

MIDDLE EAST AND NORTH AFRICA UNDER PRESSURE TO PREPARE FOR CBAM IN TWO AND A HALF YEARS

— EFFORTS IN TURKEY AND EGYPT —

Ito Mashino

MEA & South West Asia Department, Global Economic & Political Studies Division
Mitsui & Co. Global Strategic Studies Institute

SUMMARY

- The European Union (EU) plans to bring the Carbon Border Adjustment Mechanism (CBAM) into effect starting in 2026. In response, countries in the Middle East and North Africa (MENA) region—primarily Turkey and Egypt—are pursuing measures to mitigate cost burdens resulting from this framework.
- Furthermore, the EU plans to expand the CBAM scope to all eligible EU Emissions Trading System (EU ETS) products, including crude oil and petroleum products, over the next several years, the impacts of which are expected to be severe on resource-rich MENA countries.
- EU member countries that have relied primarily on Russia for supplies of iron and steel, aluminum, and fertilizers are expected to diversify their supply sources moving forward. Furthermore, EU demand for green hydrogen is expected to grow in the coming years. These shifts will create new market expansion opportunities in Europe for MENA countries.

1. INTRODUCTION

In December 2022, the Council of the European Union and European Parliament reached a tentative agreement on the scope, timing, and other details of the Carbon Border Adjustment Mechanism (CBAM).¹ Broadly speaking, CBAM is a framework that imposes tariffs based on carbon emissions on products imported into the EU from non-EU countries that are lagging behind on climate change action. CBAM is expected to have significant impacts on the economies of the Middle East and North Africa (MENA) whose countries are geographically close to Europe. This report explores the impacts that CBAM will have on MENA countries and describes each nation's responses.

2. CURRENT STATE OF MENA-TO-EU EXPORTS

2-1. CBAM-Covered Goods

The EU has set a transition period, from October 1, 2023 to the end of 2025, after which CBAM would be gradually phased in starting in 2026, with full implementation slated for 2032. Currently, confirmed goods include iron and steel (including screws, bolts, nuts, and similar goods made from these materials), fertilizers, aluminum,

¹ Refer to the following for more background and details on the introduction of CBAM: Darvell, Akiko. *The EU's Carbon Border Adjustment Mechanism Moving Towards the Final Stage of Legislation Process — European Parliament's More Stringent Amendments Include a Wider Scope of Covered Sectors That Could Have a Greater Impact on Japan* —, Mitsui & Co. Global Strategic Studies Institute, Aug. 2022. https://www.mitsui.com/mgssi/en/report/detail/_icsFiles/afieldfile/2023/03/01/2208e_darvell_e.pdf

cement, electricity, and hydrogen.² For fertilizers, cement, and electricity, the calculation of carbon includes not only direct greenhouse gas (GHG) emissions from production facilities, but also indirect emissions from electric power consumed during the production process.

Furthermore, the EU plans to add chemical products and polymers to the CBAM list by the end of 2025, and is considering adding crude oil, petroleum products, and all other EU ETS products in 2030.

