion of investments over the past 15 years, supported by $51 billion of outstanding debt.[41]

The more than 50 percent decline in the Turkish lira from mid-2017 to mid-2018, driven initially by a mounting current account deficit and further intensified by foreign currency denominated debt defaults and skepticism over the credibility of monetary policy, has exacerbated the burden of debt facing the power sector. Utilities and power sector firms are unable to compensate with concomitant electricity price increases due to price ceilings and regulatory barriers, complicating their ability to service dollar-denominated debt amid increasingly unfavorable exchange rates.

Turkish power prices in dollar terms have declined from over 80 dollars per megawatt-hour in 2010 to less than 45 dollars in mid-2018, forcing renegotiation of

[40] Liu Bin, "China's Solar Industry Is at a Crossroads," China Dialogue (italik), 13 August 2018, https://www.chinadialogue.net/article/show/single/en/10775-China-s-solar-industry-is-at-a-crossroads

[41] "Once Darling of Foreign Investors, Turkey's Power Market Struggles," *Reuters*, 10 September 2018, https://www.reuters.com/article/us-turkey-currency-energy/once-darling-of-foreign-investors-turkeys-power-market-struggles-idUSKCN1LQ1S3

debt on the part of many power producers.[42] The same BCG/TÜSİAD report indicates that generators need to, in aggregate, produce nearly seven billion dollars annually in cash flow to repay an annual amount of 4.3 billion dollars in principal and 2.6 billion dollars in interest for the sector's outstanding debt inventory.[43] The government has stepped in with a temporary support scheme that involves state-owned transmission company, Türkiye Elektrik İletim A.Ş. (TEİAŞ), making payments to gas and coal plants that meet certain operational criteria and which are experiencing losses on their electricity sales. Up to 1.4 billion Lira in payments are possible for 2018.[44]

Amid these challenging financial conditions, a number of large power sector-involved conglomerates have sought to divest certain stakes, including in renewables-oriented subsidiaries, which in turn have tightened the environment for renewable finance over 2018. Fitch Ratings lowered its outlook for Turkish solar and wind capacity amid challenging financial conditions, while simultaneously recognizing that continued weakness in the lira will further prioritize domestic energy production (such as that provided by renewables) over foreign currency-denominated oil and gas imports.[45]

### *Concluding Remarks*

Turkey has no shortage of renewable energy potential, nor is it short of compelling reasons to make the further development of this potential a central pillar of the country's energy strategy. The limitations to renewable energy investment and growth in Turkey have had far more to do with the macroeconomic environment and regulatory design in the country. This should prove reassuring over the long-term but which should also serve to focus attention on what must be done over the short term to ensure an attractive investment environment. If the country can stabilize its currency and financial markets into 2019, provide policy certainty and stability with regard to renewable energy incentive mechanisms, and successfully restructure electricity sector debt to ensure continued solvency of the sector, the future is bright for renewables in Turkey. Indeed, there is no reason why the country cannot serve as a model for others in the region, and use its renewables success to leverage further gains in terms of energy security, economic development, and climate action in the

[42] "Turkey Faces Ticking Bomb With Energy Loans of $51 Billion," *Bloomgberg,* 11 July 2018, https://www.bloomberg.com/news/articles/2018-07-11/turkey-faces-ticking-time-bomb-with-energy-loans-of-51-billion

[43] Bloomberg (2018).

[44] Bloomberg (2018).

[45] "Turkey Currency Crisis To Cement Focus On Renewables And Coal Power," *Fitch Solutions,* 31 August 2018, http://www.fitchsolutions.com/corporates/energy-natural-resources/turkey-currency-crisis-cement-focus-renewables-and-coal-power-31-08-2018

process. To get there, however, quiet, consistent hard work will have to take priority over flashy announcements and targets. In doing so, Turkey will showcase to the world that it is a serious player, and one to be learned from, in the global energy transition.

# THE IMPORTANCE OF NATURAL GAS TO TURKEY'S ENERGY AND ECONOMIC FUTURE

*This article outlines the policies and pathways Turkey might take to enhance the role of natural gas in its energy future and Turkey's role as a gas bridge between Asia and Europe. Building on existing progress to liberalize the Turkish natural gas and power markets, a number of additional investments and significant market reforms remain before the preconditions for a competitive natural gas exchange are in place. The benefits of a natural gas hub to Turkey are discussed.*

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Turkey has historically been one of the most important transit corridors between the East and the West and provides the only marine passage from the Black Sea to the Aegean Sea. Its control of the Bosphorus has dictated much of the geopolitical history of the region. Turkey's geography makes it an important transit route from parts of the hydrocarbon-rich Middle East and the Caspian Sea to Europe.

With the introduction of Trans-Anatolian Natural Gas Pipeline (TANAP) from Azerbaijan, increased natural gas supplies will be available to Turkey and, via the Trans Adriatic Pipeline (TAP), to South Eastern, Eastern, Central, and Western Europe. TurkStream will also provide additional Russian gas to Turkey and, through the proposed Tesla pipeline, bring Russian gas to South Eastern and central Europe. These additional major pipelines, as well as other recent investments in natural gas distribution and LNG infrastructure could enhance Turkey's position as an energy bridge from hydrocarbon-rich states to Europe. The pipelines will also help relieve congestion that Turkey's gas distribution system has experienced in recent years.

In this context, Turkey has expressed an interest in becoming a natural gas "hub," raising several questions: What steps and investments are needed to become a natural gas hub? Will Turkey's status as a transit country enable it to become a natural gas hub? Can this help improve energy security for Turkey and for European consumers?

To help answer these questions, it is first worth looking at the key features of a gas hub. Henry Hub, the world's most robust natural gas hub, is located in southern Louisiana. Its associated infrastructure – nine interstate and four intrastate pipelines and ample storage facilities in the region – provides physical access to most major gas markets in the US. It is the official delivery point for future contracts on the New York Mercantile Exchange (NYMEX) and establishes the benchmark price for North American gas markets. Because of its large volume of contracts (an average of 500,000 gas contracts per day in the first quarter of 2018),[1] liquidity, and transparency, Henry Hub enables gas-on-gas pricing as opposed to the fragmented, oil-linked pricing that prevails in regional gas markets in other parts of the world.

It is also important to understand the value of a hub. The Dutch Government, in considering investing in the development of a gas hub in the Netherlands, described the benefits as follows:

> "The primary aim of the gas hub strategy is 'to secure the country's gas supply and promote the continuity of European gas supplies'...

[1] Russell Blinch, "LNG and the Importance of the Henry Hub Benchmark," *Seeking Alpha,* 1 June 2018.

> By creating a gas hub, the government wishes to guarantee the country's access to energy sources in the long-term…The secondary aim the government is seeking to achieve is economic growth and boosting the country's earning potential."[2]

A Turkish natural gas exchange would take advantage of its gas hub as the reference location for future contracts that are physically satisfied and establish natural gas as a competitive commodity in its region.[3] A competitive Turkish pricing point and liquid supply source could also provide many advantages to Turkey, contributing to its national economy and enhancing its energy security. In addition, it would give Turkey a larger stake in improving regional stability, increasing production, and promoting low cost infrastructures.

*"Will Turkey's status as a transit country enable it to become a natural gas hub?"*

***Current Domestic Policies Supporting the Role of Natural Gas in Turkey***

Turkey is growing its natural gas infrastructure and importing natural gas from more diversified sources of supply, actions that enhance the role of natural gas in Turkey and the region. Many regulatory and market changes are already in line with Turkey's goals to privatize its electricity and natural gas markets, although much work remains to be done. Progress towards a Turkish natural gas hub would depend on continued implementation of these reforms, as well as the unbundling of contracts held by Turkey's state-owned gas transmission system operator.

*Diversification of Turkey's Natural Gas Supplies*

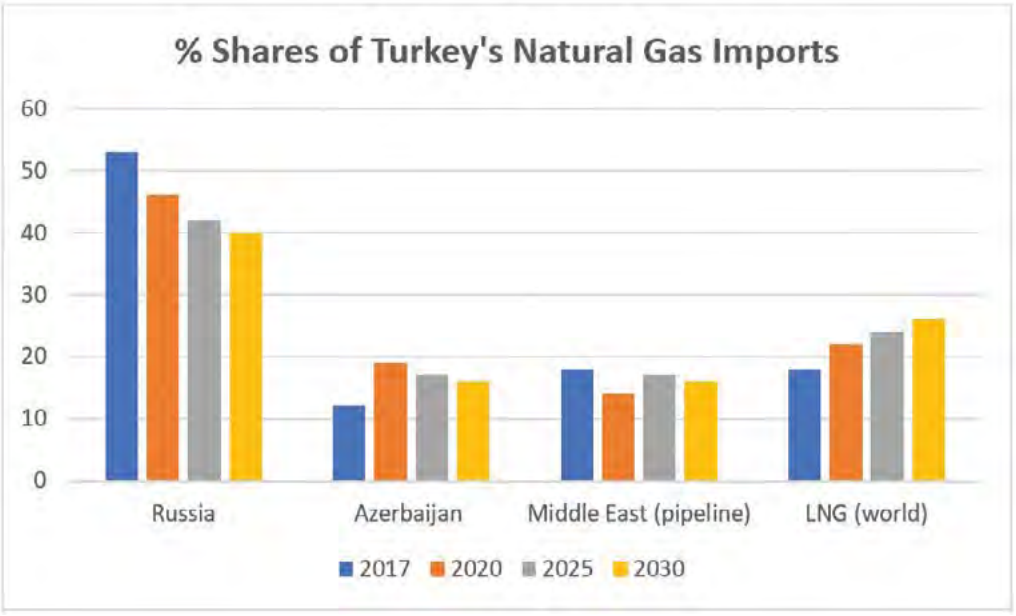
Diversification of sources of gas supply has been a key feature of Turkey's energy policy. For instance, TANAP now provides access to the Azerbaijan Shah Deniz field. Due to the field's scalable features and the potential for additional production in shipping volumes from Shah Deniz that could be doubled with a modest investment, this would increase the share of imported Caspian gas relative to Russian and Iranian gas. This would likely create opportunities for additional contract/price flexibility.

[2] Algemene Rekenkamer, "The Netherlands as a European Gas Transmission Hub: Benefits, Need and Risks," 2012.

[3] Although it would be possible to establish a virtual hub, for example such as the NBP in the UK, this paper does not explore that option as the primary appeal of a Turkish natural gas exchange would be Turkey's physical gas network and its interconnections with other countries.

TurkStream will provide new import capacity from Gazprom but there will be decreased imports from Gazprom's Westline, making the net addition of TurkStream significantly lower than its 15.75 BCM/yr. capacity (the capacity of the TurkStream line terminating in Turkey, not including the capacity of the line that would transit through Turkey into Europe). Figure 1 shows a recent projection of how Turkey's natural gas suppliers will become more diversified.

**Figure 1**




*Source: Sabancı University Istanbul International Center for Energy and Climate*

This figure demonstrates the importance of Azerbaijan relative to Russian imports but also the importance of LNG where Qatar is being added as a supplier to the current LNG-contract suppliers, Nigeria and Algeria. Floating regasification terminals (FSRUs) are also being added. These terminals will have sufficient excess regasification capacity to take advantage of spot LNG supplies. Emergency and surplus regasification capacity – coupled with the flexibility of FSRUs – would contribute to the gas supply liquidity.

*Market Reforms*

Privatization will require major reforms in Botaş along with supportive policies. Turkey's current policies represent a good start in a long process; they will help generate capital, increase market transparency for energy buyers and sellers, and help promote wholesale and retail price competition – the realization of which is important for

Turkey's energy and economic future. The advantages of these changes are manifold. Competitive markets typically produce cost-effective capital formation and a lower cost of retail energy services. Under state control, energy prices do not necessarily reflect costs but, in the long run, costs are more important since subsidized energy prices are costly to sustain and can lead to reduced economic growth.

*"Many regulatory and market changes are already in line with Turkey's goals to privatize its electricity and natural gas markets, although much work remains to be done."*

Market liberalization would mean the end of existing policies to cross-subsidize natural gas prices differently among power generators, industry, and retail customers. In general, depending on the trend line of marginal energy costs, retail energy prices could rise or fall after market liberalization. However, with Turkey's recent low costs and current low prices, retail prices may initially rise as subsidies are reduced or removed. Nonetheless, cost-reflective energy pricing is the best way to increase national economic performance and also promote energy efficiency. With cost-reflective prices, other ways can be devised to support needy consumers while achieving national economic benefits and environmental improvement.

Policies towards market liberalization in Turkey are affecting both the power and natural gas sectors. As noted, the Turkish natural gas market is dominated by Botaş, which holds most of Turkey's long-term natural gas import contracts and controls its pipeline transmission system. Botaş had monopoly rights on importing natural gas until 2001 but it was not until 2007 when Royal Dutch Shell, Bosphorus Gaz, and Tur Enerji initiated non-Botaş gas sales to the market. Nonetheless, Botaş' dominant market position is enshrined by the contractual obligations it has that cannot realistically be transferred to private parties in a short period of time.

Botaş also owns and operates Turkey's natural gas distribution system. It has, over the years, made progress in expanding natural gas availability throughout Turkey; almost every Turkish province is now connected to the natural gas grid. Botaş has also made investments and secured contracts to eliminate bottlenecks in Turkey's dispatch capacity, enabling it to better serve large population centers. TANAP and TurkStream, for example, provide three new entry points, doubling Turkey's send out capacity[4] and reducing the likelihood of gas shortages during peak demand.

[4]Gulmira Rzayeva, "Gas Supply Changes in Turkey," *The Oxford Institute for Energy Studies*, January 2018.

While it has temporarily lowered the utilization rate to 63 percent (2016), this action is likely a transitory problem that could be resolved as the Turkish gas market develops.

Botaş effectively controls gas prices and subsidizes merchant power generators, industrial customers, and retail customers while charging higher prices to merchant plants with power supply contracts to TETAŞ, and EÜAŞ power plants (a government-founded company).[5] The recent decline in the USD-Turkish lira exchange rate increases the cost of the subsidies as the imported gas is priced in USD. Brent oil prices also significantly increased in the last year, effectively increasing the rolling average price of the pipeline contracts. Lastly, because of the expiring merchant power plant contracts with TETAŞ, the base of gas supply that is cross-subsidizing the other customers will be declining. All of these factors will likely cause Botaş to move to cost-reflective pricing, as seen in its August 6 announcement of price increases although residential and industrial tariffs remained 20 percent to 35 percent below Botaş' weighted average cost of natural gas (underscoring the need for additional and significant reforms).[6]

### *Benefits to Turkey from Investing in a Natural Gas Hub*

The establishment of a natural gas hub in Turkey can unlock significant benefits that would support the country's economic, environmental, and security goals.

#### *Price Stability*

Market changes and investments could be the most effective way to reduce natural gas pricing uncertainty and volatility, increase the desirability of natural gas as a key energy source for Turkey, and potentially lead to the eventual establishment of a hub. The creation of a natural gas hub would effectively de-link natural gas prices from oil prices, removing a significant source of gas price volatility that has little to do with the fundamentals of natural gas markets.

#### *Economic Benefits*

While a hub would not bring foreign exchange earnings to Turkey from exports of its indigenous gas production, it would enable such earnings for associated financial and physical services, providing foreign exchange revenues for Turkish investors and traders. A hub would also help facilitate investments in domestic gas production in Turkey, especially in shale gas production, where the period from investment to

[5] TETAŞ and EÜAŞ stand for the Turkey Electricity Trading and Contracting Company (TETAŞ); and the Turkish-owned Electricity Generation Company (EÜAŞ).

[6] "Impacts of Tariff Increases on the Energy Market," *Enerji IQ*, 6 August 2018.

payoff tends to be much briefer than for conventional production.[7]

*Energy Security*

A Turkish natural gas hub would enhance Turkey's energy security by reducing the vulnerabilities associated with current gas imports through increased gas storage capacity, greater supply diversity, and the capacity to import large volumes of spot LNG as needed. In addition, the Turkish hub effectively makes Turkey a natural gas exporter regardless of its production levels, enabling it to directly respond to demand from connected European purchasers, and to add to overall global supplies. This may result in better trade agreements and increased investment in the Turkish economy.

> *"The global importance of natural gas is expected to grow as a result of increased supplies of unconventional natural gas."*

*Global Importance of Natural Gas*

The global importance of natural gas is expected to grow as a result of increased supplies of unconventional natural gas. The International Energy Agency (IEA) anticipates that the shale gas revolution will continue to expand gas production. By 2040, the IEA projects that annual natural gas production from unconventional resources will increase by 1,061 billion cubic meters while conventional sources will increase only by 622 billion cubic meters. Overall annual natural gas production is expected to increase from 3,536 billion cubic meters to 5,219 billion cubic meters.[8] It is in Turkey's economic interest to remain tied into this important world energy resource and not to discount the possibility that Turkey may itself develop its domestic shale gas resources and offshore gas supplies.

*Allocation of Energy Resources and Reducing Greenhouse Gas Emissions*

Natural gas as a component of Turkey's energy mix could help firm variable renewable generation (i.e. a non-dispatchable renewable energy source like wind or solar) and offer a relatively low capital-cost alternative to retiring coal plants that

[7] While well beyond the scope of this paper, the development of Turkey's indigenous natural gas resources could be an important long-run economic opportunity. Under those circumstances, the value of Turkey's own natural gas hub and exchange would be even greater. In particular, given the relatively short time between investment in and production of shale gas, the exchange could facilitate investments by monetizing production without lengthy contract negotiations.

[8] IEA, "*World Energy Outlook*" (2016), p. 181

cannot be affordably retrofitted with carbon capture, storage, and utilization technologies.[9] Natural gas can also play an important role in reducing Turkey's power sector greenhouse gas emissions, especially if competitive markets allocate power sector investments.

### *Towards a Turkish Hub*

Establishing a robust Turkish natural gas hub would require significant infrastructure investments such as changes to the current Turkish natural gas market; support for additional production from different sources in the region to add volume and liquidity; resolution of underlying geopolitical tensions that discourage investors; development of additional sources of supply; and potential customers and suppliers. In addition to cost-reflective pricing and supply diversity noted above, there would have to be gas-on-gas competition and new transparent market mechanisms.

#### *Destination Clauses*

In a robust gas trading hub, Botaş would no longer dominate the gas market and gas pricing. A diversity of private parties would have to assume the take-or-pay contracts with major pipeline suppliers. In addition, a trading hub requires a large volume of spot gas. Much of this gas could come from private parties that have long-term take-or-pay contracts with foreign suppliers as long as their contracts do not include destination clauses.

As a precondition for future diversification, Botaş should aim to eliminate destination clauses in its renegotiated contracts; without such actions, destination clauses for large suppliers such as Russia and Iran will restrict needed supply liquidity. Eliminating such clauses serves Turkey's short and mid-term interests. Botaş could secure contracts sufficient to meet Turkey's domestic gas requirements, while also establishing Turkey as a natural gas exporter. Botaş could then take advantage of changes in the spot gas markets, supporting its domestic pricing strategies with new revenues.

