Subsidies in the Renewable Energy Industry under the World Trade Organization Regime and Suggestion for Vietnam

By

TRAN, Ngoc Phuong

THESIS

Submitted to

KDI School of Public Policy and Management

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ABSTRACT

With a continuous increase in greenhouse gas emissions and an increase in global average temperature, climate change's effects are predicted to grow more widespread and severe than ever before. Under this pressure, governments throughout the world have implemented various subsidy programs in an attempt to promote the expansion of the renewable energy sector. Similarly, in Vietnam, there is a growth in demand for subsidy programs to attract investments in this sector. However, the Vietnamese Government is obligated to maintain consistency of these programs regarding the WTO's regulations. Realizing the situation, this study proposes suggestions for the Vietnamese Government to execute subsidy programs in the WTO context without being challenged by other WTO Members. WTO's subsidy-related agreements, disputes settled under WTO, and incentives for developing the renewable energy industry in Vietnam will be analyzed for the scope of research. In conclusion, the use of incentives without conditions that subsidy recipients must use or purchase a certain proportion of equipment originating from local sources, the continuous application of the feed-in tariff program as well as the careful research of the import market are suggestions to execute support for renewable energy in Vietnam effectively.

TABLE OF CONTENTS

LIST OF GRAPHS

LIST OF TABLES

LIST OF ACRONYMS

AB	Appellate Body
ARRA	American Reinvestment and Recovery Act of 2009
CIT	U.S. Court of International Trade
COP 26	26th United Nation Climate Change Conference
EVN	Vietnam Electricity Group
FIT	Feed-in Tariff
GATT	General Agreement on Tariffs and Trade (GATT)
LCRs	Local Content Requirements
MIT	Ministry of Industry and Trade of the Socialist Republic of Vietnam
NEM	Net Energy Metering
PPA	Power Purchase Agreement
PV	Photovoltaic
RPS	Renewable Portfolio Standard
SCM	Agreement on Subsidies and Countervailing Measures
TRIMs	Agreement on Trade-Related Investment Measures
USITC	U.S. International Trade Commission
WTO	World Trade Organization

INTRODUCTION

It is undeniable that renewable energy such as geothermal, hydro, biomass, solar, and wind, is a crucial factor in fighting climate change (U.S. Energy Information Administration, 2022). Thanks to this characteristic, this type of energy is better for the planet, and humanity, than fossil fuel-based energy. Fossil fuels are sources from fossilizing processes, capturing high carbon contents into various forms such as oil, coal, natural gas, etc. When these sources are combusted to generate energy, a tremendous amount of carbon dioxide is emitted, causing climate change (the United States Environmental Protection Agency, 2022). In contrast, renewable energy sources are cleaner, infinite, and especially free of hazardous gases.

From the above analysis, renewable energy can assist countries in achieving climate targets. 120 nations committed to removing subsidies for fossil fuels and reducing their reliance on oil, coal, and natural gas at the 26th UN Climate Change Conference of the Parties (COP26), which was held in Glasgow, the United Kingdom. The main goal of the COP26 was to keep the increase in global warming to a 1.5-degree Celsius (Vaughan, 2021). To accomplish this goal, 87 Governments have incorporated the goals for increasing renewable energy capacity installed by 2030 into their official policy or legislation. Wind, solar, and non-hydro renewable power technologies are expected to add 721 gigawatts of new capacity by 2030 (FS-UNEP Collaborating Centre, 2020).

Despite countries' enthusiasm for the growth of renewable energy, this sector faces several challenges. Firstly, a high cost is required to establish renewable energy projects. Secondly, the lack of grid facility to transfer renewable energy threatens this industry. Thirdly, being newly explored and promoted, renewable energy confronts a barrier from the lack of policy support. These challenges make investors reluctant to spend a large amount of money on executing

renewable energy plans, and consumers hesitate to switch from electricity generated from fossil fuels to renewable energy (Moorthy, Patwa, Saravana, & Gupta, 2019, pp. 4-8).

As a result, government incentives play a pivotal role in promoting this sector because these incentives promote the market for renewable energy. As mentioned above, renewable energy cannot compete with fossil fuels in terms of cost-effectiveness. However, through programs such as quota obligations, long-term purchasing contracts, etc., renewable energy manufacturers can recover high up-front capital costs, thereby allowing them to sell their goods at lower prices. The lower prices lead to massive use of solar energy. If this sector develops and reaches the maturity level, it becomes attractive to private entrepreneurs and then self-develops without significant support from the Government.

Similar to foreign countries, Vietnam's production and consumption of renewable energy are also prioritized. Declaring that in 2050, the country will become an environmental friend with 0% of greenhouse gas emissions, the Vietnamese Government is determined to achieve this goal through the growth of renewable energy (Chau, 2022). Specifically, various subsidy programs (financial support, fiscal support, and feed-in tariff program) are applied to reduce challenges confronted by this new energy sector and to attract investments.

In executing these subsidy programs, the Vietnamese Government is also required to assess the consistency of these programs with WTO's subsidy-related regulations. Otherwise, these programs may become subject to legal actions from other WTO members. These actions could be in the form of disputes under WTO's dispute settlement mechanism (multilateral track) or countervailing duty investigation (unilateral track). In both situations, it is highly time-and-cost-consuming for the Government and subsidy-receiving enterprises to deal with the dispute or the investigation. Because of financial burdens, enterprises choose to invest in fossil fuels rather than

renewable sources, which buries the renewable energy sector. To assist the Vietnamese Government in avoiding these circumstances, this study is motivated to examine the topic: "Subsidies in the Renewable energy industry under the World Trade Organization and suggestions for Vietnam ."Employing a qualitative method, this study demonstrates that the Vietnamese Government can provide WTO-consistent renewable energy subsidies. The research area of this study ranges from WTO's subsidy-related Agreements to legal regimes and policies of Vietnam regarding renewable energy subsidies.

Subsidies in the renewable energy sector are not a new research area. Firstly, previous studies list various forms of renewable energy subsidies and the criteria employed to categorize these subsidies (Bansal & Deshpande, 2017, pp. 213-220; Espa & Marín Durán, 2018, pp. 623-628; Lewis, 2014, pp. 14-16; Shadikhodjaev, 2015, pp. 480-484). Secondly, prior researchers have a controversy concerning the importance of subsidies given to the renewable energy sector. Bacchus (2012), Bigdeli (2011, pp. 4-8), Howse (2010, pp. 5-7), and Shadikhodjaev (2015, p. 479) emphasize the importance of subsidies for the renewable energy industry. In contrast, Duran (2018, pp. 132-136) and Rubini (2012, pp. 528-532) oppose this perspective by pointing out that if the goals of subsidies are not met through careful design and execution, subsidies in the renewable energy sector are not effective sources of promoting this sector. Thirdly, prior researchers argue that WTO's Agreements do not provide sufficient space for members to initiate renewable energy subsidies (Asmelash, 2015, pp. 278-284; Condon, 2017, pp. 678-681). Finally, existing papers also provide policies and a legal framework for renewable energy subsidies in Vietnam (Luong, 2015, pp. 440-448; Nam et al., 2012, pp. 9-20; Nong et al., pp.110-117; Tien et al., pp. 26-32).

However, no paper gives a comprehensive view and analysis of renewable energy subsidies provided by the Vietnamese Government under the WTO context. Therefore, the purpose of this

study is to make further contributions to this research area. First of all, the Development Plan for renewable energy in Vietnam and types of incentives given to this industry by the Vietnamese Government are provided. After that, two main groups of challenged measures under the WTO dispute settlement mechanism (the FIT Program with attached local content requirements and incentives other than the FIT Program with attached local content requirements) are analyzed the consistency with the WTO regulations. From the analysis, this study can suggest what type of measure is safe to implement and maintain for the Vietnamese Government. Furthermore, the legal basis for countervailing investigations under the WTO is examined to give suggestions for the Vietnamese Government to provide subsidies without causing harm to the domestic industry of importing members. As a result, the Vietnamese exporters will not bear the countervailing duty from the investigations when exporting renewable energy-related products. These suggestions are crucial to shield the renewable energy field from being disrupted because of legal challenges from other WTO members.

Regarding the structure, this study covers three main parts: Chapter I (Literature review), Chapter II (Legal challenges against renewable energy subsidies under the WTO mechanism), and Chapter III (Policies for renewable energy subsidies in Vietnam). Under Chapter I, a discussion of previous papers regarding renewable energy subsidies under the WTO mechanism is provided through the five main categories (types of subsidies, importance of subsidies, WTO's subsidy-related regulations, issues of these WTO's subsidy-related regulations, and policies towards renewable energy subsidies in Vietnam). Under Chapter II, an overview of renewable energy subsidies, WTO's related agreements, and legal challenges towards renewable energy subsidies are provided and analyzed. The final chapter commences with the current state of renewable energy in Vietnam, the types of subsidies offered to the renewable energy sector, and the legal

challenges from other WTO members towards renewable energy subsidies in Vietnam. This chapter ends with suggestions for the Vietnamese Government to implement renewable energy-subsidy programs without legal challenges from other WTO members.

CHAPTER I: LITERATURE REVIEW

Renewable energy subsidies under the WTO mechanism are not a new research area. There are four main contents that attract scholars from previous research: (i) Types of subsidies in the renewable energy sector and methods of categorization, (ii) The importance of renewable energy subsidies, (iii) WTO's regulations towards subsidies, (iv) Issues of the WTO's subsidy-related regulations regarding renewable energy subsidies and, (v) Policies, legal framework towards renewable energy subsidies of Vietnam. Details of these contents are analyzed in the Literature review.

1.0. Types of renewable energy subsidies and methods of categorization

To analyze the effectiveness of subsidies, it is better to understand various forms of public support provided and how to categorize these stimuli. Espa & Marín Durán (2018, pp. 623-628) emphasize that the number of subsidies in the power sector is the highest compared to subsidies given to other sectors. Due to this variety of subsidies, it can be difficult to assess the compatibility of the measures with WTO's subsidy-related regulations. Therefore, there is a requirement to group various types of subsidies in this sector into specific groups. The paper of these two aforementioned authors contributes the most comprehensive way to categorize support given to the clean energy sector. Specifically, types of support, subsidized products, and ultimate goals of support are three criteria employed to classify measures supporting green energy.