2-2. Impacts on MENA Countries

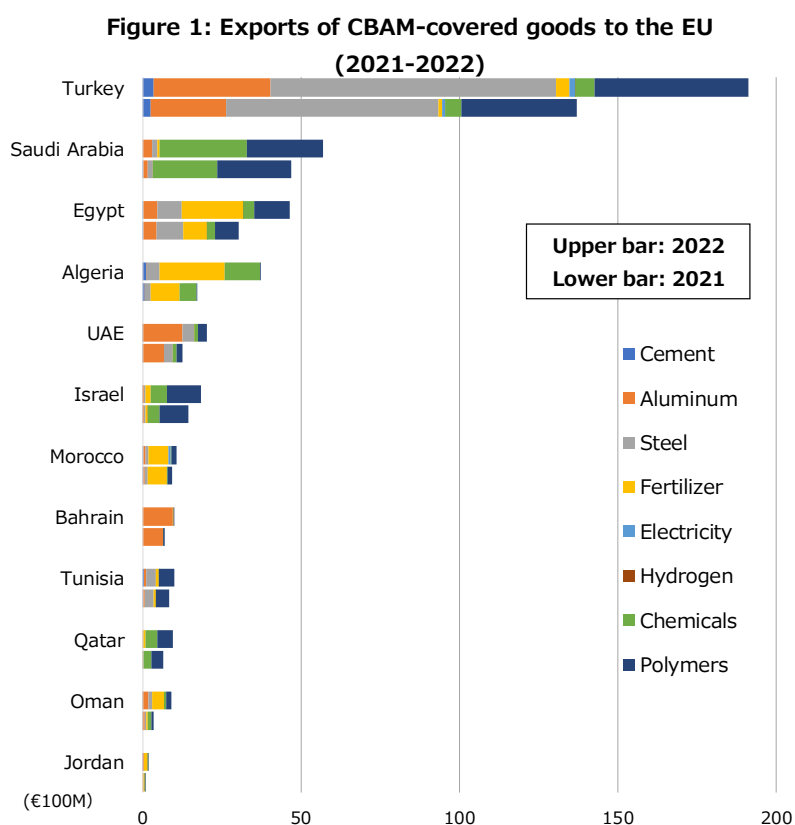
Although the impacts of CBAM on MENA economies will vary from country to country, Turkey has been the focus of much attention. Turkey is an important supplier of iron and steel, cement, and aluminum for the EU, and the EU is Turkey's biggest trading partner. The total export value for CBAM-covered goods from Turkey to the EU (those currently listed, as well as chemical products and polymers) was approximately 19 billion euros in 2022. This figure represents nearly 8 percent of Turkey's total exports to the world for that same year (Figure 1).³ Under CBAM, additional costs based on direct emissions alone are estimated to reach approximately 400 million euros annually.⁴

Elsewhere in MENA, the UAE, Bahrain, and Egypt are among the top ten exporters of aluminum to the EU. For fertilizers, Morocco, Egypt, and Algeria are top exporters to the EU following Russia. Among these countries, Egypt will likely be

most strongly affected by CBAM: Egypt's total exports to the EU of CBAM-covered goods in 2022 (worth approximately 4.6 billion euros) accounted for about 10 percent of their total exports to the world.⁵

In contrast, oil-producing countries in the Persian Gulf primarily export goods to Asia, so they will not be as severely affected compared with countries like Turkey and Egypt. Regardless, chemical products and polymers, which are slated for addition to the CBAM scope, include many of these countries' downstream petroleum and gas products. As shown in Figure 1, Saudi Arabia and Qatar, whose exports of the same product to the EU are relatively large, will not be exempt from the impact, just like Turkey, Israel, Egypt, and Tunisia. Moreover, if crude oil and petroleum products are added to the CBAM-covered goods, the impacts will be magnified further.

In regard to hydrogen, which was added to the CBAM scope in December 2022, trade amounts are relatively



Source: Compiled MGSSI based on Eurostat data

² In addition to iron and steel, fertilizers, aluminum, cement, and electricity, the December 2022 agreement includes new coverage for some hydrogen, iron ore, ferromanganese, ferrochrome, and ferronickel, as well as certain iron and steel products, including screws, bolts, and nuts.

³ The export value for CBAM-covered goods from Turkey to EU was taken from Eurostat data, and Turkey's total export value to the world was taken from the International Monetary Fund's Direction of Trade Statistics.

⁴ Information from a July 2021 report by the European Bank for Reconstruction and Development (EBRD). <https://www.ebrd.com/news/2021/turkish-exporters-could-face-steep-extra-costs-under-new-eu-carbon-rules.html>

⁵ The export value for CBAM-covered goods from Egypt to EU was taken from Eurostat data, and Egypt's total export value to the world was taken from the International Monetary Fund's Direction of Trade Statistics.

limited between the EU and MENA. However, certain MENA countries—particularly oil-producing Persian Gulf countries—have been actively pursuing blue and green hydrogen development in recent years, and are generally viewed as promising future suppliers of hydrogen for Europe. There may be a growing trend towards prioritizing the development of green hydrogen, which emits fewer GHGs during the manufacturing process.

3. CLIMATE CHANGE RESPONSES BY MENA COUNTRIES: EXAMPLES FROM TURKEY AND EGYPT

Within the MENA region, oil-producing countries in the Persian Gulf, such as Saudi Arabia and the UAE, have led efforts to address climate change. Meanwhile, Turkey and Egypt have also been ramping up their efforts rapidly, with the introduction of CBAM in 2026 in mind. The following are examinations of some examples from these two countries.

