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**THE WORLD TRADE ORGANIZATION'S RESPONSE TO RENEWABLE
ENERGY SUPPORT POLICIES: LIMITATIONS AND CHALLENGES**

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MARIA EUGÊNIA DO AMARAL KROETZ

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Dissertação apresentada à Escola de Direito de São Paulo da Fundação Getúlio Vargas, como obtenção do título de Mestre em Direito e Desenvolvimento.

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ABSTRACT

Renewable energies have gone through transformations, involving market, environmental and technological aspects. However, doubts remain on how international regulatory regimes have addressed these changes. This Master's thesis aims to investigate the World Trade Organization (WTO)'s response to renewable energy support policies from producing countries of solar and wind power technology and equipment.

The research's primary argument is that, through the interpretation of the WTO Dispute Settlement Body, the multilateral trading system has been open to traditionally non-trade values, such as climate change, without losing sight of its classical liberalization principles. The work recognizes the limitations of the interpretation from the Dispute Settlement Body and makes the case for WTO Subsidy Law reform. It recognizes the challenges involving the (re)negotiation of the multilateral trade regulation.

Being in a Law and Development Master Program and, as the issue at hand relates to global challenges, factual elements of the renewable energy sector matter to this research. Therefore, the thesis proposes an approach that considers the economic, political and legal angle of the renewable energy sector. In this way it delineates the premises deemed essential to investigate the WTO's response to renewable energy support programs. The research is set against a conflicting background that involves different layers of international obligations and driving interests considered by States when implementing public policies.

The thesis first presents the state of the art of the discussion on renewable energy policies from wind and solar power producing countries. Then it concentrates in legal aspects of the issue proposed, investigating the specific elements from WTO Agreements, the United Nations climate change regime and WTO Dispute Settlement Body cases on renewable energy. Finally, the research presents the way forward for WTO subsidy rules reform considering the change of expectations from the Membership in the case of renewable energy programs.

KEY WORDS: renewable energy support programs, multilateral trade, climate change, World Trade Organization – WTO

RESUMO

As energias renováveis passaram por transformações, envolvendo aspectos de mercado, ambientais e tecnológicos. No entanto, dúvidas permanecem sobre como os regimes regulatórios internacionais abordaram essas mudanças. A presente dissertação de mestrado tem como objetivo investigar a resposta da Organização Mundial do Comércio (OMC) às políticas de apoio a energias renováveis de países produtores de tecnologia e equipamentos de energia solar e eólica.

O principal argumento da pesquisa é que, através da interpretação do Órgão de Solução de Controvérsias da OMC, o sistema multilateral de comércio foi aberto a valores tradicionalmente não-comerciais, como as mudanças climáticas, sem perder de vista seus princípios clássicos de liberalização. O trabalho reconhece as limitações da interpretação do órgão de solução de controvérsias na Organização e defende a reforma das regras de subsídios da OMC. Ainda, reconhece os desafios que envolvem a (re)negociação da regulação do sistema multilateral.

Sendo parte de um Programa de Mestrado em Direito e Desenvolvimento e, como o assunto em questão está relacionado aos desafios globais, elementos fáticos do setor de energia renovável são importantes para esta pesquisa. Portanto, a dissertação propõe uma abordagem que considera os ângulos econômico, político e jurídico do setor de energia renovável. Dessa forma, delinea as premissas consideradas essenciais para investigar a resposta da OMC aos programas de apoio às energias renováveis. A pesquisa tem como pano de fundo um conflito que envolve diferentes camadas de obrigações internacionais e interesses considerados pelos Estados na implementação de políticas públicas.

A dissertação apresenta primeiro o estado da arte da discussão sobre políticas de energia renovável nos países produtores de energia eólica e solar. Em seguida, concentra-se nos aspectos jurídicos da questão proposta, investigando os elementos específicos dos acordos da OMC, do regime de mudança climática das Nações Unidas e dos casos do órgão de solução de controvérsias da OMC sobre energia renovável. Finalmente, a pesquisa apresenta o caminho a seguir para a reforma das regras de subsídios da OMC, considerando a mudança de expectativas dos Membros no caso dos programas de energia renovável.

PALAVRAS CHAVE: programas de apoio às energias renováveis, sistema multilateral de comércio, mudanças climáticas, Organização Mundial do Comércio – OMC

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ABBREVIATION LIST

AD - antidumping

AoA - Agreement on Agriculture

AR5 - Assessment Report from the United Nation Convention on Climate Change

BTA - border tax adjustment

CBDR - Common but Differentiated Responsibilities

CVD – countervailing duties

cSi - Crystalline silicon

DSB – World Trade Organization Dispute Settlement System

DSU - World Trade Organization Dispute Settlement Understanding

ECT - Energy Charter Treaty

EU – European Union

FGV - Fundação Getúlio Vargas

FIT – feed-in-tariff

G20 - Group of 20 (G20)

GATS - General Agreement on Trade in Services

GATT - General Agreement on Tariffs and Trade

GHG – greenhouse gases

GPA - Government Procurement Agreement

GSI - Global Subsidies Initiative

GW - gigawatts

IEA - International Energy Agency

IMF - International Monetary Fund

IPCC - Intergovernmental Panel on Climate Change

IRENA - International Renewable Energy Agency

LCR – local content requirement

MFN – most favored nation rule

NDC - Nationally Determined Contribution

NTM – non-tariff measure

OECD - Organization for Economic Co-operation and Development

OPEC - Organization of the Petroleum-Exporting Countries

PV - photovoltaic

PPA – power purchase agreement

PPM – process and production method

RE – renewable energy

REC - renewable energy certificates

REN21 - Renewable Energy Policy Network for the 21st Century

SCM Agreement - Agreement on Subsidies and Countervailing Measures

SDGs - Sustainable Development Goals

STE – state trading enterprise

TBT – Agreement on Technical Barriers to Trade

TRIPS – Agreement on Trade-Related Intellectual Property

TWh - terawatt hours

UN – United Nations

UNEP - United Nations Environment Programme

UNFCCC – United Nations Framework Convention on Climate Change

US – United States of America

WMO - World Meteorological Organization

WTO – World Trade Organization

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1 INTRODUCTION

La fée électricité, or “The Electricity Fairy” is a huge panel that the *Compagnie Parisienne de Distribution d’Electricité* commissioned to Raoul Dufy in occasion of the Universal Exhibition of 1937. In 600 square meters of frescoes, the artist portrayed historical personages and inventions related to this marvel. Connecting them to mythological figures, he represented the almost magical wonderment of the public in the early twentieth century with the technological progress associated with energy.