With the first criteria, support in the form of fiscal policies, investment attractions, and price guarantees are the three main types of subsidies given. Firstly, tax incentives are measures classified as fiscal policies. Secondly, support for research and development activities, preferential lending conditions, monetary support to reduce high upfront investment costs, and special

remuneration for renewable energy installations fall into investment attractions. Finally, long-term purchasing contracts under feed-in tariff programs account for price guarantee measures.

Under the second criterion, there are two main types of support. The first one includes government stimuli boosting the production of green energy with the iconic measures are feed-in tariff programs (FIT program), renewable portfolio standards (RPS), and net energy metering (NEM). A FIT program is a program in which public organizations sign a long-term contract with wind and solar energy generators to buy electricity produced from these two energy sources at an unchanged price. NEM is a program providing credits to utility customers who are able to generate energy from renewable sources, which is used to compensate for the expense of energy consumed during other periods. An RPS imposes obligations on energy producers, utility entities, and consumers to generate, sell, and utilize a minimum amount of renewable energy. The second one includes stimuli promoting innovation and manufacturing renewable energy-related technologies. Forms of the second type of stimulus are preferential loans given to green energy-related technology manufacturers, measures reducing investment costs of green technology projects.

Similarly, Shadikhodjaev (2015, pp. 480-484) also relies on subsidized products to separate support into market-pull and technology-push policies. Market-pull policies include a guaranteed price for electricity generated from renewable energy, purchasing obligations imposed on electricity companies, tax incentives, and other measures supporting the use of equipment related to green energy and preventing the massive deployment of conventional energy. Regarding technology-push policies, incentives are provided for research and development and innovation to create innovative renewable-related technologies that eventually have industrial applications.

Under the third criterion, there are two main groups related to support. The first group enhances the competitiveness of the domestic renewable energy sector and ensures job security.

Measures falling into this group are given with attached local content requirements (LCRs), which provide incentives for beneficiaries to use domestic technologies and materials to manufacture green energy. The second group serves for the general growth of renewable energy regardless of domestic or foreign industries. As a result, all supports without attached LCRs fall into this group. The classification of public stimuli based on goals of support is also applied by Bansal & Deshpande (2017, pp. 213-220) and Lewis (2014, pp. 14-16).

1.1. Importance of renewable energy subsidies

From the perspectives of previous scholars, the answer to whether subsidies are essential for renewable energy development is nuanced. There is uncertainty about the effectiveness of the subsidy programs in this sector.

Firstly, there are papers in favor of the important role of subsidies in promoting the renewable energy sector. As analyzed by Shadikhodjaev, Government intervention is a need to address a market failure situation (Shadikhodjaev, 2015, p. 479). As a newly discovered sector, unlike conventional energy, costs arising from the construction and production of a renewable energy project are higher than the revenue from private entities. On the supply side, there is no attraction inducing investors to join this sector without benefits. A similar issue occurred on the demand side, in which high costs force suppliers to sell green energy at an unaffordable price to consumers. Thanks to Government support, the production costs are reduced, making renewable energy attractive to both investors and consumers, thereby ensuring the supply and demand side of the market.

Moreover, previous researchers also emphasize the importance of subsidies by declaring that this is the only practical measure to shield the renewable energy field. According to Bacchus, Bigdeli, and Howse, there are three main groups of possible measures to ensure the development

of clean energy, which are: (i) elimination of support for conventional energy, (ii) payment obligations posed on facilities deploying conventional energy (a carbon tax, a green-house emission limit set by the Government for each private industrial entity), and (iii) measures focusing on giving support to renewable energy (clean energy subsidies, tariff reduction for green energy and its related goods). Among these measures, only renewable energy subsidies are enforceable with direct effects (Bacchus, 2012; Bigdeli, 2011, pp.4-8; Howse, 2010, pp. 5-7). The reason for this determination is that it is difficult for Governments to eliminate support for conventional energy and there is uncertainty about the effect of payment obligations borne by enterprises utilizing conventional energy.

However, Duran and Rubini argue that public incentives for renewable energy are not always a good choice if subsidies are unable to correct the market failure or subsidies cause trade distortion (Duran, 2018, pp. 132-136; Rubini, 2012, pp. 528-532). Questions regarding the need for subsidies appear when ineffective subsidies fail to achieve the set goals. For example, even though the U.S. solar-panel makers receive loan guarantees worth $535 million, the U.S. market witnessed the collapse of the solar-panel maker. Moreover, if subsidy programs over-protect receivers, they will consequently distort the trade and harm the growth of the renewable energy sector of other countries. This problem requires policymakers to pay attention to designing subsidy programs that help to achieve the goal of tackling market failure rather than causing distortions and harming the sector of other countries.

1.2. WTO's regulations towards subsidies

In the renewable energy sector, WTO's regulations are thoroughly examined in earlier publications. For example, Sykes (2010) conducted an analysis of the SCM Agreement and Article XVI of the GATT 1994 (Sykes, 2010, pp. 477-486).

1.2.1. Article XVI of the GATT

The core framework for future negotiations related to the SCM Agreement and subsidy-related regulations is laid forth in this Article. This provision requires notification obligation to CONTRACTING PARTIES of Government support of a contracting party, which either leads to the increase in exports of the contracting parties or a decrease in imports of other contracting parties into its territory. If the support is found to be a serious threat, the contracting party using this measure is required to discuss with CONTRACTING PARTIES or affected contracting parties to limit the support. Under this Article, contracting parties are allowed to utilize subsidies as long as these subsidies are notified to the CONTRACTING PARTY, even export subsidies (Article XVI, GATT 1994)

1.2.2. The SCM Agreement

A more comprehensive legal framework regulating subsidies under the WTO mechanism is provided by the SCM Agreement - a central Agreement regulating subsidy programs. Unlike Article XVI of the GATT, this Agreement defines subsidy under Article 1.1. Accordingly, two factors compose subsidies: (i) a financial contribution given by public authorities and (ii) this contribution benefits the recipients. Moreover, the SCM Agreement only regulates specific subsidies. Determining whether a policy falls under the definition and specificity of subsidies is crucial because it forms the foundation for legal challenges brought by WTO members against a member's subsidy programs.

Regarding the specificity criteria to apply the SCM Agreement, the specificity requirement is satisfied if the subsidy is provided only to particular enterprises, industries, or a region. Under the SCM Agreement, apart from enterprise-specificity, industry-specificity, regional specificity,

prohibited subsidies (subsidies provided for export promotion or provided based on domestic content requirements) are also considered specificity.

1.3. Issues of the WTO's subsidy-related regulations regarding renewable energy subsidies

1.3.1. The SCM Agreement

Previous papers argue that there are no differences between energy subsidies and fossil-fuel subsidies (Asmelash, 2015, p. 269). Article 8 (SCM Agreement) identifies non-actionable subsidies (WTO members are allowed to implement non-actionable subsidies without being challenged through multilateral or unilateral track by other WTO members). Under Article 8.2 (c), WTO members are permitted to assist enterprises in adapting to new environmental regulations. This provision can shelter renewable energy subsidies from legal challenges under the WTO regime because the purpose of renewable energy subsidies is to achieve environmental objectives. However, this Article expired on December 31, 1999, and WTO members failed to renew its application at the Seattle Ministerial Meeting (United Nations, 2003, p. 4). Therefore, as long as the subsidy (both renewable and fossil fuels subsidy) meets the two conditions to be a subsidy in Article 1.1 of the SCM Agreement (public authorities give a financial contribution, and this contribution benefits the recipients) and is specific, the subsidy will fall within prohibited subsidies or actionable subsidies and be likely to be challenged by WTO members (Asmelash, 2015, pp. 269-271).

Regarding specificity, Asmelash also points out the difficulty of demonstrating that renewable energy in the SCM Agreement is not specified (Asmelash, 2015, p. 272). Article 2.1(c) states that if subsidies can be restricted to particular firms or industries, they will satisfy the specificity requirement. The renewable energy sector accounts for a small part of the energy market. Therefore, subsidies provided to this sector (production subsidies) seem to be specific even

when subsidies are provided to the whole industry. Unlike fossil fuels, subsidies are offered to both the consumption and production sides. In addition, subsidies given to the former are far higher than the latter (Asmelash, 2015, p. 273). Consumption subsidies are difficult to classify as sector- or company-specific under the SCM Agreement because they are generally available to all businesses.

1.3.2. Article XX – GATT

The uncertainties of subsidy status and the specificity of measures supporting renewable energy constrain Government's policy space in promoting this sector. As a result, when executing green energy subsidies, Governments also rely on a legal umbrella to shelter subsidy measures from dispute settlement raised by other WTO members. The most frequently employed legal justification is Article XX(b), (g) (General Exception) of the GATT 1994. In accordance with Article XX(b) and Article XX(g), WTO members are permitted to enact inconsistent but necessary measures for the protection of people, animals, and plants. (Article XX(b)) or referring to natural resource conservation (Article XX(g)).

Conversely, from previous studies, the applicability of this Article to subsidies prescribed by the SCM Agreement rather than the GATT (beyond the GATT applicability) is controversial. Condon points out the absence of an article under the SCM Agreement cooperating with the applicability of the GATT (Condon, 2017, pp. 685-690). Moreover, the introductory part of Article XX states that this Agreement is not intended to prevent the adoption of contracting parties, which precludes the applicability of this Article to any other Agreement other than "this Agreement" (GATT). On the contrary, Rubini (2012) argues that as a general agreement, the applicability of GATT's Articles to the SCM Agreement is undeniable. In addition, the latter further develops the former's substance in subsidies provided for goods (Rubini, 2012, pp. 558-566).

The insufficiency of WTO's regulations requires a comprehensive reform to shield clean energy from legal challenges imposed by WTO members. Previous research suggests that (i) definitions of legitimate as well as prohibited clean energy subsidies and (ii) clear applicability of legal justification for inconsistent subsidies under the SCM Agreement should be provided to create spaces for members to execute subsidies promoting renewable energy.