The prospects for eliminating destination clauses are better than in the past for a number of reasons. LNG contracts offer an example of disappearing destination clauses, where contracts without them are now widely available. Also, the European Commission recently imposed antitrust obligations on Gazprom to remove destination clauses from its contracts to "enable the free flow of gas at competitive prices

[9] Danial Esmaeili, "Carbon Capture Storage and Utilization in Turkey," IICEC Energy and Climate Research Paper, June 2018, https://iicec.sabanciuniv.edu/sites/iicec.sabanciuniv.edu/files/1806%20IICECE%26CPaperCCUSinTurkey_0.pdf

in Central and Eastern European gas markets."[10] Most importantly, 2020 is likely to be a buyers' market since the worldwide market is well-supplied and the prospects for new gas supplies appear to exceed expected demand growth in the mid-term.

> *"In a robust gas trading hub, Botaş would no longer dominate Turkey's gas market and gas pricing."*

Given Turkey's declining domestic natural gas consumption,[11] the flexibility to re-sell natural gas during favorable market conditions is likely to be a high priority for Botaş. Of course, Gazprom will not welcome Turkish competition to its TurkStream line that is destined to supply gas to Europe. Nonetheless, their markets are likely to be different and, if Turkey became a free-market natural gas trading center, Gazprom could benefit from the likelihood of higher export volumes.

*Storage and Interconnections*

A physical gas hub must have enough storage to provide supply liquidity and common carrier pipelines to facilitate physical sales and purchases of its gas. Turkey's existing gas storage facilities include:

- TPAQ Siliviri: 2.8 BCM underground; maximum injection 16 MCM/day and maximum withdrawal 20 MCM/day; additional 1.8 BCM by 2023
- Botaş Tuz Gölü: 1.2 BCM underground; maximum withdrawal 44 MCM/day: additional 4.2 BCM by 2023
- Çalık Tuz Gölü; 1 BCM
- Toren Tarsus: 500 MCM
- Botaş Marmara Ereğlisi: 255 KCM LNG; maximum regasification 8.2 BCM/year and maximum withdrawal 22 MCM/day
- EgeGaz Aliağa: 280 KCM LNG; maximum regasification 6.0 BCM/year and maximum withdrawal 16.4 MCM/day

Turkey's plans for additional storage, equivalent to 20 percent of its gas consumption, could help underpin an effective and valuable regional storage hub that serves both Turkish and foreign customers. The Turkish gas market must also be sufficiently

[10] European Commission, "Antitrust: Commission imposes binding obligations on Gazprom to enable free flow of gas at competitive prices in Central and Eastern European gas markets," 24 May 2018, http://europa.eu/rapid/press-release_IP-18-3921_en.htm

[11] Gulmira Rzayeva, "Turkey's Gas Demand Decline: Reasons and Consequences," *The Oxford Institute for Energy Studies*, April 2017.

deregulated to set by supply and demand and not fiat. In addition, interconnections are important to the free movement of gas from major pipelines and LNG regasification plants to storage and/or distribution to international customers.

*Divestiture of Botaş Contracts to the Private Sector*

Eliminating the means by which a single player, e.g. the government, can determine prices is an essential step for a Turkish natural gas hub and exchange, without which commercial and non-commercial traders would simply not participate. A commodity market that relies only on physical sellers and physical purchasers would have too few exchanges with which to discover prices and would also have high price volatility. Non-commercial traders are essential for any commodity market to have enough liquidity to function properly; they substantially increase the volume of trades necessary to have a relatively stable market and also provide information and signals to the market that may not be the purview of commercial traders.

> *"During the next round of pipeline negotiations, perhaps the most important action Turkey could take to advance the establishment of a natural gas hub is the elimination of destination clauses in gas contracts."*

In 2005, Botaş began the process of divestiture of its pipeline contracts but immediately ran into difficulties since suppliers (Russia, Iran, Nigeria, and Algeria) were unwilling to begin negotiating with multiple private companies. By 2007-2012, negotiations with Gazprom resulted in new private contracts with seven Turkish companies and a corresponding decrease of gas imports by Botaş from Westline. Turkey's Energy Market Regulatory Authority (EMRA) approved these contracts after determining that there was sufficient domestic natural gas demand; it continues to consider gas import licenses based on domestic requirements for gas.

As noted, Botaş controls wholesale prices for different categories of gas customers. This restricts the pricing opportunities of businesses that hold natural gas import licenses and contracts. Continued diversification of Botaş' gas contracts not only involves ongoing transfers of contracts to private companies but also supports the movement to cost-reflective pricing. This will enable private importers to operate at a profit and eventually result in the transfer of assets to private entities sufficient to establish a true market pricing of Turkey's gas resources. These are difficult

decisions to make in difficult times. In the end, however, there could be substantial benefits to Turkish consumers, the country's economy, and the environment. It is possible that a divestiture timetable could be engineered to maximize the benefits of market liberalization at a time when gas prices are falling, not rising.

### *Conclusions*

Turkey has made progress in laying the groundwork for turning a state-controlled natural gas and power sector into a private competitive market—but much work needs to be done. As the government evolves its role in Turkey's natural gas markets, it will still have an important responsibility to encourage the development of domestic natural gas supplies. This could contribute to the eventual establishment of a competitive trading hub that will have value to Turkey as well as gas consumers in the region.

The Turkish government has made direct investments to provide electrical and natural gas services to more consumers throughout the country, as well as the significant expansion of gas distribution infrastructures. For the gas sector, supply contracts have been secured from more diversified sources of foreign supply. These investments and take-or-pay contracts were needed to meet Turkey's growing energy needs, especially to supply modern energy services to the entire country. Also, tenders have been provided to increase Turkey's renewable power industry. During the next round of pipeline negotiations, perhaps the most important action Turkey could take to advance the establishment of a natural gas hub is the elimination of destination clauses in gas contracts. An added benefit of this would be the increased progress towards cost-reflective pricing, a benefit for both Turkish energy consumers and Turkey alike.

Competitive markets are a desirable goal for the future. Measured, purposeful, and thoughtful actions that are objectively analyzed and transparently developed are the right path. Turkey should continue to build on its current laws and policies that lay the groundwork for the privatization of its energy markets. It should divest natural gas contracts to private parties while continuing to ensure investment in critical infrastructures such as natural gas storage and regasification terminals. Actions to resolve long-standing issues in the Eastern Mediterranean would also be attractive to investors and to potential customers in Europe who may be concerned about a range of actions, some recent and some decades-old, that work against the stability, flexibility, and liquidity that would support a robust hub.

# EAST MED ENERGY: RESTORING SQUANDERED OPPORTUNITIES

*At beginning of this decade, natural gas prospects in the Eastern Mediterranean generated geopolitical optimism about potential new patterns of regional cooperation that might catalyze a Cyprus settlement, improve Arab-Israeli relations, and provide new gas supplies for Turkey and the EU. Natural gas projects do indeed appear to be reinforcing new strategic triangles among Israel, Cyprus, and Egypt as well as Israel, Cyprus, and Greece. Turkey, however, risks being left out of the strategic mix. By using energy as a uniting factor, the European Union has a chance to play a catalyzing role in resolving the Cyprus Question and improving Turkey-EU relations, similar to the role of the US in the Southern Corridor.*

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Geopolitical thinkers love to draw strategic lines on maps. They often dream of big infrastructure projects, such as energy pipelines, as catalysts of new patterns of geopolitical cooperation. In reality, however, multi-country energy projects can come to fruition only if the relevant countries have first identified a common set of geopolitical goals. Once in place, such projects can indeed build on these shared interests and develop new vectors of strategic collaboration.

This is precisely what happened in the strategically important sliver of territory between Russia and Iran during the late 1990s. At that time, Azerbaijan, Georgia, and Turkey resolved to work together to ensure that large new discoveries of hydrocarbons in Azerbaijan could reach global markets free from Russia's pipeline monopoly and geographic chokepoints (e.g., the Straits of Hormuz and the Turkish Straits). Their quest was an "East-West Energy Corridor," a network of five pipelines stretching from the Caspian Sea to the Mediterranean, whose backbone was the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the South Caucasus natural gas pipeline (SCP). A powerful external actor, the United States, provided essential political support, as well as a strategic counterweight to Russia, which strongly opposed BTC and SCP. The EU subsequently joined the project's second round: the expansion and extension of the natural gas pipeline from Azerbaijan to Greece, Albania, and under the Adriatic Sea to Italy in what became known as the Southern Corridor.

Thanks to these efforts, Turkey, Georgia, and Azerbaijan developed new patterns of economic and security cooperation not only with each other, but also with the US and the EU. Armenia, however, was left out of this strategic triangle at the behest of Azerbaijan and Turkey, which sought to isolate their neighbor as punishment for occupying the Azerbaijani territory of Nagorno-Karabakh and its seven surrounding Azerbaijani regions.

A similar set of relationships is emerging today further south in the Eastern Mediterranean, where Israel, Cyprus, and Egypt are forming strategic triangles of their own which exclude Turkey. One of the principal reasons behind the political alignment between these three countries to explore natural gas pipeline projects is political tensions with Ankara.

Israel-Turkey relations collapsed in the summer of 2010 when Israeli commandos launched a deadly raid on a Turkish ship trying to deliver humanitarian aid to Gaza. Though Turkey and Israel finally restored diplomatic relations at the end of 2016, relations soured again in late 2017, when President Donald Trump announced the US Embassy move from Tel Aviv to Jerusalem, which resulted in Turkish President

Recep Tayyip Erdoğan lashing out against Israel. Cyprus and Turkey, meanwhile, have no diplomatic relations, as Ankara does not recognize the existence of the Greek Cypriot-led Republic of Cyprus. Lastly, Egypt-Turkey relations have been tense since then General Abdel Fattah al-Sisi overthrew the Muslim Brotherhood-led government of Mohammed Morsi in the summer of 2013.

> *"Collective tensions with Turkey have prompted unprecedented strategic cooperation among Israel, Cyprus, and Egypt."*

***An Emerging Strategic Energy Triangle: Israel-Cyprus-Egypt***

These collective tensions with Turkey have prompted unprecedented strategic cooperation among Israel, Cyprus, and Egypt. The initial impetus for their cooperation on energy security arose in 2010 when the world's largest natural gas find in over a decade was discovered at Israel's offshore Leviathan field. This was followed in December 2011 by the discovery of a smaller but still significant field in the Mediterranean Sea south of Cyprus, known as Aphrodite. Then, in 2015, another massive gas field, Zohr, was discovered in Egypt's exclusive economic zone.

Upon the Leviathan field's discovery, the choice of export routes for its gas reserves became an immediate concern since export revenues were required to finance Leviathan's development. From the outset, the Israeli government sought to use Leviathan's exports to improve its relations with its Middle Eastern neighbors. The first phase of Leviathan's production will, therefore, be exported to Jordan, Israel's only friend in the Arab world, with a portion delivered to the West Bank's Palestinian residents.

The second phase of Leviathan's exports will likely be via pipeline to Egypt's underused liquefaction terminals, from where it will be shipped as liquid natural gas (LNG) to global markets. This export scheme will strengthen relations between Egypt and Israel, generating a major strategic benefit for both Israel and its most important ally—the United States. Eventually, gas produced in Egypt will expend the current spare LNG export capacity, after the Zohr field satisfies all of Egypt's domestic gas demand. At that point, the governments and companies operating in both Israel and Egypt will need to consider new export options.

One alternative export solution for Leviathan's phase 3 gas could be an LNG terminal in Cyprus. The Greek Cypriot government has long aspired to acquire such a facility,

which President Nicos Anastasiades dubbed "a strategic national priority." The challenge, however, has been to secure sufficient gas volumes to make an LNG export terminal commercially viable. Indeed, Aphrodite's proven reserves are only around one-third of Leviathan's 960 billion cubic meters, which, in 2013 Greek Cypriot Minister of Energy George Lakkotrypis conceded was insufficient to justify an LNG terminal. The Zohr discovery by Italy's ENI on Egypt's continental shelf, however, has been a game-changer. The largest gas discovery ever in the Mediterranean Sea, Zohr is resurrecting international oil companies' interest in exploring the Eastern Mediterranean. In February 2018, ENI and France's TOTAL announced another significant natural gas find, Calypso, in the Greek Cypriot government's Block 6, which appears to be an extension of Zohr's geological formation. ExxonMobil will commence a drilling program in Block 10 in October 2018. These additional Cypriot volumes, perhaps combined with phase 3 of Leviathan, might eventually secure the bankability of a Greek Cypriot LNG export terminal. Consequently, a liquefaction terminal could be the first major step toward Cyprus realizing its dream of becoming the energy hub of the Eastern Mediterranean.

A single liquefaction terminal, however, is insufficient to establish an energy hub. Indeed, a natural gas hub is a place where multiple supplies of gas converge and compete with each other in a liquid trading environment, and from where traded gas is forwarded to multiple buyers. Pipelines connecting Cyprus with Israel and Egypt could boost the island's prospects for emerging as a hub but Cyprus will likely find itself competing with Egypt as investors may find it more financially attractive to expand existing LNG export terminals rather than starting a greenfield project in Cyprus.

A potential game-changer for Cyprus, however, could be an Israel-Cyprus-Turkey gas pipeline. Such a project would enable both Israel and Cyprus to export gas to Turkey and perhaps onward to the EU via the Southern Corridor. This project makes commercial sense, as it would allow investors in Cyprus and Israel to monetize their gas discoveries through sales into the region's largest and growing market, Turkey, which is eager to find lower cost supplies than current ones from Russia and Iran, especially with no new large volumes of cheaper Azerbaijani gas available any time soon.

### *Turning a Cypriot Divorce into a Win/Win*

Given the sharp tensions in Ankara's relations with both Jerusalem and Nicosia, an Israel-Cyprus-Turkey gas pipeline from a political perspective is inconceivable today. While Turkey and Israel could overcome their current diplomatic differences with minor difficulty, the political misalignment between Turkey and Cyprus is

considerably more challenging. Turkey has refused to recognize the legal existence of the Greek Cypriot government since 1974 when Greek Cypriot authorities gained international recognition in the wake of Turkey's military intervention. Ankara justifies its intervention under the Treaty of Guarantee of 1960 wherein it sought to protect Turkish Cypriots from Greek Cypriots' attacks. Turkey further argues that Greek Cypriots unfairly deny Turkish Cypriots the right under the Republic of Cyprus' 1960 Constitution to participate in national-level decisions, including on oil and gas exploration in Cypriot waters. Athens and Nicosia, in contrast, argue that Turkey invaded and occupied the northern third of the island in an act of aggression.

> *"The Zohr discovery by Italy's ENI on Egypt's continental shelf has been a game-changer."*

During much of the past five decades, the United Nations has brokered negotiations between the Turkish Cypriot and Greek Cypriot communities aimed at reunifying the island into a bi-zonal, bicommunal federation. The most recent such attempt collapsed in July 2017. Ankara, the Turkish Cypriot community's crucial patron, now seems increasingly in favor of a two-state solution rather than the reunification of the island. They have apparently taken their cue from current Greek Cypriot President Anastasiades, who can no longer support the compromises of then-UN Secretary General Kofi Annan's 2004 Cyprus settlement proposal, despite having been a staunch supporter of the Annan Plan at the time.

In this new political climate in which a Cypriot divorce seems more likely, perhaps Greek Cypriots could drop their longstanding refusal to discuss offshore energy exploration with Turkish Cypriots, given that energy issues no longer provide potential leverage for either side. Such a step could help Greek Cypriots attain their goals of investment in an LNG export terminal and the emergence of Cyprus as the Eastern Mediterranean's energy hub.

Turkey, however, is making it even more difficult for Greek Cypriots to move forward with such plans, which cut across the grain of Cypriot politics. Ankara is now taking a more aggressive stance toward hydrocarbon exploration in Cypriot waters. In February 2018, Turkish warships confronted an ENI vessel planning to drill in Cyprus's Block 3, part of which Turkey claims is part of Northern Cyprus' exclusive economic zone. Following the standoff, the ENI ship ultimately abandoned its mission and departed the area. One month later, Turkish President Erdoğan threatened

that Turkey would defend its rights and those of Turkish Cypriots with regard to hydrocarbon exploration in Cypriot waters. Meanwhile, Turkey's state oil company, Turkish Petroleum (*Türkiye Petrolleri Anonim Ortaklığı*, TPAO), is planning to drill an exploratory well in areas claimed by Turkish Cypriot authorities as part of the continental shelf of the Turkish Republic of Northern Cyprus, an entity recognized only by the Turkish state. It is also unclear whether Ankara will take a similarly confrontational approach to ExxonMobil when the US super-major commences its drilling program in October 2018 in Cyprus's declared Block 9.

These actions by Turkey have prompted sharp counter-reactions in Europe. In response to Ankara's gunboat diplomacy against the ENI drill ship, European Commission President Donald Tusk called on Turkey to "avoid threats or actions against any EU member and instead commit to good neighborly relations, peaceful dispute settlement and respect for territorial sovereignty."[1]

Meanwhile, another strategic triangle, this time among Greece, Cyprus, and Israel, seems to be gaining strength as it pursues a highly ambitious pipeline project seemingly aimed at isolating Turkey. The EastMed Pipeline would link gas fields south of Cyprus to Crete and then mainland Greece. Despite serious questions about the project's commercial and financial viability, the European Commission supports the EastMed Pipeline as a Project of Common Interest. The three countries are also exploring a companion subsea electricity cable: the EuroAsia Interconnector.[2]

### *The Need for Bold but Realistic Leadership from Brussels and Ankara*

If Turkey seeks to prevent its further isolation on matters of energy diplomacy in the Eastern Mediterranean, it will need to find a face-saving way to help reduce tensions. Such an opportunity may now be surfacing, as the EU is looking for ways to strengthen its relations with Turkey, and preserve its important March 2014 agreement to manage the migration crisis, in response to US trade sanctions and the harsh rhetoric of the Trump administration.[3] An initial step could be for Brussels and Ankara to avoid a new crisis in Cypriot waters this autumn.[4] Perhaps a quiet compromise could be reached according to which Ankara acquiesces to drilling by ExxonMobil/Qatar Gas in an area claimed by Greek Cypriots and Nicosia accepts TPAO's drilling in an area claimed by Turkish Cypriots.

[1] "EU Warns Turkey over Cyprus Ship Incident," 13 February 2018, *Euractiv*, https://www.euractiv.com/section/politics/news/eu-warns-turkey-over-cyprus-ship-incident/

[2] "Israel, Cyprus, and Greece Push East Med Gas Pipeline to Europe," *The Times of Israel*, 8 May 2018, https://www.timesofisrael.com/israel-cyprus-and-greece-push-east-med-gas-pipeline-to-europe/

[3] "EU Optimistic on Closer Ties with Ankara After US-Turkey Spat," *Foreign Times*, 19 August 2018, https://www.ft.com/content/09935e16-a230-11e8-85da-eeb7a9ce36e4

[4] Matthew Bryza, "Cyprus energy – Averting a US-Turkey Crisis," *Euractiv,* 18 May 2018, https://www.euractiv.com/section/global-europe/opinion/cyprus-energy-averting-a-us-turkey-crisis/

The next step could be electricity cooperation.[5] A working group on electricity sharing already exists between the two Cypriot communities, along with a north-south electricity connection. With strong EU encouragement, Greek Cypriot authorities might eventually be convinced to acquiesce to a subsea cable from Turkey to northern Cyprus, ostensibly to boost Turkish Cypriot electricity supplies. Electricity from Turkey would then become available to Greek Cypriots as well. This scenario would help the EU achieve two key goals with respect to Cyprus: (1) Increase use of renewable energy across the island; and (2) Connect and synchronize Cyprus's electricity network with the EU's electricity grid, (which would occur via Turkey's synchronized connection with Bulgaria). Eventually, a subsea cable to Israel could position Cyprus as an electricity hub connecting the EU and the Middle East, which Greek Cypriot political leaders would likely view as a significant strategic achievement.

