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Re-exploration of the Dual Attributes of Environmental Protection and International Trade in Electricity Price Subsidies for Biomass Power Generation: A Chinese Perspective

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Abstract

Biomass power generation is an important utilization method of renewable energy, and its electricity price subsidy has dual attributes: environmental protection and international trade. For the sustainable development of human society and for the country to compete for the right to develop, subsidies are necessary. To make up for the costs caused by externalities, subsidies have their legitimacy, which constitutes the environmental protection attribute of subsidies. Under the WTO legal framework, electricity price subsidies may constitute subsidies, prohibited subsidies, and actionable subsidies under the SCM Agreement, which is a concrete manifestation of its international trade attribute. It is difficult to have the best of both worlds in environmental protection and international trade. To reconcile the contradiction between the two, we should seek both inward and outward solutions: internally, strengthen policy compliance, promote the healthy development of the industry, and realize marketization as soon as possible; externally, seek institutional support at the level of international law, and set exemptions for environmental subsidies through multilateral negotiations, ministerial meetings, etc. It is necessary to seize the opportunity of energy transformation, including biomass power generation, as soon as possible with the encouragement of the "Two Carbon-related" Goals.

Keywords: subsidy, right to development, externality, SCM agreement, "Two Carbon-related" Goals

1. Introduction

Vigorously developing renewable energy(new energy), is an important way to deal with the global climate crisis. In November 2021, Nations adopted the Glasgow Climate Pact in COP 26 of the UNFCCC. For the first time, nations are called upon to phase down unabated coal power and inefficient subsidies for fossil fuels. From the Paris Agreement to the Glasgow Climate Pact, the goal of controlling carbon emissions and developing renewable energy has become a global consensus, and its regulations have become increasingly refined. In March 2021, in the outline of the 14th Five-Year Plan passed by the National People's Congress, China proposed to focus efforts on achieving carbon neutrality by 2060 and adopt more forceful policies and measures.[1] In October 2021, the State Council pointed out in the "Action Plan for Carbon Dioxide Peaking Before 2030" that it is necessary to vigorously develop new energy resources and develop biomass power generation according to local conditions.[2]

As an important part of new energy resources, biomass power generation includes "power generation through direct combustion and gasification of agricultural and forest waste, garbage incineration and landfill gas power generation, and biogas power generation".[3] According to estimates, the current resources of various organic wastes in China are about 6.3 billion tons (equivalent to about 1.0-1.2 billion tons of standard coal), while biomass energy accounts for only about 1% of China's total energy consumption. By comparison, biomass energy in the EU accounts for 12% of its final energy consumption.[4] China's biomass energy resources are

abundant and have great potential, and it is one of the key energy industries that are currently supported. At present, the biomass power generation industry is still in a period of rapid development, and electricity price subsidies can promote its faster and better development and form a scale, thereby further reducing carbon emissions in the power generation process and increasing the green power composition in China's electricity consumption structure. It is the main means for the state and local governments to promote low-carbon development and achieve the "two-carbon related" goals, and it has a distinct "environmental protection attribute".

At the same time, subsidies also have distinct "international trade attributes". Although electricity cannot be exported, the cost of upstream raw materials and equipment in the biomass power generation industry will inevitably be reduced due to electricity price subsidies, which may make them have a price advantage in international trade and trigger trade remedies from other countries. Since the WTO's "China's Wind Power Equipment Case" in 2010, international trade remedy disputes caused by subsidy behavior are emerging one after another. This paper focuses on how to better understand the dual nature of the electricity price subsidy and its contradiction, and put forward targeted development suggestions. This paper adopts the methods of economic analysis, empirical analysis and comparison to help make this issue clear.

2. Analysis of the Environmental Protection Attribute of the Electricity Price Subsidy

Energy is an important material basis for human survival and sustainable social development. "The use of energy makes everything we have now possible. Everything we experience in a day needs the help of energy (Daniel Yerkin, 2012)."[5] To promote the development of the energy industry is to promote the development of human society itself.