FIGURE 1 – La Fée Electricité



SOURCE: DUFY, Raoul. *La Fée Electricité*, 1936.¹

Anyone who sees the mural at the Museum of Modern Art in Paris may now regard it as naïve or frivolous. But the oeuvre, symbolizing the zeitgeist of the last century, brings a very present-day message that is to praise the central role of energy in economic and social life.

The constant and radical transformations in the forms of appropriation and use of energy continue to surprise, almost in a faery way, and denounce the insufficiency of traditional structures to understand it. And with regard to the object of this study, the response from the World Trade Organization (WTO) to renewable energy policies, the situation is no different.

Historically energy has been a matter that is managed locally, which is largely due to the industry's particular characteristics. With the liberalization of the sector and the advent of new technologies, as well as the increase of concerns related to climate change

¹ Available at: <<http://www.mam.paris.fr/en/oeuvre/la-fee-electricite>> Access: 26 Jan. 2019.

and power security, the subject of renewable energy (RE) has earned a more prominent place on the global agenda.²

The present research starts from the assumption that renewables have gone through transformations that regulatory frameworks were not able to follow up and, thus, they are not clearly framed in the international scenario.

Adding to that, clean energies occupy a place that seems to be surrounded by different and, one might say conflicting, interests that demand a strong interaction between the public and the private sectors.

As a result, RE support programs are in the midst of the fragmented global governance of energy, making States commit to layers of obligations in the international arena. Hence, in part because of its stressing diversity, States are faced with a dilemma when implementing public policy.³

For instance, regarding the climate change issue, countries have committed to the terms provided in the United Nations (UN) framework, to mitigate and reduce the effects from temperature alterations. In this sense, it is “*largely uncontested*” that renewable energy capacity addition would be an important element in climate change mitigation – even if other kinds of measures, such as the phasing out of carbon intensive energy use, are also necessary.⁴

At the same time, countries have committed to the regulation of the multilateral trading system, governed by the World Trade Organization (WTO). As it intends to promote free fair trade, WTO rules, arguably, tend to impose constraints to local government measures and are, also, applicable to clean electricity international commercial flows - even if they have not been thought to regulate them.⁵

In addition, being in the center of the regulation of two legitimate imperatives, renewable energy support policies have been considered as the “*most concrete testing*

² PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction**. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 25-42.

³ GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 109-110.

⁴ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 621.

⁵ MARCEAU, Gabrielle. The WTO in the emerging energy governance debate. **Proceedings of the Annual Meeting of the American Society of International Law**, v. 106, p. 385–389.

ground” for the study of the interaction of the climate protection and trade liberalization international regimes.⁶

In light of these realizations, the thesis aims to investigate how the WTO has responded to RE support programs of solar and wind power technology and equipment producing countries, suggesting the argument that, the Organization, through the interpretation from its Dispute Settlement Body (DSB), has been open to the non-trade debate, even if not losing sight of its liberalization-oriented rules.

The research also argues that there are limitations to the Appellate Body and panels’ interpretations and, as such, tries to make the case for WTO law reform. Moreover, it suggests that, due to the challenges posed by this negotiation process to the Membership, it seems to be well oriented by the academic narrative concerned with the purpose of the multilateral system.

Arguably, the construction of these conclusions depends not only of an investigation of WTO rules and case law, but also to the understanding of the trends and drivers of the renewable energy sector as well as the parcel of its support policies that is of the most interest to the international trade perspective. Therefore, this thesis initiates by proposing an approach that consider the legal, political and economic angles of the matter at hand.

It is thought that this academic work can be of interest to international trade, climate change and global governance of energy, even considering the multilateral trading system reform, since the issue discussed herein seems to be the starting point to discussions that challenge the appropriateness of, at least, WTO subsidy regulation.⁷

1.1 SCOPE OF THE RESEARCH

This work aims to investigate the following research question: *“How has the World Trade Organization responded to renewable energy support policies from producing countries of solar and wind power technology and equipment? What are the limitations and challenges that arise from the multilateral trading system response?”*

⁶ KULOVESI, Kati. International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, vol. 23, n.3, 2014, p.352.

⁷ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 313.

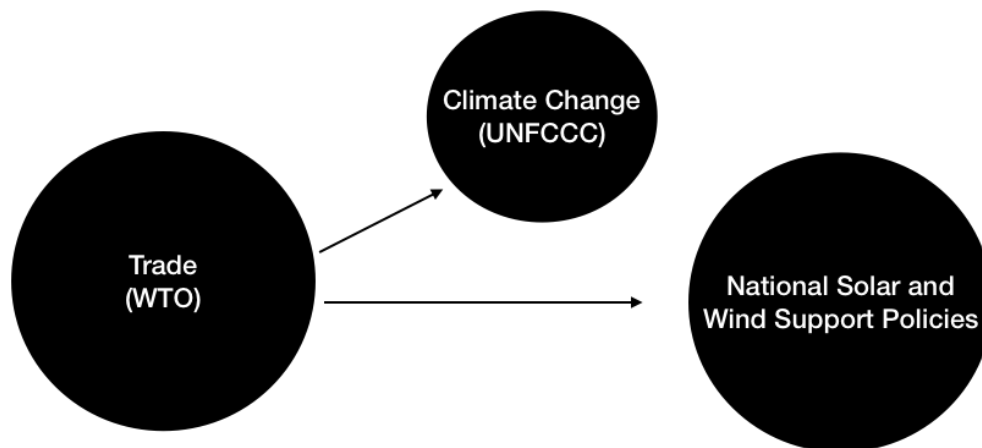
This investigation is developed against the background of tensions caused by the fragmented global governance of energy, that results in RE being framed by different international regulatory frameworks, that, at times, clash and, at times, are cohesive. This regulatory overlap also leads to a dilemma to be faced by States that have committed to obligations of conflicting natures in the international scenario, as well as refers to the stressing interests that surround the clean energy sector.

