



## The CBAM Challenge

# How Are Major Manufacturers in China, Turkey, Vietnam, and India Responding?

The impact of the EU's Carbon Border Adjustment Mechanism (CBAM) extends globally. High-carbon-emission industries such as steel, cement, aluminum, electricity, fertilizers, and hydrogen must submit carbon emission declarations and pay carbon fees in accordance with regulations when exporting to the EU. This undoubtedly poses a far-reaching challenge for developing countries where high-carbon industries serve as the primary drivers of economic growth. In particular, China, Turkey, Vietnam, and India have deep trade ties with the EU, and their massive export volumes translate to higher carbon emission costs. Consequently, finding ways to reduce carbon emissions of products and lower carbon fee costs through various means has become a key focus for suppliers and manufacturers in these countries. This article focuses on the specific measures taken and key priorities of major fastener manufacturers in China, Turkey, Vietnam, and India in response to the CBAM regulations, enabling readers to better understand the differences in carbon reduction efforts among these four major fastener manufacturing and supply nations, in addition to Taiwan.

## Four Key Areas for Addressing the CBAM

While the approaches taken by various countries to address the CBAM vary, they can generally be categorized into four main areas: "establishing their own carbon emissions databases," "adopting low-carbon manufacturing processes," "implementing comprehensive carbon management certifications," and "developing supply chain carbon tracking systems." Observations indicate that, at this stage, fastener manufacturers—particularly those with a high proportion of products exported to Europe or those seeking to further expand into the European market—are devoting significant resources to ESG initiatives and carbon reduction efforts.



Establishing a carbon emissions database is the first essential step for nearly all manufacturers required to file CBAM reports, enabling them to understand their carbon emissions profile, calculate the carbon footprint of their products, assess the need for subsequent carbon reduction measures, and provide data for timely verification during audits by EU importers. Once these carbon emissions data have been thoroughly analyzed, manufacturers will begin considering how to reduce direct/indirect carbon emissions from their production lines, or implement ISO 14064 (Corporate Greenhouse Gas Inventory), ISO 14067 (Product Carbon Footprint), ISO 14068 (Carbon Neutrality), and EPD (Environmental Product Declaration), as well as (if necessary) establishing a supply chain carbon tracking data system to monitor the emissions of external associate suppliers.

The core principle of the CBAM is to create a level playing field by balancing the carbon emission disparities among products from different sources. In other words, there is a strong positive correlation between carbon emissions data and the cost of carbon fees. As a result, many fastener manufacturers in Asia are currently focusing on accelerating carbon reduction through process improvements, such



as increasing the proportion of electric arc furnaces that use scrap steel for smelting (since their carbon emissions are only one-quarter of those from conventional blast furnaces), increasing the use of solar power and power purchase agreements (PPAs), or significantly reducing energy consumption through ambient-temperature cold forging—which requires no additional heating—and AI-driven process optimization. They also respond to European clients' verification of their CBAM compliance by obtaining relevant carbon management system certifications and integrating carbon reduction data across steel raw material sourcing, electricity, processing, and transportation.

## How are Leading Manufacturers in China, Turkey, Vietnam, and India Implementing Carbon Reduction Measures?

### China

According to industry estimates, CBAM could increase the export cost of steel by €130–160 per ton. As the EU's largest source of fastener imports, China is currently responding through three main strategies: establishing carbon data systems, developing hydrogen metallurgy, and advancing carbon capture, utilization, and storage (CCUS). Additionally, **major fastener production hubs such as Jiaying and Haiyan are actively promoting carbon footprint reporting.** The following outlines the response strategies of a few major Chinese fastener manufacturers:

**Hisener Industrial- Increase the use of clean energy:** Increase investment to optimize product design and manufacturing processes

- Implementing a circular economy to reduce energy and material consumption
- Developing emission reduction technologies
- Focusing on green procurement
- Establish a carbon emissions verification system
- Planning to apply for ISO 14064 and ISO 14067 certification

**Jiaying Haina Fastener:** Developing more efficient, more environmentally friendly, and higher-performance photovoltaic products

- Use more environmentally friendly materials
- Reduce carbon emissions from manufacturing processes and energy use
- Improve the recyclability of products

### India

Most fasteners produced in India are used in the automotive, construction, and engineering machinery sectors. However, since coal-fired power generation accounts for 65–70% of India's total electricity production and the country also relies heavily on blast furnaces, **reducing high carbon emissions remains an urgent challenge on the path to industrial development.** The following outlines the CBAM strategies adopted by a few major Indian fastener manufacturers:

**Sundram Fasteners:** As India's largest automotive fastener manufacturer, Sundram Fasteners has also implemented numerous greenhouse gas (GHG) reduction initiatives, such as:

- Installation of Bio-gas plant for canteens
- Replacement of LPG fired Thermic Fluid Boiler with Wood fired Boiler
- Introduction of Battery-operated forklift instead of Diesel forklift
- Installation of Fuel-efficient Diesel Generators
- Conversion of LPG fired Sintering and Continuous Annealing furnaces to Electrical heated furnaces
- Installation of Electrostatic fume exhaust system for forging machines
- Implementing Waste heat recovery and utilization rate in furnaces
- Reducing compressor energy consumption by optimizing air cleaning stations

### Turkey

Turkey is currently one of the most proactive emerging economies in promoting carbon reduction. In July 2025, the country officially announced the passage of its National Climate Law, which aims to achieve net-zero emissions and promote green growth. In 2026, Turkey plans to complete the formulation of regulations for its Emissions Trading System (ETS) based on the EU's framework and launch a pilot program. Leveraging its geographical advantage, Turkey has established close cooperative relationships with European industrial supply chains and is one of Europe's most important suppliers of fasteners. In particular, **Turkey relies heavily on electric arc furnaces that use scrap steel as their primary raw material for smelting,** resulting in carbon emissions data that are more favorable than China's. The following outlines the approaches taken by a few Turkish leading fastener manufacturers in response to the CBAM:

**Norm Fasteners:** As a key supplier to automotive groups such as Volkswagen and Stellantis, Norm Fasteners has implemented several strategies to address the CBAM, including:

- Use of renewable energy (solar power)
- Use of low-carbon raw materials and recycled steel
- Process electrification
- Improve energy efficiency
- Combined heat treatment furnace
- Electric vehicles
- Heat recovery system

**Çetin Civata:** The company is currently one of the few that has made quarterly CBAM reporting a standard part of its routine announcements, enabling it to directly provide clients with CBAM declaration data and avoid using the EU's default high-carbon coefficients. Its primary response strategies focus on several key areas:

- Establish a CBAM Reporting and Carbon Inventory System
- Calculating carbon intensity for different fasteners
- Establish an internal "Sustainability Committee" to oversee carbon data management, CBAM reporting, and regulatory tracking

### Vietnam

Vietnam's fastener manufacturing industry is still in its developmental stage, and compared to major fastener manufacturers in countries such as Taiwan or China, its local companies appear to be relatively passive in terms of carbon emissions management and implementation. Currently, **the most common approach adopted by local enterprises is to use imported low-carbon**



**steel to reduce carbon emissions.** Some fastener factories established in Vietnam by investors from Taiwan or China may adopt more proactive carbon reduction measures on their production lines, following the lead of their parent companies. With the Vietnamese government's announcement that it will cease construction of new coal-fired power plants after 2030 to ensure reduced carbon emissions and achieve the carbon neutrality goals pledged at COP 26, more companies are expected to join this effort in the future.

**Boltun Vietnam:** This is a factory established in Vietnam by Taiwan-based Boltun Corporation in April 2023. As a supplier specializing in automotive parts for electric vehicle customers in Europe and the U.S., the parent company has already obtained ISO 14064 carbon inventory certification.

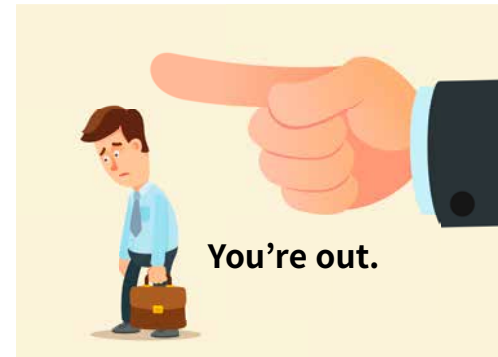
## Pressure from EU Importers and Challenges Faced by Manufacturers

Since the CBAM stepped into the implementation phase this year, European buyers have begun requiring suppliers to provide information on product carbon footprints, the origin of steel, electricity emission factors, and manufacturing carbon emissions. They have also implied that failure to do so may result in supplier change, which will have a significant impact on many manufacturers unable to comply. Furthermore, some small and medium-sized fastener manufacturers do not yet possess comprehensive carbon emissions calculation capabilities, carbon emissions data from some upstream steel suppliers remains opaque, and the form templates may vary across different European import channels, creating difficulties in implementation.

## Conclusion

Although the EU has published default carbon emission values for products in relevant industries across various countries late last year to assist manufacturers unable to provide carbon emission data with their reporting, the carbon fees calculated using these default values are often higher than those calculated based on actual conditions, resulting in higher carbon fee costs. It is recommended that **manufacturers in various countries take the first step by actively conducting carbon audits and establishing their own carbon emissions databases.** Based on the higher emissions identified through these audits, they should achieve more significant carbon reduction targets by upgrading production lines and strengthening cooperation with raw material suppliers to reduce carbon emissions. Doing so will not only enhance their brand image in the eyes of European importers but also strengthen their competitive position against rivals in various countries, thereby avoiding early elimination in the future global competition for carbon reduction among fastener manufacturers. ■

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