2.1 Necessity: The Struggle for the Right to Development

2.1.1 For the Sustainable Development of Human Society

From a macro level, to deal with the climate crisis and build "a community with a shared future both for human and nature" is inseparable from the promotion of renewable energy. According to a report by the WMO, among all natural disasters between 1970 and 2019, 50% were climate- and weather-related, and the economic losses caused by it accounted for 74% of the total losses (James Douris, et al., 2021).[6] Drought, water shortage and extreme temperatures have brought many disasters as well. According to the Human Development Report released by the NUDP, climate warming has led to a decrease in per capita GDP and an increase in the number of people suffering from hunger. The increase in extreme weather also has brought more economic burdens to developing countries (Feng Shuai, 2022).[7] Under the dual dilemma of survival and development, human beings must find a way to deal with the climate crisis, that is, to reduce carbon emissions and achieve carbon neutrality.

As a new force of renewable energy, biomass electricity will occupy more and more share in the renewable energy market. The development of renewable energy, like biomass energy, can effectively reduce carbon emissions, reduce environmental pollution and over-exploitation of resources, and is an important means to deal with the climate crisis and achieve sustainable human development. In China, for example, according to the official data of the National Energy Administration, renewable energy generation accounted for 29.8% of the China's electricity consumption in 2021, among which biomass generation increased by 23.6% year-on-year, accounting for 2% of China's electricity consumption. The share of biomass power generation in China's renewable energy generation increased from 3.4% in 2012 to 6.6% in 2021, showing a steady growth trend (Status of China's biomass power generation industry in 2021).[8] At present, the amount of energy used by biomass resources is about 461 million tons. The utilization of biomass energy through various ways including biomass power generation, biomass clean heating, biological gas, biomass liquid fuels, fertilizer replacement, etc., has realized carbon reduction of about 218 million tons. It is expected that by 2030, the carbon emission reduction of biomass power generation will exceed 230 million tons, and by 2060, the carbon emission reduction will exceed 460 million tons. In the future, biomass power generation will make a great contribution to reducing the "Two Carbon-related" Goals in various fields. Today, when the contradictions of global environmental problems are prominent, the development of renewable energy is to fight for the right of sustainable development for human beings.

2.1.2 To Break the Constraints of the Early-development Countries

From the meso level, while the economic develops, it is inevitable to experience a process from focusing only on survival and economic development without regard to the harm to the environment, to focusing on high-quality development and caring the living conditions and the environment. Even developed regions such as the United States and the European Union would inevitably cause serious environmental pollution in the early stage of rapid development. For example, in the early 1940s, serious smog occurred in Los Angeles due to the development of the automobile industry. With the development and upgrading of industry, developed countries have gradually transferred industries with high energy consumption, high pollution and high emissions to late-development

countries to ensure their own domestic environmental protection interests.

As developed countries enter the stage of high-quality development with low pollution and low energy consumption, the carbon neutrality plan led by them has begun to vigorously develop new energy industries and limit global carbon emissions, which will bring two consequences: first, since late-development countries are in a relatively low development stage, they cannot avoid high emissions and high pollution in their own development. Restricting their carbon emission rights is to restrict their development rights. By doing so, the developed countries have enjoyed exclusive development rights while pushing the problems of pollution control and environment protection to the whole world, and have formed constraints for developing countries. Second, developed countries will use their early-development advantage to continuously develop through subsidies to the new energy industry, break through technical bottlenecks, form industry standards, and build future technical barriers to levy carbon tariffs on the basis of "carbon technology". In the era when carbon power is controlled by developed countries, if the late-development countries miss the development opportunity of the new energy industry, they will either shorten the energy supply, thus hinder the industrialization process, or borrow capital to develop the new energy industry, bearing financial risks, and handing over the initiative of energy security.