1.4. Policies and legal framework toward renewable energy subsidies in Vietnam

Regarding the situation of Vietnam, previous papers not only provide the development status of renewable energy but also information on policies and legal frameworks promoting the growth of this sector. As stressed by Luong and Nong et al., in comparison to other countries in Southeast Asia, Vietnam has abundant sources of renewable energy thanks to its geographical characteristics of the country (Luong, 2015, pp. 440-448; Nong et al., pp.110-117). For instance, the country has more than 3000 km coastline and is located in the intertropical convergence zone. Therefore, the sources include hydropower, wind, solar, biomass, and geothermal, which are expected to contribute considerably to the country's energy security. However, Vietnam also faces the same barriers in developing this sector as other countries. A high up-front cost to establish renewable energy projects, the lack of grid facility to transfer renewable energy, and the lack of policy support require the government's intervention to take advantage of natural potentials and develop the renewable energy industry.

In terms of policy tools, various policies are illustrated via the National Power Development Plan issued by the Ministry of Industry and Trade (MIT) for specific periods. In detail, targets for an increasing market share of each source of clean energy and methods conducted to achieve the goals (financial support, fiscal measures, and FIT programs) are provided via the plan Nam et al., 2012, pp. 9-20; Tien et al., pp. 26-32). Besides policies, even though there is no

consolidated law regulating energy in Vietnam, there are legal documents designed for wind energy or biofuel (Tien et al., pp. 27-28). There is a consensus among the aforementioned papers that despite a strong development potential, there are insufficient policies and laws to encourage the exploitation, production, sale, and use of renewable energy. As a result, this calls an urgent action for the government of Vietnam to complete the legal system and policies to strongly support this newly discovered sector.

Previous sources provide a clear picture illustrating renewable energy subsidies, the insufficiency of WTO's regulations regarding these types of subsidies, policies, and legal tools of Vietnam towards subsidies provided to green energy. However, there is an absence of paper analyzing subsidy measures of Vietnam under the mechanism of the WTO. As a result, this study serves to further contribute to previously conducted research by analyzing subsidies executed by the Vietnamese Government in the context of the WTO, thereby proposing suitable suggestions for the Vietnamese Government in terms of consistent subsidies and methods to execute these subsidies without legal challenges from other WTO members.

CHAPTER II: LEGAL CHALLENGES AGAINST RENEWABLE ENERGY SUBSIDIES UNDER THE WTO MECHANISM

2.0. Dispute settlement

The first track to challenge green subsidies is the multilateral level, which is the dispute settlement system. There was no dispute concerning subsidies provided for the renewable energy sector from the time the SCM Agreement was enacted (1995) till 2010. It can be inferred that WTO-resolved issues for renewable energy subsidies are relatively new. As of 31 August 2022, there have been seven cases concerning renewable energy support measures challenged under the WTO mechanism. Although environmentally harmful fossil fuel subsidies are more prevalent than climate-friendly ones, members have not questioned the compatibility of the former, only the latter has been challenged at the WTO level (Shadikhodjaev, 2015, p. 483).

2.0.1. **Overview of dispute in renewable energy subsidy**

2.0.1.1. Canada – Measures relating to the Feed-in Tariff Program (the FIT Program)

The dispute resulted from the Ontario government's implementation of the FIT Program in 2009. In the FIT program, the Ontario government and its agencies agree to pay their desired amount per kWh of renewable energy to put into the province's electrical grid for 20 or 40 years via contracts with the Ontario Power Authority (OPA). Additionally, the OPA mandates Local Content Requirements (LCRs) for solar and wind power projects with capacities of up to 10 MW. The government of Ontario has implemented the FIT program to encourage the growth of electricity production from renewable sources and phase out electricity supplied from fossil fuel sources. Ontario's facilities that only use renewable energy sources to produce electricity are eligible to receive financing from this program.

As accused by Japan and European Union (EU), the SCM, the GATT, and the TRIMs Agreement were all violated by the program the Ontario government undertook. As analyzed by the AB, there was no inconsistency of the FIT Program found under the SCM Agreement. Nevertheless, the LCRs associated with the measure were found inconsistent with the TRIMs and the GATT. Ultimately, the Government of Ontario followed the suggestions and regulations issued by the DSB, removing the LCRs attached to the FIT program.[1]

2.0.1.2. China – Measures Concerning Wind Power Equipment

In 2010, the United States brought a dispute regarding measures that support the manufacture of wind power equipment. The country expressed concern about using domestic inputs to manufacture the equipment imposed on Chinese producers to be eligible for receiving funds or awards under this program. The application of the concerned measures, according to the U.S.'s request for consultation, was a breach of China's responsibility under Article 3.2 (the SCM Agreement). This was the first dispute in which the Panel attempted to explain the consistency of support measures for the renewable energy industry by referring solely to the SCM Agreement. However, this dispute was resolved through bilateral negotiations between the two governments (China and the U.S), and China agreed to remove the LCRs attached to measures provided to wind equipment manufacturers.

2.0.1.3. India - Certain Measures Relating to Solar Cells and Solar Modules

In 2013, the U.S challenged the LCRs in connection with the Jawaharlal Nehru National Solar Mission. In accordance with this national program, power purchasing agreements were only carried out by competent authorities when domestic solar cells and solar modules were used by the electricity generators. Unlike Japan and the EU in *Canada – Measures relating to the FIT*

[1] Communication from Canada, *Canada – Measure relating to the FIT Program*, WTO Doc. WT/DS412/19; WT/DS426/19 (6 June 2014).

Program, the U.S questioned only the consistency of the LCRs under the GATT 1994 (Article III:4) and TRIMS Agreement (Article 2.1). As a result, the WTO's judicial bodies determined that the challenged measures violated both the GATT 1994 and the TRIMs.

2.0.1.4. United States – Certain Measures Relating to the Renewable Energy Sector

Regarding policies that encourage renewable energy production in the United States, India challenged measures to the WTO dispute settlement mechanism. As determined in the consultation request, the measures violated the SCM, GATT 1994, and the TRIMs Agreement.

Measures at dispute were financial incentives under nine different programs granted for purchasing, installing, and utilizing renewable energy-related systems and products in seven states. The Panel concluded that all programs violated Article III:4 (GATT 1994). First, locally produced goods and imported goods are both considered to be like products. Second, each measure impacted the relevant products' usage, distribution, transportation, or internal sale. Third, because all programs mandate companies employ technology, systems, and equipment from domestic suppliers, every measure gave foreign goods a less favorable treatment than domestic ones.[2]

Regarding India's claim of prohibited subsidy with the local content requirements, the Panel exercised judicial economy not to address this claim. From the Panel's perspective, there would not be a prohibited subsidy if the local content criterion was repealed.[3]

2.0.2. **Consistency of challenged measures under the WTO regulations**

To identify the consistency of challenged measures under the WTO regulations, this study categorizes the two main groups of measures: (i) the FIT Program with attached LCR (challenged measure in *Canada – Measures relating to the FIT Program* and *India - Certain measures relating*

[2] Panel Report, United States – Certain Measures Relating to the Renewable Energy Sector, WT/DS510/R (adopted 27 June 2019), para. 7.339-7.341.
[3] Ibid, para. 7.358.

to Solar Cells and Solar Modules) and, (ii) incentives other than FIT with attached LCR (challenged measure in the *United States – Certain Measures relating to the Renewable Energy sector*).

Regarding incentives other than the FIT program, the Panel in *US – Certain Measures relating to the Renewable Energy sector* only determined the violation of the measure with Article III:4 GATT 1994. The Panel used judicial economy by choosing not to examine the subsidy nature of the measures under the SCM Agreement. Therefore, to avoid redundancy and keep the study relevant to subsidy in renewable energy under the WTO mechanism, the following part focuses only on examining the consistency of the FIT Program with LCR.

2.0.2.1. In violation of National Treatment Principle

The NT principle is specified in Article III:4 (GATT 1994). To contest the consistency of the FIT Program with the attached LCRs, the Panel and AB in *Canada – Measures relating to the FIT Program* answered the following questions: (i) Is the FIT Program with the attached LCR a trade-related investment measure?[4] (ii) Can Canada rely on the operation of Article III:8(a) (GATT 1994) to eliminate the practical application of Article III:4 (GATT 1994), and (iii) Does the FIT with attached LCRs violate the NT under Article III:4 (GATT 1994) as well as Article 2.1 (TRIMs)?

In response to the first question, the Panel concluded that the FIT with LCRs qualified as an investment measure involving trade in accordance with the TRIMs Agreement. This measure encourages investment in the production of equipment that can be used to generate renewable energy in the province of Ontario. Moreover, the measure also affects the trade of this equipment by favoring the one that originated or was assembled in Ontario over the imported one.[5]

[4] Panel Report, Canada – Measure relating to the FIT Program, WT/DS412/R, WT/DS426/R, (adopted 24 May 2013), para. 7.108 - 7.112.
[5] Ibid, para. 7.112.

Concerning the second question, the AB concluded that Canada could not depend on the application of Article III:8(a) (GATT 1994). Article III:8(a) of the GATT 1994 allows the exclusion of the application of Article III to regulations related to government procurement. The AB's reasoning suggests that the requirements for the exclusion of applicability outlined in Article III:8 need to be interpreted considering the commitments stated in other paragraphs of Article III. Accordingly, the imported products, which are treated less favorable than national like products, and the product procured by the Government must be in a competitive relationship.[6] However, in this dispute, the Government of Ontario procured electricity, which did not compete with the product given a preference under the LCRs contested by the complainants under Article III:4 (equipment utilized to generate renewable energy). As a result, the AB concluded that the LCRs were under the coverage of Article III:4 (GATT 1994).[7]

In response to the final question, the Panel concluded that the FIT Program and the LCRs attached to it violated both Article 2.1 (TRIMs) and Article III:4 (GATT 1994). The Panel used judicial economy to determine that the challenged measure was inconsistent with Article III:4 of GATT 1994 based on the inconsistency conclusion of the measure under Article 2.1 of the TRIMs. This was done because Article 2.1 requires Members not to apply any investment measures involving trade that violate the NT principle.[8] In addition, measures that are inconsistent with the NT principle are regulated in Article 2.2 of the TRIMs Agreement. The Panel concluded that the FIT with LCRs falls under the first category of the list, which is the utilization or acquisition by a business of products with domestic origins or from domestic sources. In more specific terms, the Panel found that the LCRs require electricity generators to utilize a specific proportion of

[6] Appellate Body report, Canada – Measures relating to the FIT Program, WT/DS412/AB/R, WT/DS426/AB/R, (adopted on 24 May 2013), para. 5.75.
[7] Ibid, para. 5.79.
[8] Ibid, para. 7.155.

equipment generating renewable energy originating from Ontario.[9] Moreover, meeting this requirement, electricity generators can obtain an advantage, which is participation in the FIT Program.[10]

2.0.2.2. Not a prohibited subsidy

In *Canada – Measures relating to the FIT Program*, Complainants also alleged that the FIT with LCR is a prohibited subsidy under Article 3.1 of the SCM Agreement. As a result, Canada broke its obligation outlined in Article 3.2 (SCM Agreement) when it implemented the FIT program with LCRs in the country. The Panel and the AB must first decide whether the measure qualifies as a subsidy to assess whether a particular measure is a prohibited subsidy. A measure is a subsidy if it satisfies both of the following criteria: (i) the measure is a financial contribution from the government or another public entity, and (ii) the financial contribution is accompanied by a benefit.