The main purpose of this research is to focus on the legal aspects that can be identified when one looks at the way the WTO has responded to support policies from solar and wind power technology and equipment producing countries. From the study of WTO rules, case law and its interaction with the climate change regulatory framework, it tries to identify the limitations and challenges that arise from the Organization's response.

The thesis' primary argument is that, through the interpretation of the WTO Dispute Settlement Body, the multilateral trading system has been open to values, such as climate change, without losing sight of its classical liberalization principles. Traditionally, such values were not the main concern of the Organization, albeit, in a way, being embedded in it, as happens with the mention of sustainable development in the preamble of the Marrakesh Agreement.

It argues, as well, that there are limitations to this response, for there are limitations to the judicial interpretation in the Organization. Therefore, focusing on WTO subsidy regulation, it makes the case for law reform and recognizes the challenges related to it. Thus, it proposes that eventual negotiations are seen as process – instead of a final result – and suggests that the Membership advances this negotiation considering the debate held by a literature that is concerned with the purpose of the WTO system.

The work investigates the multilateral trade law perspective of the object of the research (support policies from solar and wind power technology and equipment producing countries), aiming to investigate how its main forum (the WTO) has legally addressed it in light of another selected issue (climate change and the UNFCCC regulation), as it represented by the following figure.

FIGURE 2: Scope of the Research

SOURCE: Created by the author.

Being in a Law and Development Masters Program and drawing from selected works from the trade scholarship, it is believed that the issue of the regulation of renewable energy in the WTO system cannot be resolved by the law alone. As it relates to global challenges (i.e. environmental sustainability and industrial policy), factual elements of renewable energy, such as, market, technological and political economy conditions, matter to this research.

Therefore, the thesis proposes an approach that considers, what has been called, the economic, political and legal angle of the research question. Building from it, trends of renewable energy support programs, reports performed by international organizations and debates held by the trade scholarship, the work presents the state of the art of the discussion on RE policies from wind and solar power producing countries. In this way it delineates the premises deemed essential to investigate the WTO's response to renewable energy support programs.

To bring the main argument to a further stage of development, the research concentrates in the legal angle of the issue proposed, investigating the specific elements from WTO Agreements, specially the General Agreement on Tariffs and Trade (GATT) and the Agreement on Subsidies and Countervailing Measures (SCM Agreement) and the United Nations Framework Convention on Climate Change (UNFCCC), claiming they are not conflicting *per se*. Then, the research turns to the WTO's response to solar and wind power programs from producing countries by looking to WTO Dispute Settlement Body cases.

1.2 THESIS OUTLINE

The thesis is divided in two Parts. Part 1 adopts an approach that considers legal, economic and political angles to present the state of the art of the discussion on renewable energy. It is believed that the consideration of the facts, that is the market, technological and political economy characteristics of RE, is necessary to the study of WTO's response to renewable support policies from wind and solar power producing countries.

Part 1 starts from the assumption that renewables have gone through transformations and technology advances. Moreover, that the added capacity of renewable energy generation represents, among others and along with further measures, a way to reduce carbon emissions and thus prevent climate change effects. In addition, that the positive externalities and development burdens (i.e. advanced technology costs) of renewable energy create, in economic terms, an imperfect market in which government support is still fundamental.

The research first sets the ground for its main argument by claiming that renewable energy policies are enacted in a conflicting background of fragmented global governance. In it, States seem to implement their programs having assumed different layers of international obligations, regarding legitimate values (i.e. climate protection and trade liberalization) and seem to have to make choices between them. Locally, they struggle to address issues inherent to the energy sector (i.e. domestic employment creation, technological development, national electricity security) that are, arguably, important to guarantee political feasibility of RE incentive programs, especially in developing countries.

It also justifies the choice to assess the WTO perspective in the work. This justification is, in part, result from this plethora of interests, together with the characteristics from the multilateral trading system and its permeability to non-trade values. That is besides the claim that the conflicts in World Trade Organization Dispute Settlement Body (DSB) concerning renewable energy policies are a fruitful testing ground for interactions between the multilateral trade and other international regulatory regimes (especially the climate change regime) and, thus, to the global governance of energy.

In addition, Part 1 argues that the implementation of renewable energy policies involve an extensive set of interests, (i.e. sustainable development, industrial policy, job creation, technological leadership, geopolitical position) that create tensions in the sector,

including to trade relations. As a result, in light of the international trade perspective, RE support programs could be a way for governments to address legitimate goals, as well as to disguise protectionism.

Trade scholars have warned against these “*not so green*” objectives and highlighted the applicability of WTO non-discrimination rules and subsidy regulation to renewable energy support programs. Meanwhile, the multilateral trade discipline has encouraged some of the scholarship to question the space left for countries to implement their (green) industrial policy. In this sense, the thesis has identified differing arguments regarding the level of State intervention to be allowed under the multilateral trading system, ranging from warnings against greenwashing to carving-out space for (green) industrial policies.

The first part also presents characteristics from the renewable energy sector, as well as of subsidies, that are instrumental to compose the background in which the WTO must act. These factual aspects also seem to lead to the conclusion that challenges of renewable energy policies within the DSB are mostly related to the presence of local content requirements in programs intended to support RE equipment and technology. Consequently, renewable energy policies that are non-discriminatory and designed to encourage electricity production itself, tend to not be under risk in the multilateral trading system. This claim is essential to the thesis’s main argument as it seems to question the prognosis from the literature that RE policies would lose its strength because of trade rules.

Part 2, in its turn, focuses on the legal aspects from the WTO’s response to wind and solar power programs, in face of the interaction of the multilateral trade and climate change regimes. It uses this strategy to, hopefully, fundament the thesis’s main argument that the approach from the Organization, especially, through the Appellate Body, has been open to the challenges and, sometimes, conflicting interests that governments face when implementing renewable energy support policies, without losing sight of its trade rules. It claims that the multilateral trade and climate systems do not clash *per se* and even incorporate values that are important to their companion framework, by studying elements from two WTO Agreements - the General Agreement on Tariffs and Trade (GATT) and the Agreement on Subsidies and Countervailing Measures (SCM Agreement) - and the United Nation Convention on Climate Change (UNFCCC).