Throughout history, it has often been the energy revolution that drove the industrial revolution and shaped the new international order. From coal to oil, from steam engines to internal combustion engines, from the UK over the Netherlands to the US over the UK, every energy revolution has brought changes to the global economic and governance order. In the energy revolution of this time, energy has shifted from fossil energy to renewable energy. Only by catching up can developing countries seize the initiative in development and avoid being restricted everywhere. In short, the right to carbon emissions is actually the right of each country to survive and develop. The development of new energy industry is actually an important way to break the constraints of the early-development countries, achieve overtaking on the curve, and compete for the right to economic development.

China fully recognizes the importance of developing biomass power. Due to the high cost of biomass power generation itself, the state finance authorities need to subsidize electricity prices for power plants to promote the development of the industry. As early as the "Renewable Energy Law" promulgated in 2005, it was proposed to vigorously support the development and utilization of biomass energy, and to manage and subsidize the electricity price of renewable energy power generation projects (Renewable Energy Act of China, 2005).[9] Since 2006, China has begun to subsidize the electricity price of biomass power generation. The National Development and Reform Commission issued relevant subsidy policies on biomass power generation prices in 2006, 2010, 2012, 2020 and 2021 respectively. The on-grid power price and subsidy policy have gradually transitioned from the fixed subsidy system in 2006 to the current fixed electricity price system, and the details of the relevant subsidy system are constantly being adjusted with industrial development and changes in the external environment (Zhu Yafang, 2020).[10] In the latest "Working Plan for Biomass Power Generation Project Construction in 2021", the electricity price subsidy shows the characteristics of central-local sharing, public bidding for the right to supply to grids, and classified management. Among them, in terms of the central-local sharing of subsidies, the central support ratio for agricultural and forestry biomass power generation and biogas power generation projects in the west and northeast is 80%; the central support ratio for garbage incineration power generation projects is 60%. In Gansu Province's 14th Five-Year Energy Development Plan, it is also proposed to "promote the high-quality development of biomass energy" and to invest in biomass power generation.

For the sustainable development of human society, but also for the right to compete for their countries' own development, it is necessary to focus on the new energy industry. In June 2021, the National Development and Reform Commission announced an end to subsidies for new photovoltaic and wind power plants and having the power on the grid at reasonable prices[11], marking that the relevant industries have gained the initiative. In contrast, the biomass power generation industry is at a critical stage of development. The theory of competition for the right to development explains why China must develop new energy industries including biomass power generation, that is, its necessity.

2.2 Justification: Demonstration of the Externality Theory

From the perspective of economic law, the electricity price subsidy for biomass power generation is actually a necessary means to optimize the allocation of market resources through government regulation, and to make up for the insufficient efficiency of market on resource allocation caused by externalities, using the government's hand to solve problems that the market cannot solve.

2.2.1 The Biomass Power Generation Industry is of Typical Positive Externalities

Externality refers to the impact of an economic entity on other entities in economic activities, and this impact is not included in the cost of market transactions (Xiao Lan, 2017).[12] An externality is an action that imposes cost

on others without their permission. Externalities are divided into positive externalities and negative externalities. If someone's behavior brings benefits to society, but its costs are not made up, then his behavior has a "positive externality"; if someone's behavior brings cost or damage to the society or others, but does not make up for this cost, then his behavior has a "negative externality".

Biomass power generation is a typical industry with "positive externalities", which uses renewable resources such as agricultural and forest waste and garbage to generate power. Different from traditional thermal power, as a renewable energy, it not only does not have the traditional fossil energy pollution to the environment, the reduction of resources and other hazards, but also has additional benefits such as renewability and cleanliness. Specifically, firstly, emissions from biomass power contain less sulfur and ash, so the pollution to the environment is extremely low. Secondly, the absorption and emission of carbon dioxide in the process of biomass material growth and power generation constitute a natural carbon cycle, which may achieve zero carbon dioxide emissions. Thirdly, it constitutes harmless treatment and resource utilization of agricultural and forest wastes. In addition, the development of biomass power generation according to local conditions can also bring employment, income and other poverty alleviation effects to local farmers. In the context of the current "Two-Carbon related" Goals and rural revitalization strategy, its benefits are even more meaningful. However, behind these benefits are unavoidable additional costs, such as the collection, storage, transportation, and processing costs of agricultural and forest wastes, which are inclusive to the biomass generation industry. On the other hand, the traditional fossil energy power generation industry does not bear the corresponding costs because it will bring negative social benefits such as environmental pollution and resource reduction. Combined with the scale effect brought by mature industrial development, the price must be lower than the electricity price of biomass power generation. However, in order to ensure the normal sale of electricity generated by biomass in the market, its electricity price must be equal to the benchmark electricity price of lower-cost coal-fired power plants. In this way, the income obtained by the biomass power plant (the income from selling electricity) must be less than the overall income it brings to the society, which creates a "positive externality".

