

# The Urgency of A New Carbon Market for Turkic States and the Belt & Road




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## ABSTRACT

Until 2053, various measures are being taken to keep global warming below 1.5°C by reducing greenhouse gas emissions and to reduce the concentration of CO<sub>2</sub> gas in the atmosphere to 280 ppm (parts per million). The West is trying to impose impositions such as carbon tax at the border and carbon trade, which are not based on real foundations and will not yield results, on all countries, including our country, the Turkic Republics and all eastern countries. The inconsistencies in the European Union's decarbonization initiatives are reaching significant dimensions. The biggest threat from the West lies in the fact that the main economies of Asian countries, with the exception of the Turkic Republics and large developed countries (such as China and India, the Russian Federation is already being subjected to disproportionate sanctions), are based on agriculture, animal husbandry, mining and semi-finished goods production. In fact, EU countries are in need of us as intermediate products. This is a trump card. We need to optimize this as we move to the final product industry. To overcome all these challenges, a series of sustainable measures must be taken and the beltway borders must be protected.

**Keywords:** carbon emissions, carbon market, decarbonization, green transformation, Turkic Republics.

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## Introduction

THE EUROPEAN UNION HAS TAKEN A SERIES of measures and released directives and restrictions concerning global warming (Ersen, 2024). Carbon Border Adjustment Mechanism (CBAM). In this context, the European Union declared a comprehensive policy and strategy package in 2019. The most important section is the Carbon Border Adjustment Mechanism (CBAM), which will virtually affect all the countries, worldwide, with direct or indirect trade connections with the EU Countries (T.C. Avrupa Birliği Başkanlığı, 2024). Aligning with the Paris Agreement, the objective is to keep the global warming temperature below 1.5°C until 2053 by reducing

greenhouse gas emissions. Accordingly, the concentration of CO<sub>2</sub> gas in the atmosphere is expected to decrease to about 280 ppm (parts per million). Human-induced greenhouse gas emissions cause global warming leading to several global challenges, such as ozone layer depletion (Kılış, 2019), wide climatic and meteorological disasters of unusual magnitude, deterioration in ecosystems, decline in agriculture and animal husbandry, decrease in clean water resources, air quality, and increase in magnitude and frequency of pandemics (Kılış, 2020; Kılış, 2021). Causes for all such problems include CO<sub>2</sub> emissions due to fossil fuel use, inefficiencies, and primarily but most often ignored quality mismatches among different energy sources, equipment, and systems.

The latter, two to five times more than direct missions at the source is often ignored as shown in Figure 1. Every thousand Gton of CO<sub>2</sub> released into the atmosphere causes the global average temperature to increase by 0.45°C, and an average of 37 Gton of CO<sub>2</sub> gas continues to be released every year because of energy use alone (IPCC, 2023; Architecture2030, 2024).