Drawing from Law and Development studies, the research also focus on how the dispute settlement body has applied WTO Agreements when it has been provoked to

resolve issues regarding renewable energy policies, paying special attention to the points in which the international trade provisions could potentially conflict with climate change rules. The investigation of the cases *Canada – Renewable Energy / Fit Program* and *India – Solar Cells*, along with scholarship comments about them, seem lead to the realization that the Appellate Body has performed “*legal acrobatics*” to consider the purpose of the policy in the analysis. However, without losing sight of its liberalization-oriented rules.

Building from the trade law literature, the thesis recognizes the limitations of the interpretation from the Dispute Settlement Body and makes the case for WTO Law reform. It recognizes the challenges involving the (re)negotiation of the multilateral trade regulation, especially, involving subsidies. Hence, it further argues that this negotiation should be seen as a process -rather than a final result, embodied by a new legal text – and that those discussions could benefit from the literature that debates the purpose of the multilateral trading system. Finally, the research presents possible paths regarding the way forward that could, arguably, be interesting to be explored in a future research agenda.

2 METHODOLOGICAL NOTES

The thesis proposes to investigate the following research question: *“How has the World Trade Organization responded to renewable energy support policies from producing countries of solar and wind power technology and equipment? What are the limitations and challenges that arise from the multilateral trading system response?”*

It builds from the hypothesis that, when addressing the subject matter of renewable energy support policies from producing countries of solar and wind power technology and equipment, the WTO has been open to non-trade values (i.e. climate change), through panel and Appellate Body interpretation. And that this response might have limitations, that could lead to consequences (i.e. the need to reform the law from the Organization).

The thesis builds on the following sources.

1. the production from the trade scholarship, collecting researches that assess the compatibility of renewable energy and climate change policies with WTO regulation; that make a reality check between the RE sector practice and trade law and academic articles; that compare the regulation from the multilateral trading system and climate change regimes; that question the SCM Agreement; that assess the Body; that seek the purpose of the current trade system;⁸
2. the regulation from the World Trade Organization (WTO) and the United Nations Framework Convention on Climate Change (UNFCCC), with a focus on non-discrimination rules, general system of exceptions, subsidy regulation and the Paris Agreement;
3. the case law from the WTO Dispute Settlement Body, especially regarding renewable energy policies, focusing in the points of intersection between the multilateral trade and climate change regimes;⁹

⁸ To gather material for the literature review the author made a preliminary, although not comprehensive, search from the insertion of the terms <green subsidies> <renewable energy> <subsidies> <solar energy> <subsidy> <renewable energies> in the following data bases: Journal of International Economic Law; Journal of World Trade; World Trade Review; Trade, Law & Development; Journal of International Energy Law and Business and in the Brazilian Journal of International Law. The data base from the following editors was also considered: Kluwer Law International, Oxford Press, Cambridge University Press, Elsevier from the International Centre for Trade and Sustainable Development – ICTSD and its E-15 Initiative and; from the Dissertations and Theses of CNPQ; and from the Brazilian Foundation Fundação Alexandre Gusmão - FUNAG. After those preliminary searches, cross-referenced works were consulted and used in the present work.

⁹ The WTO jurisprudential survey was conducted at the research tool offered by the WTO, called “Find disputes cases”. In the subject field of the tool, the author inserted the following terms: <renewable

4. research, reports and policy papers performed by International Organizations and study centers, especially when it aims to collect economic data from the RE sector.¹⁰

To achieve its main purpose, this thesis considers the legal, economic and political angle of works from the trade scholarship, as well as multilateral international trade and climate change rules and case law, with a focus on the themes of non-discrimination, general exceptions and subsidy regulations.

Two factors must then be taken into consideration: first, it is a work in which the main interest is the World Trade Organization response to solar and wind power support programs against the conflicting background of the fragmented global governance of energy, especially in light of the interaction between trade and climate change regimes. Thus, in spite of not focusing only on the international multilateral trading system, it builds on works from the international trade scholarship. Therefore, even though it investigates renewable energy policies, the focus of the thesis remains on issues that have direct influence on the multilateral trading system.¹¹ As a result, the research has the

energy>, <biofuels>, <solar energy>, <solar panels>, <wind power equipment> and <feed-in tariff program>. They were chosen within the suggestions already provided by the platform.

As of August 2019, 13 renewable energy subsidy cases were questioned within the multilateral dispute settlement system of the WTO. They are: Canada — Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS412/DS426); China — Measures concerning wind power equipment (WT/DS419:); United States — Countervailing Duty Measures on Certain Products from China (WT/DS437:); European Union and a Member State — Certain Measures Concerning the Importation of Biodiesels (WT/DS443); United States — Countervailing and Anti-dumping Measures on Certain Products from China (WT/DS449); European Union and certain Member States — Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS452); India — Certain Measures Relating to Solar Cells and Solar Modules (WT/DS456); European Union and Certain Member States — Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry (WT/DS459); European Union — Anti-Dumping Measures on Biodiesel from Argentina (WT/DS473); European Union — Anti-Dumping Measures on Biodiesel from Indonesia (WT/DS480); United States — Certain Measures Relating to the Renewable Energy Sector (WT/DS510); United States — Certain Measures Related to Renewable Energy; (WT/DS563); Peru — Anti-dumping and countervailing measures on biodiesel from Argentina (WT/DS572).

¹⁰ To gather material from International Organizations the author made a preliminary, although not comprehensive, search from the insertion of the terms <green subsidies> <renewable energy> <subsidies> <solar energy> <subsidy> <renewable energies> in the following data bases: i) from the international organizations World Trade Organization -WTO, Organization for Economic Cooperation and Development - OECD, United Nations Conference on Trade and Development - UNCTAD, United Nations Environment Programme - UNEP, International Energy Agency - IEA, International Renewable Energy Agency – IRENA, Renewable Energy Policy Network for the 21st Century – REN21, World Economic Forum; and ii) from study centers Alexandre Gusmão Foundation of the Rio Branco Institute, Centro Brasileiro de Relações Internacionais - CEBRI, International Centre for Trade and Sustainable Development - ICTSD, Instituto de Pesquisa Econômica Aplicada - IPEA, Center for International and Environmental Law - CIEL and CATO Institute. After those preliminary searches, cross-referenced works were consulted and used in the present work.