2.2.2 Electricity Price Subsidies have the Legitimacy to Solve the Problem of Positive Externalities

From a social point of view, resource allocation through the market has its limitations. When there are externalities, "rational economic man" often cannot optimize the results of market allocation of resources due to their pursuit of maximizing their personal interests. The benefits brought by positive externalities to others are often not compensated by the market for the costs. Thus, according to the principle of "beneficiary burden", the whole society that enjoys the benefits of environmental protection should pay the consideration for compensation for the "dispose costs of agricultural and forest wastes", that is, to compensate the biomass power generation industry by means of "electricity price subsidy" by the state finance authorities, so as to achieve the effect of substantial equality. In other words, the electricity price subsidy for biomass power generation is the transfer of the necessary cost of agricultural and forest waste treatment that the country should bear due to economic principles.

In the "Energy Justice Theory", the crystallization of the long-term development of the international energy justice movement, the distribution of costs and benefits of energy transition is paid special attention, and the externality theory is another way of expressing it (Ning Libiao & Yang Xiaodi, 2022).[13] The externality theory explains why the state must subsidize electricity prices in order to support the biomass power generation industry, that is, the justification of the subsidy.

In essence, by sorting out development rights and externalities, it answers the question why and on what basis the biomass power generation price be subsidized. The reason why it is necessary to focus on supporting the new energy industry represented by biomass power generation is firstly to pursue the sustainable development of human society, and secondly to break developed countries' restriction on the economic development rights of late-development countries in the name of environmental protection. The reason why it must be supported by subsidies through state finance authorities is to compensate for positive externalities or, to practice energy justice. The starting point of its policy is to strive for environmental protection interests, and its goal is to achieve a fair distribution of the environmental protection costs and benefits of renewable energy. Therefore, the electricity price subsidy has a distinct environmental protection attribute, and it is a must-have and well-established policy.

3. Analysis on the International Trade Attributes of the Electricity Price Subsidy Under the WTO Legal Framework

Adam Smith wrote in the Wealth of Nations that export bonuses for certain domestic products can be given to domestic businessmen to gain a competitive advantage in foreign markets (Adam Smith, 2010)[14], which is the most suitable description of subsidy nature in early academic circles. Some subsidies may have a distorting effect on normal international competition and trade order in international trade. Therefore, how to effectively regulate subsidies has always been an important discussion in the international community. At the level of domestic law, high special tariffs are often imposed through countervailing investigations on subsidized

imported products. At the level of international trade law, the legitimacy of subsidies from exporting countries is often questioned through the WTO dispute settlement system (DSS). For example, in 2010, the United States proposed to the WTO Dispute Settlement Body (DSB) the consultation on measures related to China's wind power equipment, accusing that China has subsidized the wind power equipment industry exported to the United States and violating the Agreement on Subsidies and Countervailing Measures (hereinafter the SCM Agreement).[15] The case ended with China withdrawing subsidies and making concessions. In December 2019, Indonesia submitted a consultation to DSB on "specific measures taken by the EU and its member States on Indonesian palm oil and palm crop-based biofuels", accusing the EU and its member States of phasing out palm oil crop-based biofuels and discriminating against them in taxation. Since then, Malaysia, Thailand, Colombia and other countries have also joined the consultations. DSB established an expert group in July 2020, and relevant consultations have continued to this day.