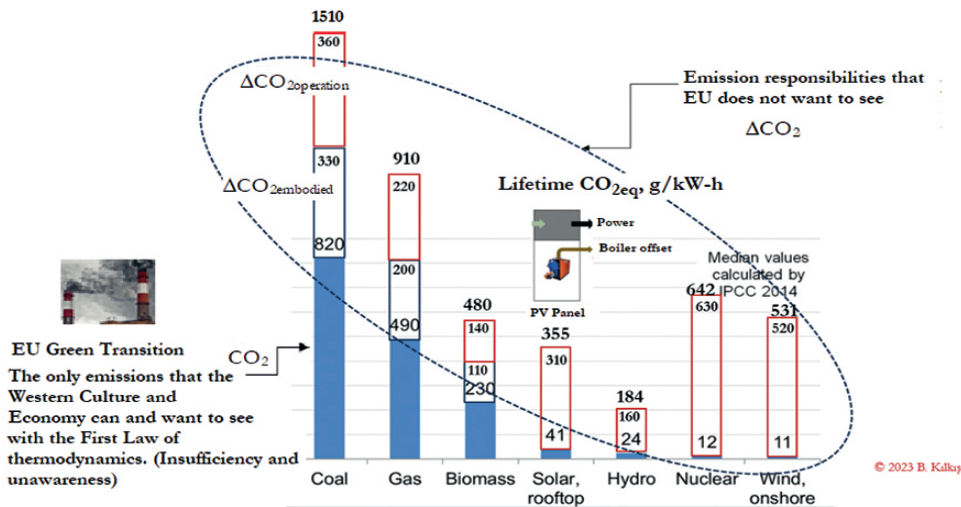
The total annual global CO<sub>2</sub> emission is around 60 Gton CO<sub>2</sub>/year. Among the root causes that have the ability to explain most of these emissions measured in the air, it is the ignorance of the fundamental fact that all energy sources and applications are not equal on earth, and they have different qualities, which means ability to do useful work and to add value. Humanity must duly respect all energy sources and the environment In Asian and Near Eastern cultures, respect for energy and water resources are among these. Western culture, on the other hand, lacks this quality awareness and views energy as a commodity that can only be bought and sold on the stock exchange. In addition, the current Western culture depends on the Pareto principle and the free market rules (linear economy) and tries to solve global warming in

a narrow mold. However, global warming is a three-dimensionally complex problem. In this respect, although the amount of CO<sub>2</sub> in the atmosphere can be measured accurately (Visible), many root causes on earth remain ignored and unaccounted for. Consequently, adequate, and sustainable solutions cannot be implemented. Figure 1 clarifies this problem. In essence, only the Eastern culture can solve the unawareness issue and sustainably develop and implement realistic solutions by giving attention to the quality of energy rather than the quantity of energy (Figure 2). Emissions due to quality mismatches are invisible to us on Earth.

### Assessment of Carbon Emissions and Green Transformation from the Perspective of Turkic Republics

Within the framework of the EU's Green Transformation Strategy, it is aimed to reduce carbon emissions by 55% compared to 1990 levels in 2030 and to become the first climate-neutral continent in 2050. The tools and measures to achieve these limited targets, however, are con-

Figure 1. Root Causes of Total CO<sub>2</sub> Emissions



Visible and Invisible Emission Responsibilities of Different Energy Sources (Figure: Kılıç, 2024).

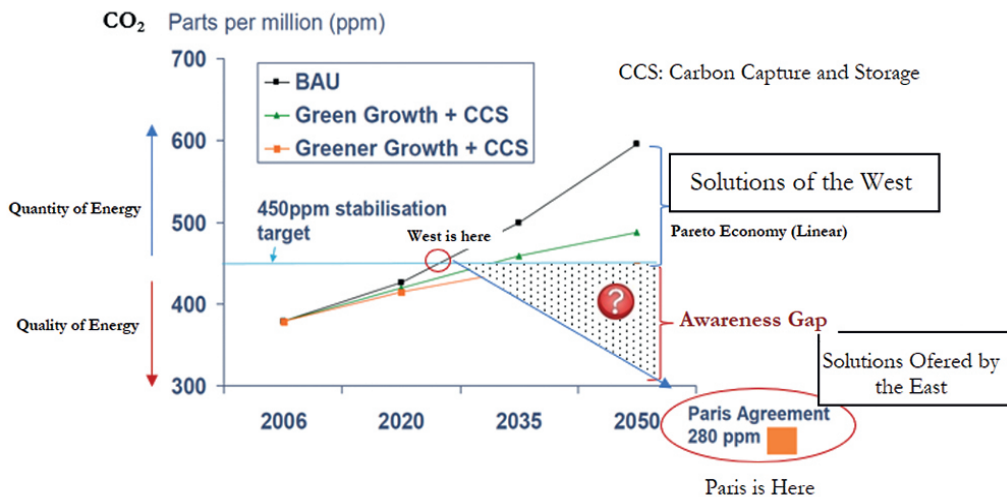
cerned with direct emissions only, as seen in Figure 1. In recent years, it has been observed that even these modest goals will not be achieved with today's technology. Unless wide awareness of CO<sub>2</sub> emissions due to quality mismatches is established and implemented, it will not be possible to satisfy the Paris Agreement.

