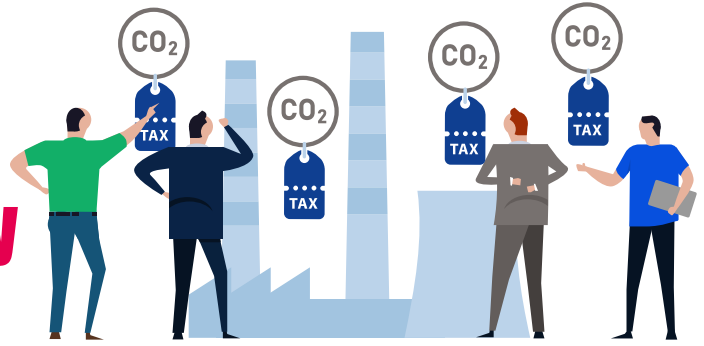


Taiwan's Carbon Fee Era - The Future of the Fastener Industry (Part I)



On July 14, 2021, the EU announced that it will formally implement the Carbon Border Adjustment Mechanism (CBAM) declaration starting from 2026 and the levy of carbon border tax starting from 2027, with the purpose of preventing carbon leakage. The “carbon leakage” refers to the situation when enterprises in response to climate change move their production out of their country or import products of the same type with lower costs from the places with less stringent carbon emission regulations (such as carbon tax and carbon fee) resulting in higher production costs. As there is only one Earth, the greenhouse gas emitted in regions with less stringent carbon emission regulations will have an impact on the global greenhouse effect in all corners of the world when it is emitted into the atmosphere. CBAM stipulates that if a producer country pays a carbon fee or tax in its home country, the amount can be deducted from the CBAM tax. Therefore, Taiwan's Ministry

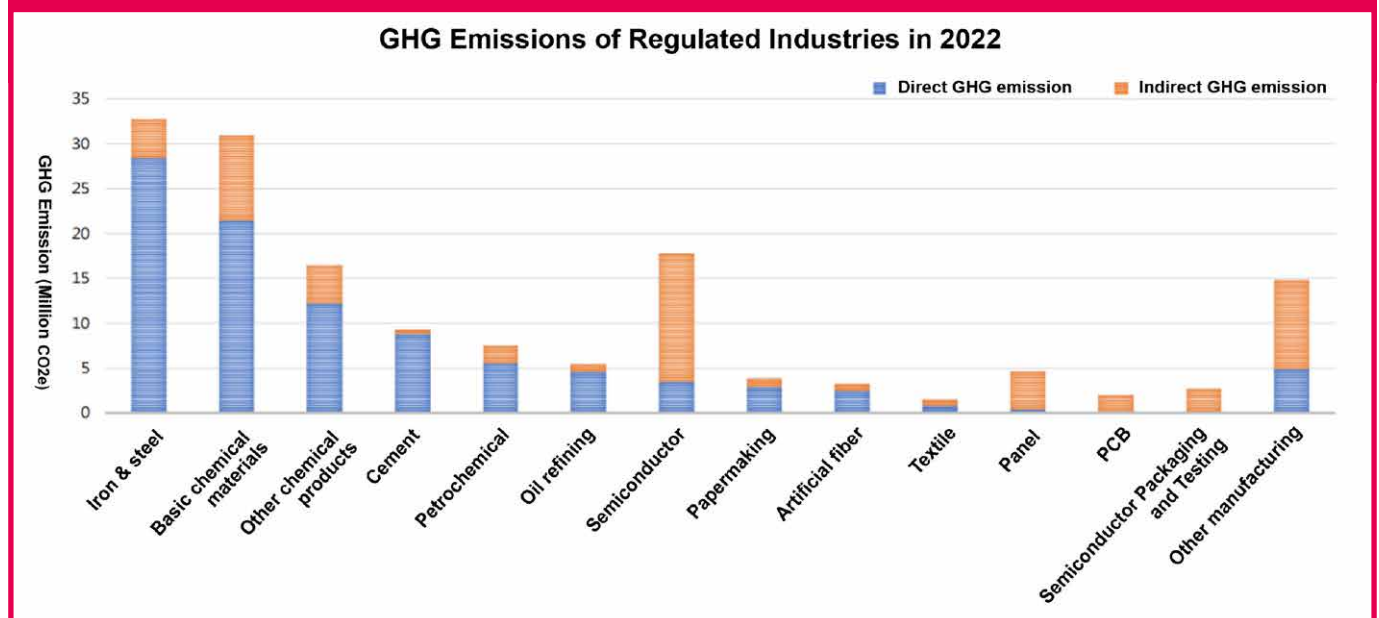
of Environment has been actively legislating since July 15, 2021 to respond to the EU CBAM.