Under the WTO legal framework, the provisions on subsidies and countervailing are mainly distributed in the General Agreement on Tariff and Trade (GATT), the SCM Agreement reached in the Uruguay Round, the International Agreement on Trade in Services (GATS) and the Agreement on Agriculture. According to most scholars, Articles 6 and 16 of GATT only provide in-principle provisions on subsidies and countervailing duties, which are not operable; Article 20 of the GATT as an exception to subsidies, but it is difficult for member states to demonstrate that subsidies meet the preconditions for "essential measures" it stipulates; the fields targeted by GATS are not applicable to the electricity subsidies of renewable energy industry; the "Agreement on Agriculture" provides a very limited range of renewable energy sources that can be exempted from subsidies. Except for the SCM agreement, the other laws under the WTO framework are insufficient to become the institutional basis for determining the electricity price subsidies. Therefore, the analysis of the international trade attribute of biomass electricity price subsidies should be mainly based on the SCM agreement.

3.1 Analysis of the Legitimacy of the Electricity Price Subsidy Under the Framework of SCM Agreement

In the SCM Agreement, there are four definitions of "subsidy": "subsidy", "prohibited subsidy", "actionable subsidy", and "non-actionable subsidy". At the beginning of the establishment of the SCM Agreement in 1994, the application scope of the "non-actionable subsidies" in Article 8, the so called "green subsidy rule" had set an exception for "environmental protection subsidies". Subsidies for environmental protection purposes that met certain rules could be exempted from the unilateral trade remedy measures of the opposite country and shall be subject to the Commission to settle the dispute. However, according to Article 31 of the SCM Agreement, the non-actionable subsidy is valid for 5 years from its entry into force, and it's up to the Commission to consider its extension before expiration. In 2000, due to the failure of all parties to reach an agreement, the non-actionable subsidy clause was unfortunately terminated, and the original non-actionable subsidy became an actionable subsidy. Under the premise of satisfying the term "subsidy" in SCM Article 1, there are actually only two types: "prohibited subsidy" and "actionable subsidy".

3.1.1 Constitutes the Subsidy in Article 1 of the SCM Agreement

As mentioned earlier, with the development of the industry, the current electricity price subsidy for biomass power generation in China is a fixed electricity price system, that is, the state purchases electricity from biomass power plants at a fixed price for a period of time through power companies. According to paragraph 1 of Article 1 of the SCM Agreement, whether it constitutes a subsidy shall meet the two conditions of "government financial contribution" and "benefits conferred".

Regarding "government financial contribution", the SCM agreement lists four types of behaviors, including: (1) government's transfer of fund, (2) government's revenue exemption, (3) government's provision of goods or purchase of products, and (4) government through private bodies for the above behaviors. The most confusing of these are (1) transfer of fund and (3) product purchases. In fact, in the form of subsidies in China with a fixed electricity price system, both types of measures can be explained. Formally, the government purchases electricity from biomass power plants through power companies, which is in line with (3) product purchases; in essence, the government transfers special funds to the biomass power generation industry by purchasing electricity from power plants through special financial arrangements, which is in line with (1) transfer of fund. In short, the electricity price subsidy is one of the behaviors of "government financial contribution".

Regarding the "benefits conferred", although it is not clearly explained in the SCM agreement, it can be learned from the interpretation of the Appellate Body in similar disputes in the past: the funded party, compared with other participants, obtains in the relevant market corresponding advantages. It is worth mentioning that in the classic "Canada Renewable Energy Case", the Appellate Body, through analysis of the "relevant market", held that the reason for the entry of renewable energy power into the market was that the government "created the market", so there was no "relevant market", and then determined that the renewable energy power subsidy did not belong to the "benefits conferred". However, the relevant agencies have not given a clear explanation on how to distinguish between the government-created market and the relevant market, which made its interpretation not

instructive, and it has not been universally applied in the subsequent cases. Therefore, as far as the textual interpretation is concerned, the electricity price subsidy for biomass power generation enables it to obtain greater benefits than other power plants in the electricity market, which should be in line with the "grant concessions" referred to in the SCM agreement.