Despite the importance of recognizing the quality mismatches and trying to solve them with sustainable and fair measures, the West keeps frantically striving to reach the Paris Agreement by 2050, by simply activating impositions such as carbon tax at the border and carbon trading rules, all based on linear economy only. Without solid scientific foundations, these measures are grossly insufficient, unfair, and unpractical. Yet they are trying to enforce their rules to all countries, including Türkiye, the Turkic States, and all Asian and far Eastern countries, and collect tax money.

Among the Western solutions in agriculture and animal husbandry, only agricultural insurances and limited financial supports within the linear economy rules and interest stand out. These are far from being permanent solutions to global warming and, in fact, confine agri-

culture and animal husbandry in a vicious circle sokmaktadır (Kılış, 2020a; Aydınlık Gazetesi, 2020; Kılış, 2020b). In a proper response by the East with effective and sustainable solutions against such ineffectiveness and inconveniences across the globe, integrated farming cooperatives along the Belt and Road must be established in close coordination and integration of light agricultural industry and rural communities, attached to these cooperatives, which generate and share their own energy (Kılış, 2022). Inconsistencies and insufficiencies in the European Union's decarbonization initiatives are reaching significantly unreasonable levels. For example, according to a law that is on the agenda to be implemented in Denmark, animal owners will be charged a carbon tax of one hundred Euros for one cow, for every year. Farm animals existed throughout history and their global warming effects were not an issue until the Industrial Revolution, but now the blame is being put on them. This bill shows the West's inadequacy against global warming. If this tax is implemented in a broader sense, such an irrational tax may be demanded from animal owners when exporting meat or live animals to the West.

**Figure 2. Measures to Reduce CO<sub>2</sub> Concentration in the Atmosphere**



Existing and Necessary Measures to Reduce CO<sub>2</sub> Concentration in the Atmosphere (Figure: Kılış, 2024).

Moreover, animal husbandry is at the forefront in all Turkic States and other Eastern countries and grossly supports their economies.

A cow owner may not get free by just paying 100 Euros every year for the same cow. If a farmer collects the manure and utilizes it to generate heat and electricity in a biogas facility as an effective remedy against global warming, the farmer may have to pay a second tax for the CO<sub>2</sub> coming out from the exhaust of the biogas facility (cogeneration), since the positive energy flow chain is not foreseen in the tax law and the anthropogenicity is not considered. The Danish bill does not look at the continuation of the energy chain by saying the tax is per cow, whatever you do, and does not take into account positive appraisal stages. It looks at each system one by one. On the contrary, the same farmer when selling a product produced by using his electricity and heat to the EU countries, another carbon tax will be collected at the border. Electricity and fertilizer products are at the top of the border carbon tax list. While the EU struggles with such inconsistencies, we should focus on realistic, innovative, and rational solutions with cultural fairness and greater respect for our future and environment and create our own carbon market against their impositions. There must be a regional carbon trading at the border system with Belt Road alternatives. Only with these methods can we eliminate the dangers that the West will bring to the Turkic States and all Belt Road countries.

