

## Trade Cooperation Between China and Indonesia in the Context of Carbon Border Tax: Current Situation and Prospect

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### ABSTRACT

In recent years, China-Indonesia relations have flourished, with trade and investment constantly expanding, showing strong resilience and vitality. However, in the face of profound changes unseen in a century, international challenges emerge one after another. The implementation of carbon border tax will have a huge impact on the international trade, and China and Indonesia will also be affected. This paper reviews the concepts and international progress of carbon border tax. In the context of carbon border tax, China and Indonesia will meet the challenges and seize the development opportunities, so as to cultivate new driving forces and growth points for cooperation between the two countries, and jointly promote the transformation of international trade into green trade.

### KEYWORDS

carbon border tax; china-indonesia; trade cooperation;  
present situation and prospect

### INTRODUCTION

As the largest economy among ASEAN countries and the only G20 member, Indonesia has made great contributions to the formation and improvement of ASEAN's political, economic and security mechanisms and enjoys an important position within ASEAN. As important neighbors to each other and representatives of major developing countries and emerging economies, Indonesia and China share broad common interests and huge development potential. In October 2013, China put forward the "21st Century Maritime Silk Road" initiative, and the relationship between China and Indonesia was officially upgraded to a comprehensive strategic partnership. In recent years, the two countries have reached consensus on the synergy between the 21st Century Maritime Silk Road Initiative and the Global Maritime Fulcrum strategy. In the face of profound changes unseen in a century, the two countries have established a new pattern of bilateral relations featuring political, economic, cultural and maritime cooperation. China-indonesia relations have become a model of mutually beneficial cooperation among regional countries and a model of unity and strength among developing countries.

However, new international challenges keep emerging. The global climate is changing rapidly and the greenhouse effect is becoming prominent, which puts forward new

requirements for global climate governance. Countries around the world have also realized the great threat of climate warming to national sustainable development, and successively signed the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement. Countries have put forward corresponding measures for their own development. The European Commission released the European Green Deal and proposed the "carbon border adjustment mechanism". It has significant direct foreign-related impact, among which "carbon border tariff" has become the focus of attention. "Carbon border adjustment tax" will form an unfavorable green trade barrier for developing countries, which is bound to have a profound impact on international trade. Against this backdrop, China and Indonesia will work together to meet the challenges and find measures to balance environmental protection and economic development.

## RESEARCH METHODS

This paper mainly adopts literature analysis method. By referring to relevant literature on carbon border tax and trade relations between China and Indonesia, this paper sorts out, analyzes and summarizes the research status and research results of relevant topics, which lays a solid theoretical foundation for the research of this paper.

## RESULTS AND DISCUSSION

### 1. International Progress of Carbon Border Adjustment Tax

In order to effectively cope with the challenge of global climate change, as early as 1972, the United Nations issued the United Nations Declaration on the Human and Environment. Countries around the world have taken a series of measures to reduce carbon dioxide emissions and curb the greenhouse effect, including carbon tax, carbon tariff, carbon emission trading market and green finance. In the process of global commitment to carbon emission reduction, countries implementing carbon emission reduction measures will transfer their high-carbon assets to countries lacking carbon emission constraints, resulting in carbon leakage and hindering the achievement of the expected total reduction of carbon dioxide emissions. Carbon leakage has significant negative externalities, and relevant carbon border adjustment mechanisms emerge. Carbon border adjustment mechanism, also known as carbon border tax, is a tariff method complementary to internal carbon pricing mechanisms such as carbon market and carbon tax, which aims to internalize negative externalities caused by carbon emissions contained in imported goods and reflect them in commodity prices.