¹¹ It is a strategy that has been adopted on the work of Katy Kulovesi. “*Recognizing the importance of international legal regimes and their underlying objectives, this article provides an overview of the growing*

limitation of not being able to develop a comprehensive review of the literature on global governance of energy, climate change law or the effects of clean electricity production to it, as it has already been performed in the field.¹²

Second, the thesis focuses on the international aspect of the subject of renewable energy policies, therefore it does not intend to delve in depth into the scenario presented by any specific country. However, in observing the green power sector and the WTO case law, the research, inevitably, builds on examples from different governments. This explanation is important as the arguments developed in the thesis were developed from the presumption of a global perspective in an interactive world rather than on internal countries perspectives in light of international commitments.

This choice implicates limitations. For example, the conclusions this thesis comes to may contrast with national realities.¹³ In spite of these possible mismatches, it is understood that the international perspective pursued in the present work might shed some light on issues that are not as often discussed on a national level, but that might be of great relevance not only to the global order, but, locally, to States themselves.

This Master's thesis is a result from an Academic Program on Law and Development offered by the Escola Direito da Fundação Getulio Vargas (FGV) de São Paulo, which has as one of its purposes to better understand the interactions between the private and the public sector and the role of law in this relationship. This research, thus, was developed so that it could, primarily, shed some light on the response from the World Trade Organization towards an issue (renewable energy support programs), that seems to interact with values other than trade (i.e. climate change) and to be a case that illustrates the challenge currently faced by the multilateral trading system, that refers to the change of expectations of the membership, regarding the purpose of the Organization. However, the thesis outline was also designed aiming to better demonstrate the challenges

substantive links between the UNFCCC and WTO legal regimes". KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 60.

¹² HOLLO, Erkki; KULOVESI, Kati; MEHLING, Michael. **Climate Change and the Law**. Washington D.C.: Springer, 2013.

¹³ In this sense has argued that: "*The logic for centring the analysis on national policy rather than on the WTO is that it is difficult to examine how the WTO fits into national trade-policy management by studying only the role of the WTO. Studying 'the WTO' imposes implicitly in all countries the same 'model' of the relationship between national policy management and the GATT/WTO system. This is clearly inappropriate and very likely to lead to misleading conclusions*". FINGER, Joseph Michael. The GATT/WTO System and National Trade Policies. Which Comes First? *In*: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 404.

governments face when implementing renewable energy support policies. It is thought that the Brazilian scenario - here taking into account not only scholars, but also, other stakeholders such as governments, policy makers, the private sector and the civil society - could benefit from a research that considers the different layers of obligations States are subject to in the international arena and, especially, the regulation from the multilateral trading system.

2.1 A PROPOSAL TO CONSIDER LEGAL, ECONOMIC AND POLITICAL ANGLES

Section 1.2 tries to make it clear to the reader that Part 1 of the thesis argues that, when it comes to multilateral trade constraints to renewable energy policies, they are most directed to local content requirements in solar and wind technology and equipment producing countries' support programs. And that Part 2, delves in the study of WTO and UNFCCC treaties, WTO disputes and works from the trade law scholarship, to test the hypothesis of the thesis that the judicial interpretation of the WTO Dispute Settlement Body has opened the multilateral trading system to concerns from the non-trade debate, even if not losing sight of its liberalization-oriented rules.

The investigation of legal sources in the second part of the research, arguably, leads to interesting claims, regarding the role and limits of WTO case law, the need to reform the Organization rules and the narrative from the academic literature that might assist this future process.

Nonetheless, the present Section introduces a proposal to consider not only legal arguments, but also arguments from other perspectives identified in the bibliography which constitutes the main basis of this research, in an effort to more comprehensively address the research question of the thesis. In few words, it can be said that this factual investigation closely relates to governments' interests in RE support programs and the dimension of the policy space granted by international trade regulation to implement them. In this way, the present research seems to oppose to a long-standing fear from the scholarship that the constraints from the trading system could put an end to RE support programs and, therefore, governments would need to carve out policy space to preserve them.¹⁴

¹⁴ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 621.

The proposal includes an attempt to classify the arguments mentioned by the trade scholarship relating to the WTO interaction with renewable energy support policies and other regulatory frameworks (climate change, in special) from three *angles*: legal, economic and political.¹⁵

By ‘legal’ the thesis means arguments directly related to the rules of the WTO and UNFCCC legal framework and the WTO case law, from the Dispute Settlement Body (DSB). By ‘economic’, the factual aspects that exert some influence on the renewables trade (factors such as sector characteristics, technological advances and implementation costs are included here). By ‘political’, the vision and interests of governments regarding the subject matter of the thesis.¹⁶

This proposal was made for the present research is the conclusion of an Academic Masters on a Law and Development Program, a line of thought that is concerned with the

¹⁵ The use of the expression “*angles*” is inspired in a research by Elsig, Hoekman and Pauwelyn. In there, the authors analyze the performance of the WTO under the “*angles*” of Law, International Relations and Economics. It is thought that: “*This chapter focuses on WTO outputs and outcomes by drawing on concepts that measure the performance of the organisation, providing different disciplinary narratives from IR, economics and law. A key objective of this chapter is to explore further cross-fertilisation across disciplines. What we find is that, depending on the performance matrix used (the ‘eye of the beholder’), the assessment of how the WTO matters (performance) can vary significantly. This has implications not just for future research and research programmes, but is also important from an accountability and ‘ownership’ perspective.*” ELSIG, Manfred, HOEKMAN, Bernard, PAUWELYN, Joost. Thinking About the Performance of the World Trade Organization. In: ELSIG, Manfred, HOEKMAN, Bernard, PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge University Press: Cambridge, 2017, p. 12-13.