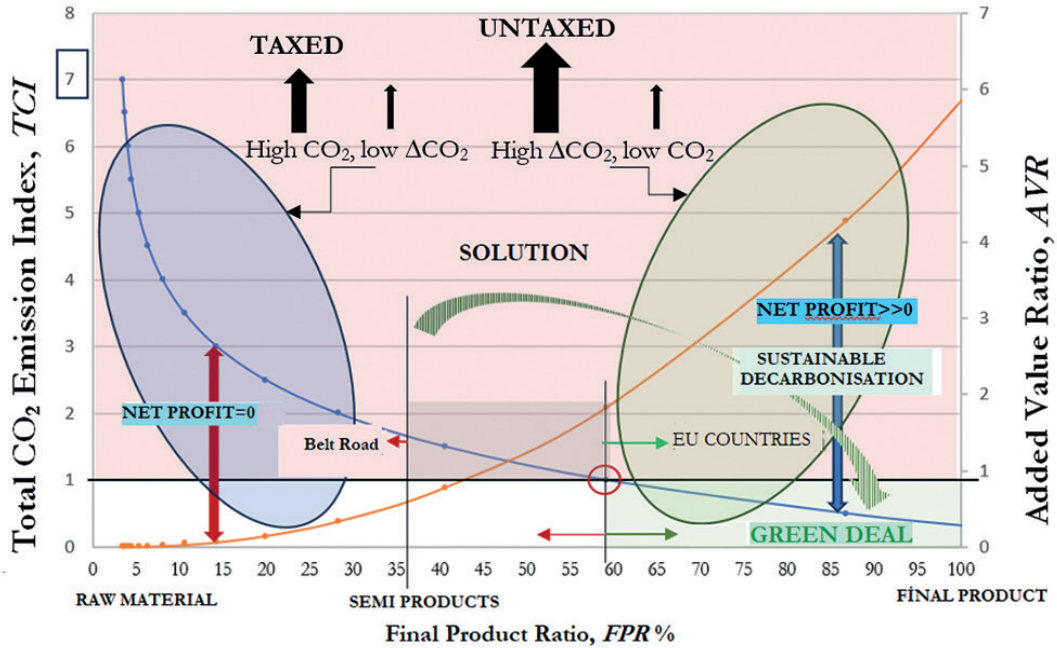
If this tax is considered scientifically consistent by some circles in the EU, then it is necessary to look at the environmental footprint of an F-35 jet aircraft belonging to the Royal Danish Air Force in proportion to this tax. This single aircraft will emit 3.5 tons of CO<sub>2</sub> from its turbine exhausts by spending fossil fuel in just 15 minutes in a hovering position over the ground. This emission is equivalent to the cumulative CO<sub>2</sub> emissions of three cows for a complete year. As a result, if this aircraft repeats this vertical take-off hovering and landing action 15 times in a year, it will have to pay a tax of 4500 Euros. This amount

excludes the tax liability of the same aircraft during level flights during the year. In the same context, since Afşin-Elbistan-A lignite thermal power plant generates approximately 4 billion kW-h of electricity annually, it may have to pay 0.2 billion Euros in taxes- equivalent to two million cows annually. If this electrical energy is exported to neighboring countries (bordering EU countries such as Greece and Bulgaria), a tax will be imposed at the border in proportion to the portion exported.

As a result, while EU countries keep themselves busy by taking precautions against global warming with such inconsistencies, particularly important opportunities arise for us. By conducting algorithmic studies about new carbon market models, we should reach a position that enables us to collect carbon taxes, instead of them at the new border against the EU impositions, as opposed by the Belt Road and the Turkic States. This will be possible because the new model will recognize and respect the virtues of energy quality, of which the EU does not want to see. With such a realistic and fair approach, the East will protect their trade rights and all sectors, including livestock and agriculture, from unfair carbon competition, and will set a role model for Western countries by achieving the Paris Agreement targets on time and will ahead of them. This leadership will also reflect on political power. It is obvious that the goals of the Paris Agreement cannot be achieved as long as the so-called linear, or circular, one-dimensional economy, which ties everything to money, continues to be in force.