Therefore, under the conditions of "government financial contribution" and "benefits conferred" at the same time, the electricity price subsidy for biomass power generation should belong to the subsidy under the SCM agreement.

3.1.2 May Constitute Prohibited Subsidies Under Article 3 of the SCM Agreement

Prohibited subsidies refer to subsidies that meet the conditions of "export performance" or "import substitution" in Article 3 of the SCM Agreement. The former refers to subsidies given in law or in fact on the condition of export performance, while the latter refers to subsidies on the condition of using domestic over imported goods. Although there are no relevant regulations or policies on export performance or import substitution directly related to biomass power generation subsidies, however, in other normative documents, there is still a risk of constituting import substitution subsidies. In Article 5 of the "Notice on Further Supporting the Development of Renewable Energy" issued by the State Planning Commission and the Ministry of Science and Technology in 1999, preferential measures were granted to renewable energy projects using domestic equipment, giving them more convenience on taking out loans than those using imported equipment. The type of renewable energy specified in it includes "biomass power generation". Accordingly, the electricity price subsidy for biomass power generation does not rule out the possibility of constituting an import substitution subsidy.

3.1.3 May Constitute Actionable Subsidies Under the SCM Agreement

To constitute an actionable subsidy, in addition to constitute the "subsidy" mentioned in Article 1 of the SCM Agreement, it also needs to meet the three requirements of "specificity", "adverse effects" and "causal relationship".

"Specificity" means that according to Article 2 of the SCM Agreement, the government clearly grants subsidies to specific enterprises, which constitutes specificity. According to past DSB precedents, a specific enterprise refers to an enterprise that produces a certain type of products. Because the subsidized objects in the biomass power generation industry are often electricity, which meets the standards of enterprises producing a certain type of products, they should generally constitute specificity. "Adverse effects" refers to causing injury to domestic industry of another member, impairment of benefits and serious prejudice to the interests of other members according to Articles 5 and 6 of the SCM Agreement. And Article 6 specifically explains serious prejudice. "Causal relationship" as the name implies, means that there is a causal relationship between the subsidy and the "adverse effects". If China's subsidies to biomass power plants give them advantages at the price of biomass power generation equipment, which in turn reduces the market share of foreign equipment in China, it will constitute the "serious prejudice" stipulated in Article 6, and its "causal relationship" is easier to identify. Therefore, the electricity price subsidy is more likely to constitute an actionable subsidy.

In short, by analyzing the international trade attribute of the electricity price subsidy under the WTO legal framework, it can be clearly seen that it meets the "subsidy" standard in the SCM agreement, and may also constitute "prohibited subsidies" and "actionable subsidies", which is the concrete manifestation of the international trade attribute of the electricity price subsidy in the international trade law.

3.2 International Trade Attribute and Environmental Protection Attribute Are Difficult to have the Best of Both Worlds

3.2.1 Environmental Policies will Bring Competitive Disadvantages in International Trade

Environmental policies increase the cost of products. When the industrial development of developed countries reaches a certain extent, they will turn to face greater environmental protection pressure, forcing the government to carry out environmental protection measures such as subsidies to upgrade industries with high pollution and high energy consumption. As a result, relevant domestic products from developed countries are at a disadvantage in international trade due to the increased environmental costs.

Unilateral trade protectionism has no legitimacy. In order to make up for the competitive disadvantage brought by the increase of environmental costs, some countries will set certain environmental protection standards for imported similar products. If they fail to meet the standards, the products will not be allowed to enter the domestic market or need to be imposed more tariffs in order to realize the "trade equality" of products in their own countries. This is actually a form of unilateral trade protectionism. Taking the United States as an example, after Congress revised the Clean Air Act in 1990, in order to reduce air pollution, the US Environmental Protection Agency issued a "minimum cleanliness requirement" in 1994, which imposed stricter requirements on gasoline standards for foreign producers. It aroused serious dissatisfaction in developing countries such as Brazil

and Venezuela, and they filed WTO's first environment-related trade dispute case: the case of "Revision of Gasoline Standards", accusing the United States of violating the principle of most-favored-nation treatment and national treatment. The United States cited the general exception clause of Article 20 of the GATT as a defense. But because it could not prove the "necessity" between means and ends, it ended up losing the case (Shi Shujing & Huang Liangjun, 2011).[16] The United States imposes carbon tariffs on other countries through unilateral trade protection measures, hoping to maintain its own environmental protection interests while ensuring "fair trade" and making up for its competitive disadvantage. In fact, it is an infringement of trade freedom, which is not feasible.