¹⁶ As examples, taking the multilateral trade and climate change regimes as proxies, one might mention, from a legal perspective, subjects deemed to be closer to multilateral trading system are, i.e., the compatibility of national measures with regulation from the WTO. Especially, regarding WTO non-discrimination provisions, such as national treatment GATT rules, and discussions about like products; WTO subsidy regulation, such as prohibited subsidies, and the discussion over the definition of benefit and market benchmark; WTO non-tariff barriers rules and the discussion of PPMs regarding TBT rules. Economic and political arguments refer, respectively, to technological leadership, energy security, industrial policy, job creation and protectionism issues (i.e. greenwashing) and concerns on the degree of State intervention, market failure correction and the difference of performance of States that produce renewable energy and related products to the global market, as opposed to the ones that primarily consume in a clean electricity sector. Arguments that seem to be closer to climate change are, from a legal perspective, related to the implementation of the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement and its Nationally Determined Contributions (NDCs). Other ideas of economic and political nature closer to climate change are the reduction of carbon emission and national environmental protection as well as lowering the costs of technology and the positive externalities of the measures in a way that tends to be more permissible regarding local measures, such as local content requirements (LCRs). However, studies that aim to consider the interaction of the two regimes seem to be concerned - even if, arguably, not exclusively - with values such as sustainable development and of technological innovation, when covering issues such as green industrial policy, political feasibility and policy space carve-out. From a legal perspective the discussions seem to be embodied by instruments of law such as the WTO general system of exceptions (that constitutes a positive defense for non-WTO compliant countries, for reasons that include the conservation of exhaustible resources and living health, as it has already been discussed in the so called WTO “environmental” cases); the green light subsidies from the SCM Agreement (currently expired, but that provided a shelter for prohibited subsidies, including for environmental grounds) and Article 3.5 of the UNFCCC (which explicitly discourages the implementation of climate change measures that restrict international trade).

implementation of legal systems and that makes a point regarding the difference of “*law in books and law in action*”.¹⁷ As a consequence, and in spite of the focus of the thesis being within the legal aspect of regulatory issues, it is thought that perspectives that do not strictly derive from the law (here, including case law or jurisprudence) might be of relevance to the research. Thus, the present work is open to arguments that might derive from other sciences, such as Economics or International Relations, when they investigate the functioning of the renewable energy market sector or policies and the States’ approach towards it.

The effort to compare trade law studies with facts - in other words, and adopting the examples set by Luca Rubini, aspects that involve the real world such as “*market, technology and political economy conditions*” - has already been endeavored by scholars.¹⁸ Ilaria Espa and Gracia Marín Duran make this effort in an article that investigates the risks of renewable energy policies towards WTO laws and in which the authors aim to fill a “*perceived gap in the literature*”.¹⁹

Another contribution that is concerned with answering this gap between what is written in the books and the reality is by Luca Rubini, already mentioned herein, who, when speaking about “*the question of ‘policy space’ or autonomy for green subsidies*”, states that “*Clearly, the answers to these questions are in the main not legal. We must*

¹⁷ TAMANAHA, B. Z. Review: The Lessons of Law and Development Studies. **The American Journal of International Law**, Washington, v. 89, n. 2, p. 470 - 486, 1995.

¹⁸ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 311-313.

¹⁹ After commenting the challenge that climate change and the role a renovation in the electric global matrix can have on carbon reduction goals, Espa and Duran bring the clash between international climate change mitigation goals and WTO subsidy law and the proposals to reform the SCM Agreement aiming to shelter RE government support. In this context, they state that: “*The present article is not yet another academic contribution in this direction. Rather, it argues that the case for reforming the SCM Agreement has been miscon-strued in various ways and ought to be revisited beyond that particular WTO dispute. This is first because one case alone is not a sufficient basis on which to conclude whether WTO subsidy disciplines pose a significant threat to the mutual supportiveness between international trade and climate change regimes. In fact, from this perspective, too much emphasis has thus far been placed on the wrong government support measures (i.e. discriminatory green energy subsidies) and the wrong WTO rules (i.e. multilateral remedial action), whereas too little attention paid to what have actually been the most constraining WTO rules on green ‘policy space’ (i.e. unilateral remedial action). Secondly, the case for reforming the SCM Agreement has been often made in a generic manner for ‘renewable energy subsidies’, while this term encompasses support measures that are fundamentally distinct from both an environmental policy and a trade law perspectives. Thirdly, and following on from the previous point, the case for reform needs to be informed by a proper understanding of how these different RE support measures will fare when examined under the microscope of the agreement’s disciplines, but such a thorough analysis is largely missing in previous academic contributions.*”. ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 622-625.

interrogate the technological and market possibilities, as well as the political economy”.²⁰

Kati Kulovesi, is even more emphatic when stating that “*The tendency of scholars to focus on the constraining role of WTO laws risk undermining the economic, social and environmental importance of addressing climate change.*”²¹

It is believed that the approach, arguably, enabled by this proposal, might lead to interesting findings that are relevant for the public interested in the legal field, but that do not neglect the factual reality of the object that international trade law is aiming to regulate by bringing in some empirical aspects related to the matter of support to renewable energy.

Joost Pauwelyn, when speaking about what he calls the “*trade-energy-environmental triangle*” states that “*This is not an issue that will be resolved vertically, silo-type within a single international organisation, discipline or ivory tower*”. Pauwelyn also considers it “*essential to look at the trade-energy-environment triangle from a multi-disciplinary perspective (especially law, economics and politics) and to involve not only academia and policy makers in each of the three fields, but also the private sector*”.²² To this extent, the use of interdisciplinary elements on the research that led to the development of the thesis tries to highlight the influence the studied matter exerts on different players of society - governments, companies, financial institutions and the civil society members. It is believed that the proposed approach further justifies its study in a Law and Development Academic Master Program.

²⁰ The author builds on the idea by stating: “*The question of ‘policy space’ or autonomy for green subsidies is as much factual as it is legal. Good lawyers and judges are those that first of all master the facts. Making a step further, and quoting the Chicago sociologist Charles Henderson, Louis Brandeis famously held that a lawyer who has not studied sociology or economics is very apt to become a public enemy. The claim of this paper does not go as far as requiring radical changes in law schools curricula or in legal training. But I want to immediately emphasize that the question of policy autonomy heavily depends on the factual – ie the technology, market, political economy conditions – that are or will be prevailing in the green electricity sector.*”. . RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 312.

²¹ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 58-59.

²² PAUWELYN, Joost. Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 1.

**PART 1 – STATE OF THE ART OF RENEWABLE ENERGY POLICY
PROGRAMS: BETWEEN LOCAL AND INTERNATIONAL TENSIONS,
CARVE-OUTS AND GREENWASHING**

3. BACKGROUND OF THE RESEARCH

The study of green energy in the international scenario entails a wider range of questions that an Academic Master's thesis would be able to address. This issue considered, the present research has chosen to limit its scope to the investigation of WTO's legal response to renewable energy support policies from solar and wind power equipment and technology producing countries.