3-1. Climate Change Measures

In conjunction with the EU's "Fit for 55" package,⁶ Turkey announced its "Green Deal Action Plan" in July 2021.⁷ This plan involves promotion of renewable energy and incentives for related investment, establishment of green finance funds and other means of expanded support for Turkish companies, and establishment of Turkey's Emissions Trading System (ETS) which is similar to the EU ETS. The Turkish government plans to ask the EU to relax its CBAM requirements through exemptions and deductions in light of the ETS introduction. After ratifying the Paris Agreement in October 2021, Turkey is now fully committed to green finance.

Meanwhile, Egypt unveiled "National Climate Change Strategy 2050 (NCCS 2050)"⁸ in May 2022, prior to the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27). NCCS 2050 entails promotion of energy-saving measures in industrial fields, replacement of current transport fuels with natural gas, and expanded use of renewable energy, blue and green hydrogen, and nuclear power in the electric power field. To execute their strategy, the Egyptian government plans to spend the equivalent of approximately \$324 billion, through issuance of green bonds, and procurement of funds via the International Monetary Fund, the World Bank, the European Bank for Reconstruction and Development (EBRD), and other financial institutions (Figure 2).

Currently, Turkey is the only MENA country seriously pursuing the introduction of an ETS, but some other countries, including Egypt and Morocco, are taking steps to establish carbon credit markets, and similar action

Figure 2: Cost Breakdown of Egypt's National Climate Change Strategy 2050

Climate change "mitigation" programs		
Sector	Cost (USD 100M)	Period
Electricity	1,442	2021-2035
Transport	575	2020-2030
Petroleum	17	2023-2030
Waste	76	2021-2035
Industry	1.3	2022-2035
Housing & Utilities	0.3	2022-2024
Civil aviation	0.25	2021-2035
Total	2,111	
Climate change "adaptation" programs		
Sector	Cost (USD 100M)	Period
Irrigation and Water Resources	591	2022-2037
Agriculture	524	2022-2050
Transport	123	2021-2023
Biodiversity	2	2020-2030
Civil Aviation	0.09	2022-2024
Total	1,130	

Source: Compiled by MGSSI based on "National Climate Change Strategy 2050" https://www.climate-laws.org/documents/egypt-national-climate-change-strategy-nccs-2050_8bfc

⁶ A comprehensive legislative package announced by the EU in July 2021 that aims to reduce GHG emission by at least 55 percent by 2030 compared with 1990 levels. It also includes proposed CBAM-related regulations, country-by-country reduction targets, the EU ETS, and dissemination targets for renewable energy, among other proposed revisions.

⁷ Original text of the Green Deal Action Plan:

<https://ticaret.gov.tr/data/60f1200013b876eb28421b23/MUTABAKAT%20YE%C5%9E%C4%B0L.pdf>

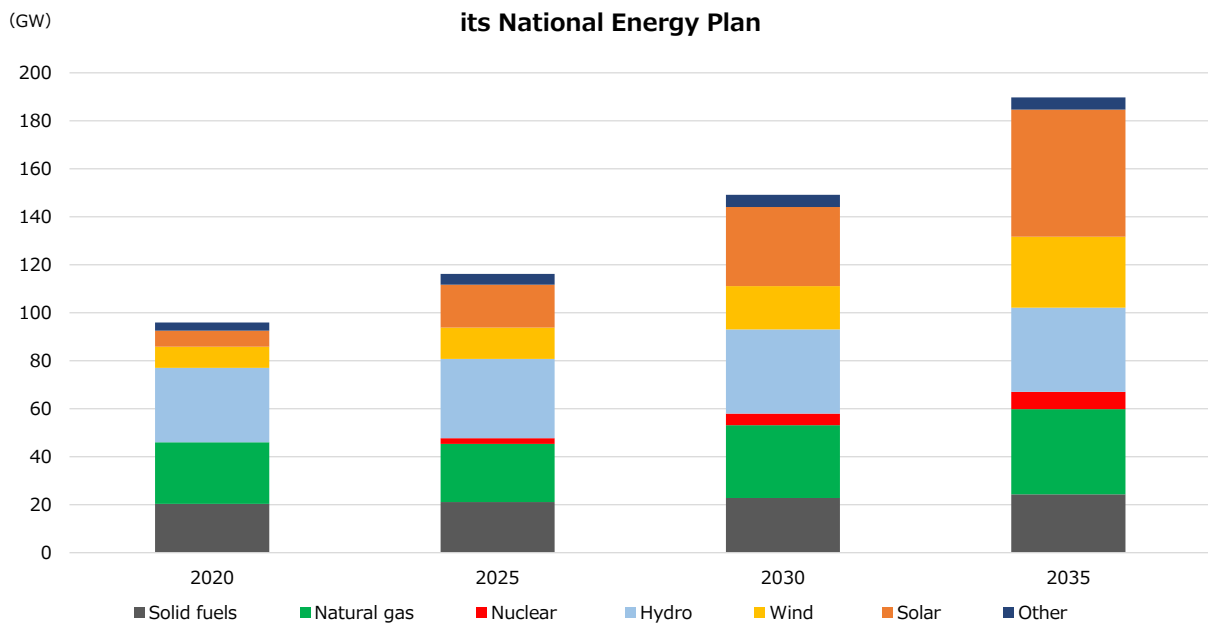
⁸ Original text of NCCS 2050: <https://www.eeaa.gov.eg/Uploads/Topics/Files/20221206130720583.pdf>