In the early 1990s, Finland, Denmark, Sweden, Norway, the Netherlands and other European countries took the lead in exploring carbon tax mechanisms. In 2002, the UK became the first country to implement both carbon tax and carbon emission trading (UK ETS) policies. Subsequently, Japan, the European Union and other developed economies also combined carbon tax, carbon emission trading mechanism and border adjustment tax, and used carbon pricing system to equalize the production costs of imported products and domestic products, forming a relatively common coexistence mechanism at present. In 2009, the report "Trade and Climate Change" jointly published by the WTO and the UNEP proposed for the first time that governments could balance the adverse impact of a country's carbon price on trade through "border tax adjustment of carbon and energy taxes". Asian and

African countries have also implemented carbon taxes. South Africa became the first African country to introduce a carbon tax, and the government of Singapore announced plans to introduce a carbon tax from 2019, making it the starting point in Asia. Carbon tax is widely regarded as one of the effective market-based carbon emission reduction policy tools by the international community. In 2019, the EU announced the launch of the European Green New Deal, and formally proposed to adopt a Carbon Border Adjustment Mechanism (CBAM) for imports and exports of some industries to reduce the risk of Carbon leakage. In July 2021, draft CBAM legislation was officially announced by the European Commission. The U.S. state of California is currently implementing a carbon border tax based on a carbon tax starting at \$40 per ton. When the U.S. imports goods from countries that do not have a carbon pricing policy or have a low carbon price, tariffs will be imposed on imports to enhance the competitiveness of U.S. companies. In August 2021, Canada also launched the exploration of carbon border regulation mechanism, aiming to seek a coordinated approach between climate change and international trade from three aspects: environmental outcomes, economic pressure, international participation and trade relations. Countries impose carbon border adjustment tax is roughly same, the purpose of improving its product competitiveness, safeguard national interests, to promote low-carbon industry development, to reduce greenhouse gas emissions, pass on environmental responsibility, reduce its cost, etc., but the tax rate, tax calculation basis, tax purposes such as very different, its main difference as shown in table 1 and table 2.

**Table 1.** Comparison of Carbon Tax Mechanisms

Category	The Main Content
<b>Tax rate</b>	Poland \$0.08 / t CO <sub>2e</sub> ; Sweden \$137.24 / t CO <sub>2e</sub> ; Japan \$2.61 / t CO <sub>2e</sub> Singapore \$3.71 / t CO <sub>2e</sub> .
<b>Taxation basis</b>	<b>A direct tax on carbon emissions or carbon content</b> : Poland, the Czech Republic, etc <b>Based on the total amount of fuel consumed or its carbon content</b> : Finland, Denmark, the United Kingdom, Japan and most other countries
<b>Tax payment link</b>	<b>A tax on fossil fuel production only</b> : Iceland, Japan, Canada. <b>A tax only on the consumption side of fossil fuels</b> : Poland, England. <b>Tax both the production and consumption sides of fossil fuels</b> : the Netherlands
<b>tax preferences</b>	<b>Tax incentives or exemptions for specific industries and fuels for different uses</b> : European countries set carbon tax exemptions for enterprises in the EU carbon trading market, and Canadian provinces have partial exemptions for energy intensive industries such as aviation and transportation.
<b>Tax purposes</b>	<b>In Finland</b> , Tax rebates for energy-intensive industries ; <b>In Denmark</b> , part of the carbon tax revenue is used to subsidize the use of natural gas and electricity for residents, and part is used to return carbon tax revenue to enterprises that pay value-added tax, or subsidize enterprises' investment in energy conservation. <b>In the UK</b> , the tax is refunded through three ways: reducing the national

	insurance premium paid by enterprises for employees, increasing investment subsidies for energy saving and environmental protection technologies, and establishing a carbon fund.
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Source: According to Lu Shuling, Bai Yanfeng's "international practice of carbon tax and its enlightenment for China to achieve the goal of" carbon peak "by 2030 (2021)".