The following Chapter aims to step back and take a broader view, by painting the background in which this work is developed and explaining why it has chosen the multilateral trade perspective and its interaction with climate change, as well as, why it has elected to study only a parcel of the renewable energy sector and of WTO rules. This Chapter 3 is organized as follows, first, it presents the governance of RE in the international scenario and argues that it is one full of tensions, that result in a dilemma to be faced by States when implementing their support policies (Section 3.1). Second, it justifies the election of the WTO perspective, focusing on characteristics from the Organization and its Dispute Resolution Body, as well as the fact that it opens the door to issues that are not, traditionally, its main concern, specially climate change, when it comes to the case of clean energies (Section 3.2). Third, it limits the scope of the work: regarding renewable energy, to policies that foster new renewable energy generation (solar and wind power) instituted by countries that produce and export equipment and technology necessary to this kind of power production; regarding WTO Law, to its non-discrimination rules, general exception system and subsidy regulation (Section 3.3.).

3.1 A CONTEXT OF COMPLEX GOVERNANCE AND STATE DILEMMAS

This Section 3.1 is part of the effort to paint the background in which renewable energy support policies of solar and wind power technology and equipment producing countries are enacted. It argues that it is a context of tensions caused by the fragmented governance of energy in the international scenario. In short, it seems that the different interests that guide the multiple forums that regulate renewables lead States to make different commitments under different international organizations. Those might, at times, conflict. As a result, countries – and policy makers - are faced with a dilemma when it

comes to the implementation of national RE support policies, that brings challenges to local governments and to global governance.

Renewable energy is making the headlines all over. They are portrayed as the path to socially and environmentally sustainable development. But also, as a profitable market and technological opportunity.²³

That all makes sense. One can say that elements that are historically pursued by States in the electric sector are power accessibility, energy security - including the maintenance of the resilience of the electrical system and country autonomy. However, current society values are adding to this list. According to Natália Almeida Moreno, sustainable development is now part of an energy “*trilemma*” that governments, in her view, should respond to.²⁴

The shift in the profile of the world energy matrix - currently largely based on fossil fuels - to a greater reliance on renewable sources is perceived as essential to the achievement of the objectives proposed in recent international climate change instruments such as the Kyoto Protocol and the 2015 UNFCCC Paris Agreement.²⁵ They foremost aim, respectively, to reduce the carbon dioxide emissions of its signatory parties and to decrease global temperature by 2° C.²⁶

Advances regarding the cross-border transfer capacity and energy efficiency of equipment can enable the generation of electricity in a decentralized manner and in places

²³ “Climate change has been framed as an ethical issue for years now, with mixed success. But now the calls for socially responsible investing to save the planet are increasingly being reinforced by cold economic logic.

Mainstream institutional investors are recognising that climate change is not just a threat to the health of the planet, but also a threat to the wealth of their clients.”. FINANCIAL TIMES. **Renewable energy is good money, not just good for the Earth**. Available at < <https://www.ft.com/content/d94c35ac-ae9-11e9-b3e2-4fdf846f48f5>>. Access: 26/08/2019.

²⁴ Natália Almeida Moreno develops the argument of the existence of a “*trilemma*” in the XXI century power sector that includes power accessibility, energy security and sustainable development. To the author, the integration of renewables in countries’ energy matrixes could be a viable solution to this issue. MORENO, Natália de Almeida. *Equiponderando o Trilema do Setor Elétrico – as Smart Grids*. In: CAVALCANTI, Caio César Torres, coord. **O Direito da Energia no Contexto Ibero-Brasileiro**. Rio de Janeiro: Synergia Editora, 2017. p. 331 - 358.

²⁵ According to data compiled by the International Energy Agency (IEA), the energy matrix is composed of 31.9% of oil and oil products, 27.1% of coal, 22.1% of natural gas, 9.8% of biomass, 4 , 9% nuclear power, 2.5% hydro and 1.6% from other sources (including new renewable sources such as solar and wind). Available at

<<https://www.iea.org/statistics/?country=WORLD&year=2016&category=Key%20indicators&indicator=TPESbySource&mode=chart&dataTable=BALANCES>> Accessed on: 22 Jan. 2019. This scenario is not part of the Brazilian scenario, in which if firewood and charcoal, hydraulic, cane and other renewable products are added, renewable energy accounts for 42.9% of the installed capacity in Brazil.

²⁶ PRIEUR, Michel. *Prefácio*. IN: OLIVEIRA, Carina Costa de; SAMPAIO, Rômulo Silveira da Rocha. **Instrumentos Jurídicos para a Implementação do Desenvolvimento Sustentável**. Rio de Janeiro: FGV, Direito Rio, Programa em Direito e Meio Ambiente, 2012.

that are difficult to reach by the conventional electric system. Thus, they are capable of enabling electric energy access to a greater number of people, even if living in remote or rural areas.²⁷

Because of that, renewable energies appear in the list of relevant instruments of international cooperation such as the United Nations 2030 Agenda on Sustainable Development and Sustainable Development Goals - SDGs signed by UN Member States in 2015 and aiming to eradicate poverty, protect the planet and ensure the inclusive development of all.²⁸

All of these concerns reflect on renewable energy policies. For instance, it is common for countries to develop a payment structure that rewards consumers for producing power in a way that brings benefits to the national grid – be it for technological reasons, national energy priorities, reliability of the grid or its contribution to climate change.²⁹

In this sense, renewable energy is a complex issue, involving different interests, which might cause tensions in the implementation of support programs.³⁰ This realization has encouraged Thijs Van de Graaf and Harro van Asselt to state that “*energy subsidies can be approached from multiple viewpoints, and hence fall under the remit of multiple international institutions*”.³¹

The scholars have identified the key international institutions relevant to energy subsidies, among them the World Trade Organization and the United Nations Framework Convention on Climate Change. Through the following figure, Graaf and Asselt situated energy subsidies at the intersection of the energy, trade, development, economic, and environmental governance regime.³²

²⁷ For instance, distributed generation is a cleaner way to meet the need for energy supplies. In a mode of production of electric energy in which the generating plant is also or is close to the consumer unit, it has the advantage of providing power in places where access to the network is more precarious. Therefore, it contributes to sustainable development. KARIM *et al.* Energy Revolution for Our Common Future: An Evaluation of the Emerging International Renewable Energy Law. **Energies**, 2018, vol. 11. Available at: <doi:10.3390/en11071769> Access: 19 Dec. 2018.

