

The 2nd Session of the 11th Legislative Yuan

The 7th Plenary Meeting of the Economic Committee

**Special report on “Assessment of the
Impact of Taiwan's Carbon Fee
Collection Mechanism on Industries
and Carbon Border Adjustment
Mechanism (CBAM) Promotion
Plan”**

Ministry of Environment
October 23, 2024

Chairman and esteemed members of the committee,

Today, the Economic Committee of the 2nd session of the 11th Legislative Yuan holds a plenary committee meeting. It is a great honor for the Ministry of Environment (MOENV) to be invited to attend and report.

The *Climate Change Response Act* (氣候變遷因應法) (the *Climate Act*) was promulgated and implemented on February 15 2023. Article 28 of the Act stipulates that, to achieve the long-term national greenhouse gas emission reduction goal and periodic regulatory goals, carbon fees may be imposed against emission sources in stages. As for the collection rates, they will be reviewed by the rate review committee established by the Ministry, and will be reviewed and announced regularly by the MOENV. The MOENV has formulated the *Regulations Governing the Collection of Carbon Fees* (碳費收費辦法), the *Regulations Governing Self-Determined Reduction Plans* (自主減量計畫管理辦法), and the *Designated Greenhouse Gas Emissions Reduction Goals for Entities Subject to Carbon Fees* (碳費徵收對象溫室氣體減量指定目標) on August 29 2024. The "charging rate of carbon fees" was announced on October 21 2024 and will take effect on January 1 2025, officially bringing Taiwan into the era of carbon pricing. In addition, in order to assist entities subject to carbon fee collection to smoothly adopt the carbon fee system, the MOENV will continue to hold meetings to explain the carbon fee sub-laws and launch meetings on self-determined reduction plans. At the same time, the Ministry of Economic Affairs (MOEA) will also hold meetings on assistance for self-determined reduction plans and launch the relevant counseling mechanism with technical consultation and guidance for industries in order to assist industries in applying for self-determined reduction plans and become eligible for preferential rates. I would like to thank all members of the Legislative Yuan for your concern on Taiwan's carbon fee system and Carbon Border Adjustment Mechanism (CBAM). Please kindly advise on the following report.

I. Carbon fee collection system in Taiwan

Article 28 Paragraph 1 of the *Climate Act* clearly stipulates that “to achieve the long-term national greenhouse gas emission reduction goal and periodic regulatory goals, the central competent authority may impose carbon fees against emission sources in stages: 1. Direct emission sources: Fee shall be collected based on the quantity emissions; or from the actual user or manager if the owner of the source is not the actual user or manager. 2. Indirect emission sources: Fee shall be collected based on the quantity of indirect emissions generated from the use of electricity from the owners of the emission source; or from the actual user or manager if the owner of the source is not the actual user or manager.” And Article 29 Paragraph 1 stipulate that “Entities subject to carbon fees who switch to low-carbon fuels, adopts negative emission technologies, increase energy efficiency, use renewable energy or take measures to reduce greenhouse gas emissions effectively by improving manufacturing processes and reaching goals designated by the central competent authority may propose voluntary reduction plans and apply for a preferential rate from the central competent authority.” Therefore, the sub-laws related to carbon fee collection, including the *Regulations Governing the Collection of Carbon Fees*, the *Designated Greenhouse Gas Emissions Reduction Goals for Entities Subject to Carbon Fees*, and the *Regulations Governing Self-Determined Reduction Plans*, were promulgated by the MOENV on August 29 2024.