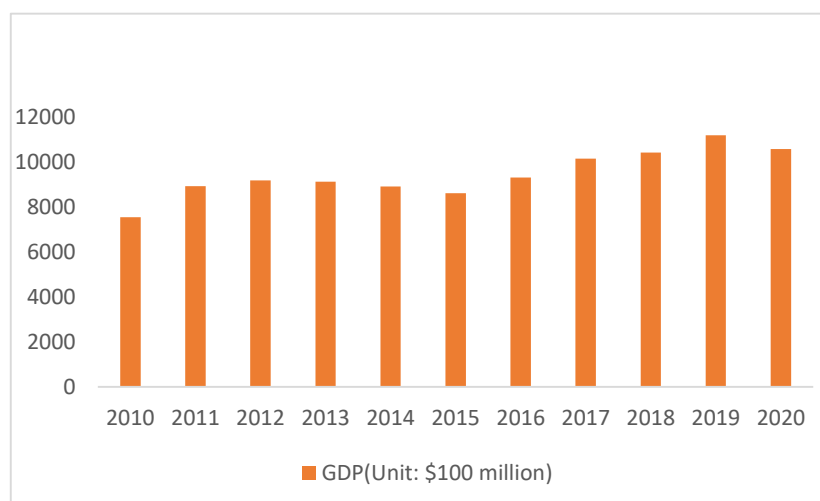
**Table 2.** The Start Year and Rate of the Carbon Tax

Country or Region	Start Year	Carbon Tax Rate (US \$/ t CO <sub>2e</sub> )
Finland	1990	72.83 (Transportation fuel) 、 62.25 (Other fossil fuels)
Denmark	1992	28.14 (fossil fuels) 、 23.65 (Fluoride gas)
Colombia	2008	35.81
Switzerland	2008	101.47
Ireland	2010	39.35
Iceland	2010	34.83 (fossil fuels) 、 19.79 (Fluoride gas)
the UK	2013	24.8
France	2014	52.39
Spain	2014	17.62
Portugal	2015	28.19
Canada	2019	31.83
Luxembourg	2021	40.12 (diesel) 、 23.49 (Other fossil fuels)

## 2. Analysis of Current Trade Situation Between China and Indonesia

### 2.1 Economic Growth and Industrial Structure in Indonesia

As the largest economy in ASEAN, Indonesia's economic growth level has always been in the forefront of ASEAN countries, and its GDP has been growing rapidly. In 2020, due to the impact of the COVID-19 epidemic and the global economic malaise, the total GDP of Indonesia decreased slightly, reaching 1,058.424 billion dollars, down 2.07 percent year on year, down 60.667 billion dollars compared with the previous year, and up 303.33 billion dollars compared with 2010. From the trend line, Indonesia still has a solid growth momentum, the economic aggregate still maintains the first position in ASEAN.



**Figure 1.** Indonesia's GDP 2010-2020

In terms of industrial structure, Indonesia's agricultural added value in 2020 was \$145.046 billion, an increase of \$2.779 billion compared to 2019, accounting for 13.7 percent of Indonesia's GDP. The added value of industry was US \$404.965 billion, a decrease of US \$30.944 billion over the previous year, accounting for 38.26% of the total GDP. The added value of manufacturing industry was US \$210.396 billion, accounting for 19.88% of GDP and 5,499.11% of industrial added value. Besides agriculture and industry, the added value of the tertiary industry was 508.413 billion US dollars, accounting for 48.03% of GDP, showing the characteristics of pro-economic cycle, with great potential in the service industry such as retail and tourism. The number of foreign tourists to Indonesia reached 14.04 million in 2017, 15.81 million in 2018 and 7.83 million in the first half of 2019. Malaysia, China, Singapore, Timor-Leste and Australia are the top five sources of tourists to Indonesia.

**Table 3.** Annual statistics of added value of Agriculture, Industry and tertiary industry in Indonesia (Unit: \$100 million)

