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EVALUATION NOTE

TÜRKİYE'S ENERGY SECURITY[1]

Türkiye's energy future teeters between promise and vulnerability. With over 90% reliance on imported fossil fuels—crude oil, natural gas, and coal—its position in the global energy market remains fragile. This dependence is compounded by the geopolitical uncertainties of suppliers like Russia and Iran, both impacted by sanctions, regional conflicts, and instability.

Diversifying Türkiye's energy mix is no longer a luxury—it is a necessity. While commendable progress has been made in renewable energy, with investments in wind, solar, and hydropower, these efforts are not enough to satisfy Türkiye's growing energy demands. Fossil fuels are projected to account for over 70% of the country's consumption by 2035. Achieving meaningful diversification will require more than incremental progress; it demands bold, strategic shifts.

The discovery of gas fields in the Black Sea offers a glimmer of hope. Fast-tracking domestic production is a significant step toward reducing dependency on imports. Additionally, expanding the liquefied natural gas (LNG) infrastructure, particularly through floating storage and regasification units (FSRUs), offers a degree of flexibility. The development of nuclear energy, spearheaded by the Akkuyu Nuclear Power Plant, further strengthens Türkiye's energy portfolio by providing a reliable, low-carbon energy source.

However, these initiatives alone are not enough. Türkiye's energy future relies heavily on strategic international collaborations. The key lies in navigating complex geopolitical relationships while positioning itself as a crucial energy hub for Europe.

The Eastern Mediterranean represents a massive opportunity for natural gas exploration and development. However, Türkiye's ambitions in these contested waters are

[1] The ideas expressed in this work are solely the opinions of the author(s) and do not necessarily represent the opinions of TEPAV.

riddled with diplomatic challenges. Ongoing territorial disputes with Cyprus, Greece, Israel, and Egypt complicate efforts to unlock these untapped reserves. For Türkiye to succeed in establishing itself as a major supplier to European markets, it must engage in joint exploration agreements and diplomatic negotiations with key regional players. This approach will not only secure Türkiye's energy needs but also contribute to European energy diversification.

Türkiye's growing influence in the Horn of Africa, particularly in Somalia and Djibouti, has a key contribution to its energy security strategy. Strengthening these partnerships will enhance Türkiye's control over critical maritime trade routes, particularly for oil and LNG transportation. These alliances provide Türkiye with another layer of energy security in a rapidly shifting global energy landscape.

Cooperation with NATO and the European Union is equally pivotal. As Europe seeks alternatives to Russian energy, Türkiye is well-positioned to become a natural gas hub. Leveraging its geographic location and infrastructure like TANAP and TurkStream, Türkiye could meet its energy needs while re-exporting gas to Europe. By diversifying its suppliers—including Iraq, Turkmenistan, and Libya—Türkiye can strengthen its bargaining power and secure better commercial terms from traditional partners like Russia and Iran.

Increased imports from these regions could result in surplus gas for European markets, solidifying Türkiye's role as a global energy transit hub and reducing its dependence on any single supplier. This diversification strategy will enhance Türkiye's energy security and geopolitical influence.

For Türkiye, the future lies in maintaining existing relationships while cultivating new ones. Striking a balance between geopolitical realities and commercial interests will be crucial. Türkiye's energy future demands robust infrastructure investments, strategic partnerships, and proactive diplomacy. Success will depend on Türkiye's ability to leverage its geographic strengths and align its energy ambitions with broader European and global priorities.

Türkiye's Energy Security Landscape: A Complex Equation

Türkiye finds itself navigating a delicate balance between energy security and geopolitical volatility. As of 2023, the country consumed 7 exajoules (EJ) of energy, with a staggering 80% still derived from fossil fuels. Despite its ambitions to diversify, fossil fuels will continue to be a dominant feature in Türkiye's energy landscape through 2035, underscoring the urgency of strategic shifts. While domestic production is making incremental gains, maximizing import flexibility and increasing investments in renewable energy remain critical for the nation's long-term energy strategy.

Natural Gas: The Backbone of Türkiye's Energy Strategy

Natural gas remains the backbone of Türkiye's energy portfolio, with imports reaching 50.48 billion cubic meters (bcm) in 2023. Although Russia, Iran, and Azerbaijan remain Türkiye's primary suppliers, the country faces growing pressures to diversify its sources and ensure long-term energy stability.

Russia, through the Blue Stream and TurkStream pipelines, delivered 20.55 bcm of gas to Türkiye in 2023, but its overall share in Türkiye's gas imports has diminished to 42%. This decline highlights a crucial pivot point for Türkiye to diversify. Azerbaijan, offering a more stable and politically aligned partnership, provided 10.26 bcm through the Trans-Anatolian Natural

Gas Pipeline (TANAP). Iran, with its contribution of 5.41 bcm, remains a critical but unpredictable supplier due to sanctions and regional tensions.