*"Pipelines connecting Cyprus with Israel and Egypt could boost the island's prospects for emerging as a hub."*

In the longer run, Israel, Turkey, and Cyprus could agree on the most commercially attractive alternative to the EastMed project: an Israel-Cyprus-Turkey gas pipeline. Despite the strategic and economic advantages such a pipeline would provide Cyprus, any Greek Cypriot government would commit political suicide by simply granting permission for such a project. Creating the requisite political alignment would, therefore, require a major strategic benefit for Greek Cypriots, namely, help in securing the Cypriot LNG terminal as a first step toward a natural gas hub on Cyprus.

Building on a previous initiative earlier this decade, the idea would be for the companies leading development of both the Aphrodite and Leviathan fields, Delek Drilling (of Israel) and Noble Energy (of the US), to pledge a portion of early revenues from gas sales in Turkey toward preliminary work on a possible LNG terminal on Cyprus. The financial advantages of such a project, whose length would be only a fraction of that of the EastMed Pipeline, would be self-evident. The EU, meanwhile, could generate the required political partnerships by leading a diplomatic effort to negotiate the inter-governmental and host-government agreements required to provide the project's political and legal frameworks.[6] This is, indeed, precisely the role the US

[5] Matthew Bryza, "Energy Cooperation Should Be a Catalyst for Cyprus Peace Talks," *The Atlantic Council*, 19 January 2018, http://www.atlanticcouncil.org/blogs/new-atlanticist/energy-cooperation-should-be-a-catalyst-for-cyprus-peace-talks

[6] Matthew Bryza, "Eastern Mediterranean Natural Gas: Potential For Historic Breakthroughs Among Israel, Turkey, And Cyprus," *Turkish Policy Quarterly,* Vol. 12, No. 3 (Fall 2013), http://turkishpolicy.com/Article/645/eastern-mediterranean-natural-gas-potential-for-historic-breakthroughs-among-israel-turkey-and-cyprus-fall-2013

played with regard to the Baku-Tbilisi-Ceyhan oil and South Caucasus gas pipelines. If successful, this effort would place Cyprus at the center of a gas transit link from Israel to Turkey and perhaps the EU via the Southern Corridor. This could even be extended to Egypt via a southern spur to transport follow-on volumes of Egyptian gas once Egypt's existing LNG terminals reach full capacity.[7]

None of this will be conceivable, however, without strong EU leadership to create political incentives for Nicosia and Ankara to begin a dialogue on energy issues. This is a tall order in the risk-averse climate of Greek Cypriot politics, where Turkish troops in the island's north cast an imposing political shadow. But, the alternative of letting the current situation drift away may lead to an even darker future for Greek Cypriots, who have no alternative but to share their island with Turkish Cypriots in perpetuity. Though there are many in the EU and in the US who would welcome a chance to cut Turkey loose, a Turkey adrift to pick up the pieces of Syria on its own with Russia and Iran does not portend well for the West's strategic interests in the Middle East. That said, now is also the time for Turkey to make a move to help bring itself in from the cold, which it seems to be trying to do by normalizing relations with Germany and the Netherlands.

[7] Though such a scheme may sound grandiose, it was suggested to me in 2016 by a former Cypriot foreign minister in my capacity as a non-executive director of Turcas, the Turkish downstream energy company, which was seeking Eastern Mediterranean natural gas for its combined-cycle power plant in Denizli in a joint venture with Germany's RWE.

# EASTERN MEDITERRANEAN ENERGY: A DECADE AFTER THE MAJOR DISCOVERIES

*In close to a decade after major natural gas discoveries in the Eastern Mediterranean, new energy volumes have increased supplies to the domestic markets in Israel and Egypt and modest export to Jordan is planned to begin in 2020. Important steps have been taken to advance energy trade between countries of the region, yet there is little credence to the expectation that gas can catalyze peace in the Eastern Mediterranean. While new energy resources provide many benefits to the region, they have also raised the specter of clashes over maritime border delimitation, as well as provide Russia with an additional lever of influence.*

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Close to a decade has passed since the initial major natural gas discoveries in the Eastern Mediterranean region. Despite the fanfare and hype surrounding the Eastern Mediterranean gas discoveries, to date, the new volumes have only increased domestic gas supplies in Israel and Egypt. However, no international gas trade has been established from or within the Eastern Mediterranean. Many observers and policymakers on Eastern Mediterranean developments had opined that the gas discoveries in the region would serve as an impetus for peace and cooperation, and a catalyst for the resolution of a number of the region's conflicts, most notably the Cypriot and Israeli-Palestinian ones. To date, however, the gas discoveries have done little to prod peace in the region. On the contrary, the gas discoveries have raised the likelihood of conflict in the region, centered over delimitation of the maritime borders in the Eastern Mediterranean, as players have challenged drilling rights. Many of these maritime disputes involve Turkey and thus, these potential conflicts might lead to the direct involvement of the Turkish navy with parties challenging Turkey's declared maritime borders. Major oil and natural gas exploration continue in the region, with the participation of a wide geographic origin of companies, including Russian companies.

This article will examine the current state of natural gas production and export in the Eastern Mediterranean basin, and geopolitical and energy security implications of the discoveries. The article argues that the natural gas discoveries in the Eastern Mediterranean are not likely to advance peace among actors in the region. However, gas trade in the region between states that are at peace with each other can contribute to domestic prosperity and thus, stability and thus, also strengthen existing peaceful relations. Specifically, energy diplomacy between Turkey and Israel provides a positive, non-contested avenue for cooperation and sends an important signal to Turkish and Israeli citizens. The article also claims that most of the states in the region are vying to serve as "gas hubs," even though this affords little geopolitical value as it is unlikely that any of the region's states will attain this goal. In addition, following the anticipated stabilization of Syria, there is a high probability that Russian companies will accelerate their offshore and onshore exploration efforts in Syria, which will give Moscow an additional lever for influence in the Eastern Mediterranean region.

### *The State of Natural Gas Production and Exploration in the Eastern Mediterranean*

Beginning in 2009, there have been a series of major natural gas discoveries in the Eastern Mediterranean region. The most significant discoveries were in Egypt and Israel. Cyprus also has had modest gas finds. Exploration continues in the Eastern Mediterranean region, and it is anticipated that there will be additional discoveries

in the area, potentially in Syria and Lebanon, where currently no exploration is taking place.

*"Gas discoveries have raised the likelihood of conflict in the Eastern Mediterranean, centered over delimitation of the maritime borders in the region."*

***Israel***

Israel experienced a series of major natural gas discoveries in 2009 and 2010: the Tamar field which contains approximately 320 bcm[1], and the Leviathan field which holds approximately 600 bcm. Gas supplies from these fields started arriving in Israel's domestic market in 2013. Since then, Israel's gas demand has been growing significantly. As such, Israel is aiming to produce 70 percent of its electricity by natural gas by 2020 and to transfer major portions of the country's transportation to be powered by gas during the 2030-2035 period. Furthermore, there has been a final investment decision on a section of Leviathan where development will begin in addition to the government-aided development of the smaller fields of Tanin and Karish, which are aimed at the Israeli domestic market. Israel's Minister of Energy and Water, Dr. Yuval Steinitz, announced a new bidding round for exploration licenses in Israel's Exclusive Economic Zone (EEZ) in early November 2018. The bids are due in June 2019 and the selected license holders will be announced a month later. Israel is actively working to attract interest in this exploration bid round from foreign oil companies.[2]

Conversely, the international export of Israel's gas fields has had much more modest milestones. Work is proceeding on a pipeline from Israel to Jordan to supply up to three bcm a year of natural gas from Israel's Leviathan field beginning in 2020, following a commercial agreement concluded in 2016. In parallel, the Jordanian government announced in October 2018 that it would not extend leases to Israel to lands in the border areas between the countries as the leases are part of the 1994 Jordanian-Israeli peace agreement. Jordan's decision could complicate the planned gas trade between Israel and Jordan. However, most probably, Amman and Jerusalem will make efforts to separate the commercial and trade agreements from current tensions.

[1] Billion Cubic Meters (bcm).

[2] Ministry of Energy, State of Israel, Spokesmen announcements, 11 April 2018, https://www.gov.il/he/Departments/news/bidround2.

There is strong commercial interest from Israeli gas producers and Egyptian gas companies, supported by the governments of both countries, to establish Israeli gas exports to Egypt. This year, the prospects of establishing gas supplies from Israel to Egypt that may serve Egypt's domestic market or be used for production at Egypt's idle LNG export plants in Idku and Damietta, received impetus. This was due to the acquisition by Israel's Delek Drilling and the US Noble Energy of a major stake in the defunct East Mediterranean Gas Company (EMG) pipeline between Egypt and Israel. The government of Egypt had conditioned Israeli gas exports to Egypt on EMG's drop of an arbitration award decision owed by Egypt. However, prior to the acquisition of the stake in the pipeline, the parties interested in facilitating the gas export to Egypt—Delek Group and the Israeli government—had no standing in EMG's decision. The acquisition of EMG by Delek will now enable this and if the pipeline is in usable condition after sitting idle for seven years, the pipeline's flow can be reversed and supply gas from Israel to Egypt. This being said, the EMG acquisition is still conditional, and gas supply needs regulatory approval in both Egypt and Israel in June 2019 for this potential deal be finalized. This export plan to Egypt would use gas from the Tamar field. If implemented, it poses security of supply risks to the Israeli market, since it would mean that Israel might initiate export from the only field supplying its domestic market, before additional supplies from Leviathan were commenced.

Israeli policymakers are also promoting the exportation of Israeli gas to Europe, particularly to Greece and potentially onward to Italy. Similarly, EU institutions have granted Projects of Common Interest grants to multiple projects that promote gas export from Israel and Cyprus to Europe. One proposed export route would link Israel, Cyprus, Greece, and potentially Italy. While energy ministers and heads of government from Israel, Cyprus, and, Greece hold frequent meetings—at times with participation of senior EU energy officials—to promote this route, there seems to be little commercial interest. This is reflected by the absence of senior relevant company representatives at these meetings. Despite the political endorsement and active promotion of this route, it seems that export of Israeli gas to Europe via Greece is not likely to materialize anytime in the near future.

Another possible export route that has been contemplated over the years is from Israel—potentially together with Cyprus—to Turkey. Both high-level officials in Turkey and Israel have recently expressed interest in renewing negotiations between the two countries on gas trade. Israeli exports to Turkey could also include the additional export of Israeli gas to Europe via TANAP. This could occur directly via connection to TANAP or indirectly through swaps, whereby Israel would supply gas to Turkey and less offtake from TANAP would go to the Turkish market. Thus, additional gas could be supplied to markets in Europe.

The discussion of potential Turkish-Israeli gas trade would not only contribute to promoting this export route, but could help return bilateral relations between Ankara and Jerusalem to a cooperative level. A meeting of high-ranking Turkish and Israeli officials on a topic of mutual interest could be an important symbol to both the Turkish and Israeli publics. The improvement in US-Turkish relations that took place in fall 2018 could also be reinforced through the improvement of Turkey's relations with Israel. However, despite expressed high-level interest in both Turkey and Israel in establishing the gas trade between them, it seems that an official high-level meeting on the topic has not taken place for over a year.

*"Energy diplomacy between Turkey and Israel provides a positive, non-contested avenue for cooperation and sends an important signal to Turkish and Israeli citizens."*

***Cyprus***

Since 2011, Cyprus has had a series of small gas discoveries amounting to an estimated 180 bcm of gas. To date, none of the finds are in development and even Cyprus's domestic market is still in need of new energy supplies. However, commercial interest in exploration around Cyprus is very high and exploration activity continues, which could yield additional discoveries.

Despite commercial interest in gas exploration in Cyprus, Turkey poses a challenge to this. Turkey has contested the exploration activities in areas it views as belonging to its own EEZ or to Northern Cyprus (TRNC). Accordingly, Turkey's Minister of Energy and Natural Resources Fatih Dönmez stated in September 2018 that Ankara would not allow any of the exploring parties to breach Turkey's rights or those of the Turkish Republic of Northern Cyprus.[3] Illustrating its claim, Ankara announced its intention to conduct offshore exploration in an area of the Mediterranean claimed by both Turkey and Cyprus toward the end of 2018. The contested views and the involvement of multiple vessels, including Turkish military vessels, raise the specter of conflict in Eastern Mediterranean waters, centered on delimitation claims. Turkish Navy vessels have challenged foreign drilling vessels that have attempted exploration in areas it views as under Turkish legal jurisdiction in recent years.

[3] "Turkey will protect its energy rights in Mediterranean: Minister," *Hürriyet Daily News*, 20 September 2018, http://www.hurriyetdailynews.com/turkey-will-protect-its-energy-rights-in-mediterranean-minister-137053

In addition to the promotion of gas export with Israel to Greece, Cyprus has also signed an intra-government agreement with Israel to facilitate the building of a pipeline between Cyprus and Egypt,[4] for potential gas exportation to Egypt. However, it must be noted that this intra-government agreement is non-binding, with no commercial commitment involved in the accord at this stage.

### *Egypt*

Among the Eastern Mediterranean states, Egypt has had the most significant progress in developing its new gas resources. In the latter part of the previous decade, Egypt went from a gas exporting country to one with frequent domestic gas shortages and electricity supply disruptions. After President Abdel-Fattah el-Sisi's rise to power in 2012, improved energy and economic policies in Egypt encouraged the return of foreign energy companies for exploration. The most important of these policies was raising the domestic gas price which created incentives for supplying the domestic market and moderately reduced the domestic consumption rate. Subsidized energy leads to significant waste and creates a low incentive for companies to explore and develop gas resources.

With the return of major energy companies to exploration, Egypt witnessed a series of new natural gas discoveries which currently meet domestic demand and can serve as a basis for renewed gas export. The most important of these gas discoveries was the massive Zohr Field, which contains an estimated 850 bcm of gas. ENI is an operator of the field and Russia's Rosneft has a 30 percent stake. The field is in production and currently supplies Egypt's domestic market. Through this discovery, Egypt has been able to end its LNG gas imports and boost its export potential. Future gas exports from Egypt may likely pull resources from other states, including Cyprus and Israel. While export could take place via pipelines or through Egypt's existing LNG plants, the LNG option seems more commercially viable.

### *Lebanon and Syria*

Both Lebanon and Syria have potential for offshore finds, but currently no exploration is taking place. Despite almost a decade of attempts, successive governments in Lebanon have failed to achieve political consensus and adopt a regulatory framework for its oil and gas sector that would enable foreign exploration in Lebanon's EEZ. Thus, to date, no exploration drilling is taking place offshore of Lebanon and the country continues to have significant energy supply challenges, which includes

[4] "Cyprus, Egypt commit to new gas pipeline with intergovernmental deal," *S&P Global*, 20 September 2018, https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/092018-cyprus-egypt-commit-to-new-gas-pipeline-with-intergovernmental-deal

frequent electricity supply disruptions.

Prior to the onset of the civil war, Syria had impressive results in increasing its onshore gas production, aided by Russia's Soyuzneftegaz. For instance, Syria's production volume continued to increase even during the first two years of the war. Following this, Syria has announced its intention to initiate offshore exploration in 2019 and Russian companies are likely to receive priority in exploration licenses. To illustrate the close trade ties between Russia and Syria, in addition to the frequent consultations both sides hold, in February 2018, Russian Energy Minister, Alexander Novak, signed a cooperation agreement with Syria's Minister of Oil and Mineral Resources, Ali Ghanem. The agreement includes cooperation on the rehabilitation of Syria's oil and gas production and other energy infrastructure development.[5]

> *"Among the Eastern Mediterranean states, Egypt has had the most significant progress in developing its new gas resources."*

***Conclusions***

The Eastern Mediterranean natural gas finds have attracted immense media and policymaker attention. To date, new volumes of gas have improved the supplies to the domestic markets in Israel and Egypt and the commencement of export to Jordan from Israel is likely. Discussions have taken place regarding gas exportation within and from the region as LNG potentially via Egypt's existing plants or by pipeline to Europe. Most likely, the Eastern Mediterranean gas volumes will serve markets in the region and potentially also LNG exports. The likelihood of resources going through major pipelines from the region to Europe is still highly challenged. However, exploration is continuing, and new discoveries could change the prospects for major exports outside the region.

Another factor that could greatly increase European commercial and policy level interest in the Eastern Mediterranean is the disruption of existing supplies to Europe from North Africa. Gas imports from Algeria and Libya are an important source of gas for Southern Europe. However, the disintegration of Libyan state institutions and the frequent terrorist attacks in Algeria, some of which target energy production installations, are a stark reminder that regional insecurity and instability can disrupt energy production and export. The dislodging of many ISIS members from

[5] "Syria and Russia ink agreement on energy and mineral resources cooperation," *SANA (Syria Arab News Agency)*, 6 February 2018, https://sana.sy/en/?p=126516

Iraq and Syria has led to an increase of their numbers in Libya and neighboring North African countries, raising security threats to the ruling governments in North Africa, and, thus the energy production there.[6] Long-term disruptions or threat to supplies from North Africa would render Eastern Mediterranean gas more commercially attractive.

Russian energy companies most likely will play a growing role in Eastern Mediterranean energy exploration and development. Russian energy companies are present in both Egypt and Syria and have examined entry into the Israeli energy sector. The presence of Russian energy companies in the regions would give Moscow an additional lever for influence in the Eastern Mediterranean region.

Many of the states in the Eastern Mediterranean—including Turkey, Egypt, and Cyprus—have declared their aspiration to serve as gas hubs in the region. It is difficult to understand why this desire is prevalent among Eastern Mediterranean states; it does not connote any significant geopolitical benefit, and, in fact, entails economic risk. It is highly unlikely that any gas hub will develop in the region, and, at best, some countries will serve as energy transit states. Turkey, for instance, already is a significant energy transit state. It is located next to some of the world largest gas reserves in Russia, Azerbaijan, and Iran as well as neighboring Europe, the world's largest gas importing market. However, the prospects of Turkey becoming a gas hub are quite low, and even if it was attained, it would not confer greater geopolitical value than its current status as a major gas transit state.

American, European, and regional policymakers continue to view gas resources as a way to promote peace, especially between Israel and its neighbors, as well as in divided Cyprus.[7] However, to date, there is not one case in international politics of a "peace pipeline,"[8] where the lure of energy trade served to resolve inter-state conflicts. While the gas trade is not likely to serve as a lever for peace, it can be used to produce water through fueling desalination and thus reduce water shortage conflicts that have plagued the Eastern Mediterranean region.[9] In addition, most of the region has unstable and infrequent electricity provision. New gas resources can improve the electricity supply in the region, which is essential for sustaining agriculture and economic growth. Economic prosperity can contribute to solidifying existing peaceful relations.

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[6] Aaron Y. Zelin, "The Others: Foreign Fighters in Libya," *The Washington Institute,* January 2018, https://www.washingtoninstitute.org/policy-analysis/view/the-others-foreign-fighters-in-libya-and-the-islamic-state

[7] "Gas exploration can be a catalyst for cooperation new US ambassador says," *Cyrus Mail Online*, 4 October 2018, https://cyprus-mail.com/2018/10/04/gas-exploration-can-be-a-catalyst-for-cooperation-new-us-ambassador-says/

[8] Brenda Shaffer, "Can New Energy Supplies Bring Peace?," The German Marshall Fund of the United States, 11 March 2014, http://www.gmfus.org/publications/can-new-energy-supplies-bring-peace

[9] Shaffer (2014).