The Appellate Body had a different perspective when examining the benefit conferred, albeit it concurred with the Panel in describing and determining that the FIT Program is a financial contribution under the form of government procurement of goods.[11] Article 14 of the SCM Agreement served as the foundation for the analysis of the benefit by the Panel and the AB.[12]Accordingly, government purchase of goods confers benefit if recipients are "better off" than they would be in the market without this purchase.[13] Therefore, a comparison between the purchase and a benchmark from a relevant market is required to determine the benefit. Looking at the demand side, where there is no difference between electricity generated from different energy

[9] Ibid, para. 7.158-7.163.
[10] Ibid, para. 7.164 – 7.166.
[11] Ibid, para. 5.129.
[12] Ibid, para. 5.169-5.171.
[13] Ibid, para. 5.160-5.163.

sources, the Panel did not accept that the market for electricity generated from wind and PV was a relevant market to analyze the benefit provided.[14]Instead, the relevant market was the market for power from all energy sources.

Although there was no difference in electricity source demand from customers, from the supply side, there were differences in cost structures and characteristics of technologies, equipment, and systems that did not allow electricity suppliers to change from generating conventional energy to renewable ones.[15] Therefore, unlike the Panel, the AB decided that the relevant market in this dispute to compare costs and returns of producers was the market for power generated from wind and PV itself rather than the general market of electricity produced by all energy sources.[16]According to AB's study, the action taken by the Ontario government aimed to create a market for electricity generated by renewable sources such as wind and solar PV. This market creation ensured that the electricity supply would be in a stable and reliable state through an energy supply mix, which included electricity generated from wind and PV and phased out electricity generated from fossil fuels.[17] Using this logic, the Appellate Body concluded that a government's development of a market does not automatically result in a subsidy under the SCM Agreement.[18]

According to the analysis presented above, the FIT program served as a tool to create a market for electricity generated from wind and PV. Therefore, there was no subsidy that resulted from the creation of this market and no prohibited subsidy under the SCM Agreement.

[14] Ibid, para. 5.168.
[15] Ibid, para. 5.174.
[16] Ibid, para. 5.178.
[17] Ibid, para. 5.187
[18] Ibid, para. 5.188.

2.1. Countervailing investigation

Unilateral actions (trade remedies) through local countervailing duty investigations are another way to challenge green subsidies under the WTO mechanism. Similar to the multilateral track, since 2009, WTO members have used trade remedies to impose countervailing duties on subsidized renewable energy products. Unlike the multilateral track – also used for subsidy causing any other adverse effect, WTO's members are allowed to choose this option only if subsidized imports cause injury to the domestic industry. On the one hand, initiating an investigation depends on the petition of domestic industry and competent authorities. Therefore, there is frequent and widespread use by countries, which in turn harms the development of this industry and prevents it from being a strong competitor to traditional energy. On the other hand, it can be argued that the trade remedies are creating more space for renewable energy subsidies than the multilateral one because it does not require the removal of the measure and only imposes the countervailing duty in case subsidized imports cause injury to the domestic industry.

2.1.1. Legal basis for countervailing investigation under the WTO

Part V of the SCM Agreement regulates the grounds for initiating countervailing investigations and the procedures of investigations. As stated in Article 11, the competent authorities of each member state can only launch an investigation in response to a written request formed by or on behalf of the domestic industry. To meet the requirements of this condition, the application must receive assistance from domestic companies whose combined production is higher than 50 percent of the total production produced by domestic manufacturers who have either expressed support for or opposition to the application. In other words, the application must receive support from domestic producers whose combined production is greater than the total production produced by domestic manufacturers. In addition, the production of domestic manufacturers who

support the application must represent more than 25 percent of the domestic industry's total production to meet the requirements.[19] The application must demonstrate three things in order for an investigation to be opened: (i) the presence of a subsidy and amount of subsidy provided (if possible); (ii) the injury of the domestic industry; and (iii) the demonstration that the subsidized imports cause the injury. These three things serve as the foundation for the initiation of an investigation.

In the SCM Agreement, Article 15 defines "injury" in three different contexts. First, subsidized imports cause a significant amount of damage to the domestic industry. Second, the imports that have been subsidized pose a danger to the domestic industry that they compete with. Third, the establishment of the domestic industry is also hindered by subsidized imports.

To determine the injury in the first circumstance, the volume of subsidized imports, how subsidized imports affect prices of the like products in the domestic market, and the effect of subsidized imports on the producers of the like products are examined.[20]As far as the like product is concerned, under footnote 46 of the SCM Agreement, the like product is defined as the same product as the product under investigation or a product that possesses qualities that are quite similar to those of the product under investigation. Even though the SCM Agreement provides criteria to determine the like product, the Panel in *Indonesia – Autos* (the dispute regarding Indonesian support measures provided to its national vehicles and components, which were being challenged under Article 3 of the SCM Agreement) also referred to useful guidance from analysis of judicial bodies in previous disputes.[21]Specifically, the Panel referred to the analysis of the AB in *Korea – Alcoholic Beverages* (the dispute dealt with Article III:2 of the GATT 1994). From this AB's

[19] Article 11.4, the SCM Agreement.
[20] Article 15.1, SCM Agreement
[21] Panel Report, Indonesia – Autos, WT/DS55/R, WT/DS59/R, (adopted on 23 July 1998), para. 14.174.

analysis, the like product must be analyzed on a case-by-case basis, in consideration of the relevant criteria of each case to determine whether in fact products are like.[22] With this reference, the Panel in *Indonesia – Autos* used market segmentation (according to the size and price/market position) to identify which European and American automobiles were like products of the Indonesian-made 'Timor vehicle.[23] Regarding the quantity of the subsidized imports, the Investigating Authorities shall examine the existence of a considerable rise, in an absolute increase or in relation to production or consumption of the importing market. To determine how subsidized imports affect the prices of the like product, the Investigating Authorities is required to test the existence of a considerably lower price of subsidized imports in comparison with the price of the like product of the Importing Member, or the occasion when imports significantly lower prices or prevent price growth of the like product of the Importing Member.

Article 15 of the SCM Agreement also points out criteria that are the basis for the Investigating Authorities to determine a threat of material injury in the second circumstance. The existence of the subsidy brings trade effects; a considerable pace of growth in subsidized imports into the domestic market, suggesting that importation will likely increase significantly; significant improvement in the exporter's capacity, indicating the potential of much more subsidized shipments to the market of the Importing Member, also consider other export markets to indicate whether there have been additional exports; the effects of imports on prices of like products produced by domestic industry (imports significantly lower prices or prevent price growth of the like product) and potential growth in the demand of the imports; inventories of the product under investigation are factors considered by the Investigating Authorities.

[22] Appellate Body Report, Korea – Alcoholic Beverages, WT/DS75/AB/R, WT/DS84/AB/R, (adopted on 17 February 1999), para. 46.
[23] Ibid, para. 14.173.

2.1.2. **Countervailing investigation of the EU and the U.S.**

This study focuses on analyzing the use of trade remedies by the European Union (the EU) and the U.S. The reason for choosing these two WTO members is that the EU and the U.S. are the two most frequent users of trade remedies to protect domestic industry from subsidized renewable energy and renewable energy-related technology.

2.1.2.1. The EU

Being the most frequent user of countervailing investigations against renewable energy and its related technology, the EU has initiated seven cases in this sector (As can be seen in Appendix 2).

There are four main types of products under investigation: (i) Biodiesel (four cases), (ii) Bioethanol (only one case terminated without duty applied, (iii) Crystalline silicon photovoltaic products (one case), and (iv) Solar glass (one case).

As far as investigations against Biodiesel are concerned, there have been three cases done with definitive conclusions (AS532, AS644, and AS650) and one case terminated without countervailing duty imposed (AS595). In the case of AS532, the European Commission initiated an anti-subsidy investigation on biodiesel from the U.S.. On average, the Commission adopted 216.75 Euro per tonne net countervailing duty on the products generated by companies participating in the case and 237.0 Euro per tonne net duty on products from other companies.[24] A high average countervailing rate is also applied to Argentinian biodiesel products in case AS644 (28.05 percent for companies participating in the case and 33.4 percent for other companies).[25] A

[24] Council Regulation (EC) No 598/2009, July 7, 2009, p.21.
[25] Commission Implementing Regulation (EU) 2019/244, February 11, 2019, p. 40.

quite lower rate was imposed on biodiesel originating from Indonesia in the investigation AS650 (14.5 percent on average for participating companies and 18.0 percent for other companies).[26]

Regarding the Solar glass case (AS599) and the Crystalline silicon photovoltaic products (solar panels) (AS594), the investigated country in both cases was China. For the former, the average countervailing duty is 12.44 percent for participating companies and 17.1 percent for other companies.[27] A quite low average was applied for participating companies in the latter case (roughly six percent) and 11.5 percent for other companies.[28]

2.1.2.2. The U.S.

As of 31 December 2021, the United States initiated 5 countervailing investigations in renewable energy-related goods. The 2 types of products under investigation are crystalline silicon photovoltaic products (C–570–011, C–570–980) and Utility scale wind towers (C–122–868, C–570–982, C–533–898). In the five listed cases in Appendix 3 of this paper, the goods mainly originated from China (3 out of 5 cases). In each investigation, U.S. International Trade Commission (USITC) analyzed a huge number of programs and found that subsidies existed in several programs. To calculate the final countervailable margins, the USITC summarized subsidy rates of all programs together and defined specific subsidy rates for each company under investigation.