As for the charging rate of carbon fees, Article 28 Paragraph 3 of the *Climate Act* specifies that "for the carbon fee rates, the Carbon Fee Rate Review Committee established by the central competent authority shall periodically perform reviews based on the current status of domestic greenhouse gas reduction, types of emission sources, types of greenhouse gas emissions, scales of emissions, the voluntary reduction situation. their effectiveness, and other relevant factors. Subsequently, the review of the committee will be submitted to the central competent authority for approval and official announcements." The key points of the carbon fee collection system are as follows:

1. The *Regulations Governing the Collection of Carbon Fees*

- (1) Collection targets: Those that are "emission sources whose greenhouse gas emissions must be inventoried, registered, and verified". This applies to industries, including power and gas supply industries as well as manufacturing industries, where the total annual emissions, comprising both direct emissions from the entire factory (site) and indirect emissions from electricity use, exceed 25,000 metric tons of carbon dioxide equivalent (CO₂e). Based on the 2022 greenhouse gas emission data, there are estimated to be approximately 281 enterprises (with 500 affiliated factories) subject to carbon fees and whose emissions amount to approximately 155 million metric tons of CO₂e, roughly

54% of Taiwan's total emissions.

- (2) Payment schedule: Starting from the year following the announcement of the charging rate of carbon fees, entities should register and pay carbon fees based on their emissions of the previous year before the end of May each year (the charging rate will take effect on January 1 2025, and the carbon fees for the 2025 annual emissions will be paid in May 2026).
- (3) Calculation of carbon fees: The calculation formula of carbon fee payable is multiplying "chargeable emissions" by the "fee rate".
- (4) Transition mechanism: Chargeable emissions = (annual emissions – K value) × emission adjustment coefficient
 - a. For industries with high carbon leakage risks (those having proposed self-determined reduction plans that are reviewed and approved, in reference to international assessment methods and consideration of trade intensity and emission intensity): The emission adjustment coefficient is 0.2 for the first stage and 0.4 and 0.6 for the second and third phases in the future, respectively.
 - b. For industries not with high carbon leakage risks: Annual emissions are deducted by K value, the carbon fee collection threshold (25,000 metric tons of CO₂e, which is to be adjusted in stages in the future).
 - c. Use of reduction credits
 - (1) Domestic reduction credits: In order to encourage entities subject to carbon fees (large emission sources) to lead those not subject to carbon fees to reduce their emissions and also to keep funds within Taiwan, the deduction ratio is set at 1.2 for entities using reduction credits of voluntary reduction projects and offset projects to deduct charged emissions from their reduction quotas to 1.2. However, the upper deduction limit shall not exceed 10% of enterprises' chargeable emissions.
 - (2) International reduction credits: Additional complementary measures are provided for industries not with high carbon leakage risks. Such industries may use international reduction credits recognized by the central competent authority, but the upper deduction limit shall not exceed 5% of the chargeable emissions.

2. The Designated Greenhouse Gas Reduction Goals for Entities Subject to Carbon Fees and the Regulation Governing Self-Determined Reduction Plans

According to Article 29 of the *Climate Act*, entities subject to carbon fees who switch to low-carbon fuels, adopt negative emission technologies, increase energy efficiency, use renewable energy or take measures to reduce greenhouse gas emissions effectively by improving manufacturing processes and reaching designated by the central competent authority may propose "designated reduction plans" and apply for a "preferential rate" from the central competent authority.

- (1) Designated reduction goals: With 2030 as the target year, two calculation methods for designated goals are established and apply to different preferential rates:
 - a. Industry-specific designated reduction rate: With 2021 as the base year, this goal is set with reference to the international scientific-based reduction targets (SBTs) and applies to preferential rate A.
 - b. Technological benchmark-specific designated reduction rate: With the period from 2018 to 2022 as the base years, the goal is based on domestic and international benchmarks of emission technologies and the nationally determined contributions (NDCs) planned to achieve by 2030. It is determined by considering emission types of each emission source, including types of fuels, manufacturing process, electricity use, etc., and applies to preferential rate B.
- (2) Self-determined reduction plans: If planning to apply for preferential rates, entities subject to carbon fees are to select either the "industry-specific designated reduction rate" or the "technological benchmark-specific designated reduction rate", calculate the emissions of the target year to be achieved by 2030 accordingly as the designated target, and plan the annual carbon reduction pathways up to 2030 (including annual implementation progress of reduction measures and annual emissions). Entities are to then submit applications for self-determined reduction plans and execute them only after they are reviewed and approved by the central competent authority.