In fact, it is more pertinent for policymakers to address the rising propensity for conflict in the Eastern Mediterranean due to the maritime delimitation conflicts spurred by the exploration activity in the region. In this case, conflict prevention policy is much more relevant than the promotion of "peace pipelines." These border conflicts create a special challenge to Turkey, which is at the center of several of these conflicts. US, NATO, Turkish, and other concerned parties would benefit from looking at the potential benefits of these resources, but also at how to prevent related conflicts and security challenges as well.

# TURKEY AND THE KURDISTAN REGION OF IRAQ: STRAINED ENERGY RELATIONS

*Since the Kurdistan Regional Government's (KRG) referendum on independence in 2017, relations between Erbil and Ankara have soured; this poses a challenge to the Kurdistan Region of Iraq (KRI) which remains extremely dependent on oil and gas exports to Turkey. The aftermath of the referendum caused a major collapse of both KRI oil exports and revenues, and, although there has been some recovery since then, output remains far short of the KRG's pre-referendum aspirations. Meanwhile, the role of Turkish investment in the KRI is diminishing as Russia's Rosneft assumes an increasingly important role, not least in terms of developing a major new gas pipeline to Turkey. At the same time, the power of the federal government in Baghdad has grown. This was demonstrated by the government wresting control of major oil-producing areas in Kirkuk from the KRG in 2017 and this will no doubt play a significant role in whether Baghdad might seek to use KRI infrastructure for its own resumption of exports from Kirkuk to Ceyhan.*

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Turkey has a complex set of energy relations with Iraq. It plays a crucial role in the development of both oil and gas in the autonomous Kurdistan Region of Iraq (KRI) and traditionally it has played an important role in the transit of oil from federal Iraq. Likewise, while Turkish companies are constantly seeking major commercial opportunities in federal Iraq, Turkish investors are already playing a major role in the development of hydrocarbon resources in the KRI. This role, however, remains circumscribed by the policies of the Turkish government, particularly since the independence referendum in the KRI on 25 September 2017, and by the potentially dominant role that Russia's Rosneft oil company looks set to play in the export of hydrocarbons from northern Iraq.

### *A Complex Triangular Relationship: Turkey-Federal Iraq-KRI*

The importance of the energy relationship between Turkey and the KRI cannot be underestimated, but neither can the political complexities of triangular relations among Ankara, the KRI authorities in Erbil, and the federal Iraqi government in Baghdad. All of this has to be set against the background of fierce regional conflicts and tension. The conflicts include the ongoing strife in Syria and fighting—defined by some Turkish officers as war—between Turkey's security forces and the Kurdish militants of the PKK, which are considered terrorists by Turkey and its NATO allies. The tension particularly reflects the crisis initiated by the Kurdistan Regional Government in Erbil when it held its independence referendum last year in the face of widespread opposition from Turkey and other leading governments, notably the US, who were prepared to assist Kurdish autonomy but had major concerns regarding outright independence.

In terms of Turkey's relationship with the KRI, the most important consequence of the referendum is that it has almost completely sidelined the groundbreaking set of agreements concluded between the KRG and the government of Turkey in November 2013.

These agreements included:

- Turkish support for KRI oil exports via the Kirkuk-Ceyhan pipeline, with payments for oil delivered at Ceyhan to be made into an escrow account in Turkey until Erbil and Baghdad reached agreement on revenue sharing;
- Participation by a state-backed enterprise, the Turkish Energy Company, in 13 exploration blocks in the KRI;
- Construction of a new pipeline to enable the KRI to export as much as one million b/d, since there would otherwise be problems in conveying heavy crude oil from the Shaikan field to Ceyhan;

- Developing the necessary gas pipeline infrastructure to enable the KRI to export as much as 20 bcm/y, with deliveries expected to start in 2017.

In a global geopolitical context, the most important energy issue concerns oil transit through Turkey from both federal Iraq and the KRI. For Turkey itself, however, development of gas within the KRI is at least equally important.

> *"The importance of the energy relationship between Turkey and the KRI cannot be underestimated, but neither can the political complexities of triangular relations between Ankara, Erbil, and Baghdad."*

The oil issue concerns oil exports from both federal Iraq and the KRI via the main Kirkuk-Ceyhan pipeline and a feeder line into that system from fields in the KRI. This pipeline was developed in the 1970s to handle Iraqi shipments to destinations in Europe and North America. More recently, particularly as the KRI developed an effective government in the late 2000s and early 2010s, it became an outlet both for oil produced within the KRI and for limited volumes of oil produced within federal Iraq, primarily from those portions of the giant Kirkuk field under federal control.

However, as a result of persistent damage to the Iraqi section of the line in the turbulent years since Saddam Hussein was overthrown in 2003—and particularly as a consequence of the war with ISIS—federal Iraq ceased to use the line. During these years, the KRG, aided by the construction of a feeder system within the KRI to a junction with the Kirkuk-Ceyhan line at the Turkish border point of Fish Habur, became the line's sole user.

Now that Baghdad, which currently exports almost all of its oil via marine terminals in southern Iraq, has eliminated insurgent threats to the Iraqi section of the Kirkuk-Ceyhan line, it is prepared to consider resuming Kirkuk area exports via Ceyhan. Indeed, one of the first reported comments of Iraq's new oil minister, Thamir Ghadhban, who took up his position on 24 October 2018, was that Baghdad planned to start oil export talks with the Kurdish authorities.[1] But consideration and implementation are quite different matters, as was demonstrated in a statement on 5 November 2018 by Baghdad's Oil Ministry spokesman, Aasim al-Jihad, when he said:

[1] Nayla Razzouk and Abbas Al Lawait, "Iraq's Kurds Add Pipeline Capacity to Export Kirkuk Oil," *Bloomberg,* 4 November 2018, https://www.bloomberg.com/news/articles/2018-11-04/iraq-s-kurds-add-capacity-to-oil-pipeline-to-export-kirkuk-crude

> So far no final decision with regards to increasing the production rates of Kirkuk's oil has been made, and no agreement for the mechanism of exporting Kirkuk's oil through using the pipeline network for export of Kurdistan Region's (oil) to the Ceyhan port or dealing with the matter in another form has been reached.[2]

In principle, a resumption of federal exports through Ceyhan could be accomplished through rehabilitation of the existing Iraqi section of the line, or a replacement pipe within federal Iraq, or use of the pipeline system within the KRI – or a combination of these. In technical terms, the simplest would probably be to use the KRI system. Indeed, on 4 November 2018 the KRG announced that it had expanded the capacity of its own line from the Shaikan field to the Turkish border from 700,000 b/d to 1,000,000 b/d, saying: "This extra capacity will accommodate future production growth from KRG producing fields, and can also be used by the federal government to export the currently stranded oil in Kirkuk and surrounding areas."[3]

But major obstacles must first be overcome. For more than a decade, Baghdad and Erbil have failed to resolve their dispute over federal Iraqi payments to Erbil—overwhelmingly derived from oil exports—and the handling of income derived from the sale at Ceyhan of oil produced in the KRI. The result is that Baghdad does not wish to pursue a major resumption of oil exports via Ceyhan until it is clear that payments for such sales will be paid to the State Oil Company for Marketing of Oil (SOMO). This is because Baghdad wants to ensure that revenues secured from oil exports at Ceyhan will not be seized or legally frozen by the KRI as a consequence of continuing disputes over the central governments revenue-sharing with the KRG within the national budget.

*Fallouts of the Iraqi Kurdistan Referendum*

Then, there is the question of Kirkuk and the referendum on 25 September 2017. The Kirkuk oil field has three domes, which are geological formations that effectively constitute distinct producing areas. One of these domes, Khurmala, falls clearly within the KRI and its output constitutes a major element of current KRI oil production. But in June 2014, when the Iraqi army abandoned the Kirkuk area in the wake of the fall of Mosul to ISIS, the Kurdish Peshmerga forces secured full control of Kirkuk, a city the KRG regards as an integral part of Iraqi Kurdistan, along with the other two domes, Avana and Baba.

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[2] "Iraq halts Kirkuk oil to Iran for domestic reasons, won't use KRG pipeline," *Rudaw,* 4 November 2018, http://www.rudaw.net/english/business/041120181. For federal Iraq, the situation is modestly exacerbated by the fact that, as a result of the reinstitution of US Sanctions against Iran in November 2018, Baghdad has decided to halt the trucking of some 30,000 b/d of oil from Kirkuk to Iran.

[3] Ministry of Natural Resources, Kurdistan Regional Government, "KRG Update on Oil Production and Operations," http://mnr.krg.org/index.php/en/press-releases/605-krg-update-on-oil-production-and-operations

This effectively doubled KRG output, which reached its peak in September 2017 when deliveries from the KRI through the Kirkuk-Ceyhan line reached 609,000 b/d. But September was also the month in which the KRG held a referendum to ask the Kurds of northern Iraq whether they wished to move from autonomy to outright independence.

For the KRG, holding the referendum—which resulted in a 93 percent vote for independence—was a chance to prove that the Kurds of northern Iraq really did want independence from Baghdad. It was held despite strong warnings from both Baghdad and Ankara, and against the advice of governments in the West and elsewhere, whose companies are deeply involved in developing KRI oil and gas resources. Following the referendum, Baghdad immediately dispatched troops to the north and the KRI rapidly lost much of the Kirkuk region as well as most of the Kirkuk oil field to Baghdad.

> *"For more than a decade, Baghdad and Erbil have failed to resolve their dispute over federal Iraqi payments to Erbil."*

These developments resulted in a massive contraction of KRI exports and revenues. In November 2017, exports via Ceyhan fell to a nadir of just 246,000 b/d. The latest firm figures showed exports via Ceyhan running at 316,000 b/d for the first quarter of 2018. Matters appear to have improved since then, with the KRG's Ministry of Natural Resources declaring on 4 November 2018: "The KRG currently exports over 400,000 b/d of crude oil."[4]

Nonetheless, such levels mean that current production (since exports account for well over 80 percent of total KRI output) is still running at less than half the one-million-barrel-a-day rate—an aspiration that the KRG viewed prior to the referendum as the basis of securing the economic foundation of an independent Kurdish state.

In terms of revenues generated from oil sales—the backbone of KRG finances—the impact has been massive. In the first half of 2017, KRG net revenues from oil exports (a figure that allows for payments to companies, including settlement of previous debts) amounted to 3,328.2 million dollars. In the second half of 2017, thanks to particularly high third-quarter sales, the comparable figure was 1,999.2 million dollars. But in the first half of 2018, it was down to just 648.6 million dollars.

[4] Ministry of Natural Resources, Kurdistan Regional Government.

Nor can the KRG necessarily rely on major supply increases from other fields in the KRI to improve the situation. At Taq Taq, where Turkey's Genel Energy was producing 75,500 b/d in 2012, when in 2013 it was anticipating eventual production of perhaps as much as 200,000 b/d, major downgrades of recoverable reserves have been accompanied by a fall in actual production to just 12,800 b/d in the first half of 2018. This is now said to be a stable production level that Genel Energy says "provides a solid base from which to ramp up activity at the field." Likewise, Gulf Keystone Petroleum Company (GKP) has failed to live up to its 2014 goals of producing 66,000 b/d in 2016 from its heavy oil field at Shaikan and then rising, at some unspecified date, to 100,000 b/d. In practice, output at Shaikan climbed promisingly from 16,000 b/d in 2014 to 35,500 b/d in 2015, but has since stalled and was running at just under 32,000 b/d in the first half of 2018. Moreover, the KRI's dependence on the Turkish route remains near absolute, since the only alternatives are small scale (and often smuggled) deliveries by tanker trucks to Iran or to federal Iraq.

These volumes have been just enough to ensure that oil producers such as Genel Energy at Taq Taq, GKP at Shaikan, and the Norwegian-Emirati DNO oil company at Tawke and Peshkebir receive their due payments on a regular basis. However, these payments remain dependent on Turkish transit, and both the companies and the KRG in Erbil remain well aware of Turkey's ability, if it so chooses, to turn off this tap. On 26 September 2017, the day after the referendum, President Erdoğan visited the Habur border to witness joint military exercises with federal Iraqi troops. He warned that if the Kurds declared independence then they "will be left in the lurch when we start imposing our sanctions." He added: "It will be over when we close the oil taps, all (their) revenues will vanish, and they will not be able to find food when our trucks stop going to northern Iraq."[5]

In essence, the President was making the point that Turkey cannot tolerate an independent Kurdish State because of the implications for his own fight against Kurdish separatists in Turkey and their associates in Syria. For the time being, at least, this means that stability for foreign investors in the KRI hinges on the KRG continuing its current policy: favoring independence in the long-term but avoiding any further moves towards independence in the short-term. At present, and almost certainly for quite some time to come, the Turkish government will focus far more on dealing with Baghdad in energy matters than in dealing with Erbil. This represents a radical transformation from the situation in 2013 when the then Prime Minister Recep Tayyip Erdoğan and KRI President Masoud Barzani presided over the November energy accords.

[5] "Barzani's decision to hold referendum 'betrayal to Turkey,' Erdoğan says," *Hürriyet Daily News,* 26 Septmeber 2017, http://www.hurriyetdailynews.com/barzanis-decision-to-hold-referendum-betrayal-to-turkey-erdogan-says-118415

*"The KRG incurred major losses as a result of the independence referendum—including losing much of the Kirkuk region as well as most of the Kirkuk oil field to Baghdad."*

The transformation is particularly relevant with regard to gas, since gas development in the KRI, as demonstrated by the 2013 accords, is largely predicated on accessing the Turkish market or markets reached via Turkey.

Turkey's Genel Energy is the foremost current investor in gas development in the KRI, although this may well change with the entry of Russia's Rosneft into this sector. Genel Energy has two significant gas fields in the KRI: Miran and Bina Bawi. But it has run into trouble developing them.

In November 2015, KRG Minister of Natural Resources Ashti Hawrami and Genel Chairman Tony Hayward jointly declared the KRI should be able to start delivering up to 10 bcm/y to Turkey in approximately 2018 or 2019 and double that amount in the early 2020s. At first, it looked as if progress might be made quite quickly. Botaş, Turkey's state-owned gas pipeline company, organized a tender for the construction of a key component of the necessary export infrastructure, a 20 bcm/y capacity pipeline from Şırnak on the Iraqi-Turkish border to a connection with the Turkish grid at Mardin. However, when initial bids were evaluated in February 2016, the lowest bid came in at 4.8 million dollars above the 25 million dollar target level, so Botaş re-tendered the 185-km project.

At this point, the situation gets a little murky. Market reports indicate that Botaş accepted an offer from a Turkish company, Vemak, on 26 April 2016 and that Vemak began work on the project on 4 August 2016. Yet, there is little indication as to what actual progress has been made since then. Furthermore, sources involved in facilitating improved KRG-Turkish energy relations in the wake of the referendum say they fear that there has been no real development of this project in the last year or so.[6]

Equally important, Genel Energy's development of the gas fields that were originally expected to fill much of this line, Miran and Bina Bawi, slowed down as Genel experienced severe financial problems. Particularly in the wake of the referendum, Genel became increasingly inclined to look to other areas beyond Turkey for possible oil and gas production projects.

[6] Telephone interview with source, 26 October 2018.

When Hawrami and Hayward were voicing their optimism concerning large-scale KRI gas exports to Turkey, Genel was trying to develop a 5.4 billion dollar project in which it would be responsible for upstream development at Miran and Bina Bawi in the KRI. These fields have around 320 bcm of gas in place (technically, gross mean raw gas) and should be able to yield around 240 bcm of gas for actual sale (technically, gross mean sales gas). The fields also contain around 80 million barrels of liquid hydrocarbons. Output would be sold to the KRG, which would then pipe the gas to a midstream company for processing. While upstream development would initially only cost around one billion dollars, with a further 1.9 billion dollars required over the life of the fields, the midstream company's work would require some 2.5 billion dollars in investment.

As recently as February 2017, Genel was optimistic that it could speed up field development at Miran and Bina Bawi with the signing of fresh agreements covering the original Production Sharing Agreement (PSA). and the terms under which output from Miran and Bina Bawi would be "lifted"—in other words, supplied—to the KRG.

Genel stated: "With the production sharing contract and gas lifting agreement (GLA) terms formally confirmed, Genel will now be able to progress the project. The company remains committed to developing these large scale, low-cost, onshore gas fields, which will form the cornerstone of gas exports to Turkey under the 2013 KRG-Turkey gas sales agreement."[7] In practice, however, progress was limited and in January 2018, Genel secured a 12-month extension, so that it currently has until 9 February 2019 to fulfill the terms of the GLA.

The problem Genel faces is that the GLA provides for the execution of final agreements on both the midstream gas processing facilities and pipeline transportation. While the role of Rosneft in developing pipeline infrastructure is now well-established, the question is whether the Russian giant will take a stake in the vital midstream company, since, at present, there appear to be no other prospective investors.

### *The Role of Rosneft*

The decline in Genel's fortunes stemming from its setbacks at Taq Taq means it is no longer the most important player in KRI gas development. In practice, that role has been assumed by Rosneft. Indeed, it is reasonable to argue that Rosneft is now the most important single player in both Kurdish oil and gas development.

[7] "Genel to Begin Developing Miran and Bina Bawi Gas Fields," *Alliance News*, 13 February 2017.

In February 2017, Rosneft and the KRG signed a cooperation agreement covering upstream investment, infrastructure, logistics, and trading. This was expanded in June when they agreed "on monetization of the export oil pipeline in Iraqi Kurdistan" and agreed in principle on a number of PSAs. On 18 September 2017, the two sides amended their agreements to include, as the KRG announced, "the construction of a natural gas pipeline to supply power plants and factories in the Kurdistan Region and provide significant volumes of natural gas for export to international markets such as Turkey and the European Union."[8] *Reuters* reported that the line was expected to cost more than one billion dollars and that it would have a 30 bcm/y capacity, meaning that it would be built on the same scale as such major regional infrastructure projects such as the Southern Gas Corridor from Azerbaijan to Italy or Russia's TurkStream pipeline to Turkey and beyond.[9]

> *"Stability for foreign investors in the KRI hinges on the avoiding any further moves towards independence in the short-term."*

All of these developments preceded the fateful referendum on 25 September 2017. What really matters is what happened after the referendum. On 18 October 2017, Rosneft first signed the documents required to give force to its five PSAs, in which it will have an 80 percent stake and for which it would pay around 400 million dollars. Then on 19 October 2017, it took a 60 percent stake in the oil pipeline that carries exports from fields in the KRI to a junction on the Turkish border with the Kirkuk-Ceyhan line. According to subsequent reports, by the end of 2017, Rosneft had transferred no less than 2.1 billion dollars to the KRG, effectively valuing its contracts in the KRI at well over 3 billion dollars.

In practice, Rosneft's transfers more than covered revenue losses incurred in the last quarter of 2017 as a result of the recapture of Kirkuk by Iraqi federal forces. However, while this infusion was no doubt both welcome and necessary, the underlying question remains: Will Rosneft will be able to help the KRG find alternative ways of securing long-term hydrocarbon revenues?