Regarding subsidy rates imposed on Crystalline silicon photovoltaic products from China, the subsidy rates range from 14.78 percent to 15.97 percent for companies participating in countervailing investigation C-570-980.[29] For companies participating in another investigation C–

[26] Commission Implementing Regulation (EU) 2019/2092, November 28, 2019, p.67.
[27] Commission Implementing Regulation (EU) No 471/2014, May 13, 2014, p. 46.
[28] Commission Implementing Regulation (EU) 2017/366, March 1, 2017, p.118-119.
[29] Federal Register, Vol.77, No.201, October 17, 2012, Notices, 63789.

570–011, the subsidy rates are far higher than the former, which range from 27.64 percent to 38.72 percent.[30]

In terms of Utility scale wind towers, the net subsidy rates range from 28.34 percent to 34.81 percent for Chinese companies in case number C–570–982.[31] In countervailing investigation C–122–868 (against products from Canada, Vietnam, and Indonesia), the subsidy rate determined de mini-mis for an Indonesian company – the only one respondent participating in the investigation,[32] the subsidy rate imposed on Canadian companies is only 1.18 percent,[33] that on Vietnamese companies is 2.84 percent[34]. One emphasized point is that, in this investigation, the USITC initiated both anti-dumping and countervailing investigations. Therefore, although the subsidy rate is low, it has a high anti-dumping margin (65.96 percent for Vietnamese companies,[35] 8.50 percent for Indonesian companies,[36] 5.41 percent for Korean companies,[37] and 4.94 percent for Canadian companies).[38]

2.2. Conclusion

2.2.1. The compatibility of the FIT program

For the first time, the way to determine the benefit of the FIT programs under the SCM Agreement was introduced by the AB in *Canada – Measures relating to the FIT Program.* Thanks to this analysis, the Governments of WTO members seem to have space to issue and execute support programs for infant renewable energy industries under the SCM Agreement. Specifically, if the measures are used to create a market for the industries (the main purpose of the Government's

[30] Federal Register, Vol.79, No.246, December 23, 2014, Notices, 76964.
[31] Federal Register, Vol.77, No.247, December 26, 2012, Notices, 75979.
[32] Federal Register, Vol.87, No.9, January 13, 2022, Notices, 2137.
[33] Federal Register, Vol.85, No.129, July 6, 2020, Notices, 40246.
[34] Ibid, 40230.
[35] Ibid, 40228.
[36] Ibid, 40232.
[37] Ibid, 40244.
[38] Ibid, 40240.

intervention in the renewable energy sector), it would not be deemed as a subsidy as defined by the SCM Agreement, hence no application of this Agreement. From the ruling of the Appellate Body in this dispute regarding the subsidy nature of the FIT Program, it can be determined that the Appellate Body tends to shield the FIT Program from the umbrella of the SCM Agreement.

2.2.2. The compatibility of local content requirements attached to support measures

All disputes brought at the multilateral track of the WTO have challenged the LCRs attached to the incentives. In all disputes analyzed, the support that is contingent upon LCRs is inconsistent with WTO regulations. Specifically, the attached LCRs violate the NT principle under Article III:4 (GATT 1994). Moreover, the issuance of LCRs also violates Article 2.1 (TRIMs Agreement).

Although the use of LCRs is also prohibited under Article 3 (SCM Agreement), the Parties of the dispute and the adjudicatory bodies found it unnecessary to cite or analyze this Article in the dispute (For instance, the United States did not complain about the violation of the contested measures under Article 3 (SCM Agreement) in *India - Certain Measures Relating to Solar Cells and Solar Modules* or the Panel relied on the judicial economy to not consider this Article after considering the GATT 1994 and TRIMs Agreement in *United States – Certain Measures Relating to the Renewable Energy Sector*). As a result, regulations of LCRs under the SCM Agreement could be weak and redundant in the view of the WTO members.

2.2.3. Increase in the use of countervailing investigations on renewable energy products

The increase in countervailing investigations, in combination with the anti-dumping investigations on renewable energy products, poses a threat to the development of this industry. Firstly, this trend leads to less accessibility for users and consumers. High countervailing and anti-dumping duties are imposed in addition to the current tariff of the products, which results in higher

prices for renewable energy products. From the analysis of countervailing investigations of the EU and the U.S., Investigating countries tend to impose a duty rate that is higher than 10 percent. For instance, the U.S. even imposed a 65.96 percent of anti-dumping duty and a 2.84 percent of countervailing duty on utility-scale wind towers from Vietnam. Secondly, the competitiveness of renewable energy with fossil fuels is harmed. Prices of renewable energy are higher than its counterpart. The additional countervailing duty makes the discrepancy between these two prices far bigger. As a result, consumers and generators prefer to change back to traditional sources of energy rather than renewable ones. Thirdly, the use of countervailing investigations fosters retaliation among WTO members. With trade liberalization, the tariffs on renewable energy products are relatively low (World Trade Organization, 2021), which encourages WTO members to use trade remedies as a tool to protect domestic industry from imports. However, unlike the multilateral track, the Government has more power to conduct investigations and impose an additional duty, members tend to use this tool frequently to retaliate in case other countries initiate investigations on their export.

CHAPTER III: POLICIES FOR RENEWABLE ENERGY SUBSIDIES IN VIETNAM

3.0. Development plan for renewable energy in Vietnam

3.0.1. Vietnam's renewable energy development strategy to 2030, with a vision to 2050

On November 25, 2015, the Vietnamese Government issued Decision No. 2068/QD-TTg which aims to tackle energy security and climate change (The Government of Vietnam, 2015). This Decision points out the development vision of renewable energy in Vietnam, which are: (i) Combining renewable energy development with economic, social, and environmental development; (ii) Developing renewable energy; (iii) Combining the utilization of short-term technology with the development of long-term technology; (iv) Combining incentive policies, market-oriented mechanism with the government's management.

This Strategy also sets the target for renewable energy (hydropower, biomass, wind, and solar energy) development until 2030, with the vision of 2050. Specifically, until 2030, almost all residences in rural areas will utilize sustainable renewable energy at reasonable prices. Moreover, the percentage of residential units having solar energy-related equipment is expected to increase from 12 percent in 2020 to 26 percent in 2030 before increasing significantly to 50 percent in 2050. Realizing the importance of technology related to renewable energy development, the Decision also sets the target for the percentage of technology, which is projected to account for 60 percent in 2030, not only meet the domestic demand for technology in 2050 but also serve the demand of countries in the region.

3.0.2. National electricity development plan period 2021-2030, vision to 2045

(National Power Development Plan VIII)

On April 26, 2022, the National Power Development Plan VIII was approved, which was a breakthrough in the policies of the energy field with an emphasis on energy transformation, following the Strategy for the development of renewable energy (Tran, 2022). Participating in the COP26, the Vietnamese Government committed to achieving net zero emissions by 2050. To fulfill this commitment, energy transformation from fossil fuels to renewable energy is inevitable, which was reflected in the National Power Development Plan VIII. Specifically, sources of renewable energy are prioritized for development in this Plan. Renewable energy, not including hydropower, is expected to rise from the current amount (17,000MW) to 31,600MW in 2030, which will account for about 24.3 percent of total renewable energy capacity (Ministry of Industry and Trade, 2021). The share of wind power will come from 10.8 percent to 15.8 percent in 2030, and the share of offshore wind power will be 4.8 percent (Nguyen, 2022). Additionally, this Plan also limits the expansion of coal-fired power plants and replaces liquified natural gas with renewable energy.

3.1. Public incentives for renewable energy development in Vietnam

Chapter V of the Strategy for renewable energy development generally emphasizes five main groups of subsidies provided by the Vietnamese Government to the renewable energy sector: (i) Government provides financial support; (ii) Promotions provided by the Government in the form of fiscal incentives; (iii) The FIT Program; (iv) RPS and, (v) Net Metering (Nam et al., 2012, pp. 9-20).

Firstly, the Government provides financial incentives to renewable energy production and utilization projects. The Strategy for renewable energy development covers land preference and funds for research and development. With land preference, the exemption and deduction of land rent applied to projects producing and utilizing renewable energy are executed under land-related

regulations (Non-Agricultural land use tax and Decree No.118/2015/ND-CP giving guidance to Law on Investment). For example, renewable energy projects are eligible for exemption from land rent fees for 11 years (Van, 2020).

Secondly, in terms of fiscal incentives, the Government grants corporate income tax (CIT) and import duty incentives for renewable energy production projects. Regarding CIT, if a set of criteria concerning scale, personnel, land demand, facility, capacity, and technology under Decree No.218/2013/ND-CP are satisfied by an energy production project (producing clean energy from wind, solar, tides, biology, destruction of environmental pollutant), this project will be defined as a project protecting the environment. Following that, based on the location of the project, it will be eligible for a preferential Corporate Income Tax (CIT) at the rate of 10 percent for the duration of 15 years (while the current tax rate is 20 percent) or exemption of CIT for four years, or 50 percent deduction from five to nine years from the beginning of the project (Electronic News of the Vietnamese Government, 2021). Furthermore, exemption from import duty will be given to renewable energy projects within five years if imports are used to create fixed assets, such as raw materials and semi-finished goods unavailable on the domestic market (Decision No.2068, Section V, Article 5).

The third type of Government incentive given to renewable energy production projects is the FIT Program. Electricity utilities are required by the Strategy for the development of renewable energy to purchase all of the electricity produced from renewable sources in the place under their authority. The purchasing activities are executed via model contracts regulated by the MIT.

To execute the Strategy, the FIT Program has been introduced in Vietnam in 2017 and has been implemented in solar- and wind-electricity generation projects. Additionally, the Vietnamese government issued Decision No.13/2020/QD-TTg that regulates the 3 different FIT regimes for

floating system (6.69 cent/kWh), ground-mounted system solar (7.09 cent/kWh) and rooftop solar power projects (8.38 cent/kWh), which are shown in the following table.

Table 1. *FITs price regime for solar energy in Vietnam in 2020*

No.	Solar technology	FIT (US Cent/kWh)
1.	Floating system	7.69
2.	Ground-mounted system	7.09
3.	Rooftop system	8.38

Source: Bui, T., & Foster, T., 2022

Under this Decision, buyers refer to Vietnam Electricity Group (EVN), member entities authorized by the EVN, other organizations, and individuals assigned with rights and obligations of organizations and individuals mentioned above. Under the model Power purchase agreement (PPA), the period is set for 20 years from the day the grid-connected solar power projects operate commercially (Clause 2, Article 4, Decision No.13/2020/QD-TTg). In terms of rooftop solar projects, if the purchaser is the EVN or its authorized units, that period will not be more than 20 years from the day the grid-connected solar power projects operate commercially (Clause 5, Article 8, Decision No.13/2020/QD-TTg).