is expected from other MENA countries in the future.⁹

3-2. Promotion of Renewable Energy

In Turkey and Egypt, measures are underway to promote the switch to renewable energy for the electricity used in the production processes of CBAM-covered goods. In 2021, renewable energy in Turkey accounted for approximately 37 percent of total electric power generation, which is a higher rate than other nearby countries.¹⁰ Under the “National Energy Plan” announced in January 2023, Turkey predicts its electricity installed capacity to increase from 95.9 gigawatts in 2020 to 189.7 gigawatts in 2035, and plans to meet 74.3 percent of this increase with renewable energy (Figure 3).¹¹ With large conglomerates taking the lead, Turkish companies are investing in renewable energy; one example of these efforts is the installation of the world’s largest rooftop solar generation system by major steelmaker Tosyali at its own factory in April 2023 with assistance from China’s Huawei and Turkey’s SolarAPEX.

Figure 3: Turkey's plan to increase installed capacity in its National Energy Plan



Source: Compiled by MGSSI based on various press releases and media reports

Egypt plans to increase its share of renewable energy in total electricity generation to 42 percent by 2035. The interim target (20 percent by 2022) has been achieved one year ahead of schedule. The Benban Solar Park, which is the world’s largest solar park with a generation capacity of approximately 1.7 gigawatts, commenced operations in 2019 and is currently expanding its capacity based on additional funding from the EBRD and other sources. Moreover, major Saudi Arabian power company ACWA Power and major UAE renewable energy company Masdar each agreed with the Egyptian government in 2022 to build a 10-gigawatt wind power plant on the Red Sea coast.¹²

⁹ ETS is generally defined as regulatory frameworks enacted by a country, or agreed upon among countries, that imposes emissions regulations on nations, organizations, or other entities. Under an ETS, nations/organizations that exceed pre-defined levels of GHG emissions are required to purchase carbon credits from those that have remained within their emission limits. On the other hand, there are no performance obligations or cap on emission allowances under carbon credits (also known as carbon offsets); these factors are left to the nations/organizations involved.

¹⁰ According to US Energy Information Administration (EIA) statistics.

¹¹ Original text of the National Energy Plan:

https://enerji.gov.tr/Media/Dizin/EIGM/tr/Raporlar/TUEP/T%C3%BCrkiye_National_Energy_Plan.pdf

¹² In November 2022 (coinciding with COP27), ACWA Power, Egypt’s New and Renewable Energy Authority (NREA), and the Egyptian Electricity Transmission Company (EETC) signed a memorandum of understanding (MOU). Similarly, Masdar, Infinity Power