[8] Ministry of Natural Resources of the Kurdistan Regional Government, "KRG and Rosneft Deal on Construction of Natural Gas Pipeline, Exports Expected in 2020," 18 September 2017, http://mnr.krg.org/index.php/en/press-releases/596-krg-and-rosneft-deal-on-construction-of-natural-gas-pipeline,-exports-expected-in-2020

[9] Dimitry Zhdannikov, "Russia's Rosneft clinches gas pipeline deal with Iraq's Kurdistan," *Reuters,* 18 September 2017, https://uk.reuters.com/article/uk-kurdistan-rosneft/russias-rosneft-clinches-gas-pipeline-deal-with-iraqs-kurdistan-idUKKCN1BT1G8

On 25 May 2018, Rosneft and the KRG took a major step towards achieving this objective when they signed an agreement to undertake a detailed analysis of potential gas cooperation options which, Rosneft stated, "will elaborate an integral plan to progress the gas business within the Kurdish Region of Iraq."[10] Rosneft added:

> One step in this plan is the conduct of a pre-FEED (Front-End, Engineering and Design) of Iraqi Kurdistan's gas pipeline construction and operation. This is a key project to the monetization of the exploration and production opportunities Rosneft has been evaluating since signing a Gas Cooperation Agreement with the Kurdistan Regional Government of Iraq at the 10th Eurasian Economic Forum in Verona on 19 October 2017.[11]

Turkey's attitude is likely to prove crucial in determining the outcome of this initiative. In commercial terms, the logical markets for KRI gas are neighboring regions of Iraq, notably the areas around the devastated city of Mosul which could make good use of Kurdish gas for power generation, and regional markets in southeast and southern Turkey. But so long as Erbil remains at odds with Baghdad over a vast range of issues, and so long as Baghdad's finances prove sufficient to provide fuel and power to Iraq's war-stricken regions, it can prevent KRI gas heading for Mosul. Turkey, however, still constitutes a big opportunity, both as a market in itself and, if KRI gas were really to take off, as a transit route for gas to access export markets further afield by means of the Southern Gas Corridor.

Rosneft acknowledged that the path might not necessarily be easy when it concluded its own announcement of the agreement with these cautionary words: "Following the outcomes of the integral development plan in terms of the attractiveness and efficiency of the options, Rosneft will decide on how to participate in the regional gas business."[12]

As politicians and businessmen come to terms with the post-referendum reality of reduced revenues for the KRI, and as the KRG confronts the chilly post-referendum winds blowing from Ankara, the KRI's leaders are compelled to rely on a combination of old and new forms of energy diplomacy. The old form essentially consists of what is left of the personal rapport between KRG President Barzani and the cross-border commercial interests of prominent Turkish and Iraqi Kurdish businessmen and politicians. The new form essentially consists of reliance on fresh intermediaries, most notably Rosneft, both to bridge the immediate gulf between

[10] "Rosneft and The Kurdistan Regional Government of Iraq signed Gas Business Development Agreement for Kurdish Region of Iraq," *Oil and Gas Daily,* 25 May 2018.

[11] Oil and Gas Daily (2018).

[12] Oil and Gas Daily (2018).

Erbil and Ankara, and possibly even the gulf between Erbil and Baghdad, and to provide hard cash to keep the KRI economy afloat.

It has been a tough task in the past. Now, federal Iraq is growing in strength and therefore, as it demonstrated with its takeover of Kirkuk in 2017, it is increasingly able to impose its own will on controversial issues. The KRG faces an even tougher task these days in balancing its aspirations to become both a leading oil and gas exporter and to transform the KRI into a fully independent nation.

# A NEW STRATEGY FOR EU-TURKEY ENERGY COOPERATION

*Energy cooperation could be one of the few components of the EU-Turkey Positive Agenda, as strong mutual interests encourage cooperation even during politically difficult times. However, the energy part of the Positive Agenda arguably requires a rethink. Over the last decades, gas and electricity have represented the main components of this cooperation. Albeit highly visible, cooperation in these fields appears to be limited in practice. On the contrary, cooperation in other fields—such as renewables, energy efficiency, nuclear energy and emission trading—could make a real impact on long-term energy, climate, and environmental sustainability, and on overall macroeconomic and geopolitical stability. This article discusses how this change in priorities might be designed.*

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The relationship between the European Union and Turkey has historically been close, contested, and tortuous. Turkey has sought to become a full member of the European integration project since 1987. However, notwithstanding significant advances such as the establishment of the EU-Turkey Customs Union in 1995, bilateral relations have faced many difficulties: the dispute over Cyprus, episodes of economic and political turbulence in Turkey, and the open opposition among core EU countries like Germany and France to Turkish EU membership.

The EU-Turkey relationship has deteriorated recently because of the Turkish government's worrying pattern of imprisoning large numbers of the political opposition, journalists, and human rights defenders after the failed 2016 coup. In this context, the European Parliament demanded EU leaders suspend Turkey's EU accession process. Numerous voices from European civil society and the political and academic spheres have even called for its termination.

### *Climate within the Broader EU-Turkey Relationship*

In this complicated context, the EU-Turkey energy and climate relationship is considered by the EU as one of the few components of the EU-Turkey Positive Agenda[1]—areas in which strong mutual interests prevail even during politically difficult times.[2] Despite the fact that the energy chapter of Turkey's EU accession process has not been opened—largely due to Cyprus' veto—a bilateral energy relationship between the EU and Turkey has developed over the years.[3]

However, the energy dimension of the Positive Agenda arguably requires a rethink. For example:

- *Gas* and *electricity* have traditionally represented the cornerstone of EU-Turkey bilateral cooperation, but their strategic relevance seems to be overrated given the current and likely future limited size of the regional gas transit and electricity trade;
- *Renewables* and *energy efficiency* have played a minor role in bilateral

[1] Launched in 2012, the "positive agenda" seeks to complement and enhance Turkey's accession process by fostering cooperation in a number of areas of joint interest, including energy.

[2] "Remarks by High Representative/Vice-President Federica Mogherini at the press conference following the EU-Turkey High Level Political Dialogue," European External Action Service, 25 July 2017, https://eeas.europa.eu/headquarters/headquarters-homepage_en/30391/EU-Turkey%20High%20Level%20Political%20Dialogue

[3] On this issue see Sohbet Karbuz, "EU-Turkey Energy Cooperation: Challenges and Opportunities," IAI Working Papers (2014) 14(12), http://www.iai.it/sites/default/files/iaiwp1412.pdf & Lorenzo Colantoni, Dicle Korkmaz, Nicolò Sartori, Mirja Schröder, S. Duygu Sever and Suhnaz Yilmaz, "Energy and Climate Strategies, Interests and Priorities of the EU and Turkey," FEUTURE Papers, (2017) Online Paper No. 2, http://www.iai.it/en/pubblicazioni/energy-and-climate-strategies-interests-and-priorities-eu-and-turkey

cooperation so far, while – considering Turkey's untapped potential – they should play a central role;
- *Nuclear energy* and *carbon markets* have never been part of EU-Turkey bilateral cooperation. These two gaps should be filled, considering Turkey's new nuclear energy program and global climate change mitigation efforts.

Refocusing bilateral cooperation on renewable energy, energy efficiency, nuclear energy, and carbon markets would be more impactful and strategic for both the EU and Turkey. For the EU, it would provide an opportunity to put its sustainable energy leadership aspirations into practice, while opening up new commercial opportunities. For Turkey, it would enhance both climate and environmental performance, while reducing the energy import bill and energy dependency on Russia.

> *"Gas and electricity have traditionally represented the cornerstone of EU-Turkey bilateral cooperation."*

This change in priorities is also important to avoid Turkey's rush into coal. Turkey has put together one of largest coal power plant development programs in the world (after India and China), with more than 70 new coal-fired power plants currently in the pipeline, for a total planned installed capacity of 66.5 gigawatts.

Turkey's coal extraction and exploration activity has intensified in the last 10 years, and lignite reserves have consequently almost doubled since 2004. The government supports coal financially, either through production subsidies or investment incentives (e.g. special support for coal-fired power plants fueled by domestic resources, value-added tax waivers, support to offset investment costs and tax reductions).

A renewed EU-Turkey energy and climate relationship focused on renewable energy, energy efficiency, nuclear energy, and carbon markets could help forestall Turkey's coal rush, which would be highly detrimental for a wide range of climate, environmental and socio-economic reasons.

***Gas: An Overstated Component of Bilateral Cooperation?***

Gas has always been at the heart of EU-Turkey energy discussions. Turkey has emerged as a potential key transit country in a position to significantly contribute to the security of the EU gas supply, largely due to its strategic position between Europe and the gas-rich countries of the Caspian and the Middle East.

In the early 2000s, developments became more concrete with discussions about the Nabucco pipeline, a project to channel up to 31 billion cubic meters (bcm) of gas from Azerbaijan, Turkmenistan, Iraq, and Iran to Europe via Turkey. Nabucco became the flagship project of the Southern Gas Corridor (SGC), a European Commission initiative started in 2008 with the aim of reducing the EU's perceived over-dependence on Russian gas supplies. The SGC was intended to enable new supplies from the Caspian and Middle Eastern regions to reach Europe.

> *"Refocusing bilateral cooperation on renewable energy, energy efficiency, nuclear energy and carbon markets would be more impactful and strategic for both the EU and Turkey."*

The years of Nabucco, e.g. the early 2000s, were the golden age of EU-Turkey energy cooperation. It seemed that, together with gas, pipelines could also channel economic prosperity and political cooperation.[4] However, the Nabucco project ultimately failed for a variety of commercial and financial reasons.[5] The failure of the Nabucco project left the way open for the emergence of a smaller-scale version of the SGC, promoted by the only available regional supplier: Azerbaijan. Between 2011 and 2013, Azerbaijan proposed and started to develop the TANAP-TAP (Trans-Anatolian Pipeline and Trans-Adriatic Pipeline) in tandem, with the aim of providing six bcm of gas per year to Turkey and 10 bcm per year to Europe, starting in 2020.[6]

The EU-Turkey gas cooperation momentum unexpectedly revived in 2015, when Russian President Vladimir Putin surprised the energy world by dismissing the long-debated South Stream project[7] in favor of TurkStream, a project intended to deliver 63 bcm/year of Russian gas to Turkey and Europe by bypassing Ukraine.

[4] In the spirit of the time, it might be useful to recall the declarations on the issue by then-president of the European Commission José Manuel Barroso, who said *"Nabucco could open the door to a new era in relations between Turkey and the EU and beyond"*, and by Turkish prime minister Recep Tayyip Erdoğan, who said "*With Nabucco we are taking an important step for our countries, friendship and peace, and the welfare of upcoming generations.*"

[5] Such as a weak outlook for EU natural gas demand, uncertain deliverability of supplies, potential competition from the Russian South Stream pipeline that was supposed to bring gas from Russia through the Black Sea to Bulgaria, and lack of guarantees or long-term ship-or-pay contracts that would facilitate access to bank loans.

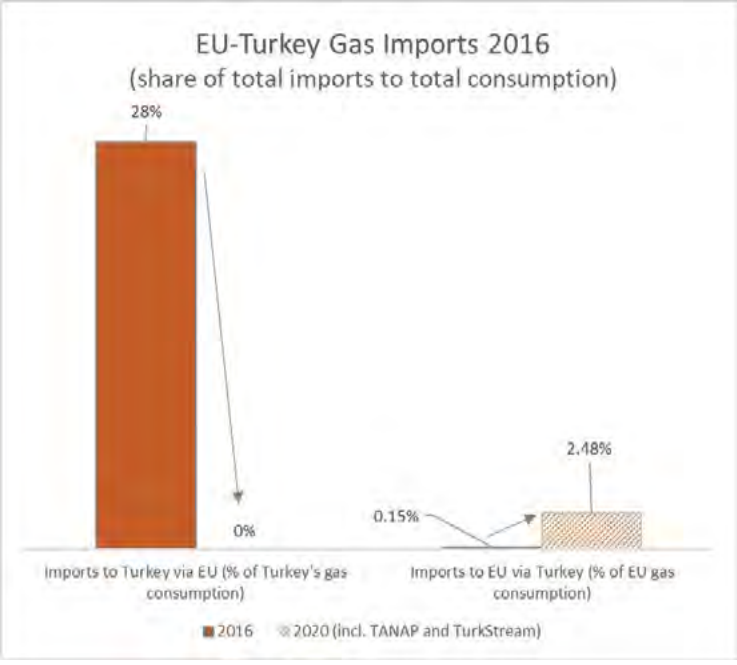
[6] For an in-depth analysis of these developments, see Simone Tagliapietra, *Energy Relations in the Euro-Mediterranean* (Palgrave Macmillan: London, 2017).

[7] South Stream was a pipeline project to transport natural gas of the Russian Federation through the Black Sea to Bulgaria and through Serbia, Hungary and Slovenia further to Austria. The project was abandoned after a long-lasting dispute between Gazprom and the European Commission over the project's compliance with EU legislation, and most notably with the EU Third Energy Package.

However, it quickly became evident that a full-scale version of the project would never be advanced,[8] and that only the first string of TurkStream would be built with the aim of re-channeling by 2019 the Russian gas currently flowing to Turkey via the Trans-Balkan Pipeline (which links Turkey to Russia via Bulgaria, Romania, Moldova and Ukraine).[9] Only this first string is currently under construction.

As a result of the TANAP-TAP and TurkStream developments, the volume of gas supplied to the EU via Turkey will diminish overall by 2020 (Figure 1), because Turkey will no longer import Russian gas via EU countries and because the EU will only scale-up its imports via Turkey to 2.5 percent of its consumption. Thus, in the short-term, too much importance is attached to the strategic relevance of gas in the EU-Turkey energy relationship.

**Figure 1:** EU-Turkey gas transit (2016 and 2020 scenarios)




*Source: Bruegel's calculations based on the International Energy Agency.*

[8] For the same reason why South Stream was abandoned (e.g. compliance with EU legislation), and for commercial reasons (e.g. high infrastructure costs of linking TurkStream to Central European markets).

[9] See Simone Tagliapietra and Georg Zachmann, "The Russian Pipeline Waltz," *Bruegel Blog,* 18 June 2015, http://bruegel.org/2015/06/the-russian-pipeline-waltz/

In the longer term, cooperation on gas supply could increase only if:

i) The capacity of TurkStream is doubled, with a second string aimed at supplying European markets. However, this is unlikely for both commercial and political reasons;[10]

ii) The Southern Gas Corridor is expanded to Turkmenistan, Iraq, and Iran. As noted by Tagliapietra and Zachmann,[11] an expansion of the SGC would be possible only if the EU and Turkey make use of their complementary leverage in the region to overcome the geopolitical and commercial barriers to the regional gas trade, and only if the future evolution of the EU's gas import requirements justifies new investments in gas infrastructure. This is not something to be taken for granted, especially given the speed of the ongoing EU decarbonization path.

Gas transit is not the only way to evaluate the strategic level of the EU-Turkey gas relationship. Even if limited in volumes, the SGC could make it possible for both the EU and Turkey to access new suppliers. In gas markets, such options are an important asset, both for commercial and security reasons—notably in relation to large traditional suppliers such as Russia. However, in order to be effective, the available options should be viable and unencumbered by geopolitical and commercial barriers,[12] as the SGC continues to be.

It should also be noted that notwithstanding the predominant role of gas in the EU-Turkey energy relationship, cooperation in the field has never been institutionalized. One of the reasons behind Turkey's reluctance to engage in institutional platforms such as the European Network of Transmission System Operators for Gas (ENTSO-G) or the Energy Community, is its reluctance to liberalize its gas market. Turkey never fully implemented its Natural Gas Market Law of 2001—which would align the Turkish market to the EU's standards—notably to avoid splitting up the state-owned oil and gas company BOTAŞ and to avoid giving other companies non-discriminatory access to BOTAŞ' pipelines.

### *Bilateral Electricity Cooperation: What's Really at Stake?*

Since the early 2000s, electricity has become an important component of the EU-Turkey energy relationship.

[10] Tagliapietra and Zachmann (2015).

[11] Simone Tagliapietra and Georg Zachmann, "Designing a new EU-Turkey strategic gas partnership," Policy Contribution, (2015b) *Bruegel,* http://bruegel.org/2015/07/designing-a-new-eu-turkey-strategic-gas-partnership-2/

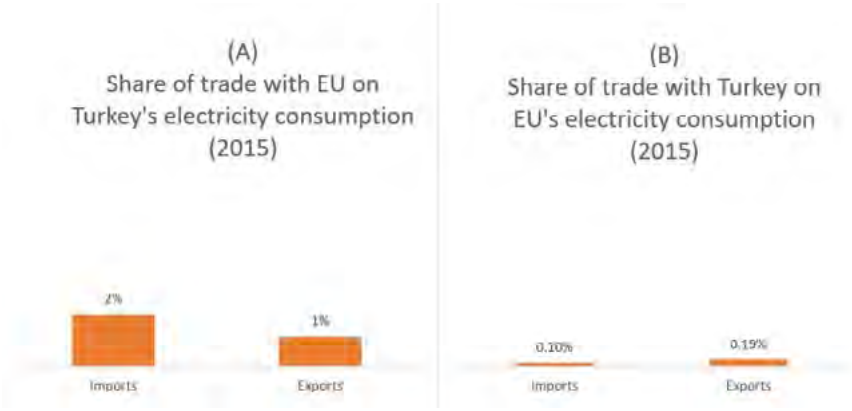
[12] As outlined by Tagliapietra and Zachmann (2015), geopolitical issues such as the international dispute over the legal status of the Caspian Sea, the difficult political relationship between Iran and Turkey and the turbulent political situation in Iraq, all represent major barriers to the scaling-up of the Southern Gas Corridor. On top of this, there are commercial barriers, such as weak gas demand in Europe and low competitiveness compared to Russian gas supplies to Europe via existing infrastructure.

By implementing the 2013 Electricity Market Law, Turkey liberalized its market in line with the EU Third Energy Package, which opened almost 90 percent of the EU electricity market to competition by the end of 2015.[13]

In 2015, after a trial period lasting several years, the Turkish electricity grid operator, TEİAŞ, and the European Network of Transmission System Operators for Electricity (ENTSO-E) signed a long-term agreement on a permanent synchronous operation between the Turkish and continental European electricity systems. As a result, it became possible for Turkey to use interconnections with Bulgaria and Greece to export a maximum of 400 megawatts (MW) and import up to 500 MW. TEİAŞ further strengthened its engagement with ENTSO-E in 2016 by becoming its first observer member.[14]

On the basis of these developments, Bulgaria and Greece have since 2015 become Turkey's main electricity trading partners. In 2015, Turkey imported 7.1 terawatt hours (TWh) of electricity from Bulgaria and 3.2 TWh from Greece—amounting to two percent of Turkey's consumption.[15] This electricity trade, however, remains limited both regionally and across the EU (Figure 2).

**Figure 2:** The EU-Turkey electricity trade




*Source: Bruegel's calculations based on the International Energy Agency.*

[13] International Energy Agency, "Energy Policies of IEA Countries - Turkey - 2016 Review," OECD/IEA, 2016, https://www.iea.org/publications/freepublications/publication/EnergyPoliciesofIEACountriesTurkey.pdf

[14] ENTSO-E, "Turkish grid operator, TEIAS, joins ENTSO-E as observer member," 2016, https://www.entsoe.eu/news-events/announcements/announcements-archive/Pages/News/turkish-grid-operator-TEIAS-joins-ENTSO-E-as-observer-member.aspx

[15] ENTSO-E, "Power Statistics, Physical Energy & Power Flows," 2017, https://www.entsoe.eu/data/statistics/Pages/power_flows.aspx

### *Bilateral Cooperation on Renewables and Efficiency: Still a Long Way to Go*

EU-Turkey cooperation on renewables and energy efficiency is much less developed than cooperation on gas and electricity, and has mainly consisted of European financial support for renewable energy and energy efficiency projects in Turkey. This support has been provided by the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), and the European Commission, dating back as far as 1965 (Table 1).