3.2.2 Trade Protection will Increase Environmental Protection Costs

As late-development countries increase their investment in environmental protection, it is possible for them to achieve overtaking in the new energy industry and catch up with developed countries. Whether developed countries take countervailing and other trade protection measures in the face of foreign subsidized imported products will lead to different consequences. If they are allowed to be sold domestically, the market share of domestic products will be lost because of subsidies from other countries and the interests of relevant industries will be damaged in the country. And if trade remedies are taken against it, it may hinder the exchange of technologies and increase the cost of environmental protection (Zhai Kai & Peng Yue, 2022).[17] As Hasan, president of the Indonesian Palm Oil Association, commented in the EU palm crop biofuels case, the EU's ban on palm oil biofuels is aimed at protecting its indigenous biofuels producers, creating trade barriers and reducing competitive disadvantages, rather than for environmental purposes. In essence, moving away from palm-oil biofuels, which are clearly more mature, in favour of indigenous ones that do not have a market advantage, clearly increases the environmental costs. Globally, there have been many classic cases such as the Canadian renewable energy case, the Chinese wind power equipment case, etc., which fully prove that the environmental protection and international trade attributes of subsidies are difficult to achieve the best of both worlds.

By sorting out the environmental protection attributes and international trade attributes of the electricity price subsidy, it is not difficult to find that the reasons for the frequent disputes over international trade subsidies may come from many aspects, such as the trade protectionism of the developed country, but ultimately, the root of the problem is the contradiction between the dual attributes of the price subsidy itself.

4. Development Proposal

Under the circumstance that the contradiction between the environmental protection attribute and the international trade attribute of electricity price subsidies is difficult to reconcile, it is necessary to focus on protecting the value of one party. Although subsidies may bring about some apparent unfairness in international trade, for the purpose of environmental protection, subsidies are more necessary and justified. In the current international context of reducing carbon emissions and promoting the development of renewable energy, we should prefer protecting the environmental attribute of subsidies and reducing trade sanctions on subsidies. This tendency was shown as early as 2007 in the report of the DSB Appellate Body on "The Brazil-Retreaded Tyres Case". Although retreading tires can prolong their service life, in most cases tires can only be retreaded once. Due to the non-degradability of waste tires, the destination country of imported retreaded tires will face environmental pollution problems and malaria, yellow fever and other secondary disasters caused by the disposal of waste tires. In order to solve this serious environmental problem, Brazil issued a ban on the import of retreaded tires to the European Union and defended itself by citing the provisions of Article XX of the GATT "necessary to protect human, animal or plant life or health" when facing the DSB investigation, which was supported by the expert group (ICTSD, 2010).[18] As a typical case where the interests of environmental protection are placed above the interests of international trade, this case can provide reference and guidance for how to treat electricity price subsidies, that is, more emphasis should be placed on protecting environmental interests and people's right to survival and development. From the perspective of China, we should strive for the existence for electricity price subsidies from the perspective of domestic law and international law.

4.1 Solution Inward: Avoid the Subsidy Policy Constituting the Subsidies in the SCM Agreement

4.1.1 Enhance Policy Compliance

First, broaden the sources of subsidies. The Chinese government should add new sources of subsidy funding in addition to financial funds and additional income from biomass power generation. For example, an ecological tax can be added to the fossil energy industry, and the funds collected can be transferred to the renewable energy industry to make up for the lack of efficiency in market resource allocation caused by externalities. For another example, non-government funding sources can be expanded, and social forces can be mobilized to invest in the new energy industry through equity incentives and other benefit distribution measures. An increase in non-government sources of funding in subsidy funds can reduce the extent to which the electricity subsidy constitutes the "subsidy" under Article 1 of the SCM Agreement.