(3) Periodic reviews of reduction results:

- a. After the self-determined reduction plans is reviewed and approved by the MOENV, enterprises are to implement them every year in accordance with the approved annual designated goals (annual progresses of reduction measures for the entire plants and emissions set to be reached) and submit a progress report on the implementation of the self-designated reduction plans in the previous year at the end of April each year. Only those who meet the designated goals are eligible for preferential rates.
- b. If enterprises are found to have failed to perform according to the reduction plans after inspected by the central competent authority, the difference between the carbon fees under the standard rate and those under the preferential rate for that year will be recovered in accordance with the relevant regulations. They are required to complete improvements by a given date and, if failing to do so, will have their self-determined reduction plans abolished.

In order to assist entities subject to carbon fees to smoothly transition to the carbon fee system, the MOENV plans to hold three meetings on application of self-determined reduction plans in northern, central, and southern Taiwan in late October in addition to the four meetings on the carbon fee sub-laws. At the same time, the MOEA will also hold meetings on assistance for self-determined reductions in November and launch relevant mechanisms to provide industries technical consultation and guidance so as to assist them in applying for self-determined reduction plans, and become eligible for preferential rates. The ultimate aims is to achieve substantial reductions in greenhouse gases while lowering enterprises' economic burdens.

II. Reviews, setting, and impact assessments of the charging rates of carbon fees

1. Composition of the Carbon Fee Rate Review Committee

According to Article 28 Paragraph 3 of the *Climate Act*, for the carbon fee collection rates, the Carbon Fee Rate Review Committee established by the MOENV shall periodically perform reviews based on the current status of domestic greenhouse gas reduction, types of emission sources, types of greenhouse gas emissions, scales of emissions, the voluntary reduction situation, their effectiveness, and other relevant factors. Subsequently, the review of the committee will be submitted to the MOENV for approval and official announcements. On December 1 2023, the MOENV formulated and released the *Guidelines for Establishment of the Carbon Fee Rate Review Committee* (碳費費率審議會設置要點) and selected committee members accordingly.

The first Carbon Fee Rate Review Committee has the MOENV deputy director as the convenor, the director of the MOENV's Climate Change Administration as the deputy convenor, and 21 committee members, including five representatives from relevant agencies, six representatives from civil organizations, and eight scholars and experts. The term is from March 1 2024 to February 28 2026, and the tasks include setting and adjustment of standard rates and preferential rates of carbon fees, as well as relevant assessments, reviews, research and consultations.

2. Review factors and impact assessment of carbon fee rates

The MOENV held a total of six carbon fee rate review meetings from March to October 2024. With reference to the planned international carbon prices in 2030, the Committee set a price range of NT\$1,200-1,800 per metric ton of CO_{2e} as the recommended base for Taiwan's standard rates after 2030, and then estimated the standard rates for the first collection of carbon fees in 2025. In this regard, the Committee considered Taiwan's current reduction status, types of emission sources, types of emission, scales of emissions, self-determined reduction situations, their effectiveness. The Committee also comprehensively looked into factors such as the current status and fee levels of the international carbon taxes, the backgrounds and implementation overview of carbon pricing policies in major neighboring Asian countries, and impacts of different rates on the overall economy, commodity prices, and individual industries. The recommended charging rates sets NT\$300/metric ton of CO_{2e} for the standard rate, NT\$100 /metric ton of CO_{2e} for the preferential rate B, and NT\$50/metric ton of CO_{2e} for the preferential rate A. The review process has also confirmed that the current proposed rates will not have an obvious impact on the overall economy and commodity prices and at the

same time be able to maintain the industries' competitive edges on the international markets. The evaluation results are explained as follows:

- (1) Impact assessment on the overall economy (using GDP as an indicator) and commodity prices (using CPI as an indicator): Conservative analysis conducted based on the carbon fee rates of NT\$50-300 per metric ton shows assuming that carbon fees are fully passed onto consumers, an impact on GDP by 0.009% to 0.12% and on CPI by 0.006% to 0.081%. That is to say, the impact of carbon fees on the overall economy and commodity prices is not significant and will not cause Greenflation.
- (2) Impact assessment on industries: Based on the industry code (three-digit codes) of the General Accounting Office and the business survey data of each industry in recent years under the MOEA's "Factory Calibration and Operation Census Report", impacts of the fees payable under each rate are calculated on the costs and gross profits for each industry. Taking the five major industries including cement, steel, oil refinery, basic chemical materials, and papermaking as examples, under the scenario of NT\$300 per metric ton for the standard rate, carbon fees account for 15.49% to 43.03% of the industries' average gross profit margin. For industries that implement self-determined reduction plans, meet the designated targets and are eligible for transitional adjustment measures, such as the preferential rate B of NT\$100 per metric ton and the emission adjustment coefficient for industries with high carbon leakage risks, carbon fees collected account for 1.14% to 2.95% of the industries' average gross profit margin. It indicates that the rates recommended by the Carbon Fee Rate Review Committee have taken into account the needs of Taiwan's industry transitions, and the rates will be reviewed and adjusted in the future based on the implementation of carbon fee collection.

3. Formulation of the charging rates of carbon fees

Based on the resolution of the sixth Carbon Fee Rate Review Committee Meeting on October 7 2024, the MOENV preannounced the charging rate of carbon fees on October 8. The rates have been announced on October 21 (general rate at NT\$300/metric ton of CO₂e, preferential rate B at NT\$100/metric ton of CO₂e, and preferential rate A at NT\$50/metric ton of CO₂e) and will take effect from January 1 2025.

4. Comparison of Taiwan's carbon costs with those of neighboring Asian countries

In addition to carbon pricing, the actual carbon costs borne by industries should also consider factors such as fossil fuel-related taxes and fees, electricity prices, etc. Taiwan's carbon pricing system started later than neighboring Asian countries. Under the trend of international net-zero transition, the launch of the carbon fee system is a way to ensure the international competitive edges of Taiwan's industries.

The situations faced by every country in the adoption, implementation and design process of carbon pricing policies and tools are different, hence leading to different implemented systems and supporting measures (such as tax exemptions, free emission credits, and subsidies, etc.). Prices set by a single system should not be used to make cross-country comparisons. According to 2021 data on effective carbon price (ECR) in the database of Organization for Economic Cooperation and Development (OECD), the average fossil fuel tax in Japan and South Korea (the average of all sectors including manufacturing) are NT\$881 and NT\$962 per metric ton of CO₂e, respectively. Taiwan's average fossil fuel tax, calculated using the OECD definition, is approximately NT\$331 per metric ton of CO₂e, which is significantly lower than those of Japan and South Korea. The costs of emissions caused by the use of fossil fuels are relatively low. Even with the impacts of the carbon pricing system included, Taiwan's enterprises will still have more favorable carbon costs competitively than Japan and South Korea.

III. Promotion and planning of Taiwan's Carbon Border Adjustment Mechanism (CBAM)

1. Current status of international CBAM

The "Carbon Border Adjustment Mechanism" (CBAM) refers to a system adopted in countries or regions that implement carbon pricing. The system compares the carbon emissions of imported products with domestic products of the same category and ensures that the imported products and domestic products have equivalent carbon costs to avoid "carbon leakage" caused by imports of a large number of high-emission products.

There are 75 countries or regions around the world that have implemented carbon pricing. Among them, none in the Asian regions (such as China, South Korea, Singapore, etc.) adopt CBAM or have plans for this. Only the EU has launched CBAM after implementing emissions trading and is currently in the trial stage of application. Official implementation will take place in 2026. In 2024, the UK has conducted public consultation and is expected to officially launch its CBAM in 2027, while other countries are still having discussion.