Regarding RPS, the Strategy for renewable energy development requires electricity generators and distributors to satisfy the standard amount of renewable electricity. For generators with a size of over 1,000 MW (not including entities under Build-Operate-Transfer projects), the percentage of renewable energy produced (excluding hydropower projects with capacity over 30 MW) is not lower than 10 percent in 2030 and not lower than 20 percent in 2050. The target

percentage for electricity distributors is also higher than 10 percent in 2030 and 20 percent in 2050. Annually, the MIT sets the minimum percentage of clean electricity produced or distributed by electricity producers and distributors.

Lastly, Net metering is promulgated by the Strategy for developing renewable energy. According to the Strategy, the end users of electricity who are able to self-generate renewable energy are eligible for compensation under the Net metering program. Electricity utilities are liable for signing purchasing contracts with end users in consideration of compensation for renewable energy produced by the end users. The electricity produced by the end users is also counted as the amount of renewable electricity distributed by the electricity distributors under the RPS program.

3.2. The current state of renewable energy in Vietnam

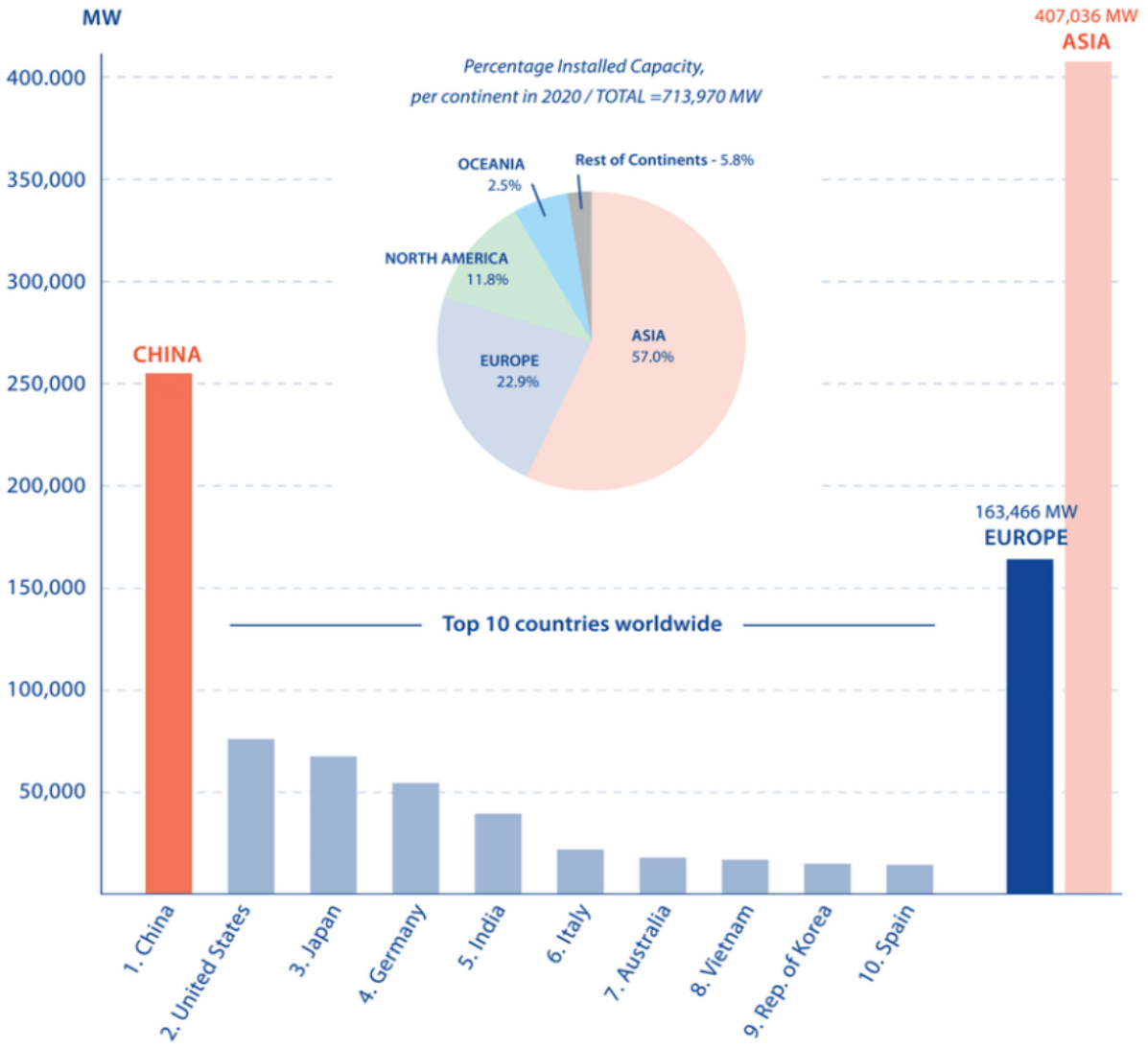
There are three main factors explaining the dramatic growth of renewable energy in Vietnam. Firstly, there is a high domestic demand for electricity consumption. According to the International Energy Agency, Vietnam is the second largest electricity consumer among Southeast Asian countries. This factor is a great opportunity for investors to invest in this promising sector. Secondly, geographical characteristics are ideal for renewable energy, especially solar PV, and wind energy. Vietnam is one of the countries with the highest number of sunny hours (1,500 to 1,700 hours each year on average). Moreover, having a long and narrow topography with 3,000 km of coastline, Vietnam is rich in wind resources. As noted by the World Bank emphasized, 39 percent of the area of the country has a wind speed of over 6 meters/second at the height of 65 meters, which is equal to a capacity of 512 GW (Lam, 2022).

Finally, thanks to policies promoting renewable energy applied by the Government, renewable energy projects have attracted foreign direct and private investment. In 2021, the investment amount poured into this sector was 5.7 billion USD, making up 18.3 percent of the

total registered investments in Vietnam, which allowed electricity production and distribution to become the runner-up in terms of foreign direct investment attraction.

As a result, there was a dramatic growth of renewable energy in Vietnam. Firstly, at the end of 2020, Vietnam was one of 10 countries with the highest solar power installation capacity (Nguyen, 2021).

Graph 1. *Top ten countries in the world in terms of installed capacity for solar energy in 2020*

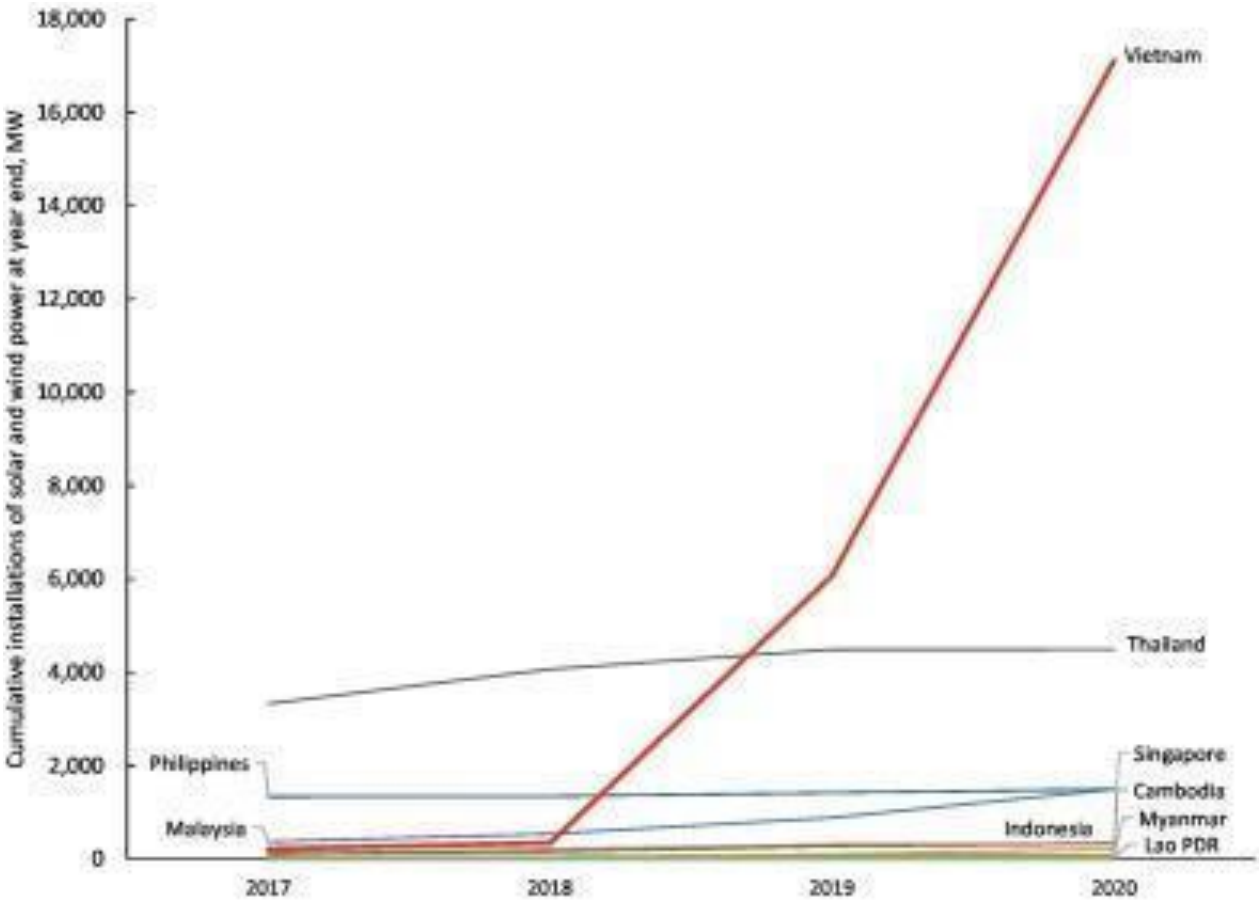


Source: International Renewable Energy Agency (2020)

As can be seen from the graph, ranking in 8th place, Vietnam's installation capacity in 2020 was 7.4 billion Watts, followed by two advanced economies (Korea and Spain).