3-3. Green Hydrogen Development

As explained in section 2-2, MENA countries are pursuing green hydrogen development, with oil-producing Persian Gulf countries taking the lead. The application of hydrogen reduction steelmaking technologies or the use of green ammonia can reduce GHG emissions during production processes for iron, fertilizers and chemical products. In addition, improvements to the export infrastructure will make it possible to supply hydrogen directly to Europe and other destinations. Turkey announced its “Hydrogen Technologies Strategy and Roadmap”¹³ in January 2023, which establishes targets for hydrogen production, storage, distribution, and usage. Specifically, the country aims to reduce green hydrogen production costs to below \$2.4 per kilogram by 2035, and to below \$1.2 per kilogram by 2053. They also aim to increase the installed power capacity of the electrolyzer to 2 gigawatts by 2030, and expand this to 5 gigawatts by 2035 and 70 gigawatts by 2053. Currently, Turkey is moving forward with a plan to build the country's first green hydrogen production plant and hopes to pursue widespread use of hydrogen in domestic power generation and distribution as well as industrial sectors in the future, while also exporting hydrogen and ammonia to Europe.¹⁴

It is believed that Egypt will become a hydrogen producer on the scale of 20 million tons annually by 2035.¹⁵ The country aims to secure a 5 percent share of the global hydrogen market by 2040, and is currently considering several hydrogen and ammonia projects centered on its Suez Canal Economic Zone (Figures 4, 5).

Figure 4: Major green hydrogen projects planned and under development in the Suez Canal Economic Zone

Major company	Start of operation	Annual production capacity	Location
Scatec (Norway), Fertiglobe (UAE/Netherlands), Orascom (Egypt)	November 2022 (Start of trial operation)	Hydrogen: 15,000 tons Ammonia: 90,000 tons	Sokhna Industrial Zone
Amea Power (UAE)	2027	Hydrogen: unknown Ammonia: 800,000 tons	
EDF Renewables (France), Zero Waste (UAE)	2026	Hydrogen: 80,000 tons Ammonia: 500,000 tons	
Masdar (UAE), Hassan Allam Utilities (Egypt), Infinity Power (Egypt)	2026	Hydrogen: 480,000 tons Ammonia: 2.3 million tons	
ReNew Power (India), Elsewedy Electric (Egypt), others	2026 (trial operation)	Hydrogen: 220,000 tons Ammonia: unknown	
Globeleq (UK)	2026-2027	Hydrogen: unknown Ammonia: 100,000 tons (Phase 1)	
Alfanar (Saudi Arabia)	Unknown	Hydrogen: 100,000 tons Ammonia: 500,000 tons	
Total Eren (France), Enara Capital (Egypt)	Unknown	Hydrogen: unknown Ammonia: 300,000 tons	
Fortescue Future Industries (Australia)	Unknown	Hydrogen: 330,000 tons Ammonia: unknown	
Acme Group (India)	Unknown	Hydrogen: 2.2 million tons Ammonia: unknown	

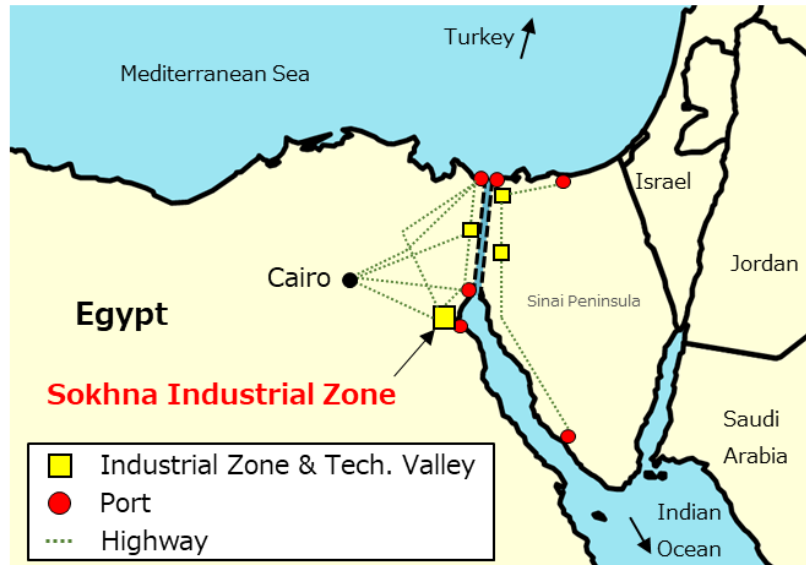
Source: Compiled by MGSSI based on various press releases and media reports

(a joint venture between the Emirate of Abu Dhabi and the Netherlands), and Egypt's Hassan Allam Utilities signed an MOU with the Egyptian Ministry of Electricity and Renewable Energy.

