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EVALUATION NOTE

AFTER COP 29¹

COP 29, held in Baku this November, delivered significant messages regarding energy transition, sustainability, and the fight against climate change on both global and national levels. With over 1,800 participants, Turkey stood out as one of the countries with the largest delegations, following the host Azerbaijan and Brazil, which will host the next conference. This high level of participation is noteworthy as it highlights Turkey's increasing interest in international climate efforts. However, beyond participation, it is essential to focus on the messages delivered on the ground and the commitments made.

I had the opportunity to personally attend and closely follow numerous meetings and seminars at the conference. Among the most discussed topics at COP 29 were the insufficient financing for green transition in developing countries and the challenges of phasing out fossil fuels from energy systems. It is estimated that developing countries will need a total of \$6-7 trillion in financing by 2030 to transition to low-carbon economies. However, the annual \$1.3 trillion funding commitment expected from developed nations fell short, amounting to only \$300 billion. This was a significant disappointment for global cooperation. A similar disappointment was observed with the "loss and damage" fund established for countries most affected by climate change and in dire need of financial support. While the fund originally aimed for \$500 billion, it has not even reached \$1 billion so far. This situation creates serious uncertainty about the pace and feasibility of energy transition in the future.

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Green Steel and Challenges in the Steel Industry

Let's take a closer look at the steel industry, as this sector was a key topic of discussion throughout COP 29, particularly during the "Pathways toward steel decarbonisation" panel held at the Japan Pavilion. During the panel, representatives of the World Steel Association and Japanese experts exchanged views on addressing issues such as green steel certification and the prevention of greenwashing. Notably, statements regarding the principles for greenhouse gas reduction certifications, published in April 2024, provided significant insights into the tightening of sectoral regulations. The importance of public procurement guarantees for green steel, which have already been implemented in some countries, was also highlighted as a powerful incentive for steel producers to make carbon-neutral investments.

Looking at Turkey, the steel industry stands out with both its strengths and weaknesses. In 2021, Turkey reached an all-time high crude steel production level of 40.4 million tons. However, in subsequent years, it experienced a significant decline in production due to a loss of competitiveness in both domestic and global markets. In 2022, crude steel production decreased by 12.9%, dropping to approximately 35.1 million tons. This downward trend continued in 2023, with a 4% decline bringing production to 33.7 million tons. In the global crude steel production rankings, Turkey fell one spot in 2022, moving to 8th place as it ceded 7th place to Germany. This ranking remained unchanged in 2023. It is estimated that Turkey's total crude steel production will reach approximately 70 million tons by 2053.

Currently, 70% of Turkey's production utilizes Electric Arc Furnace (EAF) technology, which generates lower carbon emissions compared to traditional methods. However, 30% of production still relies on Basic Oxygen Furnace (BOF) technology, which is heavily dependent on fossil fuels and significantly more carbon-intensive. In the coming period, the application of carbon capture, utilization, and storage (CCUS) technologies in these sectors will be crucial to achieving carbon reduction targets.

The EAF method offers environmental advantages by recycling scrap steel, but it also presents another challenge: the limitations in scrap steel supply. As global investments in EAF technology increase, supply shortages of scrap steel are becoming more severe. This issue could affect Turkey's competitiveness. It is crucial to address this by diversifying scrap steel import sources. Additionally, technologies such as Direct Reduced Iron (DRI), which can operate with natural gas and green hydrogen, must be adopted. However, the widespread adoption of these technologies requires significant financial investment. For instance, it is estimated that the Turkish steel industry will need an investment of approximately \$30–35 billion between 2023 and 2053 for new capacity and transition capacity scenarios that incorporate all advanced low-carbon technologies. On a global scale, the investment required for zero-carbon green hydrogen alone is estimated at \$2.8 trillion.

Emissions Trading System (ETS) and the Impact of the EU CBAM

Now, let's turn to the Emissions Trading System (ETS) and the Carbon Border Adjustment Mechanism (CBAM). Last year, Turkey announced that a pilot ETS would be launched by the end of 2024. However, it was recently announced that the start date of this pilot program has been postponed to 2025. Following the pilot phase, the full implementation of ETS is crucial for aligning with the European Union's CBAM. CBAM's transition phase will end on December 31, 2025, and as of January 1, 2026, significant financial obligations will be imposed on Turkish industrialists.

Turkey's ETS mechanism must be designed similarly to the EU ETS. This system is expected not only to reduce carbon emissions but also to ensure that carbon taxes remain within Turkey, thereby supporting the local economy. Otherwise, Turkish industrialists will be required to pay carbon taxes to the EU, which will undoubtedly negatively impact both export costs and competitiveness.