Furthermore, Vietnam surpassed Thailand and became the ASEAN country with the most installed solar and wind capacity in 2019. Impressively, in 2020, the total installed capacity of solar PV in Vietnam was 16,500 MW, which was 19 times higher than the original target of the year (850 MW). Within only 2 years (2019 and 2020), the country installed more than 100,000 rooftop solar PV systems and witnessed a surge in solar PV and wind installation capacity (from more than 6,000 MW in 2019 to 16,500 MW in 2020). During the same period, the electricity generation capacity of Vietnam grew from 4.7 TWh in 2019 to 9.5 TWh with an increase rate of roughly 200 percent.

Graph 2. *Solar and wind installed capacity in ASEAN markets, 2017 – 2019*



Source: International Renewable Energy Agency (2021)

3.3. Legal actions against Vietnamese renewable energy subsidies

With the increase in subsidies given to the renewable energy sector, these subsidies provided by the Vietnamese Government are likely to be challenged by other WTO members. Until now, utility wind towers coming from Vietnam have been the subject of one anti-dumping investigation and one countervailing investigation, respectively.

Utility-scale wind towers originating from Korea, Canada, Vietnam, and Indonesia are the subject of an anti-dumping and countervailing investigation by the USITC that was launched on July 29, 2019. Arcosa Wind Towers Inc. and Broadwind Towers Inc. submitted petitions as the basis for the initiation. On June 29, 2020, the U.S. Department of Commerce released the investigation's findings, which found the existence of dumping prices for the products under investigation and given subsidies.

In both investigations, the Vietnamese companies had to bear the highest duties in comparison with companies from other investigated countries. A rate of 2.84 percent for subsidy rate,[39] along with 65.95 percent for anti-dumping duty[40] would be imposed on the entry of the products when they are brought into the U.S. market. In the countervailing investigation, the subsidy rate imposed on Canadian companies was only 1.18 percent. At the Final Determination, there was a 5.90 percent subsidy rate imposed on PT Kenertec Power System – the only Indonesian company participating in the investigation. However, the company and the Indonesian Wind Tower Trade Coalition appealed this Determination at the U.S. Court of International Trade (CIT). Article 23 of the SCM Agreement requires each WTO member to maintain judicial procedures in national legislation (if national legislation contains regulations regarding countervailing measures) for the purpose of reviewing the Final Determination of the countervailing investigation.

[39] Ibid, 40230.
[40] Ibid, 40228.

Therefore, the Indonesian company and Wind Tower Trade Coalition relied on Article 5, Section 777, Title VII Tariff Act of 1930 of the U.S. to request the CIT to review the application of trade remedies duties under the Final Determination. After the review, the CIT concluded that the way USITC calculated the subsidy rate was improper.[41] Therefore, the subsidy rate imposed on Indonesia was amended from 5.90 percent to 0.85 percent, which was de minimis. With this conclusion, the USITC revoked the countervailing duty order on wind towers from Indonesia.[42]

To initiate the countervailing investigation, the USITC relied on the material injury caused by the imports from two countries, including Vietnam and Canada to the domestic industry and subsidies programs provided to these imports. Regarding the determination of the material injury, the USITC first defined the domestic like product and the domestic industry. After that, the volume of imports and how imports affected prices of the like product in the domestic market were examined. Based on product characteristics, distribution channels, how producers and consumers perceive the imports and the domestic products, and price comparison, the USITC determined that all domestic wind towers should be considered as one single domestic like product for the purpose of the investigation.[43] From the domestic like product determination, the domestic industry was comprised of all domestic producers of the like product.[44] During the period of data collection (2016, 2017, 2018), a decrease in the quantity of the product under investigation in the first three years, from 1,182 towers in 2016 to 912 towers in 2017 before reducing to 848 towers in 2018.[45] With these data of imports, the confirmation from the domestic purchasers that there was a lower price of the imports when compared with the price of domestic wind towers, and the data of

[41] Federal Register, Vol.87, No.9, January 13, 2022, 2137.
[42] Federal Register, Vol.87, No.9, January 13, 2022, 2138.
[43] U.S. International Trade Commission, Utility Scale Wind Towers from Canada, Indonesia, Korea, and Vietnam, Investigation Nos. 701-TA-627-629 and 731-TA-1458-1461 (Preliminary), pp. 1-18.
[44] Ibid, p. 4.
[45] Ibid, p. 24.

relevant economic factors of domestic industry (e.g. market shares, profits, investment, etc.), the USITC concluded that there was a material injury caused by imported wind towers.[46] The USITC also found that various subsidy programs (such as financial guarantee, export promotion, exemption of land rent fees and income tax for renewable energy projects, etc.) are given to Vietnamese and Canadian companies.[47] A material injury caused by subsidized imports was the basis for the USITC to conduct this investigation.

This conclusion, however, was not in accordance with Article 15 of the SCM Agreement regarding the volume of imports. Specifically, Article 15.2 of the SCM Agreement requires the Investigating Authorities to illustrate the import increase to analyze the material injury of the domestic industry, not only the significant presence as determined in this countervailing investigation. Moreover, the period for submission of the questionnaire response did not comply with the requirements outlined in Article 12.1.1 of the SCM Agreement. In trade remedies investigation cases, the Investigating Authorities collect information and data from domestic producers, importers, foreign producers/exporters, and other related parties via questionnaires.[48] Even though Article 12.1.1 requires at least 30 days given to foreign producers/exporters to complete the questionnaire response, the Commission only gave foreign exporters/producers 17 days (from July 6 to July 23) to complete the questionnaire.[49] Only one Vietnamese company participated in both investigations, which was CS Wind Vietnam Co., Ltd. If the Vietnamese Government and the company had carefully analyzed the case and the SCM Agreement, they could

[46] Ibid, p. 32.
[47] Ibid, pp. I-7 - I-8.
[48] Both Article 12.1.1 of the SCM Agreement and Article 6.1.1 of the Anti-dumping Agreement regulates that the Investigating Authorities collect information from foreign producers/exporters and other interested parties through Questionnaires.
[49] The U.S. trade remedies-related regulations are silent on the time for questionnaire submission. Sec.201.9 of the Commission's Rules of Practice and Procedure only requires the Commission to collect data from foreign producers/exporters through questionnaires. In this situation, Article 12.1.1 of the SCM Agreement is applicable.

have requested the CIT to review the application of the subsidy rate under the Final Determination (like the way the Indonesian company could use the regulations to request the CIT to appeal the Final Determination). It would be possible for the CIT to find these inconsistencies during the investigations and reverse the result of the Final Determination.

Even though the difference between the subsidy rate imposed on the wind tower from Vietnam and Canada was not significant, there was a noticeably large difference between the dumping margin of this product from Vietnam and other countries under investigation. As a result, the competitiveness of the wind towers originating from Vietnam in the U.S. market was affected. In the anti-dumping investigation, CS Wind Vietnam could not submit the information and data of the Company as requested within the time given (two days later than the deadline) in the anti-dumping investigation (United States Department of Commerce , 2020), the USITC did not conduct verification and applied facts available (data submitted by petitioners) to calculate the dumping margin.[50] According to Sections 776(a)(1) and 776(a)(2)(A)-(D) of the U.S. Tariff Act of 1930, the USITC has the right to use facts available to calculate the dumping margin if an interested party is incapable of providing the information required by the deadline.

In this anti-dumping investigation case, CS Wind Vietnam submitted the questionnaire response two days after the deadline without a full explanation for the difficulty resulting in the late submission. Therefore, the USITC used data provided in the petition to calculate the dumping margin, which explains the high result dumping margin for CS Wind Vietnam. If SC Wind Vietnam could use the U.S. trade remedies regulations to explain the difficulty in providing information required by the USITC, the company would not bear this high anti-dumping duty.

[50] Ibid, 40228.

3.4. Proposed suggestions for the Vietnamese government regarding renewable energy subsidy under the WTO mechanism

Firstly, the incentives should be provided without local content requirements. In all disputes regarding renewable energy, the LCRs attached to the incentives were challenged. In addition, the WTO's judicial bodies found that the LCRs are consistent with WTO regulations. Specifically, in *Canada – Measures relating to the FIT Program*, the Panel and the Appellate Body came to the same conclusion: that the use of the FIT Program in conjunction with LCRs violated the National Treatment obligation outlined in Article III:4 of the GATT 1994 as well as Article 2.1 of the TRIMs Agreement. Similarly, the WTO's judicial bodies also rule that the incentives with attached LCRs violated Article III:4 GATT 1994 and Article 2.1 of the TRIMs Agreement (Carlson, 2017). Therefore, if the Government provides incentives without conditions that the generators are required to use or purchase a certain amount of generation equipment from local sources, the possibility of being challenged under the WTO mechanism is relatively low.

Secondly, the FIT scheme should be expanded with stable regulations to ensure investment. Currently, there are only two decisions, including Decision No.13/2020/QD-TTg and Decision No.39/2018/QD-TTg regulating the FIT prices. However, the two decisions expired, and the MIT proposed to replace the FIT Program with a bidding mechanism (Under the bidding mechanism, renewable energy investors are required to compete to be eligible for a purchasing scheme in 3 years. The MIT proposed this mechanism to prevent the rent-seeking situation under the FIT scheme) instead of expanding the FIT scheme but there are no documents guiding the bidding mechanism yet (Tam, 2021). As concluded in *Canada – Measures relating to the FIT Program*, the FIT Program did not constitute a subsidy under the subsidy definition in Article 1 of the SCM Agreement when it is used as a tool for the Government to create the market. However, to ensure

the consistency of the FIT Program with WTO regulations, it should be implemented without LCRs. So far, the capacity of electricity generated accounts for only 15.4 percent of the total electricity capacity (still in the creation stage) (Ministry of Industry and Trade of the Socialist Republic of Vietnam , 2022). Therefore, the Vietnamese Government is able to prolong and differentiate the FIT prices based on differences in foundational conditions of each province. Moreover, in the current transformation period, the expansion of the FIT Program is also important to incentivize ongoing projects.