Second, avoid constituting prohibited subsidies. Since the case of China's wind power equipment in 2010, China has carried out a compliance review of the subsidy policies involving export performance and import substitution, but there are still some regulations involving supporting state-owned elements, such as the aforementioned "Notice on Further Supporting the Development of Renewable Energy", which has a risk of violating import substitution subsidies and should be carefully reviewed.

Finally, avoid constituting actionable subsidies. The constitution of an actionable subsidy must include specificity, which means awarding the subsidy exclusively to a specific enterprise. By introducing competition procedures and giving all enterprises an equal opportunity to compete for subsidies, specificity can be avoided, and it will not constitute actionable subsidies.

4.1.2 Promote the Healthy Development of Biomass Power Generation Industry to Realize the Marketization of the Industry as soon as Possible

Subsidies often occur in nascent industries or in the early stages of the industry. Under the externality theory, the electricity price subsidy is of justification; and from the perspective of sociology of law, supporting the biomass power industry can help reduce costs, improve competitiveness, and promote the rapid development of the industry. However, blindly subsidizing is not a long-term solution. Looking back at the photovoltaic and wind power industry, long-term subsidies have not only led to the chaos of subsidy fraud and power rent-seeking, but also fostered the inertia of enterprises. Excessive fiscal stimulus can also lead to overcapacity and ineffective capacity. Data shows that in 2016, the abandonment rate of light in the five northwestern provinces of China reached 19.81%, and the abandonment rate of light in Gansu Province reached 30.45%.[19]

Therefore, in terms of subsidy measures, we should try our best to promote the transformation and upgrading of the biomass power generation industry and reduce costs; increase profitability through combined heat and power generation; determine expenses by revenue and control the total amount; gradually withdraw subsidies to survive the fittest, and eliminate excess capacity. The ideas are also reflected in the latest subsidy policy for biomass power generation projects in 2021.

In June 2021, China has had the photovoltaic and wind power on grid at a reasonable price and subsidies on it have been cancelled, which means that the industry has fully realized marketization, and China has achieved a world-leading position and has achieved a double harvest of environmental protection interests and world trade interests in the photovoltaic and wind power industry. This fundamentally solves the contradiction between the two. And that's exactly what we want the future of the biomass power industry to be.

4.2 Solution Outward: Seeking Institutional Support in International Law

In the short term, it is hard to quickly alleviate the contradiction between the duality of electricity price subsidies. Therefore, we should actively seek institutional support at the level of international law while seizing the major opportunities such as the "Belt and Road" initiative and the entry into force of RCEP.

4.2.1 Exemption of Certain Environmental Subsidies in Regional Trade Agreements Through Multi-party Negotiations

With reference to the "green box" support measures in the Agricultural Agreement, exemptions should be made for subsidies that in practice hardly have distorting effects on the other side of trade, such as subsidies for infrastructure works related to environmental protection. China should exert more initiative in the "Belt and Road" initiative and the RCEP trade circle, and work with all parties to make regional contributions to balancing environmental interests and international trade interests through multilateral agreements.

4.2.2 Refer to Article 20 of the GATT to Establish Exemptions for Environmental Subsidies in SCM Agreements

Article 20 of GATT, as an exception clause for subsidies, contains the exemption of environmental protection subsidies, but it has certain problems and is difficult to apply. The extent of "necessary for the protection of the environment" between means and ends in GATT Article 20 should be determined to clarify the scope of the GATT Article 20 exemption. Through the WTO ministerial meeting, it could be proposed to refer to it on the basis of improving GATT Article 20, and set a certain degree of exemption for environmental subsidies for the SCM agreement. If the member meets the exemption requirements, it should be judged that it does not violate the obligations of the SCM agreement. Thus, a certain buffer space could be set up for each member state to promote energy transition and fair trade with each other.

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