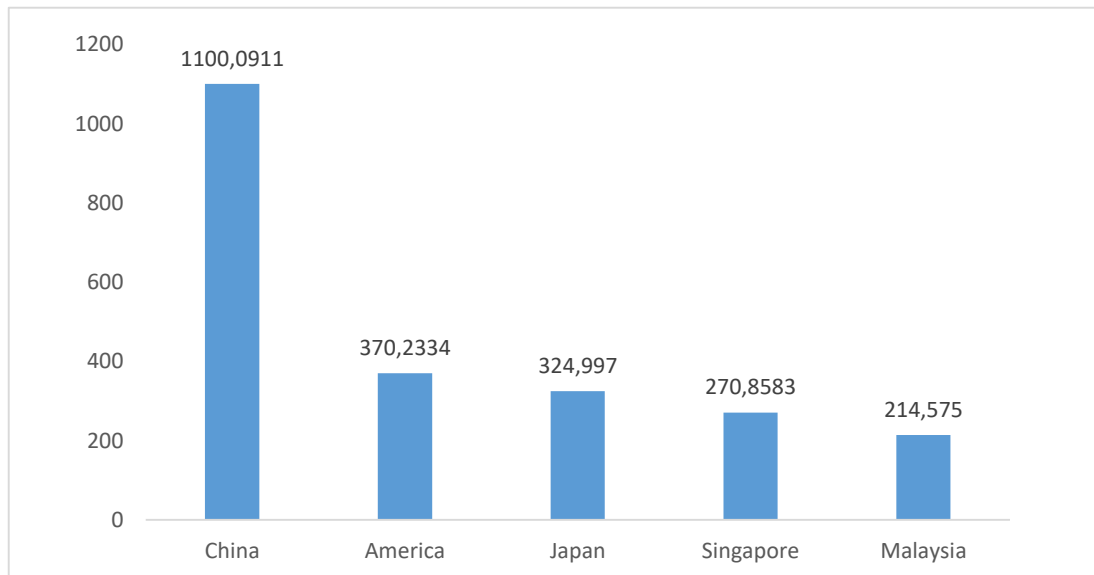
Year	GDP	Agricultural value added	Proportion in GDP	Industrial added value	Proportion in GDP	Value added of the tertiary industry	Proportion in GDP
2010	7550.94	1051.79	13.93%	3229.98	42.78%	3269.17	43.29%
2011	8929.69	1206.61	13.51%	3921.33	43.91%	3801.75	42.57%
2012	9178.7	1227.56	13.37%	4001.34	43.59%	3949.8	43.03%
2013	9125.24	1218.83	13.36%	3890.61	42.64%	4015.8	44.01%
2014	8908.15	1188.06	13.34%	3735.04	41.93%	3985.05	44.73%
2015	8608.54	1161.52	13.49%	3447.54	40.05%	3999.48	46.46%
2016	9318.77	1256.05	13.48%	3663.06	39.31%	4399.66	47.21%
2017	10156.19	1336.21	13.16%	3999.42	39.38%	4820.56	47.46%
2018	10422.72	1334.99	12.81%	4140.92	39.73%	4946.81	47.46%

2019	11190.91	1422.67	12.71%	4359.09	38.95%	5409.15	48.34%
2020	10584.24	1450.46	13.70%	4049.65	38.26%	5084.13	48.03%

## 2.2 Development of Foreign Trade in Indonesia

Foreign trade plays an important role in Indonesia's national economy. The government has taken a series of measures to encourage and promote the export of products, simplify export procedures and reduce tariffs. At present, Indonesia has signed a total of five regional free trade agreements and two bilateral free trade agreements, vigorously promoting the development of Indonesia's foreign trade. Imports and exports of goods in Indonesia totaled \$427.712.45 billion in 2021, up 40.27 percent year-on-year. Among them, the export was 231.52247 billion US dollars, up 41.77%; Imports amounted to 19,6189.98 billion US dollars, up 38.53%. The trade surplus was US \$35.332.249 billion, up 62.94%. Mineral products, animal and vegetable oils, base metals, machinery and appliances, and chemical products are Indonesia's top five export commodities, while machinery and appliances, mineral products, chemical products, base metals, plastics and rubber are Indonesia's top five import commodities.

In terms of countries, China, the United States, Japan, Singapore and Malaysia are Indonesia's top five trading partners. In 2021, Indonesia's imports and exports to the five countries were 110.0911 billion, 37.02334 billion, 32.4999 billion, 27.0883 billion and 21.45775 billion US dollars. Increased by 54.05%, 36.11%, 33.55%, 17.49% and 42.45% respectively, accounting for 25.72%, 8.66%, 7.60%, 6.33% and 5.02% of Indonesia's import and export volume.