Thirdly, the government plays a significant role in assisting Vietnamese exporters in the renewable energy sector. This support includes encouraging exporters to carefully research foreign markets before exporting their goods abroad to avoid countervailing investigations. The injury of the domestic industry of the Importing Member is one factor used as the basis for the initiation of the countervailing investigation. When there is a significant increase in the volume of subsidized imports, when there is a significantly lower price of subsidized imports in comparison with the price of the like product of the Importing Member, or when there is an occasion when imports significantly lower prices or prevent price growth of the like product of the Importing Member, the domestic industry is harmed. These three factors determine whether or not the domestic industry is harmed. Therefore, Vietnamese exporters ought to exercise caution regarding the volume of their exports and the selling prices of the products they sell to avoid lowering prices or preventing a rise in price for similar products sold by Importing Members. Furthermore, exporters could consult the government about diversifying their exporting markets to avoid a significant increase in export volume in a single market, which would prevent damage to the domestic industry of the Importing Members. This would prevent injury to the domestic industry. In addition, the

government should assist Vietnamese exporters in depicting the countervailing investigations and the types of products that are likely to be investigated by the Importing Members.

Finally, the Vietnamese Government should cooperate with enterprises to enhance enterprises' capacity to address trade remedy investigations. Products that are the subject of countervailing investigations are likely to be products under anti-dumping investigations. With the subsidy, enterprises are able to sell products at lower prices, which might also cause injury to the domestic industry of Importing Members and leads to anti-dumping investigation, in combination with countervailing investigations. Accounting for 96.7 percent of total Vietnamese enterprises (Vietnam Academy of Social Sciences , 2021), small and medium enterprises (SMEs) still find it difficult to become a party to countervailing investigations. Because SMEs are not aware of and do not have sufficient knowledge of trade remedy investigations (timeline, procedure, to-be-provided information), they are only passively involved in the investigation process. Consequently, they have to bear a high trade remedy duty. For example, in case C–122–868 (anti-dumping and countervailing investigation) initiated by the USITC in utility scale wind towers from Canada, Indonesia, Korea, and Vietnam, the total remedy rate bore by Vietnamese companies was far significantly higher than the rate bore by Canadian, Indonesian, and Korean companies in the same case. The reason for this high remedy rate was the late submission of the questionnaire response required by the USITC without a full explanation of the difficulty in the anti-dumping investigation. Therefore, building early warning systems to inform enterprises about the possibility of trade remedies investigations from other WTO members, conducting training activities about trade remedy-related regulations of the WTO and other potential export markets, and workshops, where enterprises and the MIT can discuss trade remedies information, will improve the capacity of Vietnamese enterprises when participating in countervailing investigations.

CONCLUSION

This study is a contribution to the analysis of renewable energy subsidies in Vietnam under the WTO mechanism. Realizing the importance of renewable energy in fighting climate change and the importance of subsidies in the development of this sector, this study gives answers to the research question "How can the Vietnamese Government issue and implement subsidies towards renewable energy without violating WTO's subsidy-related Agreements?" In order to provide answers, the study employs a qualitative method, which analyzes WTO's subsidy-related Agreements (GATT 1994 and SCM Agreement), dispute settlement under the WTO, and countervailing investigation regarding subsidies provided to the renewable energy sector. From the analysis, the paper comes with suggestions to implement WTO-consistent subsidy programs in renewable energy, a pivotal factor ensuring the stable development of this sector.

Analyzing dispute settlements under the WTO and countervailing investigation of the EU and the U.S. (the two main users of trade remedies), this study points out three major findings. Firstly, in *Canada – Measures relating to the FIT Program,* the Appellate Body's ruling in favor of the FIT Programs under the SCM Agreement gives space for the Government to implement the FIT Program to support the creation of the new renewable energy industry. Secondly, LCRs attached to incentives challenged at the dispute resolution are found inconsistent with National Treatment under Article III:4 of the GATT 1994 and Article 2.1 of the TRIMs Agreement. Bansal & Deshpande agreed that the implication of LCRs is an attractive policy. Requiring recipients to purchase or use a specific amount of local equipment to generate renewable energy, the Government can create the domestic industry (Bansal & Deshpande, 2017, pp. 216-217). However, as concluded by Shadikhodjaev, WTO members are not encouraged to utilize LCRs attached to the incentives promoting the growth of the renewable energy industry because the implication of

LCRs distorts international trade (Shadikhodjaev, 2018, p.148). Finally, there is an increasing trend witnessed in the use of countervailing investigations in renewable energy subsidies. To protect the domestic industry, the Government of WTO's members reserves the right to initiate countervailing investigations, which requires the enhancement of other members' enterprises' ability to address this type of investigation.

This study begins with an analysis of Vietnam's Development Plan and subsidy policies. It concludes with recommendations to assist the Vietnamese government in executing renewable energy subsidies that are consistent with WTO regulations and to avoid legal challenges from other members. Both topics are related to renewable energy development in Vietnam. The National Power Development Plan VIII and the Strategy for the Development of Renewable Energy have targets for using renewable energy by the year 2030, with a vision of 2050. The Vietnamese government has provided various methods to reach its goals, such as financial support, fiscal incentives, and the FIT Program. As a direct and positive consequence of these policies, the renewable energy sector in Vietnam has experienced significant expansion, positioning the country to become the leading Southeast Asian solar capacity installer by 2020. Despite successes achieved, the Vietnamese Government is required to ensure that the subsidies executed are consistent with WTO's agreements and avoid legal challenges from other WTO members. From the analysis of disputes and countervailing investigation under the WTO mechanism, the study comes up with four main suggestions to help the Vietnamese Government. Firstly, the incentives should be provided without local content requirements attached. Secondly, the FIT scheme should be expanded with stable regulations to ensure investment. Thirdly, the Government should support Vietnamese exporters in the renewable energy sector by carefully researching foreign markets. Finally, The Government should cooperate with enterprises to enhance enterprises' capacity to

address trade remedy investigations. With these suggestions, the Vietnamese Government can execute subsidies for renewable energy without legal challenges from other WTO members.

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Appendix 1. WTO subsidy disputes on renewable energy (As of August 31, 2022)

Case number	Challenged measures	Complainant	Respondent	Third Parties	Initiation Date/Status	Agreement cited
DS412/DS426	Feed-in tariff program	Japan European Union	Canada	Australia; Brazil; China; El Salvador; European Union; Honduras; India; Saudi Arabia; Republic of Korea; Mexico; Norway; Chinese Taipei; United States.	13 September 2010 Appellate Body report circulated	• GATT 1994: Art. III:4, III: 5, XXIII: 1; • SCM Agreement: Art. 1.1, 3.1(b), 3.2; • Trade-Related Investment Measures (TRIMs): Art.2.1.

DS419	Measures concerning wind power equipment	United States	China		22 December 2010 In the consultation stage	• GATT 1994: Art. XVI: 1; • SCM Agreement: Art. 3, 25.1, 25.2, 25.3, 25.4. • Part I, para. 1.2 Protocol of Accession
DS452	Certain measures affecting the Renewable Energy Generation Sector	China	European Union; Italy; Greece		5 November 2012 In the consultation stage	• GATT 1994: Art. I, III:1, III:4, III:5; • SCM Agreement: Art. 1.1, 3.1 (b), 3.2; • TRIMs: Art. 2.1, 2.2.

DS456	Certain measures relating to Solar Cells and Solar Modules	United States	India	Brazil; Canada; China; European Union; Japan; Republic of Korea; Malaysia; Norway; Russian Federation; Turkey; Ecuador; Saudi Arabia; Chinese Taipei.	6 February 2013 Appellate Body report circulated	• GATT 1994: Art. III:4; • TRIMs: Art.2.1.
DS459	Certain measures on the Importation and Marketing of Biodiesel and measures supporting the Biodiesel Industry	Argentina	European Union		15 May 2013 In the consultation stage	• GATT 1994: Art. I:1, III, III:1, III:2, IIII: 4, III:5; • Technical Barriers to Trade

						(TBT): Art. 2.1; 2.2; 5.1; 5.2; • Agreement Establishing the World Trade Organization; • TRIMs: Art. 2.1, 2.2; • SCM Agreement: Art.3.1 (b); 3.2; 5b); 5(c); 2.3; 1.1; 6.3(a).
DS510	Certain measures relating to the Renewable Energy Sector	India	United States	Brazil; China; European Union; Indonesia; Japan; Republic of Korea;	27 June 2019 In the Appellate Body stage	• SCM Agreement: Art. 1.1; 3.1(b), 3.2; Art.25;

				Norway; Russian Federation; Saudi Arabia; Singapore; Chinese Taipei; Turkey.		• GATT 1994: Art: III:4; • TRIMs: Art. 2.1; 2.2.
DS563	Certain measures related to Renewable Energy	China	United States		14 August 2018 In the consultation stage	• GATT 1994: Art. III:4; • TRIMs: Art. 2.1; 2.2; • SCM Agreement: Art. 3.1(b), 3.2.

Appendix 2. Countervailing investigations on renewable energy products of the European Union

(As of August 31, 2022)

No	Case number	Target countries	Initiation	Product under investigation	Final conclusion
1	AS650	Indonesia	6.12.2018	Biodiesel	9.12.2019
2	AS532	United States of America	13.6.2008	Biodiesel	10.7.2009
3	AS595	Argentina Indonesia	10.12.2012	Biodiesel	No measure applied
4	AS644	Argentina	31.01.2018	Biodiesel	12.2.2019
5	AS581	United States of America	25.11.2011	Bioethanol	No measure applied
6	AS599	People's Republic of China	27.4.2013	Solar glass	14.05.2014
7	AS594	People's Republic of China	8.11.2012	Solar panels (Crystalline silicon photovoltaic modules and key components)	5.12.2013

Source: European Commission

Appendix 3. Countervailing investigations on renewable energy products of the United States of America

(As of August 31, 2022)

No	Case number	Target countries	Initiation	Product	Final determination
1	C–570–980	China	19 October 2011	Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules.	17 October 2012
2	C–570–982	China	18 January 2012	Utility Scale Wind Towers	26 December 2012
3	C–570–011	China	29 January 2014	Crystalline Silicon Photovoltaic Products (modules, laminates and/ or panels)	31 July 2014
4	C–122–868	Canada, Indonesia, Vietnam	30 July 2019	Utility Scale Wind Towers	6 July 2020
5	C–533–898	India, Malaysia	30 September 2020	Utility Scale Wind Towers	13 October 2021

Source: United States International Trade Commission