The Climate Change Response Act (CCRA) finally passed by Taiwan’s Legislative Yuan on Feb. 15, 2023 aims at responding to global climate change, formulating climate change adaptation strategies, reducing and managing GHG emissions, implementing intergenerational & environmental justice and a just transition, fulfilling the responsibility of jointly protecting the global environment, and ensuring the country's sustainable development in order to meet the carbon tax requirements of the EU CBAM and the U.S. Clean Competition Act (CCA). Taiwan's Ministry of Environment has been actively working on the relevant regulations during this period, and the GHG regulations that have been announced by the end of September 2024 are summarized in **Table 1**.

Table 1. Greenhouse Gas (GHG) Regulations of Taiwan with Their Announced Dates

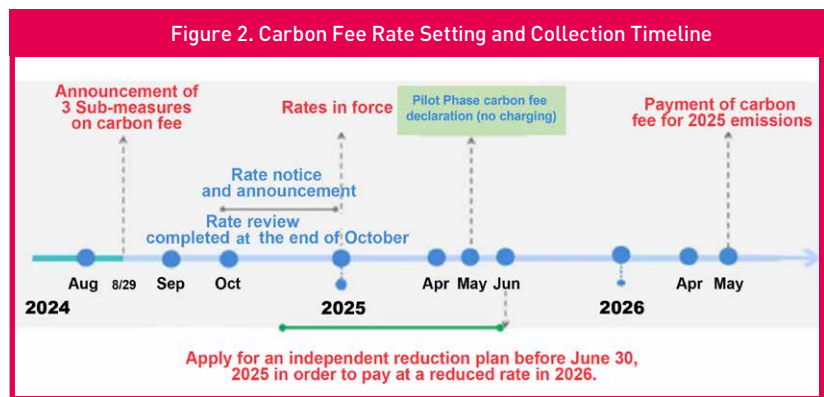
	Climate Change Response Act	Feb / 15 / 2023
1.	Measures for Voluntary GHG Reduction Project	Oct/12/2023
2.	Measures for GHG Emission Incremental Offsets	Oct/12/2023
3.	Enforcement Rules of the Climate Change Act	Dec/29/2023
4.	Measures for Auctioning and Transferring GHG Reduction Quota	Jul/01/2024
5.	Carbon Fee Collection Method	Aug/29/2024
6.	Measures for the Autonomous Reduction Program	Aug/29/2024
7.	Designated GHG Reduction Objectives for Carbon Levy Targets	Aug/29/2024

Figure 1. The Analysis of Industries Targeted for Carbon Levy



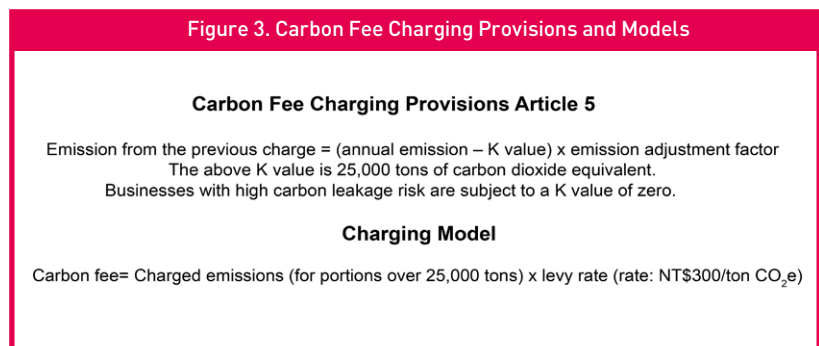
On Aug. 29, 2024, Taiwan's Ministry of Environment announced the Carbon Tax Act, formally declaring that Taiwan's carbon fee era will officially begin on January 1, 2025, specifying that the levy will be imposed on the power, iron & steel, plastics & chemical, and the large-scale manufacturing industries, and announcing the calculation methods of carbon fee and emission reduction/offsets, which means that 2025 will be the starting year of carbon fee and that Taiwan will officially step into the era of "those emit should pay". The first batch of levy targets are the power and manufacturing industries that should be audited, registered and checked for sources of GHG emissions, whose total annual direct GHG emissions from all factories and indirect emissions from the use of electricity amount to 25,000 metric tons of carbon dioxide equivalent or more. **There are 281 enterprises (500 factories) in total.** Figure 1 is an extract from Taiwan's Ministry of Environment's presentation on the analysis of industries targeted for the carbon levy, in which the iron and steel industry is the first in terms of carbon emissions, and it is also the industry that will be emphasized in the reduction of carbon emissions in the future.