**Table 1:** European financial support for renewable energy and energy efficiency in Turkey

| | | | |
|---|---|---|---|
| **EIB** | ***Loans*** | | |
| | 1965 – 2006 | EUR 0,73 billion | 21 projects |
| | 2007 – | EUR 2,43 billion | 28 projects |
| | ***Equity*** | | |
| | 2016 | EUR 13 million | Clean Energy Transition Fund |
| | 2016 | EUR 50 million | Green for Growth Fund |
| | | | |
| **EBRD** | ***Loans*** | | |
| | 2009 - 2016 | EUR 935 million | 11 projects |
| | ***Equity*** | | |
| | 2010, 2015 | EUR 122 million | 2 projects |
| | | | |
| **EBRD, EIB, EC** | 2011 – | EUR 1 billion | MidSEFF (Turkish Mid-Size Sustainable Energy Financing Facility) 42 projects |

*Source: Bruegel's calculations based on EIB, EBRD, Midseff annual reports.*

The most significant initiative currently in place is the Turkish Mid-size Sustainable Energy Financing Facility (MidSEFF), a one billion euro facility that provides loans to Turkish banks to finance renewable energy, waste-to-energy, and industrial energy efficiency projects.[16] So far, 42 projects have been financed by this facility, and over 700 MW have been added to Turkey's renewable generation capacity.[17]

Stronger EU-Turkey cooperation in the field could have a major positive impact, particularly taking into account the still limited development of renewable energy and energy efficiency in Turkey.

[16] "Turkish Mid-size Sustainable Energy Financing Facility," *MIDSEFF,* 2017, http://www.midseff.com/

[17] Olga Rosca, "EBRD boosts financing for renewable energy in Turkey," 2015, http://www.ebrd.com/news/2015/ebrd-boosts-financing-for-renewable-energy-in-turkey.html

### *Nuclear Energy: The First Gap in Bilateral Cooperation*

Since 2009, Turkey has developed plans to construct three nuclear power plants in Akkuyu, Sinop, and İğneada, on the basis of intergovernmental agreements with Russia, Japan, and China respectively. Preparations are most advanced at the Akkuyu site in southern Turkey, where the units should be online by 2023. For the Sinop and İğneada projects, feasibility studies are ongoing at the time of writing.

> *"Turkey has put together one of largest coal power plant development programs in the world."*

Setting up a nuclear energy sector is an enormous task for any country, considering the size and complexity of the technical and regulatory challenges.[18] Europe could make a sensible contribution to Turkey's plans in this regard, notably via Euratom, which has cooperation agreements with third countries.[19]

Usually low-profile, Euratom has been brought into the spotlight by Brexit, which has highlighted the important, though low-key, functions of Euratom. These are:

i) to promote nuclear energy research, particularly on nuclear fusion;
ii) to establish uniform safety standards and ensure that they are applied;
iii) to ensure the regular supply of ores and nuclear fuels;
iv) to ensure that nuclear materials are not diverted to purposes other than those for which they are intended;
v) to ensure free movement of capital for investment in nuclear energy and free movement of employment for specialists in the sector.

Euratom could, with its well-established framework and expertise, provide Turkey with great support for the implementation of its nuclear energy plans. This would be positive for both Turkey and the EU, notably in terms of regional nuclear safety.

Engaging Turkey through Euratom appears to be a far more constructive approach than that pursued by the European Parliament in a July 2017 resolution, which called for Turkey to involve or consult neighboring countries (e.g. Greece or Cyprus) in relation to the construction of the Akkuyu power plant.[20]

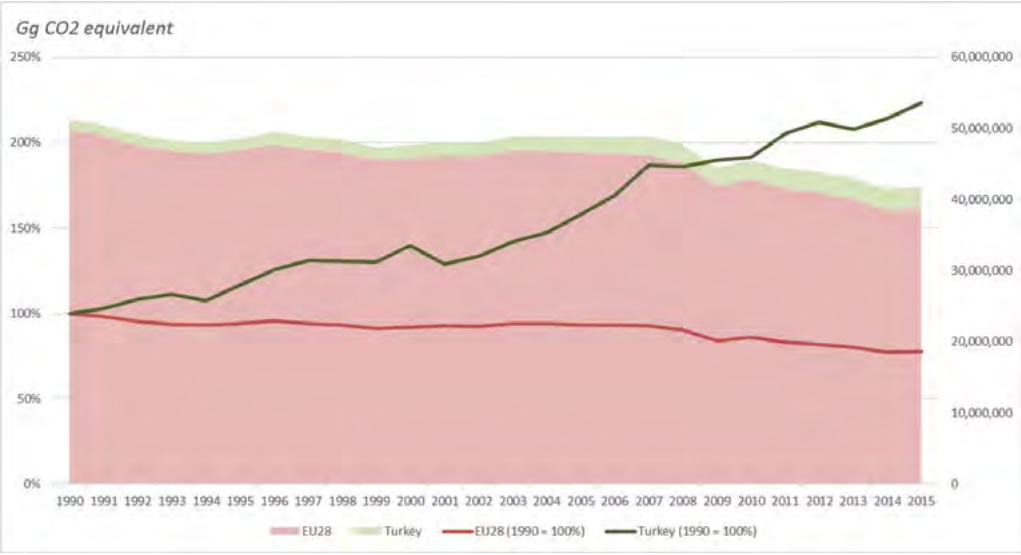
[18] International Energy Agency, 2016.
[19] Euratom was founded in 1957 with the aim of creating a European market for nuclear power. It is composed of EU member states.
[20] Resolution of 6 July 2017.

### *The Carbon Market: The Second Gap in Bilateral Cooperation*

For Turkey, developing a full-fledged climate policy has never been a priority. Turkey became a party to the United Nations Framework Convention on Climate Change in 2004 and to the Kyoto Protocol in 2009, but because of its status as a developing country it was exempt from a binding emissions reduction target. In this context, Turkey has never considered the possibility of creating a carbon market.[21]

In the framework of the Paris Agreement, Turkey pledged to reduce its greenhouse gas emissions by at least 21 percent below a business-as-usual scenario from 2021 to 2030.[22] Considering the current rising trend in Turkey's greenhouse gas emissions, achieving this target is not going to be an easy task (Figure 3).

**Figure 3:** Turkey's and the EU's greenhouse gas emissions




*Source: Bruegel's calculations based on the International Energy Agency.*

As suggested by the IEA,[23] Turkey should boost its institutional capacities and collaborations in the climate field by developing new financial mechanisms such as carbon markets. After all, this is exactly what other developing countries, notably China, are doing.

[21] ICAP, "ETS-Map Turkey," International Carbon Action Partnership, 2017, https://icapcarbonaction.com/en/ets-map?etsid=66

[22] UNFCCC, "Republic of Turkey – Intended Nationally Determined Contribution," 2015, http://www4.unfccc.int/submissions/INDC/Published%20Documents/Turkey/1/The_INDC_of_TURKEY_v.15.19.30.pdf

[23] International Energy Agency, 2016.

For example, MidSEFF includes a "Carbon Market Development Support Programme" through which it seeks to contribute to the development of the Turkish carbon market. The programme, still in its embryonic phase, aims to promote the participation of Turkish banks and companies in carbon markets in Turkey and abroad by offering capacity building and support for carbon projects.[24]

*"Too much importance is attached to the strategic relevance of gas in the EU-Turkey energy relationship."*

Having developed the largest carbon market in the world, the EU could offer unique institutional support to Turkey in this field. Since 2014, the EU and China have co-operated on the design and implementation of China's carbon market.[25] There is no reason why the EU and Turkey should not pursue similar cooperation.

***Potential Benefits of Stronger EU-Turkey Climate Cooperation***

In order to further develop the EU-Turkey energy and climate relationship, each partner's priorities should be realistically assessed. Promoting itself as a global leader in sustainable energy, the EU has a clear interest in cooperating on decarbonization with third countries such as Turkey. This interest is political as well as commercial, as Turkey represents an important—and still largely untapped—market for European companies dealing with renewable energy and energy efficiency. The one-gigawatt wind power project awarded to Siemens in August 2017 represents a good example of such potential.[26]

Reinforced cooperation with the EU on climate issues could make an important contribution to Turkey's decarbonization. However, given Turkey's still modest political momentum on the issue, decarbonization should not be considered as the winning argument to engage Turkey in stronger cooperation in the field. By contrast, Turkish policymakers are likely to be receptive to solutions that reduce the country's external energy dependency in a sustainable manner.

[24] Climate Focus, "MidSEFF Carbon Market Development Support Programme," 2017, http://turkishcarbonmarket.com/

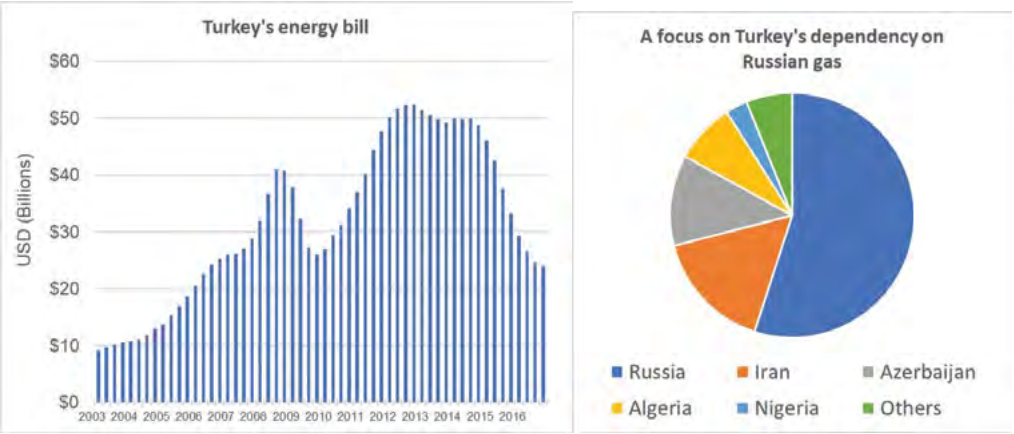
[25] European Commission, "International Carbon Market," 2017, https://ec.europa.eu/clima/policies/ets/markets_en

[26] "Germany's Siemens wins tender for Turkish wind power project," *Reuters*, 3 August 2017, https://www.reuters.com/article/us-turkey-energy-windpower/germanys-siemens-wins-tender-for-turkish-wind-power-project-idUSKBN1AJ1FJ

*Reducing Turkey's External Energy Dependency While Avoiding the Coal Rush*

Having negligible domestic resources, Turkey imports almost all of the oil and gas it consumes. The Turkish government considers this to be a major vulnerability, both from an economic (i.e. the energy import bill) and a foreign policy (i.e. over-reliance on Russian gas) perspective[27] (Figure 4).

**Figure 4:** Turkey's external energy vulnerability




*Source: Bruegel's calculations based on the Central Bank of the Republic of Turkey and the International Energy Agency.*

Officially, the Turkish government wants to reduce its external energy dependency by "increasing the share of renewable energy sources in and adding the nuclear power to its energy mix."[28] A national renewable energy target of 30 percent of the total electricity generated has been set for 2023,[29] alongside an energy efficiency target that would reduce the country's energy intensity by at least 20 percent between 2011 and 2023. However, these targets seem rather questionable because:

i) The renewable target lacks ambition: The 2023 target was already met in 2015 on the basis of existing hydropower;
ii) The energy efficiency target seems to exist only on paper because between 2005 and 2015, Turkey's energy intensity (i.e. energy consumption per unit of

[27] Güneş Kömürcüler, "What will Turkey's new national energy policy bring?," *Hürriyet Daily News*, 7 April 2017, http://www.hurriyetdailynews.com/what-will-turkeys-new-national-energy-policy-bring-.aspx?pageID=517&nID=111727&NewsCatID=540

[28] Republic of Turkey, Ministry of Foreign Affairs, "Turkey's Energy Profile and Strategy," 2017, http://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa

[29] Republic of Turkey, Ministry of Energy and Natural Resources, "Strategic Energy Plan 2015-2019," 2015, https://policy.asiapacificenergy.org/sites/default/files/Strategic%20Energy%20Plan.pdf

GDP) increased by 7 percent, while it decreased in all other IEA countries by 16 percent on average.

In reality, as previously noted, the Turkish government seems to be addressing Turkey's energy import dependency issue by making greater use of coal. According to estimates by Şahin et al,[30] Turkey's current coal program could double the country's greenhouse gas emissions from around 460 million tons in 2013 to around 860 million tons per year.

In addition to its clearly detrimental impact on the climate, this program would have other negative effects:

i) Pollution: Coal also has negative impacts in terms of air, water, soil, and food pollution;
ii) Health: Coal emissions have a number of adverse effects on human health, from respiratory and circulatory system diseases to respiratory system cancers;
iii) Public finance: Subsidies to the coal industry, accrued healthcare costs arising from coal-related diseases, and coal-related environmental costs negatively impact Turkey's public finances;
iv) Safety: As demonstrated by the May 2014 disaster at the Soma coal mine in western Turkey, in which 301 miners were killed, coal exploitation can have huge human costs. Expanding coal mining will inevitably increase this risk.

For all these reasons, Turkey should avoid a coal rush. The EU can provide support by making a stronger case for renewables and energy efficiency investment in Turkey.

### *Supporting Turkey's Sustainable Energy Transition with Climate Finance*

Over the last decade, wind and solar power have become increasingly cost-competitive with conventional generation technologies because of material declines in the pricing of system components and dramatic improvements in efficiency. For instance, Lazard[31] estimates wind costs to have decreased by 66 percent since 2009 and utility-scale solar to have decreased by 85 percent.

However, given the high share of capital cost for renewables, the main variable

[30] Ümit Şahin, Ahmet Atil Aşici, Sevil Acar, Pinar Gedikkaya Bal, Ali Osman Karababa, and Levent Kurnaz, "Turkey's Coal Policies Related to Climate Change, Economy and Health," *Istanbul Policy Center*, 2016, http://ipc.sabanciuniv.edu/wp-content/uploads/2016/01/Coal-Report-Turkeys-Coal-Policies-Related-to-Climate-Change-Economy-and-Health.pdf

[31] Lazard, "Lazard's Levelized Cost of Energy Analysis: Version 10.0," 2016, https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf

for the speed at which renewables can become competitive in Turkey is the cost of capital. This is also the case for EU countries, where the cost of capital for renewable investments ranges from 3.5 percent in Germany to 12 percent in Greece, as a consequence of different policy risks for investors (e.g. differences in the national regulatory frameworks that support the deployment of renewable energy sources).[32]

The EU could make a considerable contribution in terms of lowering the cost of capital for sustainable energy investments in Turkey, notably by scaling up its blended finance toolkit for Turkey's sustainable energy projects, i.e. subsidising investments in Turkey by taking over some risks.

> *"For Turkey, developing a full-fledged climate policy has never been a priority."*

In the framework of the Paris Agreement, developed countries extended their goal of jointly making available 100 billion dollars per year until 2025 to support mitigation and adaptation action in developing countries. For instance, in 2015 the EU and its member states contributed 17.6 billion euros to this climate finance effort, of which 1.5 billion euros came from the EU budget and 2.2 billion euros from the EIB.[33]

Greater EIB engagement in Turkey would leverage additional financing, in particular from the private sector, because its risk-mitigation and credit-enhancement tools would reduce the risks for private investors and would enable European energy companies to act more confidently in the Turkish market. An enhanced EIB role is particularly important in the current investment climate, in which foreign direct investment (FDI) in Turkey is rapidly falling (from $17 billion in 2015 to $12 billion in 2016).[34]

Given the magnitude of Turkey's coal program and of the related potential greenhouse gas emissions, increasing the EIB's support for the development of renewable energy and energy efficiency in Turkey would be a significant step in contributing to

[32] Ecofys, "Mapping the cost of capital for renewable energy investments in the EU," 2016, http://www.ecofys.com/en/press/mapping-the-cost-of-capital-for-renewable-energy-investments-in-the-eu/

[33] European Council, "Climate finance: EU and member states' contributions up to €17.6 billion in 2015," 2016, http://www.consilium.europa.eu/en/press/press-releases/2016/10/25-climate-change-finance/
For an in-depth discussion of EU climate finance, see Guntram Wolff and Georg Zachmann, "European climate finance: securing the best return," Policy Brief (2015), *Bruegel*, http://bruegel.org/wp-content/uploads/2015/09/pb-2015_03-.pdf

[34] OECD, "FDI Flows Database," 2017, https://data.oecd.org/fdi/fdi-flows.htm

global climate change mitigation.

***Conclusions***

Cooperation over energy and climate issues could be one of the few components of the EU-Turkey positive agenda. However, to make a real impact on long-term energy, climate, and environmental sustainability and on overall macroeconomic and geopolitical stability, current priorities in the field should be changed, shifting the focus from the highly visible but less impactful gas and electricity sectors to sectors such as renewable energy, energy efficiency, nuclear energy, and carbon trading.

On renewables and energy efficiency, the EU should scale up the financial support it currently provides within the framework of its climate finance commitments. This would make a stronger case for renewables and efficiency projects in Turkey, particularly as the cost of capital continues to represent a major barrier for these investments.

On nuclear energy, the EU can make a sensible contribution to the establishment of a nuclear energy sector in Turkey. This can notably be accomplished by integrating Turkey into the framework of Euratom.

On carbon markets, the EU can offer institutional support to Turkey, as is already being done with other countries such as China.

Only by shifting these priorities can EU-Turkey energy and climate cooperation take on a truly strategic role as part of the EU-Turkey relationship and ultimately become a vibrant component of a much-awaited Positive Agenda.

# TURKEY'S ENERGY FUTURE CALLS FOR INNOVATION AND EFFICIENCY

*For all countries, an inclusive set of critical principles and policies are critical for the future of the energy industry. Dow's Energy Plan is following the conserve, optimize, accelerate, and transition (COAT) approach that will help us create a platform for a more sustainable energy plan in the future, which is also converging with Turkey's National Energy and Mining Policy that was declared in 2017. Energy efficiency is a critical component for Turkey to increase its competitiveness and reduce its external dependence. Dow's energy efficient technologies are based on the highest global standards and recognized by global awards. These technologies are being used in Turkey, and our solutions have successfully addressed Turkey's strategic growth areas and created value consistently.*

Luciano Poli*

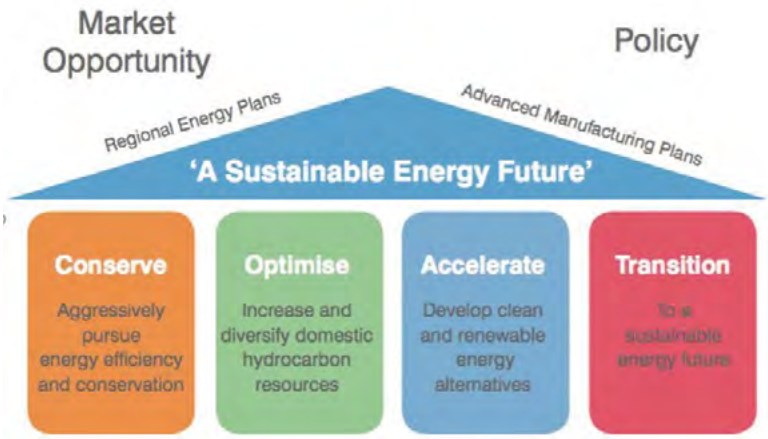
TURKISH POLICY QUARTERLY
Fall 2018

* Luciano Poli is the Area President for Turkey, India, Middle East and North Africa at the Dow Chemical Company.