To mitigate risks, Türkiye has significantly expanded its liquefied natural gas (LNG) capacity. Floating Storage Regasification Units (FSRUs) now play a pivotal role in offering flexibility, with LNG imports rising from 24% to 29% between 2021 and 2023. Algeria and the United States are key suppliers, ensuring that LNG provides a buffer in Türkiye's energy imports. Further enhancements in gas storage, with projects like Tuz Gölü and Silivri, aim to increase capacity to 14 bcm by 2028, which would enable Türkiye to store up to 30% of its annual gas consumption. Coupled with domestic production from the Black Sea's Sakarya gas field—estimated at 710 bcm and targeting 22 bcm annually by 2026—Türkiye stands to significantly reduce its dependency on external imports.

Three regions offer promising opportunities for further diversification: Iraq, the Eastern Mediterranean, and Turkmenistan.

Iraq: Unlocking Strategic Gas Reserves

Iraq holds significant potential as an energy partner, with approximately 132 trillion cubic meters of proven natural gas reserves. Yet, infrastructure limitations and extensive gas flaring have left these resources underutilized. Key gas fields, such as Mansuriya, Siba, Akkas, and Kurdistan Region's Khor Mor, Chemchemal, Miran, and Bina Bawi, offer considerable opportunities to enhance Türkiye's energy security.

Türkiye's state-owned oil company, TPAO, already holds a 30% stake in the Siba gas field, positioning it as an important in Iraq's gas development. However, before Türkiye can benefit from substantial gas exports, Iraq must first address its own gas sourcing needs, which are heavily reliant on imports from Iran.

A future gas pipeline linking Iraq and Türkiye could be transformative for both nations. This would not only secure Türkiye's energy future but also position it as a pivotal transit hub for European markets. The success of such a project, however, hinges on Iraq's ability to boost production in fields like Khor Mor and Chemchemal while simultaneously tackling its domestic consumption challenges.

Political instability and tensions between Baghdad and Erbil continue to complicate these prospects, but Türkiye's deft diplomacy—balancing both factions—alongside its involvement in Iraq's gas infrastructure development, provides a unique advantage in navigating these challenges. Investing in critical infrastructure, such as pipelines and gas processing facilities, could cement Türkiye's role as both a beneficiary and a transit hub for Iraqi gas.

Eastern Mediterranean: Navigating Energy and Diplomacy

The Eastern Mediterranean offers untapped potential for natural gas, yet Türkiye's ambitions in these waters are fraught with geopolitical complexities. The region is rife with territorial disputes, particularly with Cyprus, Greece, Israel, and Egypt, making cooperation difficult. Ongoing conflicts, including the Israel-Palestine situation, further complicate efforts toward regional cooperation in energy development.

To access the vast reserves in the Eastern Mediterranean, Türkiye must engage in diplomacy with regional actors and international bodies, seeking joint exploration agreements and multilateral dialogues. Efforts to resolve maritime boundary disputes will be crucial if Türkiye is to unlock the region's full potential and secure long-term energy supplies.

Turkmenistan: A Key Partner for Gas Diversification

As one of the world's largest holders of natural gas reserves, Turkmenistan represents a key opportunity for Türkiye to diversify its energy portfolio. In 2023, Turkmenistan produced 76.3 bcm of gas, with most exports directed to China and Russia. However, both Türkiye and Turkmenistan share a mutual interest in reducing their reliance on dominant markets, opening the door for new transport routes to Europe.

The long-discussed Trans-Caspian Pipeline (TCP) is a critical piece of this puzzle. By linking Turkmenistan to Azerbaijan and Türkiye, gas could flow westward, leveraging the Southern Gas Corridor. However, geopolitical obstacles, particularly resistance from Russia and Iran, as well as environmental concerns, have delayed its construction.

Recent diplomatic breakthroughs offer renewed hope. In 2022, a trilateral summit between Türkiye, Azerbaijan, and Turkmenistan set the stage for further cooperation. A 2024 Memorandum of Understanding (MoU) has paved the way for transporting up to 2 bcm of gas annually. Although a commercial agreement remains pending, these steps reflect Türkiye's strategic push to reduce its dependence on Russian and Iranian imports by tapping into Turkmen gas.

Leveraging Partnerships: Positioning Türkiye as Europe's Gas Hub

Türkiye's strategic opportunity lies not just in securing new sources of natural gas but in establishing itself as a critical gas hub for Europe. By blending supplies from Iraq, the Eastern Mediterranean, and Turkmenistan with existing flows from Russia, Azerbaijan, and Iran, Türkiye can offer Europe a diversified and secure energy stream. This approach will also provide Türkiye with greater leverage in negotiating favourable commercial terms with its current suppliers, demonstrating the country's ability to supplement or replace existing imports with new, diverse sources.