By the end of May 2025, the carbon levy targets must calculate the amount of fee payable according to the announced fee rate based on the GHG emissions of the enterprises from January 1 to December 31 of the previous year, fill in the carbon fee declaration form and payment slips, and then submit the carbon fee of the previous year to the collection account of the financial institution designated by the central authority, and then submit the declaration online to the central authority. Please refer to Figure 2 for Carbon Fee Rate Setting and Collection Timeline. The carbon fee rate has been finalized on Oct. 7, 2024, with a general rate of NT\$300/ton of CO₂e, a preferential rate "B" of NT\$100/ton of CO₂e for the technology benchmark designation, and an even more preferential rate "A" of NT\$50/ton of CO₂e for those who choose to go for the industry-specific designation with the highest international carbon reduction standards. The rate will come into effect in 2025, and the carbon fee has to be declared in May of that year (but no payment is required), which means that the carbon fee will not be required to be paid for the first time (the carbon fee for 2025 emissions) until May 2026, and the time for payment is to be able to tie in with the 2026 schedule of the EU CBAM.



Source: Taiwan's Ministry of Environment

The calculation of carbon fee is another key concern of the industry. According to Article 5 of the Carbon Fee Charging Regulations, the carbon fee is calculated by multiplying the charged emissions by the charging rate, and according to the press release of Taiwan's Ministry of Environment on October 7, 2024, reading "High-carbon leakage utilities will initially be entitled to a discount on the emission factor in the carbon fee formula, but it has not yet been specified which industries will be eligible and will need to be released in H1 2025 based on the latest industry correlation table from DGBAS, and further discussions with Taiwan's MOEA." It is not yet known, and the collated fee model is shown in Figure 3.



In accordance with the "Designated GHG Reduction Objectives for Carbon Levy Targets" and "Measures for the Autonomous Reduction Program", enterprises that are subject to the carbon levy may propose their own "autonomous reduction program" to reduce their carbon levy as long as they are able to effectively reduce their GHG emissions and meet the "designed objectives" of the central authority.

Taiwan CSC's GHG emissions from 2019 to 2023 as disclosed in its 2023 Sustainability Report are shown in Table 2. The table of CSC's GHG emissions from 2019 to 2023 shows that CSC's GHG emission intensity in 2023 was 2.326 tons of CO₂e per ton of steel billet, the same as that of 2022, and was

higher than that of 2021 (2.301 tons of CO₂e per ton of steel billet), which might be due to the decrease in revenue in 2023 (please refer to Table 3) not reaching the economic scale of production capacity, resulting in an increase instead of a decrease in the intensity of GHG emissions. Based on Taiwan CSC's 2023 GHG emissions (Scope 1 and Scope 2) of approx. 18,055,857,000 tons of CO₂e, and deducting the K value of 25,000 tons, the amount of carbon emissions that need to be paid is 18,035,570,000 tons of CO₂e. If calculating at NT\$300 per ton of CO₂e, the amount of carbon fee that Taiwan CSC needs to pay is approx. NT\$5.4 billion. If Taiwan CSC chooses the highest international standard for carbon reduction in the industry-specific designation of the target, and applies a more favorable rate A of NT\$50 per ton of CO₂e, the carbon fee it must pay is approx. NT\$900 million. Taiwan CSC's financial report for 2019-2023 (Table 3) shows that the total turnover in 2023 was NT\$197.149 billion and the carbon fee will account for 0.45%~2.73% of the total turnover, and this amount, if not self-absorbed, will be transferred to the prices of its products.