As the global population continues to grow, demand for energy continues to increase dramatically, presenting a number of challenges around energy capacity, security, and sustainability. Although the world has seen several technological breakthroughs in recent years for both generating and storing energy, the economics of energy remains highly competitive as nations work to meet the ever-growing demand.

In the face of this demand pressure, both private and public sectors stand to gain from efficiency focused approaches to energy policies. Operating in such an environment we, as Dow, believe that the future of energy is directly linked to an all-inclusive set of critical principles. We have outlined these principles in our Energy Plan, through which we can achieve a sustainable energy future. These principles are:

- **Conserve** by aggressively pursuing energy efficiency
- **Optimize**, increase, and diversify domestic hydrocarbon resources
- **Accelerate** the development of cost-effective clean energy alternatives
- **Transition** to a sustainable energy future




We believe these principles are critical for a sustainable energy future that is able to ensure increased energy supply and security, while at the same time ensuring environmental protection. An effective transition to this energy future will also unlock more capabilities for the manufacturing sector that use energy resources both as fuel and feedstock.

Today, the manufacturing sector applies innovative technologies to produce modern materials and solutions for the world's most pressing challenges by adding value to

raw energy inputs as the building blocks for many of the products we use on a daily basis. Dow is a prime example of manufacturing companies operating in Turkey that are working towards turning global challenges into innovative solutions that meet the needs of today and the future. As an investor in Turkey since 1971, Dow has aligned its operations with Turkey's approach to energy—without a dependence on the hydrocarbon resources but instead drawing upon Turkey's strengths as a smart logistics hub and serving its diversified industries and geocentric location with technology-based solutions.

*"Dow is a prime example of manufacturing companies operating in Turkey that are working towards turning global challenges into innovative solutions that meet the needs of today and the future."*

Turkey continues to build on this successful approach to the diversification of its energy supply by playing to its strengths. Most recently highlighted in tthe National Energy and Mining Policy of Turkey in 2017 Turkey demonstrates a strong alignment with the strategy and principles outlined by Dow.

***The Effect of Diversified Energy Policy on Turkey's Future***

Based on three main pillars, Turkey's National Energy and Mining Policy places a specific focus on security of supply, indigenization, and the foreseeable energy market. The plan outlined by the Ministry of Energy, envisions 32,000 megawatts of production capacity in hydropower, 10,000 megawatts from wind, 3,000 megawatts from solar, 1,000 megawatts in geothermal, and 700 megawatts from biomass.[1] In addition to diversification of energy sources on local resources, the plan clearly sets forth an exciting prospect for increasing the share of renewables in the total energy mix in Turkey.

Turkey's firm commitment to the diversification of its energy supply clearly shows the government's action-oriented plan towards optimizing the country's resources. The goals of increasing and diversifying domestic hydrocarbon resources, outlined as the indigenization pillar, will by default ensure Turkey's ability to meet the energy demand.

[1] "'Milli Enerji ve Maden Politikası' Tanıtım Programı," ['National Energy and Mining Policy' Introductory Program] Republic of Turkey Ministry of Energy and Natural Resources, http://www.enerji.gov.tr/tr-TR/Bakanlik-Haberleri/Milli-Enerji-Ve-Maden-Politikasi-Tanitim-Programi

The population in Turkey continues to grow at a rapid pace, leading to increasing demands across sectors. This leads to strong growth in the industrial sector; and, consequently, it has registered the highest energy demand growth among OECD countries[2] in the last 15 years. Considering that Turkey meets approximately 70 percent of its energy demand with imported energy sources, optimization is even more important. It has, therefore, placed a special emphasis on its domestic coal sources and the Ministry has set a goal of generating 60 billion kWh of electricity using domestic coal by 2019, while simultaneously concentrating and investing on R&D for environmentally friendly technologies in generation and usage.

The investment in enhanced energy generation technologies is also necessary for the development of clean energy alternatives that are simultaneously cost-effective. At Dow, we believe that developing the energy generation channels of the future should be supported by the combination of appropriate technologies and incentives. Turkey already has strong capacity in conventional hydropower and is moving ahead to further develop its capacities in modern renewable energy sources such as solar, wind, and biomass.

In this regard, it is worth noting that Turkey is well on its way to achieving its capacity goal for the share of wind energy in its total mix by 2023. The installed capacity for wind energy in Turkey has already reached a capacity of approximately 6,300 megawatts as of November 2017[3] and it is clear that the policies and goals are being accelerated through the completed Renewable Energy Resource Area (YEKA) tenders both in solar and in wind energy. Turkey is well suited to these sustainable energy production methods. Through even more ambitious policy goals, Turkey could more rapidly diversify its energy production to fully exploit its geographic advantages, produce energy, and increase its energy security while also protecting the environment.

While Turkey does not possess natural gas and petroleum resources itself, its role as an energy corridor and location near many oil and gas producing nations make natural gas and petroleum an important part of the country's energy mix—nearly 72 percent of the world's treatable reserves are positioned in regions that are close to Turkey.[4] This requires bold and visionary initiatives to tap into this potential. We have recently witnessed the fruition of such a vision with the inauguration of the Trans-Anatolian Natural Gas Pipeline Project (TANAP), where Turkey has taken steps towards

[2] "Turkey's Energy Profile and Strategy," Republic of Turkey Ministry of Foreign Affairs, http://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa

[3] "Enerji Bakanı Albayrak: YEKDEM 2020'de sona erecek," [Minister of Energy Albayrak: YEKDEM will end in 2020] *Dünya*, 9 November 2017, https://www.dunya.com/ekonomi/enerji-bakani-albayrak-yekdem-2020de-sona-erecek-haberi-389100

[4] "Petroleum," Republic of Turkey Ministry of Energy and Natural Resources, http://www.enerji.gov.tr/en-US/Pages/Petroleum

fulfilling its potential for transferring the rich energy resources of the Caspian to the consumer markets in Europe. This partnership between Turkey and Azerbaijan[5] once again shows that despite possessing no sizeable hydrocarbon resources itself, through proactive policy initiatives, Turkey has the ability to exploit its geographic location.

> *"Turkey's firm commitment to the diversification of its energy supply clearly shows the government's action-oriented plan towards optimizing the country's resources."*

Through such initiatives and policies, Turkey is showing how it optimizes hydrocarbon resources while accelerating the development of cost-effective clean energy alternatives, in order to transition to a sustainable energy future. At Dow, we stand ready to provide the capacity and technological support to ensure that the necessary fourth pillar for the transition is supported; namely, conservancy.

***Dow's Inherent Strengths: Energy Conservancy and Sustainability***

The rationale for energy efficiency and conservancy is clear. According to the United Nations, by the year 2050, the global population will grow to nine billion people—all needing access to food, clean water, sanitation, shelter, mobility, education, and healthcare. The next few decades will, therefore, see a considerable increase in the demand for energy. Meeting this demand, while protecting the planet is one of the major challenges facing mankind.

In response to this challenge, Dow continues to reduce its environmental footprint by delivering ever-increasing value to customers and society through our products and solutions, as well as developing a blueprint for a sustainable planet and society. Dow has embarked on the third stage of its sustainability journey with its ambitious 2025 Sustainability Goals. Through these goals, we are collaborating with like-minded partners to advance the well-being of humanity by helping lead the transition to a sustainable planet and society.

Our initiatives to this end have been recognized in various ways: Most recently in 2017, we received the 11th US Environmental Protection Agency Presidential Green Chemistry Challenge Award, two Edison Awards for Breakthrough Technologies, and Ten Prestigious 2017 R&D 100 Awards from R&D Magazine.

[5] "About Us," TANAP, https://www.tanap.com/corporate/about-us/

Such accolades are rooted in Dow's long history of leadership in energy efficiency and conservation that goes back for decades. Dow's energy consumption efficiency, measured in Btu[6] per pound of product, has improved more than 40 percent since 1990, and since that time, the company has saved a cumulative 24 billion dollars and 5,200 trillion Btu. In addition to improving its environmental footprint, Dow has also been able to improve its customers' sustainability and energy efficiency track record as well.

The transformative effect of Dow innovations was most recently showcased in one of the world's most influential platforms. As a Worldwide Partner and Official Chemistry Company of the Olympic Movement and the Official Carbon Partner of the International Olympic Committee, projects implemented by Dow in collaboration with the Sochi 2014 and Rio 2016 Organizing Committees have already contributed to a reduction in greenhouse gases amounting to 3.64 million metric tons of carbon dioxide equivalent (CO2e) to date. By 2026, the reductions are projected to exceed six million metric tons of CO2.[7]

These massive reductions were achieved not only in the Olympic villages of Sochi and Rio, but in all residential and industrial areas in the two cities in true collaboration spirit. We believe that to transition towards a low carbon world, we all must change the way we live and work. For our part, we will do what we do best: innovate, adapt, and collaborate. We must lead by example and work with others to help lead the transition to a more sustainable planet and society. This has been our approach in Turkey as well from the first day we started our operations 47 years ago.

### *Dow's Commitment to Efficiency and Value Generation in Turkey*

Over the course of our engagement in Turkey and through our various investments, Dow solutions has supported and been part of many industries such as automotive, packaging, construction, wire and cable, furniture, and domestic appliance products. Through such varied industries, we have continued to provide the solutions that are key to advancing human progress. Across all of the diverse industries we serve, Dow solutions always had the intrinsic focus of energy efficiency.

With manufacturing, transportation and other commercial sectors being highly dependent on imported oil to meet energy requirements, and the ensuing vulnerability to global oil price fluctuations, improving the country's efficient use of energy

[6] British Thermal Unit.

[7] DOW, "Dow Launches Collaborative Blueprint for Unlocking Carbon Reductions," 17 July 2017, https://www.dow.com/en-us/sports/news-and-events/dow-unlocking-carbon-reductions-blueprint?

resources will also increase competitiveness and help bridge the gap of the current account deficit of a country like Turkey.

> *"Turkey is well on its way to achieving its capacity goal for the share of wind energy in its total mix by 2023."*

One area in which we have delivered continuous innovation has been the automotive sector, where mass reduction has met mass production. Through solutions provided by the Dow Automotive Systems, our customers achieve up to 50 percent weight savings and 95 percent parts consolidation objectives with the added benefit of improved manufacturing efficiencies.[8] As the world moves toward transportation models with sustainable energy resources at its heart, Dow solutions provide the much-needed light weighting features for the automobiles of today and the future. As an established player in the globally successful Turkish automobile industry, Dow commends the initiatives by the Turkish government to further foster the growth of the domestic car project and looks forward to this exciting next step for the Turkish automobile industry. Through its solutions—ranging from Polyurethane systems to under the hood applications in rubber and silicones—Dow is ready to contribute to this important initiative that will reshape the Turkish car industry.

Dow's innovation also extends to the transformative mega projects undertaken by Turkey, and we remain committed to providing our technology-based solutions to increase the energy efficiency, durability, and overall sustainability of Turkey's infrastructure. Dow has been working together with the Turkish General Directorate of Highways, TÜBITAK (Scientific and Technological Research Council of Turkey), and Turkish paint producers since 2012 to help initiate the shift to waterborne road markings in Turkey. These efforts have made Turkey one of the leading countries in Europe (after the Scandinavian region) in converting solvent-borne traffic paints to the waterborne alternative. It is estimated that 60 percent of the traffic-marking paint used in Turkey today is now water-based. Locally produced in Gebze, Dow's FASTRACK™ binders have generated healthy, sustainable, and safe solutions on roads and infrastructure projects in Turkey.

Last but not least, Dow's contributions to energy efficiency, to sustainable infrastructure, and to the Turkish economy all meet at a critical intersection point: carbon fiber. Today, the growth for the carbon fiber demand in the wind energy sector—to manufacture wind turbines that will generate electricity at costs that either meet or

[8] Dow, "Mass Reduction for Mass Production," https://www.dow.com/en-us/transportation/solutions/composites

beat traditional generation technologies—is on the rise. As one of the most exciting materials of our century, carbon fiber is manufactured in only a few countries in the world. Turkey stands in prime position to take advantage of such an opportunity, since one of such sites is positioned in Turkey: our Joint Venture with the Akkok Group, DowAksa.

> *"Dow has a long history of leadership in energy efficiency and conservation that goes back for decades."*

DowAksa's low-weight, high-strength carbon fiber offers solutions to many industrial users in the energy sector, and carbon fiber has a transcending impact that goes beyond the energy sector. This cutting-edge material provides a central building block for moving beyond the simple manufacturing processes to advanced manufacturing processes, where more value-added products are generated through the use of state of the art technologies and knowledge from specialized fields including chemistry, nanotechnology, and biology.[9] The effect of the full application of such a resource will not only impact the output value of the manufacturing process, but also have wide-ranging effects on employment with a better utilized and skilled labor force.

DowAksa also collaborates with downstream manufacturers, including the world's largest wind turbine producer to develop solutions for wind blades that will help reduce the complexity and increase the efficiency of wind energy production. The opportunities presented by carbon fiber are transformative for the industry and accordingly, the Turkish government has formally recognized the strategic value of this material by granting DowAksa with the project-based super incentives to further develop its capacity and global competitiveness. The full development of carbon fiber manufacturing will make Turkey a more competitive contender in the global market.

Finally, we believe that one of Turkey's great energy sources is its young and dynamic workforce. As a science company, in line with our global commitment to "Building the Workforce of Tomorrow" and to further contribute to Turkey's young population, we created the "Chemistry of Teaching" social responsibility project in Turkey in 2013. This was achieved through cooperation with the Teachers Academy Foundation (ÖRAV) and the Ministry of National Education. Through

[9] İhsan Necipoğlu, "Advanced Manufacturing as the Key to Sustainability," *Turkish Policy Quarterly,* Vol. 14, No. 2 (2015), http://turkishpolicy.com/article/755/advanced-manufacturing-as-the-key-to-sustainability-summer-2015

this project, we support high school teachers by sharing the latest methods in the field of Science, Technology, Engineering and Mathematics (STEM) training, including examples from the latest chemistry products, processes, and technologies. Between 2013 and 2017, we have reached 760 chemistry teachers and 65,000 students from 582 schools in 16 different provinces. We are proud that this project received the "Effectiveness" Award in the field of Corporate Social Responsibility from the Turkish Confederation of Employers Associations in 2017.

While we are confident in our technologies today, we remain further confident in Turkey's ability to carry the flag of innovation in the future through the strength of such STEM engagements. The realization of concepts such as sustainability and innovation requires long-term vision and commitment, which applies for both countries and for companies alike. As Dow, we believe that successful STEM education initiatives and systems lay the foundations for these essential concepts.

### *Conclusion*

The principles outlined in our Energy Plan for the future of energy are simple but by no means easy; often they require a combination of factors such as the right level of investments, stringent policies, and talented people.

I am confident that the benefits of both Dow's and Turkey's approach to the future of energy and Turkey's vision for the same will continue to converge, and both Turkey and Dow fully realize the opportunities ahead when the enabling environment for success is set. As a geopolitically significant country at the crossroads of the world, Turkey will remain at the heart of Dow's growth strategy. Its role in the multi-dimensional energy dynamics of the region, along with its vibrant manufacturing sector, dynamic young population, and advantageous location ensure that Turkey will remain a key market for those both to its west and east. As Dow, we will remain committed to supporting Turkey's 2023 and 2050 goals through our solutions as we work to continue our successful journey of growth together.

# TURKEY & IRAN: ENERGY, ECONOMY, AND POLITICS IN THE FACE OF SANCTIONS

*While Turkey and Iran have long been geopolitical antagonists, the two countries have a history of prioritizing their bilateral economic relations. One of the main driving forces for cooperation between Turkey and Iran is trade in the energy sector; Turkey buys large amounts of oil and gas from Iran despite political, military, and diplomatic divergences. Particularly, in recent years, Iran's strong economic links with Turkey have played a crucial role in reducing the economic pressure of Western sanctions. Against the backdrop of increasing tension in the Turkey-US relationship, Turkey and Iran's geographic proximity and currency issues could mean that the two are able to forge a lucrative energy trade isolated from US sanctions.*

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Turkey and Iran have had a long history of political rivalry that dates back to the Ottoman and Safavid Empires. However, economic opportunities have, even back then, superseded political animosity, allowing for mutually beneficial trade to flourish.[1] When it comes to the contemporary energy trade, Turkey has prioritized its relationship with Iran because it benefits economically from purchasing oil and gas from Iran.

Turkey has a history of prioritizing energy relationships that benefit its economy over its political relationships with neighbors. This can be seen today in its ongoing relationship with the Kurdistan Regional Government (KRG) in Iraq. Turkey has long sought to counter the KRG's attempts at autonomy because of the political threat it poses to Turkey. However, despite the central Iraqi government's desires, Turkey has allowed the KRG to export oil from Kirkuk through Turkey. This energy trade has proved lucrative for both Turkey and the KRG. Even though facilitating the KRG's oil trade has helped the KRG's bid for an independent Kurdistan, Turkey has continued to maintain trade and profit from it.[2]

Turkey's energy trade with Iran has traced a similar path, in which Turkey ignored politics and favored the economic benefits of a robust energy trade with Iran even when Iran was considered a pariah country for its support of terrorism and its nuclear weapons ambitions. It was only when Turkey faced economic sanctions that it withdrew its energy trade with Iran.

Turkey presents a particular problem to the Trump administration's efforts to isolate Iran and enforce economic sanctions. The US' relationship with Turkey has become strained in recent years over such issues as the conflict in Syria and Russian involvement in the Middle East. These relations have grown increasingly antagonistic over the past several months. To illustrate, in August 2018, the Trump administration authorized tariffs on Turkish steel and aluminum. The US is Turkey's largest customer for steel and aluminum and the move caused the Turkish Lira to fall against the dollar.[3] The Trump administration also imposed targeted sanctions over Turkey's detention of American Pastor Andrew Brunson on charges of espionage and terrorism relating to the 2016 failed coup in Turkey.[4] Brunson was held for two years after being released on 12 October 2018.

[1] Andras Riedlmayer, "Ottoman-Safavid Relations and the Anatolian Trade Routes: 1603-1618," *Turkish Studies Association Bulletin,* Vol. 5, No. 1 (March, 1981), pp. 7-10.