Turkey's efforts to adapt to CBAM and achieve long-term sectoral carbon reductions are essential. Over the past year, the Ministry of Trade and industry representatives organized meetings to address alignment with EU regulations for carbon-intensive sectors such as steel, cement, and aluminum. The Ministry of Trade published the "Sectoral Low-Carbon Roadmaps for Turkey," while the Climate Change Presidency released the "Climate Change Mitigation Strategy and Action Plan 2024–2030." We hope to see progress in areas such as strengthening carbon reporting and monitoring infrastructure, planning the ETS mechanism, and providing financial incentives for industrial sectors, with these efforts gaining momentum and being translated into concrete actions.

Renewable Energy and Nuclear Capacity Development

At COP 29, Turkey announced its Long-Term Climate Change Strategy Document for 2053. Renewable energy and nuclear investments are central pillars of this strategy. While Turkey's goals include increasing the share of renewable energy to 50%, no specific timeline has been set for phasing out coal or reducing fossil fuel usage.

As of 2023, Turkey's hydroelectric, wind, and solar energy sources provided a total of 1.31 EJ of energy (approximately 19% of Turkey's total primary energy demand). Wind and solar energy are leading in terms of growth potential. Turkey's ambitious plan to increase its total wind and solar energy capacity from the current level of approximately 25 GW to 120 GW by 2035 is essential and necessary. Additionally, nuclear energy capacity is planned to reach 4.8 GW by 2030 and 7.2 GW by 2035. When fully operational, the Akkuyu Nuclear Power Plant will meet 7-8% of the country's energy needs.

Fossil Fuels and Challenges in the Global Energy Transition

As you may recall, COP 28 included strong calls for the "fair, orderly, and equitable phase-out of fossil fuels from energy systems." However, at COP 29, these calls were discussed in a more "realistic" and pragmatic context. Following COP 28, I wrote that "the beginning of the end for fossil fuels will only occur if governments and the private sector take concrete steps in line with these calls." Unfortunately, COP 29 did not provide enough evidence of such concrete actions. As BP CEO Murray Auchincloss recently stated, global oil demand reached a record high in 2024, hitting 103.79 million barrels per day. This highlights, once again, that dependence on fossil fuels is unlikely to end in the short term.

Turkey's dependence on fossil fuels also remains high. Imported crude oil and natural gas account for 85-90% of its total energy inputs. However, discoveries and production in fields such as the Sakarya Gas Field in the Black Sea and the Gabar region in Southeast Anatolia may slightly reduce this dependency. Nonetheless, without accelerated investments in renewable energy, achieving a fundamental shift in this area seems unlikely.

COP 29 was a platform where a number of critical issues in energy transition and climate action were discussed, and some solutions began to take shape. However, insufficient financing and a lack of concrete steps continue to slow the pace of energy transition. Despite these challenges, small but significant steps toward global cooperation and the development of

regulatory frameworks offer a foundation of hope for future progress. Among the key challenges Turkey must overcome are the following:

1. Rapidly Increasing Renewable Energy Capacity:

Particularly in wind and solar energy, capacity expansion must be achieved. While the Ministry of Energy's 2035 target is encouraging, it needs to be implemented at a faster pace. Renewable energy will not only reduce Turkey's dependence on foreign energy sources but also serve as a driving force in achieving its carbon-neutral goals.

2. Implementing ETS on Time:

Turkey must adapt to the EU's CBAM (Carbon Border Adjustment Mechanism) regulations and ensure that carbon taxes support the local economy. The fact that the pilot ETS program has not yet started and the risk of delays in finalizing the system could result in significant costs for Turkey, particularly in export markets for carbon-intensive sectors like steel. The longer ETS implementation is delayed, the greater the financial impacts of CBAM will become.

3. Accelerating the Green Transition in the Steel Sector:

Turkey must maximize the low-carbon advantages offered by EAF technology and increase investments in new technologies within the sector. Strengthening the legal, financial, and technical infrastructure in these areas is essential.

Next year's COP 30 in Brazil represents a critical opportunity for Turkey to update its goals and take on a more influential role on the international stage. At COP 30, countries will present their updated targets for reducing carbon emissions, plans to decrease fossil fuel use, and strategies for increasing renewable energy capacity under the principle of voluntary commitments. This process will not only shape global regulations but also ensure more efficient use of financing resources and accelerate technological innovation.

For Turkey, seizing this opportunity will not only enhance its international reputation but also strengthen the sustainability and competitiveness of its local economy. Setting more ambitious targets and presenting concrete projects could position Turkey as a regional leader in energy transition. However, achieving these goals requires moving beyond planning to decisive and swift implementation. Turkey's energy transition can only be achieved through a locally driven effort bolstered by global cooperation.