Among these problems, the biggest threat from the West will apply to Turkic States and all Belt Road countries, except certain developed countries (such as China and India, the Russian Federation is already subject to disproportionate sanctions.) Figure 3 shows the major threat. The basic economy of Asian countries is based on agriculture, animal husbandry, mining, and semi-finished goods. According to Figure 3, which represents today's conflict between West and East, EU countries dominantly practice extended R&D activities and novel en-

Figure 3. Impacts of a Carbon Tax on the Border on Industry



Negative impact of carbon tax on the border for the Belt & Road industries and agriculture and the solution with final products (Figure: Kılış, 2024).

gineering designs. These activities have low CO<sub>2</sub> emission responsibilities and high DCO<sub>2</sub> responsibilities due to the nature of such practices. Despite this controversy, they generate exceedingly high added values and high selling prices. In essence, the EU countries simply assemble and touch them up the semi-finished products with high DCO<sub>2</sub> emissions that they conceal and keep untaxed, yet unfairly attribute CO<sub>2</sub> emissions to other countries and charge high carbon taxes at their border. Other countries, on the other hand, mostly sell their semi-finished products to EU countries with a small profit margin, consuming much energy, practicing some production line developments, and emitting larger amount of CO<sub>2</sub>, thus facing large carbon taxes. As a result, these counties will not have a net profit, as shown on the left-hand-side of Figure 3. In fact, the fundamental problem is not limited to CO<sub>2</sub>. Factors such as water (such as cotton production), labor, land, and environment (such as toxic waste)

should also be considered cumulatively. The Final Production Ratio, FPR of Turkic states and Belt Rad countries must reach to at least 60% in their industry and farming, from today's average ratio of approximately 35%. Only if this gap is closed, then these countries may achieve sustainable decarbonization and net profitability targets in accordance with the Paris Agreement.


Otherwise, commodities produced along the Belt Road, including Turkic states, will face carbon taxes at the EU border. The EU will sell back finished products with minimal emissions but with high revenues. For example, if a cow is exported and returns as a meat product, cow tax will be charged on departure and little or no tax will be charged upon arrival at the border. EU countries need us as intermediate producers to keep their advantage and maintain their large profits. In fact, this is an opportunity to close the gap by leaping to finished products rather than keeping on semi-finished products or raw material.



A new and joint Belt Road customs line must be drawn. According to Figure 3, EU countries have low CO<sub>2</sub> emissions but high and hidden (Untaxed) DCO<sub>2</sub> emissions. Because DCO<sub>2</sub> emissions are recorded somewhere else, or even by some other countries, which offset the quality mismatches of the original location face unfair taxes. This is another issue that must be taken care of to eliminate this taxing problem. The new Belt and Road customs line must be drawn flexible enough to recognize the origin of DCO<sub>2</sub>, not the final offset point. To overcome all these difficulties, a series of sustainable measures must be taken, and Belt Road boundaries must be adaptively protected. Recommendations are summarized below:

### Recommendations

- Creation of a Joint Scientific and Technological Strategy Center
- Development and implementation of cross-country coordinated state farms based on renewable and waste energy (Kılış, 2022; Kılış, 2024).
- Making the Common Central Bank functional (competing with the EU Central Bank)
- Establishing a competing fund to the IMF
- Creation and introduction of a common currency (such as the Euro)
- Developing and implementing a common carbon market model
- Developing a carbon tax algorithm at the Belt Road border for imports from the West and collecting taxes on emissions that the EU countries in Figure 1 do not want to see and keep concealing.
- Implementation of a banking system competing with the World Bank (WB)
- Expanding and coordinating Shanghai Cooperation Organization and the Belt Road initiative
- Establishment of a new and protectionist customs union between the Belt Road and the Turkic Republics

- Preparation and implementation of new criteria for carbon markets (based on the value of energy), realistic laws and directives
- Preparation of scientifically valid and fair CO<sub>2</sub> emission accounting standards challenging the ISO standards
- Accelerating and supporting the transition of all Eastern countries from semi-finished products to finished products (Figure 3)
- Establishment of customs exemptions specific to Belt Road
- New location adaptive carbon taxes at the Belt Road customs line should include DCO<sub>2</sub> and CO<sub>2</sub>, thus be higher for EU countries
- Issuing standards specific to Belt Road countries in the field of Green Building and Green Industry certification 