Table 2. Taiwan CSC'S GHG Emission in 2019-2023

Year	2019	2020	2021	2022	2023	Unit
GHG Emission Intensity	2.269	2.374	2.301	2.326	2.326	Tons of CO2e per ton of steel billet
GHG Emission/Scope 1	20,351,815	18,318,428	20,939,573	18,248,901	16,809,455	Tons of CO2e
GHG Emission/Scope 2	1,181,783	1,243,430	1,357,456	1,373,673	1,249,102	Tons of CO2e
Total Emission (Scope 1 + Scope 2)	21,533,598	19,561,858	22,297,029	19,622,574	18,058,557	Tons of CO2e

Source: Taiwan CSC 2023 Sustainability Report p.8

Table 3. Taiwan CSC' s Financial Report for 2019-2023

Year	2019	2020	2021	2022	2023	Unit
Operating Income	2,072.98	1,838.42	2,597.82	2,506.01	1,971.49	NT\$0.1 bn
Net Profit After Tax	88.10	8.86	620.53	177.84	16.82	NT\$0.1 bn
EPS	0.57	0.05	4.02	1.15	0.11	NT\$

Source: Taiwan CSC 2023 Sustainability Report p.8

As shown in **Table 2**, Taiwan CSC's GHG emissions in 2019-2023 are mainly in Scope 1 (Category 1 of ISO 14064-1:2018 Edition), focusing on stationary sources of combustion, with coal being the largest consuming energy source. Before 2021, coal was used for metallurgy and fuel, and coal has been only used for metallurgy since 2022, and fuel coal has been replaced with natural gas and low-sulfur fuel oil, and the consumption of natural gas and low-sulfur fuel oil has increased significantly from 2022 onwards. This article cites the energy consumption description of Taiwan CSC's Sustainability Report. **Table 4** shows Taiwan CSC's energy consumption in 2021- 2023.

Taiwan CSC's self-imposed carbon emission targets (using 2018 as the base year) are to reduce carbon emissions by 7% by 2025, 25% by 2030, and to achieve carbon neutrality by 2050. Taiwan CSC's short/medium/long-term carbon reduction programs include short-term investment in solar photovoltaics to meet the short/medium-term demand for renewable energy in the plant as much as possible, as well as long-term inventory of low-carbon energy demand, investment and purchase planning, and active investment in industry-academia cooperation programs to bet on the R&D of new and emerging low-carbon steelmaking technologies, including the addition of reduced iron, the use of hydrogen injection at the blast furnaces to replace coal, and the capture and application of carbon.

Table 4. Taiwan CSC's Energy Consumption in 2021- 2023

Category	Item	Usage in 2021	Usage in 2022	Usage in 2023
Direct energy	Coal	219,340,668	191,854,995	172,104,025
Direct energy	Natural gas	5,107,395	9,556,139	11,159,359
Direct energy	Diesel	111,916	104,779	4,776
Direct energy	Gasoline	5,368	4,997	4,776
Direct energy	low-sulfur fuel oil	79,477	373,631	134,060
Direct energy	Other	38,954	39,822	27,193
Indirect energy	Outsourced electricity	9,600,438	9,991,953	9,104,411

Source: Taiwan CSC 2023 Sustainability Report p.8

At present, whether it is the carbon fee levied by Taiwan or the CBAM levied by the EU, the mode of offsetting between the two sides has not yet been decided. On September 16, 2024, Taiwan's Minister of the Environment and its affiliated dept. of Climate Change went to the relevant organizations in the EU for view exchanges on climate change, carbon trading, and air quality management. However, **the details of the deduction will be known only after the announcement of the details of "how to deduct the carbon pricing paid by third countries" and "the harmonization of the free allocation and CBAM system under the EU ETS" in the next year (2025).**

(Editor's Note: Carbon tax measures have a significant impact on industry development, and Taiwan is no exception. In this issue, we have explained in detail Taiwan's future carbon tax collection model, calculation criteria, and current progress. The next issue of Fastener World Bimonthly Edition (Jan 2025) will continue this topic, and analyze in-depth the carbon tax declaration. ■

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