¹³ Original text of the Hydrogen Technologies Strategy and Roadmap: https://enerji.gov.tr/Media/Dizin/SGB/en/HSP_en/ETKB_Hydrogen_T_Strategies.pdf

¹⁴ Several Turkish companies are participating in this plant construction project, the South Marmara Development Agency (GMKA) and other Turkish energy organizations are making joint investments, and the project has received 8 million euros in support from the EU's Horizon Europe research and development funding framework. The plant's construction site is located in Bandirma, on the northwest coast of the Marmara Sea, with a planned production volume of 500 tons per year. In addition, in June 2021, the EBRD issued a statement indicating the possibility of hydrogen transport using the Southern Gas Corridor (SGC), which was designed to transport natural gas from its production site in Azerbaijan to Italy via Georgia, Turkey, and other countries. It is therefore likely that the Turkish production facility will be able to export green hydrogen to Europe via the SGC.

¹⁵ According to a December 2022 report for a joint international study conducted by the European Investment Bank (EIB), the African Union, and the International Solar Alliance. The report predicts that the African continent as a whole will produce 50 million tons of hydrogen annually by 2035, of which Egypt will account for 40 percent. <https://www.eib.org/attachments/press/africa-green-hydrogen-flyer.pdf>

Figure 5: Suez Canal Economic Zone

Source: Compiled by MGSSI based on material from "Egypt Suez Canal Economic Zone (SCZone) Investment Seminar" (February 13, 2023) jointly hosted by UNIDO, Economic and Commercial Bureau at Embassy of the Arab Republic of Egypt in Tokyo and Japan Cooperation Center for the Middle East

Egypt began test operations for its first green hydrogen plant in November 2022. With Norwegian solar power company Scatec and major UAE fertilizer company Fertiglobe taking part in the project, Egypt plans to supply a maximum of 15,000 tons of green hydrogen to be used in green ammonia production (reaching a maximum of 90,000 tons annually) within Fertiglobe's plant facilities. In addition, Egypt has shown interest in establishing a green bunkering hub using its access to the Suez Canal, and to this end, is in discussions with major shipping company Maersk and other parties regarding green marine fuel supply operations.

4. CONCLUSION

The MENA region—particularly in the case of Turkey and Egypt for which the EU is the largest trading partner—is moving forward with measures to address the cost burden created by CBAM. CBAM-covered goods are expected to increase greatly in number over the coming few years, resulting in unavoidable impacts on oil producers in the Persian Gulf as well as other resource-rich countries in the region. The main challenge is financing: staggering amounts of capital are needed to implement climate change measures. Even as MENA countries seek to issue bonds and raise funds from international institutions, it is possible that the impact of the spike in energy and food prices caused by Russia's invasion of Ukraine could delay the implementation of climate change measures in countries with more fragile economies.

Regardless, it is possible that the EU's introduction of CBAM could work in their favor, as EU nations are moving to reduce their reliance on imports from Russia in light of the recent invasion of Ukraine. It is predicted that EU members will diversify their main suppliers for iron and steel, aluminum, and fertilizers, which were previously supplied in large part by Russia. In addition, since MENA countries have vast desert areas with more hours of sunlight per day, they have the potential to leverage these advantages at comparatively lower cost in the development of renewable energy and green hydrogen using renewable electricity. This, in turn, gives them the potential to become primary hubs for hydrogen exports to nearby European countries. In other words, CBAM presents excellent opportunities for MENA countries to expand their presence in the European market.

Any use, reproduction, copying or redistribution of this report, in whole or in part, is prohibited without the prior consent of Mitsui & Co. Global Strategic Studies Institute (MGSSI). This report was created based on information and data obtained from sources believed to be reliable; however, MGSSI does not guarantee the accuracy, reliability, or completeness of such information or data. Opinions contained in this report represent those of the author and cannot in any way be considered as representing the unified opinion of MGSSI and the Mitsui & Co. group. MGSSI and the Mitsui & Co. group will not be liable for any damages or losses, whether direct or indirect, that may result from the use of this report. The information in this report is subject to change without prior notice.