As Europe pivots away from Russian energy, Türkiye's role as a vital transit point for gas from regions like Iraq and the Eastern Mediterranean becomes increasingly significant. Key infrastructure projects, such as the Trans-Anatolian Natural Gas Pipeline (TANAP) and TurkStream, already position Türkiye as a central player in Europe's energy diversification strategy. Securing long-term agreements with partners across these regions will be crucial for Türkiye's future as a reliable energy hub.

Further opportunities arise from Türkiye's deepening integration with NATO and the European Union. NATO's focus on regional security and the EU's drive to reduce dependence on Russian gas create a unique chance for Türkiye to align its energy strategy with broader transatlantic and European objectives. Strengthening engagement with these international partners will help Türkiye advance its energy ambitions and solidify its role as a regional energy leader.

To succeed, Türkiye must optimize its supply arrangements with existing partners—Russia, Azerbaijan, and Iran—while leveraging LNG's flexibility and capitalizing on emerging opportunities in Iraq, the Eastern Mediterranean, and Turkmenistan. This comprehensive strategy, coupled with strong international partnerships and significant infrastructure investment, will allow Türkiye to mitigate risks from over-reliance on any single supplier, ensuring a secure and diversified energy future.

However, Türkiye must also navigate challenges posed by its own energy ambitions, particularly regarding EU regulatory frameworks. Some planned energy projects, especially in the Eastern Mediterranean, may conflict with EU maritime and energy policies. To ensure alignment with European priorities, Türkiye must work closely with the EU to address these potential regulatory conflicts. Cooperation in developing LNG terminals, renewable energy infrastructure, and cross-border pipelines will be essential for both Türkiye's and Europe's energy security.

Furthermore, alignment with European climate and energy policies—particularly the European Green Deal—will be crucial for Türkiye's long-term integration into the European energy market. This will not only strengthen Türkiye's energy security but also enhance its standing in global energy diplomacy, providing a competitive edge in international relations.

Crude Oil: Securing New Sources Amid Volatility

Between 2020 and 2023, Türkiye's crude oil imports experienced notable volatility, peaking at 249.8 million barrels in 2022 before declining to 234.2 million barrels in 2023. The primary suppliers—led by Iraq, Russia, and Kazakhstan—remain crucial to Türkiye's energy security. However, the ongoing challenges of maintaining reliable supply routes, such as the closure of the Iraq-Ceyhan pipeline, underscore Türkiye's vulnerability. Iraq's exports to Türkiye fell sharply from 102.7 million barrels in 2021 to 73.6 million barrels in 2023, highlighting the need for Türkiye to not only restore this vital pipeline but also expand its role in Iraq's energy sector.

The Iraq-Türkiye pipeline, which plays a critical role in transporting crude oil from Iraq's northern fields to Türkiye's Ceyhan terminal, has been fraught with disruptions due to geopolitical tensions, infrastructure damage, and legal disputes. Notably, in 2023, an International Court of Arbitration ruling temporarily halted flows through the pipeline, significantly impacting the region's oil exports and Türkiye's energy security. As negotiations to restore operations continue, Türkiye must take strategic steps to reinforce its role as a key transit hub for Iraqi oil exports to global markets.

For Türkiye, involvement in Iraq's oil field development is essential for achieving long-term stability in its oil supply. Deepening engagement with Iraq's government and international oil companies in the region would provide Türkiye with more secure access to Iraqi crude and could mitigate the risks posed by future disruptions. Given Iraq's proximity and vast reserves, expanding its energy cooperation with Türkiye remains a strategic priority for both nations.

Russia, whose oil exports to Türkiye spiked during the fallout from the Russia-Ukraine conflict, also remains a critical supplier. Türkiye has become a significant destination for Russian crude, as Russia redirects its exports away from European markets. However, Türkiye's continued reliance on Russian oil presents risks in terms of political volatility and the potential for future sanctions. This makes diversification away from Russia a key component of Türkiye's long-term energy security strategy.

In Libya, Türkiye sees another strategic opportunity to secure oil supplies while supporting the reconstruction of the country's energy infrastructure, which has been heavily impacted by years of conflict. Türkiye's strong political and military ties with the Government of National Unity (GNU) give it a unique advantage in investing in Libya's oil fields and supporting its economic recovery. Energy cooperation with Libya not only offers Türkiye a stable source of oil but also enhances its geopolitical influence in North Africa.

In the Horn of Africa, Somalia represents another frontier for Türkiye's energy ambitions. The two nations reached a significant milestone in July 2024, when they signed an agreement for oil and gas exploration in Somalia's offshore blocks. Under the deal, Türkiye gained exclusive rights to explore and produce hydrocarbons in three blocks, each spanning approximately 5,000 square kilometers. The seismic research for this project will be carried out by Türkiye's Oruç Reis seismic ship, which is expected to arrive in Somali waters by the end of October 2024. The research is slated to continue for seven months, followed by the processing and evaluation of the data, which could lead to exploration drilling.