**Figure 2.** Imports and Exports of Indonesia's Major Trading Partners in 2021

## 2.3 Current Situation of Trade Between China and Indonesia

### 2.3.1 Total Trade Between China and Indonesia

Since 2000, China has actively promoted economic and trade exchanges with Indonesia by taking advantage of the opportunity of joining the WTO. China and Indonesia have always adhered to the principle of mutual benefit and constantly improved the level of economic and trade cooperation. China has become Indonesia's largest trading partner and the second largest source of investment, and bilateral economic and trade cooperation has yielded fruitful results. In 2020, the total trade between China and Indonesia will reach 78.37 billion US dollars, an increase of about 10 times compared with 20 years ago, and the bilateral trade cooperation will continue to deepen and strengthen. In 2021, the total trade volume will reach 124.34 billion US dollars, with a year-on-year growth of 58.4%, ranking first among ASEAN countries. China has become the largest trading partner of Indonesia for 9 consecutive years and the largest export destination of Indonesia for 6 consecutive years. In 2021, China's investment in Indonesia will reach 3.2 billion US dollars. While providing financial support, we have constantly strengthened cooperation in technology, human resources training and other fields, which has not only increased local employment and expanded exports, but also boosted Indonesia's economy and contributed to the greater development of bilateral economic and trade cooperation.

**Table 4.** Import and export volume and Growth rate between China and Indonesia  
(Unit: \$100 million)

Year	Value of trade	Growth rate (%)	Value of trade imports	Growth rate (%)	Total trade	Growth rate (%)	Trade surplus
2000	30.62	72.12	44.02	44.28	74.64	54.53	-13.4
2001	28.37	-7.36	38.88	-11.67	67.25	-9.90	-10.52
2002	34.26	20.80	45.08	15.95	79.35	18.00	-10.82
2003	44.82	30.80	57.47	27.47	102.29	28.91	-12.65
2004	62.56	39.59	72.16	25.56	134.72	31.71	-9.59
2005	83.50	33.47	84.37	16.93	167.87	24.61	-0.87
2006	94.50	13.17	96.06	13.85	190.55	13.51	-1.56
2007	126.01	33.35	123.95	29.04	249.96	31.18	2.06
2008	171.93	36.44	143.23	15.55	315.16	26.08	28.7
2009	147.21	-14.38	136.68	-4.57	283.89	-9.92	10.52
2010	219.54	49.14	207.97	52.15	427.50	50.59	11.57
2011	292.17	33.09	313.37	50.68	605.55	41.65	-21.2
2012	342.83	17.34	319.51	1.96	662.34	9.38	23.33
2013	369.30	7.72	314.24	-1.65	683.55	3.20	55.06
2014	390.6	5.77	244.85	-22.08	635.45	-7.04	145.74
2015	343.32	-12.08	198.86	-18.78	542.28	-14.66	144.56
2016	321.26	-6.45	214.14	7.68	535.4	-1.27	107.12
2017	347.57	8.19	285.74	33.44	633.32	18.29	61.83



2018	431.91	24.27	341.5	19.51	773.41	22.12	90.42
2019	456.85	5.77	339.93	-0.46	796.78	3.02	116.93
2020	410	-10.2	373.7	9.5	783.7	-1.7	36.3