[2] Ellen R. Wald, "Kirkuk's Oil Chessboard," *The Cairo Review*, 2018 https://www.thecairoreview.com/essays/kirkuks-oil-chessboard/

[3] Krishnadev Calamur, "'U.S. Relations With Turkey Are Not Good at this Time,'" *The Atlantic*, 11 August 2018, https://www.theatlantic.com/international/archive/2018/08/trump-turkey/567248/

[4] Adam Goldman and Gardiner Harris, "US Imposes Sanctions on Turkish Officials Over Detained American Pastor," *New York Times,* 1 August 2018, https://www.nytimes.com/2018/08/01/world/europe/us-sanctions-turkey-pastor.html

Even though the United States and Turkey are NATO allies, President Trump took the extraordinary step on 1 August of imposing economic sanctions on two ministers in the Turkish government who were directly responsible for Brunson's detention.[5] The sanctions were authorized under the Global Magnitsky Act, a law that enables the executive branch to issue sanctions on individuals for human rights abuses.[6]

The severity of the campaign for Brunson's release and the new tariffs on Turkish steel and aluminum imports to the United States have rapidly caused a rift between the two countries. Turkish President Erdoğan's rhetoric towards the has grown increasingly hostile. For example, Erdoğan has threated to retaliate against US sanctions with boycotts of American products such as the iPhone. In particular, Erdoğan has targeted the dollar, calling on the Turkish public to "stand decisively against the dollar."[7] The timing of the Trump administration's campaign against Turkey may prove particularly disadvantageous to US policy aims regarding Iran and may incentivize Turkey to take a stand against the United States by disregarding US sanctions and continuing to purchase oil and gas from Iran.

*"Although Turkey and Iran have not often sided with each other politically, the two countries have a long history of prioritizing their economic relations over their political relationship."*

Although Turkey and Iran have not often sided with each other politically, the two countries have a long history of prioritizing their economic relations over their political relationship. This is not to say that Turkey's economic relationship with Iran has not been fraught with its share of disagreements and conflicts. However, when it comes to trade, and especially energy, Turkey has sought to engage in advantageous relationships with Iran.

Indeed, Turkey has, at times, prioritized its economic relationship with Iran over its diplomatic relations with the US. Now, as the US seeks to implement new economic sanctions on Iran without the backing of European powers or global institutions,

[5] Defne Arslan, Pınar Dost, and Grady Wilson, "US-Turkey Relations: From Alliance to Crisis," *Energy Source: The Atlantic Council's Global Energy Center*, 7 August 2018, http://www.atlanticcouncil.org/blogs/new-atlanticist/us-turkey-relations-from-alliance-to-crisis

[6] "Executive Order Blocking the Property of Persons Involved in Serious Human Rights Abuse or Corruption," *The White House,* 21 December 2017, https://www.whitehouse.gov/presidential-actions/executive-order-blocking-property-persons-involved-serious-human-rights-abuse-corruption/

[7] Mark Moore, "Turkey's president threatens to boycott iPhone, US electronics in trade tiff with Trump," *New York Post,* 14 August 2018, https://nypost.com/2018/08/14/erdogan-says-turkey-will-boycott-us-electronic-products/

Turkey poses an especially difficult challenge. Turkey's physical proximity to Iran, its energy needs, its financial situation, and its disintegrating relationship with the US all provide incentives for Iran and Turkey to subvert US sanctions in ways that other countries like China and India cannot.

### *Turkey's Energy Situation*

Coal is Turkey's primary energy resource. As of 2014, Turkey generated 30 percent of its total electricity from coal.[8] However, coal is the least environmentally friendly source of energy and efforts are underway worldwide to reduce the use of coal-generated electricity. Turkish electricity producers have increasingly turned to natural gas in recent years, a significantly less dirty fossil fuel. However, Turkey has very little natural gas resources and must import 99 percent of its natural gas supplies. Turkey is most dependent on Russian gas; as of 2015, Russia supplied Turkey with 56 percent of its natural gas needs. Iran and Azerbaijan are Turkey's next largest natural suppliers, accounting for 16 percent and 11 percent of the Turkish market, respectively. Turkey's dependence on natural gas imports will continue to grow as its natural gas demand continues to increase.

In 2015, Turkey consumed an average of 860,000 barrels of liquid fuels per day. This includes crude oil and condensates, which are very light types of oil that are the byproducts of natural gas production. Turkey has little in the way of domestic crude oil resources and imported 90 percent of its crude oil and condensates. Data from the United States Energy Information Agency (EIA) showed that in 2015, Turkey imported 41 percent of its crude oil and condensates supply from Iraq, 20 percent from Iran, 11 percent from Russia and 9 percent from Saudi Arabia. In 2017, however, Iraqi oil imports to Turkey dropped and instead, Turkey began importing more oil from Russia and Iran.[9]

Because Turkey is so reliant on imports to satisfy its natural gas and oil demand, it is especially vulnerable to changes in the global market. It requires a diverse and secure mix of suppliers in order to ensure stable and relatively inexpensive sources of energy. Suddenly eliminating an energy source can have a negative effect on the Turkish economy because Turkish utilities and refineries will face unforeseen costs and possible shortages.

[8] "Country Analysis Brief: Turkey," *U.S. Energy Information Administration*, 2 February 2017.

[9] Hümeyra Pamuk and Julia Payne, "Turkey's Tupras reduces Iranian crude purchases as U.S. sanctions loom," *Reuters*, 20 July 2018, https://www.reuters.com/article/us-iran-oil-turkey/turkeys-tupras-reduces-iranian-crude-purchases-as-u-s-sanctions-loom-idUSKBN1KA22Y

### *Turkey and Iran's Energy Relationship*

Turkey and Iran have a history of cooperation when it comes to trade. This is especially true in the energy sector. Even though the two countries did not always have positive political and diplomatic relations, trade, and in particular the energy trade, always superseded political, religious, and cultural differences. This is not to say that the energy relationship between Turkey and Iran has always been smooth. The two countries have frequently disagreed on issues related to their oil and gas contracts over the years.

> *"Now, as the US seeks to implement new economic sanctions on Iran without the backing of European powers or global institutions, Turkey poses an especially difficult challenge."*

Turkey and Iran developed a close energy relationship after 1979. During the Iran-Iraq War, Turkey increased its imports of Iranian oil such that Iran became Turkey's second largest source of oil imports, after Iraq.[10] In 1996, Turkey and Iran signed a landmark natural gas agreement. Worth 23 billion dollars, the agreement was designed to reduce Turkey's reliance on Russian natural gas by increasing the amount of natural gas supplied by Iran to the eastern and southern parts of Anatolia. In 1996, it was projected that Iran would come to supply Turkey with 10 billion cubic meters of natural gas out of the 27 billion cubic meters of gas that Turkey would need in 2000.[11]

A natural gas pipeline between Turkey and Iran was completed in 2001 but it never reached full capacity. US officials consistently pressured Turkey to cut down on its imports of Iranian gas and switch to natural gas from Turkmenistan instead. In 2002, the flow of gas from Iran to Turkey was interrupted at Turkey's insistence. Turkey complained about the technical specifications of the gas from Iran, but in reality sought to renegotiate its agreement with Iran. In the end, Turkey negotiated a lower price for the Iranian natural gas and several favorable conditions for its utilities.[12] The flow of natural gas was interrupted several more times due to similar disputes in 2004 and 2005. In 2006, Iran halted natural gas shipments to Turkey due to cold weather in Iran, which necessitated redirection of its natural gas to domestic consumers.[13]

[10] "Turkey and Iran: Limits of a Stable Relationship," *British Journal of Middle Eastern Studies*, Vol. 25, No. 1 (May 1998), p. 78.

[11] British Journal of Middle Eastern Studies (May 1998).

[12] Elin Kinnander, "The Turkish-Iranian Gas Relationship: Politically Successful, Commercially Problematic," *Oxford Institute for Energy Studies* (January 2010), p. 9.

[13] Oxford Institute for Energy Studies (January 2010).

In 2007, Turkey and Iran signed a memorandum of understanding that would include Turkey in an operation to develop natural gas supplies in the South Pars gas field. The agreement also called for a new pipeline to bring natural gas to Turkey and Europe. The Turkish Petroleum Company was hoping to produce 16 billion cubic meters per year from this deal, which it intended to split between domestic use and sale to Europe. At that point, the sanctions situation and the unfavorable environment for foreign investment in Iran were forcing international oil and gas companies to pull out of planned development projects in Iran. Iran employed a system called "buy-back contracts" which are not considered especially lucrative for foreign companies. Essentially, this meant that a foreign company can enter Iran and develop an oil or gas resource for export but once development is complete, ownership would revert to an Iranian national company and the revenues from the project at pre-set levels would be paid back to the foreign company. The system prevents any modicum of "foreign ownership" of Iranian energy resources which is a constitutional imperative in the Islamic Republic of Iran.[14]

Even though other companies were pulling out of Iran in 2008 and 2009, the Turkish Petroleum Company wanted to continue with the project. It did not need international financing and so would have been isolated from some sanctions at the time. The project was supposed to break ground in November 2009, but did not because the Turkish Petroleum Company and the Iranian government could not agree on the terms, particularly the stringent "buy-back" terms that prevented the Turkish Petroleum Company from maintaining any partial ownership in the project after its completion.[15] Although Turkey and Iran were not able to finalize their plans to ensure greater Turkish investment in Iranian natural gas, Turkish imports of Iranian natural gas continued.

*Turkey and Iran During the First Sanctions Regime*

During the height of the United States and United Nations sanctions regime against Iran, Turkey continued to import natural gas and oil from Iran.[16] Turkish refineries were granted some exemptions from sanctions because they reduced the amount of oil they had been importing from Iran significantly. However, it became difficult for Turkey to compensate Iran for its natural gas as US and EU sanctions banned the use of dollars and euros in any financial transactions with Iran. During this time, Iran accepted Turkish lira as payment for the natural gas it provided Turkey. Iran used

[14] Ellen R. Wald, "The real problem with Iranian oil," *Modern Trader Magazine*, 22 April 2016, http://www.futuresmag.com/2016/04/22/real-problem-iranian-oil?page=1

[15] Elin Kinnander, "The Turkish-Iranian Gas Relationship: Politically Successful, Commercially Problematic," *Oxford Institute for Energy Studies* (January 2010), pp. 13-14.

[16] "Iran a net importer of gas from Mar 2011-Jan 2012-Fars," *Reuters*, 18 January 2012. https://www.reuters.com/article/iran-gas-imports-idAFL6E8CI2NZ20120118

the Turkish lira to buy gold in Turkey and then imported the gold through the United Arab Emirates, Switzerland, the United Kingdom, and India by courier into Iran.[17]

> *"Because Turkey is so reliant on imports to satisfy its natural gas and oil demand, it is especially vulnerable to changes in the global market."*

In 2013, the US instituted additional sanctions designed to curb Turkey's gold-for-gas trade with Iran. These sanctions targeted the Turkish bank that had been facilitating the transfers of Turkish lira to gold. Iran was subsequently forced to prove it was buying food, medicine, and necessary industrial products with its funds rather than gold or other precious metals.[18]

*Iran and Turkey's Post-Sanctions Energy Trade*

After the signing of the Joint Comprehensive Plan of Action (JCPOA), otherwise known as the Iran Nuclear Deal, sanctions were lifted in January 2016 and Turkey's imports of Iranian natural gas and oil increased. In the first six months of 2016, Turkey imported 21 million barrels of oil from Iran. In 2017, that amount increased to 52.8 million barrels.[19] During the first four months of 2018, the share of Iranian oil that Turkey imported increased by 50 percent.[20]

Iran's natural gas exports to Turkey also increased after the sanctions were lifted. Natural gas delivery to Turkey jumped 14 percent in 2017.[21] Between January 2017 and February 2018, Iran exported 8 billion cubic meters of natural gas to Turkey without remuneration.[22] This was in response to a 2016 ruling by the International Court of Arbitration, which awarded Turkey a 1.9 billion dollar settlement in a suit it brought against Iran from 2012. Turkey alleged that Mahmoud Ahmadinejad's government overcharged Turkey for natural gas and won its suit.[23] The payment was

[17] "Turkey says Iran gas not covered by US sanctions," *Reuters*, 4 December 2012, https://www.reuters.com/article/turkey-iran-gas/update-2-turkey-says-iran-gas-not-covered-by-us-sanctions-idUSL5E8N432M20121204

[18] "Turkey-Iran gold trade wiped out by new U.S. sanctions," *Reuters*, 16 February 2013, https://www.reuters.com/article/us-iran-turkey-sanctions-idUSBRE91F01F20130216

[19] "Iran becomes Turkey's biggest crude oil exporter, signals more gas sales," *Hürriyet Daily News*, 4 October 2017, http://www.hurriyetdailynews.com/iran-becomes-turkeys-biggest-crude-oil-exporter-120345

[20] "Iran topping crude oil exporters to Turkey: Turkish media," *Islamic Republic News Agency*, 31 May 2018, http://www.irna.ir/en/News/82931381

[21] "Iran's gas export to Turkey up 14%," *Azernews*, 1 July 2017, https://www.azernews.az/oil_and_gas/115541.html

[22] "Iran fully settled debt to Turkey over natural gas exports," *Iran Daily*, 5 February 2018, http://www.iran-daily.com/News/209491.html

[23] Azernews (2017).

completed at the end of January 2018. Turkey maintains a long-term supply contract with Iran in which Turkey has committed to purchasing 9.5 billion cubic meters of natural gas that continues until 2026.[24]

*The Future of Turkey and Iran's Energy Trade*

At the beginning of May, US President Donald Trump's administration announced that the US would be reinstating sanctions against Iran. These actions would include secondary sanctions against institutions or individuals who did business with the sanctioned Iranian institutions. The first round of sanctions came into effect in August and included provisions against Iran's financial institutions and automobile industries. The second round of sanctions come into effect on 4 November and included Iran's oil industry.

Initially, analysts forecasted that only about 200,000 to 300,000 barrels per day of Iranian oil would be impacted by these sanctions. However, the Trump administration's approach to these sanctions is significantly more stringent than the Obama administration's approach. Whereas the Obama administration offered waivers to many Asian countries and some European countries to continue importing Iranian oil as long as they decreased their imports somewhat, the Trump administration is not offering waivers with nearly the frequency of its predecessor.

This approach has put Turkey in a difficult position economically because it drastically increased the amount of oil and gas that it imported from Iran after the sanctions were lifted in 2016. During the first round of sanctions, Turkey continued to import some oil from Iran but looked to Iraq to replace the reserves it had stopped purchasing from Iran. It was only with extreme pressure from the US along with additional sanctions on the precious metals trade with Iran that Turkey officially halted its gold for oil and gas scheme with Iran in 2013, although the trade did continue clandestinely until 2015.[25] The political rift between Turkey and the US in 2018 makes it much more unlikely that Turkey will seek to halt its oil and gas purchases from Iran. Turkey does have a tendency to prioritize economic benefit even if its political and strategic enemies also benefit. However, in this case, Turkey may be able to satisfy its anti-American political ambitions and maintain a beneficial economic relationship with Iran.

[24] "Turkey's physical proximity to Iran, its energy needs and its disintegrating relationship with the United States," *Reuters*, 8 August 2018, https://www.reuters.com/article/us-iran-nuclear-turkey/turkey-to-continue-buying-natural-gas-from-iran-despite-u-s-sanctions-idUSKBN1KT210

[25] Jonathan Schanzer, "The Biggest Sanctions-Evasion Scheme in Recent History," *The Atlantic,* 4 January 2018, https://www.theatlantic.com/international/archive/2018/01/iran-turkey-gold-sanctions-nuclear-zarrab-atilla/549665/

### *The Problem of Currency*

The primary hurdle Turkey faces in continuing to import Iranian oil and gas after November 2018 lies in the financial transactions to pay for the oil and gas. Most of the global oil trade is conducted in dollars. However, any entity that attempts to conduct financial transactions with Iran in dollars, especially with regards to the oil industry, will be sanctioned by the US government. Similarly, if an entity conducts such transactions in another currency, for example, the euro, and also conducts transactions with the US, it will face sanctions. Therefore, the only currency a Turkish refiner can use to pay Iran for oil and gas would be the Turkish lira or Iranian rial. The Iranian rial is a highly unstable currency that has been devalued multiple times in 2018 and thus it is extremely unlikely that a Turkish entity would be in possession of enough Iranian rials to conduct oil and gas transactions in Iranian rials.

> *"In 2013, the US instituted additional sanctions designed to curb Turkey's gold-for-gas trade with Iran."*

Some countries facing this issue have offered to pay Iran in their own currencies. During the first round of sanctions, China paid for oil in its own currency, through the Bank of Kunlun, which had no exposure to US entities. The US attempted to sanction this bank, but it had no effect because the bank was not exposed to US interests.[26] Following this, Iran found itself with a great deal of Chinese currency, which it could use only to purchase goods from China. Iran did take advantage of this but with limited positive impact on the economy. Revenues from Iran's oil industry are a major component of the Iranian government's budget and the Chinese yuan is of limited use in most respects.

When it comes to Turkey, however, there are more options. Iran can accept Turkish lira in exchange for its oil and gas, and make use of the lira for more than just purchases of Turkish goods. In 2012, Iran and Turkey engaged in an elaborate scheme in which Turkey sold gold to Iran in exchange for various currencies and smuggled the gold into Iran through different countries. After that scheme was discovered, the US placed sanctions on Iran's precious metals trade that effectively halted the scheme. In response, instead of converting lira to gold, Iran could simply decide to use Turkish lira as currency in Iran.

[26] David Mortlock and Ellen Wald, "The Risks of the Trump Administration's Whiplash Policy on Iranian Oil," *Energy Source: The Atlantic Council's Global Energy Center*, 5 July 2018, http://www.atlanticcouncil.org/blogs/energysource/the-risks-of-the-trump-administration-s-whiplash-policy-on-iranian-oil.

Turkey and Iran share a border and this area is largely inhabited by Kurds, an ethnically distinct population that spans several countries in the region. Iran could simply put the Turkish lira to use in the Turkish-Iranian borderland region. This is not an uncommon practice in borderland communities. There are many borderland areas around the globe where multiple currencies are accepted. For example, Canadian currency often mixes with American currency in parts of northern New England and there are several Central American and Caribbean countries that accept American currency.

Turkey's recent currency destabilization also makes this option more attractive from a financial perspective because its utilities and refineries can make purchases of oil and gas without having to use the dollar. Of course, to avoid US sanctions, only Turkish utilities and refineries that are not exposed to American entities would be able to accomplish this. However, given that Turkey purchases very little oil and gas from the US to begin with, cargoes could be rerouted. Certain refineries and utilities can import only Iranian oil and gas while other utilities and refineries use other sources that might expose them to American sanctions. This could pose a distinct problem for the Trump administration as it pursues its objective of reducing Iran's oil and gas exports to zero.

### *Conclusions*

Historically, when it comes to energy, Turkey has put its economic goals above its political considerations. This has included entering into contentious energy deals with its ideological and political adversaries, including Iran and the Kurdistan Regional Government.[27] Economically, it is in Turkey's best interest to continue to import Iranian oil and gas despite US imposed sanctions. Turkey and Iran have long-term contracts that, if broken, would impose great expenses on Turkey.

However, Turkey and Iran are also financially incentivized to work together to avoid US sanctions because both of their currencies have been devalued against the dollar. It behooves them financially to cooperate in avoiding the use of the dollar in energy trade. The development of new hostilities between the United States and Turkey and the depreciation of the Turkish lira against the dollar also incentivizes Turkey to continue to import Iranian oil and gas in contravention of American sanctions. Turkey and Iran's geographic proximity and the shared ethnic connections between their Kurdish populations mean that Iran could potentially use Turkish currency within its own borders, helping it avoid the need for currency conversations that expose Turkish entities to US sanctions.

[27] Ellen R. Wald, "Kirkuk's Oil Chessboard," *The Cairo Review*, https://www.thecairoreview.com/essays/kirkuks-oil-chessboard/

# NOTES

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# TESTIMONIALS

*"The neighborhood of Turkey is where important parts of our new future are now being shaped! And, TPQ brings the perspectives that are essential for shaping the right policies for this new future."*

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