The Oruç Reis seismic ship will be accompanied by several support ships and Turkish Navy frigates, underscoring Türkiye's commitment to securing its interests in the region. Somalia's oil reserves, estimated to be in the tens of billions of barrels, remain largely untapped. The Turkish-Somali agreement not only provides Türkiye with a potential new source of oil but also solidifies Türkiye's strategic presence in the Horn of Africa, a region that has seen increasing international competition for resources

Through its investments in Somalia, Türkiye is positioning itself to diversify its energy imports while gaining more control over its supply routes. Additionally, its active role in oil exploration aligns with Türkiye's broader ambition of reducing its reliance on traditional suppliers like Russia and Iraq. The Somali partnership also demonstrates Türkiye's growing influence in East Africa and highlights its role in shaping the region's energy future.

Türkiye's crude oil strategy must focus on securing diversified and reliable sources of supply. By expanding its role in Iraq and Libya and pursuing new exploration opportunities in regions like Somalia, Türkiye can ensure a more stable and resilient energy supply. This approach will also enhance Türkiye's geopolitical standing, particularly in regions where energy resources are becoming increasingly contested.

Coal: Balancing Energy Security with Environmental Responsibility

Coal remains significant, contributing 1.65 EJ to Türkiye's energy mix in 2023, with 20-30% of it imported. However, coal poses environmental challenges. **Türkiye's pledge for net-zero emissions by 2053 requires reducing coal dependency, but the transition must be managed to avoid grid destabilization**. Scaling renewables and modernizing coal plants with carbon capture technology could provide a bridge to sustainable solutions.

Renewable Energy: Challenges and Opportunities Toward 2053

Renewable energy is central to Türkiye's long-term strategy, though progress remains incremental. In 2023, hydropower, wind, and solar accounted for 1.31 EJ of energy, with wind (11.7 GW) and solar (11.3 GW) showing the most potential for growth. These sources provide crucial pathways to reduce Türkiye's reliance on imported fossil fuels. However, despite these promising developments, **the pace of renewable energy deployment is too slow to meet rapidly increasing energy demand**.

The Turkish government's Green Deal Action Plan, launched in 2021, was an important step towards aligning Türkiye with the European Green Deal. However, without binding deadlines or enforcement mechanisms, the transition has lacked the urgency needed to substantially reduce the nation's fossil fuel dependency. **The delays in passing Türkiye's long-awaited Climate Law further exacerbate this issue. The absence of a crucial legislative framework, supported by binding climate targets and clear roadmaps for emission reductions, not only stalls progress—particularly by the private sector—but also**

undermines the clarity and visibility needed for scaling up investments in renewable energy infrastructure. This lack of direction slows the country's transition towards greener energy sources and jeopardizes Türkiye's ability to achieve its 2053 net-zero emissions target.

Without these efforts, Türkiye's renewable sector will continue to struggle to make a substantial impact, leaving the country reliant on fossil fuels for the foreseeable future.

Nuclear Energy: Türkiye's Low-Carbon Future with Akkuyu

The Akkuyu Nuclear Power Plant represents a major milestone for Türkiye. Once fully operational, Akkuyu will contribute approximately 0.4 EJ, covering 7-8% of Türkiye's energy needs. **Nuclear energy offers a low-carbon, reliable power source that can help offset Türkiye's reliance on imported gas and coal.** However, as with all large-scale energy projects, its success will depend on timely execution and integration into the broader energy mix.

A Critical Juncture for Türkiye's Energy Strategy

Türkiye is at a crossroads. As the global energy landscape grows increasingly complex—shaped by climate pressures, geopolitical conflicts, and technological advancements—its energy future hinges on securing diverse supply sources and forging strategic partnerships across key regions.

Diplomatic engagement will be crucial for unlocking new energy opportunities in regions like Iraq, the Eastern Mediterranean, and the Horn of Africa. At the same time, closer cooperation with NATO, the EU, and other international stakeholders will help align Türkiye's energy ambitions with broader regional and global priorities, ensuring that it remains a pivotal player in the evolving energy landscape.

The central question remains: Can Türkiye rise to meet these challenges head-on? The answer lies in leveraging its geographic and diplomatic strengths, fostering strategic alliances, and investing in the infrastructure that positions it as a vital energy hub. **With a proactive approach—focused on diversification, regional cooperation, and a sustainable energy transition—Türkiye has the potential to secure a resilient, diversified energy supply and assert its influence on the global stage.**

The stakes are high, but so too is the opportunity for Türkiye to shape its energy destiny and emerge as a key player in the global energy market.