### 2.3.2 Trade Structure Between China and Indonesia

With the increase of bilateral trade volume year by year, the bilateral trade structure has been undergoing positive changes. Indonesia mainly imports mechanical and electrical products, base metals and products, chemical products and household goods from China. China's labor-intensive products, such as toys and furniture, textiles and raw materials, shoes, umbrellas, bags and other light industrial products, have a big advantage in the Indonesian market. In mechanical and electrical products, China also has relative technological advantages compared with Indonesia. China mainly imports mineral products, animal and vegetable oils, pulp and wood from Indonesia. In 2021, the top five bilateral trade commodities were machinery and appliances, mineral products, base metals, chemical products and animal and vegetable oils, with import and export values of 25.10927 billion, 20.98824 billion, 20.31799 billion, 10.9005 billion and 6.625 billion dollars respectively. Increased by 129.04%, 63.47%, 85.06%, 21.71% and 73.29% respectively, accounting for 22.82%, 19.08%, 18.47%, 9.91% and 6.02% of the bilateral import and export volume. Chinese companies' investments in Indonesia focus on energy, communications, power, mining, transportation and many other fields. A large number of Chinese companies represented by Huawei and ZTE in the communications sector, Huadian and hydropower in the power sector, petrochina and CNOOC in the energy sector have entered the Indonesian market and made positive contributions to the local economic and social development.

## CONCLUSION

### The Export Trade Between China and Indonesia Impacted by CBAM

The countries most affected by a carbon border tax are those that export a lot of carbon-intensive goods to the country that established it. On the whole, our export product carbon intensity is higher, the export degree of dependency is higher. The EU has been our largest trading partner for a long time. Meanwhile, the US, Japan and South Korea are among the top five trading partners in 2020, and our export trade is relatively dependent on the markets of developed countries. According to the public information of the General Administration of Customs, the bilateral trade between China and the United States increased by 8.3% year on year in 2020, among which China's exports to the United States increased by 7.9%, followed by Japan. The total trade volume between China and the United States in 2020 rose to 317.539 billion dollars, an increase of 0.8% year on year. Exports to Japan totaled 142.664 billion dollars, down 0.4 percent. South Korea was third, with total bilateral trade rising to \$285.264 billion in 2020, up a meager 0.3 percent from a year earlier. Specifically, China's exports to them amounted to US \$112.505 billion, up 1.4%. If developed countries follow Europe and the United States to implement carbon border taxes, Chinese exports will be greatly restricted.

In terms of industry, "energy intensive and heavily tradable" industries would be



hardest hit by a carbon border tax. The EU's carbon border regulation mechanism, for example, will initially include five industries: electricity, steel, aluminum, cement and fertilizer. China's steel and aluminum industries will face challenges such as increased costs and decreased competitiveness when exporting to the EU. According to a new report by the Energy Foundation, the cost of Chinese exports to the European Union will increase by 25 percent after 2035. Secondly, nearly 60% of China's foreign exports are mechanical and electrical products, which are in the downstream of the steel and aluminum industry. The rise of steel and aluminum costs will also have an indirect impact on the relevant industrial chain of China.

For Indonesia, the United States is the second largest trading partner, its President, Biden also put forward in its manifesto carbon border taxes, points out that the government will from failed to fulfill its obligations to the climate of countries on carbon-intensive goods carbon adjustment cost, this will greatly influence on Indonesia's exports to developed countries.

Carbon border taxes essence set up green trade barriers, according to the UN conference on trade development organization, the latest warnings if the eu at \$44 per ton of carbon price, carbon border taxes, developing countries as the goal of carbon-intensive industry exports will be reduced by 1.4%, if in the carbon price of \$88 per ton, and exports will be reduced by 2.4%. Europe and America benefit more from both tax revenue and carbon leakage; However, countries that do not levy carbon border tax not only have to pay carbon border tax to countries that levy carbon border tax when exporting goods, but also have to bear the carbon emission cost of these goods, which puts them in a disadvantageous position.

The environmental Kuznets curve shows that when the development level of a country is low, the degree of environmental pollution is relatively light. With the increase of per capita income, environmental pollution tends to increase from low to high. But when the economy develops to a certain level, the further increase of per capita income will be accompanied by the improvement of environmental quality. Developing countries such as China and Indonesia lag behind developed countries in terms of environmental quality and climate change response. If only developed countries in Europe and the United States take the lead in imposing carbon border taxes, developing countries may actually lag further on the Kuznets curve and increase the level of inequality among countries. Such a move violates the UN principle of common but differentiated responsibilities, harms international trade and creates potential trade disputes.