### References

- Architecture2030. (2024). Why the Built Environment? Retrieved June 16, 2024 from <https://www.architecture2030.org/why-the-built-environment/#:~:text=Of%20those%20total%20emissions%2C%20building,for%20an%20additional%2015%25%20annually>
- Aydınlık Gazetesi. (2020). Sigortalama Yetmez Yeşil Tarım Atağı Şart! Haber, 6 Aralık 2020.
- Ersen, P. (2024). Avrupa Yeşil Mutabakatı: Temel Bilgiler ve Türkiye'nin Uyumu, BAZ Girişim. Retrieved June 20, 2024 from <https://www.bazgirisim.com/avrupa-yesil-mutabakati-temel-bilgiler-ve-turkiyenin-uyumu/>
- IPCC. (2023). Climate Change 2023 Synthesis Report. WMO, UNEP, ISBN: 978-92-9169-164-7, doi: 10.59327/IPCC/AR6-978929169164 Retrieved June 15, 2024 from [https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC\\_AR6\\_SYR\\_FullVolume.pdf](https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf)
- Kılış, B. (2019). The Importance of Exergy Rationality And Storage For 100% Renewable Targets In Decoupling Sustainable Development And Ozone Depletion, Workshop on Considering Unlocking Energy Efficient Opportunities And Exploring Low GWP Non-HFC Alternative Technologies In The Cooling Sector And Safety Standards While Phasing-Down HFC Under The Kigali Amendment. UNIDO, September 16-17, 2019, Antalya, Türkiye.
- Kılış, B. (2020). Küresel Salgının Hatırlatıkları, İklimsel Isınma ve Klima Sistemleri, Teşişat Mühendisliği. MMO, Sayı 177/Özel Sayı-Haziran 2020, s: 16-24.
- Kılış, B. (2020a). Tarım Sigortalılarında Doğal Afetler, İklimsel Isınma ve Enerji Sinerjisi. T. C. Tarım ve Orman Bakanlığı-TARSİM, Rapor, Ankara, Türkiye.
- Kılış, B. (2020b). Tarım Sigortalılarında Doğal Afetler, Aydınlık Gazetesi, 1-2, 29 Mayıs 2020.
- Kılış, B. (2021). Küresel Kapitalizmde Küresel Salgınlar, İklimsel Isınma ve Atmosfer, BRIQ Working Paper Series, No: 2, Kuşak ve Yol Çalışmaları Uygulama ve Araştırma Merkezi (KUYÇAM), İstinye Üniversitesi. E-ISSN 2718-0581 e.
- Kılış, B. (2022). Yeşil Hidrojen: Kuşak ve Yol Girişimi'nin ortak bağı. BRIQ Kuşak ve Yol Girişimi Dergisi, 3(3), 6-20.
- Kılış, B. (2024). Hemp, Energy And Environment, Technology of Hemp, Int. Interdisciplinary Research Conference, 21-22 May 2024, OSTİM, Ankara Türkiye.
- Kılış, B. (2024). Exergy-Based Slow-City/Agriculture Mechanization With Circular Hydrogen and Renewable Energy Systems, E. Cavallo et al. (Eds.): ANKAgEng 2023, LNCE 458, pp. 112-125, 2024. [https://doi.org/10.1007/978-3-031-51579-8\\_12](https://doi.org/10.1007/978-3-031-51579-8_12)
- T. C. Avrupa Birliği Başkanlığı. (2024). Sınırdaki Karbon Düzenleme Mekanizması (SKDM). Retrieved June 20, 2024 from [https://www.ab.gov.tr/sinirda-karbon-duzenleme-mekanizmasi-skdm-\\_53747.html](https://www.ab.gov.tr/sinirda-karbon-duzenleme-mekanizmasi-skdm-_53747.html)