2. Taiwan's response to the EU's CBAM actions

(1) Declaration of emissions embedded in products

The EU issued the Implementing Regulations (reporting obligations for the purpose of CBAM during the transitional period) on September 15 2023, which states that during the transitional period (October 1 2023 to December 31 2025), registrants' applicants should submit their CBAM reports on the Transitional CBAM Registry within one month after the end of each quarter. The first report was to be submitted before January 31 2024 and contain data of products in sectors covered by the CBAM scope that were imported in the fourth quarter of 2023. The second report was to be submitted before April 30 2024, the third report before July 31 2024, and so on for the rest of the CBAM reports.

During the CBAM transitional period, Taiwan's main products affected are the manufacturing industries of steel and aluminum products. According to the divisions of responsibilities among the ministries, the MOEA has guided the affected industries to declare emissions embedded in their products.

(2) Deduction via CBAM certificates

If the product-importing country has implemented carbon pricing (such as emissions trading, carbon fees, carbon taxes, etc.), registrants should submit information relevant to carbon prices paid by the country of origin in the CBAM reports, such as types of carbon pricing mechanism, the amount of carbon prices payable, descriptions of carbon pricing tools, and possible subsidy mechanisms, in order to obtain fee reductions and exemptions. Regarding the number of required EU CBAM certificates that can be deducted with carbon fees paid in Taiwan, the EU will announce the details on “deduction with third-country carbon pricing” and “harmonization between free allocation and CBAM system under EU Emission Trading System (ETS)” in the middle of 2025, which will help Taiwan smoothly adopt the carbon fee deduction system. The MOENV will also assign professional and full-time personnel to be stationed in the EU next year to keep abreast of the latest CBAM developments and participate in negotiations to assist domestic industries in responding.

(3) Taiwan’s carbon fee system on prevention of carbon leakage

When countries implement carbon pricing measures, it may lead to relocation of industries to countries with looser controls or import of products from areas without carbon pricing, which will instead increase global carbon emissions and result in carbon leakage. Taking references from the practices of countries such as the EU, South Korea and Singapore (including granting partial free allocations or tax exemptions), the MOENV has designed a transitional support mechanism in the *Regulations Governing the Collection of Carbon Fees*, which were announced on August 29 2024. The emission adjustment coefficient is 0.2 for the initial phase now and 0.4 and 0.6, respectively, for the second and third phase in the future to avoid carbon leakage.

3. Establishment of Taiwan’s CBAM

On June 5 2024 the MOENV has held a meeting on the response to the EU CBAM and the feasibility of Launching Taiwan's CBAM. Thorough evaluation is still needed on emissions embedded in products involved in the CBAM, including calculations, verification methods, reduction credits, impacts on imports and exports, international trade negotiations, and impacts on domestic commodity prices, as well as collection of public opinions in order to consider the feasibility of promoting Taiwan's carbon border adjustment mechanism. Moreover, in line with the launch of the carbon fee system, Taiwan has planned to promulgate our version of CBAM next year, starting with declaration of emission intensity of products with high carbon leakage (such as steel, cement, etc.).

IV. Conclusion

On August 29 2024, the MOENV announced the *Regulations Governing the Collection of Carbon Fees* and the *Regulations Governing Self-Determined Reduction Plans*, and the *Designated Greenhouse Gas Reduction Goals for Entities Subject to Carbon Fees*, declaring that Taiwan has officially entered an “carbon emitter pays” era. At the same time, after the Carbon Fee Rate Review Committee held six meetings from March to October 2024 and took comprehensive consideration of various factors, a proposal was put forward on the collection rates. The Ministry followed the committee’s resolution and announced the *Regulations Governing the Collection of Carbon Fees* on October 21 2024. This allows collection targets to plan reduction measures as soon as possible and help reach the national reduction goals by leading Taiwan's industries in low-carbon, net-zero transition. On the other hand, Taiwan will begin planning for the launch of our own CBAM as of next year so as to maintain the competitive edges of Taiwan’s industries in the international markets.

All suggestions for this report are welcomed.

Best wishes and good health for the esteemed Chairman and all members of the committee. Thank you very much.