### **The Implementation of Carbon Border Tax Provides a New Opportunity for China-Indonesia Trade Cooperation**

Europe and the United States carbon border taxes implementation will change the direction of China's foreign trade geography, the developed countries to implement the carbon border adjustment measures would make China's exports to the eu, the United States, Japan, Australia and other economies have fallen sharply, the number of goods to force China to transfer center for trade cooperation, strengthen trade with other trading partners, to explore a new path of trade cooperation. Therefore, China will further increase trade ties with

ASEAN's Asian trading partners, which will provide new opportunities for China-Indonesia trade cooperation.

From the perspective of development, China and Indonesia, both developing countries, also have "carbon leakage" in trade, which is mainly related to the import and export structure between them, and is internally related to the industrial structure, production technology level and energy use of the two countries. While the second industry in China and Indonesia occupies the important proportion in the domestic economy, but in a relatively high level of production technology, mechanical and electrical products such as carbon products, in particular, it has a comparative advantage in trade, and Indonesia as an important member of "China - asean free trade area", And located in the important developing countries along the "One Belt and One Road", China and its trade prospects are still good.

China will continue to deepen bilateral cooperation docking mechanism with Indonesia, deepening regional cooperation mechanisms, put forward the "maritime silk road" in the 21st century initiative with Indonesia advocated by the "global Marine protection" strategic concept highly fit, Marine cooperation become a new growth point of economic cooperation in Indonesia, the two sides make common development, Shared prosperity "Marine development partners", A number of cooperation agreements have been signed in the areas of ports, coastal economy, industrial processing and "overseas warehouse" construction, providing broad prospects for the expansion and extension of economic and trade cooperation between China and Indonesia.

In terms of green low carbon development, strengthen the green trade cooperation with Indonesia, with Indonesia in climate, green market economic development and standard rules, and other fields to carry out all-round cooperation, the two countries should explore resources advantage, make good use of the regional comprehensive economic partnership agreement (RCEP), oppose unilateralism and trade protectionism, Promoting international negotiations under the framework of WTO, we, Indonesia, elimination of trade barriers, the favorable clauses in the use of the existing international trade laws and regulations to maintain their own interests, the unreasonable carbon border taxes to fight back, take an active part in future international trade system evolution process, strive to develop low carbon economy under the international trend of win-win situation, We will work together to transform international trade into green trade.

At the same time, it will take the opportunity to improve the quality of bilateral trade between China and Indonesia, guide foreign trade enterprises to improve the technical added value of traded products, promote the transformation of foreign trade enterprises from scale and speed to quality and efficiency, and from price competition to technology competition, promote the industrial upgrading of the two countries, and enhance the position of China and Indonesia in the global value chain. Promote the two countries to carry out business model innovation, such as cross-border e-commerce business, use the advantages of the Internet platform, save trade costs, improve trade efficiency and release trade potential. More Chinese enterprises should be guided to adopt cross-border e-commerce model to conduct trade with Indonesia and seize the opportunities brought by the development of Indonesia's digital economy. At the same time, we will give full play to the spirit of a major country,

actively help Indonesia improve infrastructure construction, promote trade facilitation, promote trade growth, and invest in infrastructure construction to meet the needs of Indonesia's domestic economic and people's livelihood development, so as to lay a foundation for future trade development.

### **The Carbon Border Tax Will Push China and Indonesia to Intensify Green and Low-Carbon Transition Efforts**

In the long term, the implementation of the EU carbon border tax can also promote green and low carbon development of enterprises in countries including China and Indonesia, promote emission reduction in high carbon sectors and innovation in low carbon sectors, improve resource utilization efficiency and optimize industrial structure. Because the current energy consumption structure of China is mainly coal, oil and other fossil fuels, and this kind of energy is the essential source of carbon dioxide emission. At the same time, the energy efficiency of China is relatively low, and the carbon emission is very high.

For Indonesia, is one of the world's largest greenhouse gas emitter, and its oil and gas, the coal resource is rich, relying on the fossil energy for a long time, Indonesia in 2020 of fossil fuels in primary energy consumption accounted for 93%, and renewable energy and clean energy accounted for only 7%, in terms of solar and wind energy development and utilization is still in the blank, Nor is attention paid to its abundant geothermal resources. Therefore, the implementation of carbon border tax will increase domestic emission reduction efforts. In order to avoid the risks caused by carbon border tax, it is necessary to fundamentally promote low-carbon transformation, reduce the carbon emissions of domestically produced goods, and increase the development and use of new energy.

In terms of specific measures, first of all, we should strictly control the consumption of coal and other fossil fuels, and control the total consumption to avoid unnecessary consumption of fossil fuels. At the same time, we should promote the clean use of fossil energy, promote mature energy saving and emission reduction technology and circular economy technology in the production process, improve their utilization efficiency, so as to reduce the pollution emission of fossil energy. In addition, it is necessary to increase the investment in the development of new energy, vigorously develop the alternative fuel industry, use carbon-free and low-carbon energy, such as the development of nuclear energy, solar energy, wind energy and other renewable energy and new energy, to achieve the diversification of energy use, improve the structure of energy use.

Secondly, vigorously promote domestic enterprises to strengthen technological innovation and actively explore green transformation. Carbon border taxes levied will boost the global low carbon economy development, will promote the development of various kinds of clean energy and environmental protection and energy saving industry, to create low energy consumption, low pollution, high tech content, high production efficiency of resource saving and environmentally friendly green industry system, further promote low carbon emissions, and to achieve the goal of "double carbon" in our country.

Therefore, enterprises need to strengthen technological innovation, vigorously develop and promote low-carbon innovative technologies. For example, the use of green hydrogen energy, carbon capture and storage technology to improve energy efficiency, achieve

technological upgrading to reduce the consumption of fossil energy. Find out the carbon emissions of the upstream and downstream of the industrial chain and supply chain, deepen the understanding of the carbon footprint of products to reduce the carbon footprint.

For Indonesia, in the process of the implementation of carbon reduction policy, energy utilization technology gap is a big obstacle, should actively committed to global sustainable development friendly countries like China to increase communication between technology, the introduction of waste management system technology, such as clean energy technology, actively obtain funding from international cooperation, technical support and transfer, characteristic of the implementation of the measures to reduce emissions, To address key barriers and make technological solutions more affordable. At the same time to the global environment facility (GEF), the UN industrial development organization (UNIDO), the United Nations environment programme (UNDP) and other international organizations to apply for aid, including information sharing, knowledge consulting services, climate information and carbon emissions monitoring, reporting and verification system related to the development and use, strengthen technical support as needed.

Finally, gradually establish a sound carbon pricing and carbon market mechanism, and steadily accelerate the construction of a national carbon emission trading system. On the basis of the current national carbon emission trading system, which is dominated by the electric power industry, other key emission industries including steel, electrolytic aluminum, cement, and chemical industry are gradually included in the EU carbon border regulation mechanism. According to its basic idea to adjust and optimize the mechanism design of Chinese carbon market as soon as possible, promote the integration of domestic carbon market and international carbon market, in order to reduce the carbon tax payable or obtain tax exemption [18]. We will steadily develop carbon emission permit futures trading and other carbon financial derivatives, improve the liquidity of the carbon market, and reasonably determine the carbon price level. Improve the top design of carbon trading market, at present, the Ministry of ecological environment has introduced "carbon emission rights trading Management Measures (Trial)", should accelerate the introduction of a higher rank legal system, to provide legal protection for carbon trading market.

In order to achieve the goal of carbon neutrality and reduce the risks of carbon border taxes, the association of south-east Asian nations (asean) also issued a number of policies and documents, such as the national renewable energy plan map 2030, long-term power sector development plan (2020-2038), Indonesia should actively to perform the related responsibility, implementation of Indonesia's carbon tax carbon trading scheme in the roadmap, take effective measures, For example, entities whose emissions exceed the limit need to purchase emission permits from another entity whose emissions are lower than the limit, and strive to achieve the goal of establishing a carbon trading market by 2025.

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