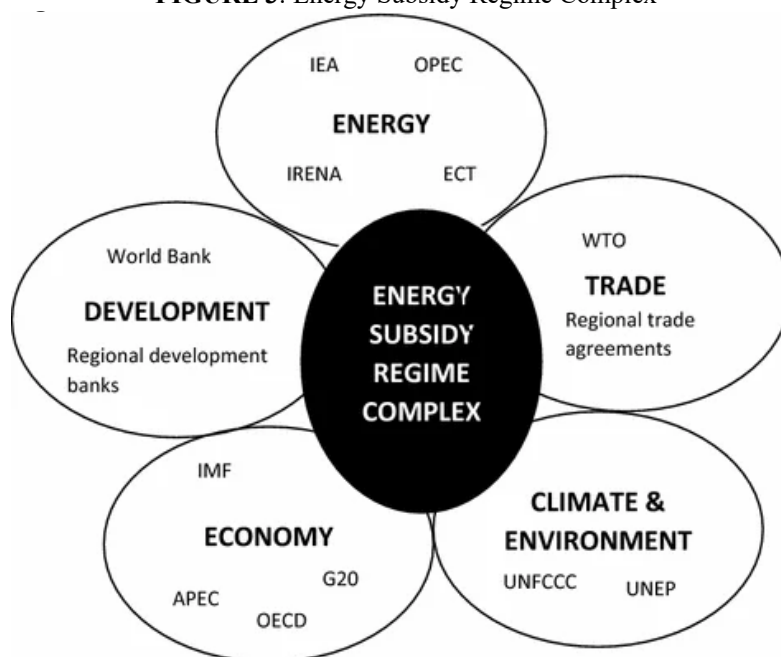
²⁸ UNITED NATIONS – UN. **About the Sustainable Development Goals**. Available at <<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>>. Access: 10 Jan. 2018.

²⁹ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy*: Implications for WTO Law on Green and Not-So Green Subsidies. **World Trade Review**, 2018, n. 17, vol. 2, p. 183

³⁰ Arunabha Gosh and Humani Gangani suggest four sets of policy tensions that are present in the renewable energy subsidies international debate: environmental, economic, technology and trade tensions, as it further argued in Section 4.1 of the thesis.

³¹ GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 2.

³² Key international institutions in energy subsidies identified by Graaf and Asselt include the Group of 20 (G20), the World Trade Organization (WTO), the Organization for Economic Co-operation and Development (OECD), the International Energy Agency (IEA), the Organization of the Petroleum-Exporting Countries (OPEC), the World Bank, the International Monetary Fund (IMF), Energy Charter

FIGURE 3: Energy Subsidy Regime Complex

SOURCE: GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, Figure 1.

Building from this rapport and the definition of regime complex by Orsini, the scholars have also stated that the boundaries of energy governance “*lie in the eyes of the beholder*”. In that way the interactions of these regimes could be problematic, considering that each institution prioritizes a particular set of interests.³³

The difference in the drivers of energy governance forums - be it trade, climate change, power security or energy access - has also been indicated by Arunabha Gosh as cause for conflict between these regimes. In this sense, the author argues that the tensions in the energy sector might pose a challenge not only to international bodies but also to policy makers at the national government level.³⁴

Treaty (ECT), the United Nations Environment Programme (UNEP), the International Renewable Energy Agency (IRENA), the Global Subsidies Initiative (GSI). The scholars also identify the . Regarding the WTO and the UNFCCC, Graaf and Asselt mention , respectively.

³³ The definition of Orsini *et al* of regime complex is “*a network of three or more international regimes that relate to a common subject matter; exhibit overlapping membership; and generate substantive, normative, or operative interactions recognized as potentially problematic whether or not they are managed effectively*”. GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 4-5.

³⁴ In this sense Gosh, gives examples of tensions on the energy sector. They are: “*multipolarity versus existing regimes (whether existing arrangements can accommodate new energy actors); states versus markets (as alternative responses to growing energy demand); and energy versus climate (as dual imperatives in a carbon-constrained world)*”. He also states that: “*The examples above pose real policy challenges for national decision makers and for international bodies (intergovernmental organisations as well as industry groups) because they reveal contradicting impulses in the priorities that govern trade and*

That means, in summary, that when States commit to perform obligations that arise from different layers of global governance, they might be contradictory, especially considering that each of them has its priorities.

Arguably, this is what happens in the case of renewable energy support policies and the applicability of the multilateral trade and climate change regimes. On the one hand, States have committed to be subject to WTO disciplines that promote trade liberalization and, thus, in a way, constraint their freedom to implement public policies. On the other hand, States have agreed to be part of the UNFCCC, which aims to achieve climate targets that can only be fulfilled with the participation of the private sector. Therefore, the UN Convention urges countries to set up regulations capable of preventing business and the civil society from performing activities against these goals and promoting schemes that can foster good behavior from national players. Meanwhile, WTO obligations urge its Members not to impose barriers on trade nor to enact discriminatory practices.³⁵

In that way, it is natural that tensions between those layers of international commitments arise. Especially, when one takes developing countries into account.³⁶ These countries have to balance priorities between climate change, energy access and consider budget constraints, while being compliant with both WTO and UNFCCC provisions. Sometimes it is possible, however, there are situations in which they might have to make choice— as happens when green energy policies include a local content requirement (LCR) in their design.³⁷

Scholars have also made a relation between those tensions in the renewable energy sector and WTO renewable energy disputes. In this sense, Kati Kulovesi recognizes the

investment in energy". GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 109.

³⁵ In the words of Graaf and Asselt "*While subsidies to renewables may help achieve the goals of environmental regimes (e.g., UNFCCC), they may clash with the norms and rules of the international trade regime*". GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. *International Environmental Agreements: Politics, Law and Economics*, vol. 17, 2017, p. 5.

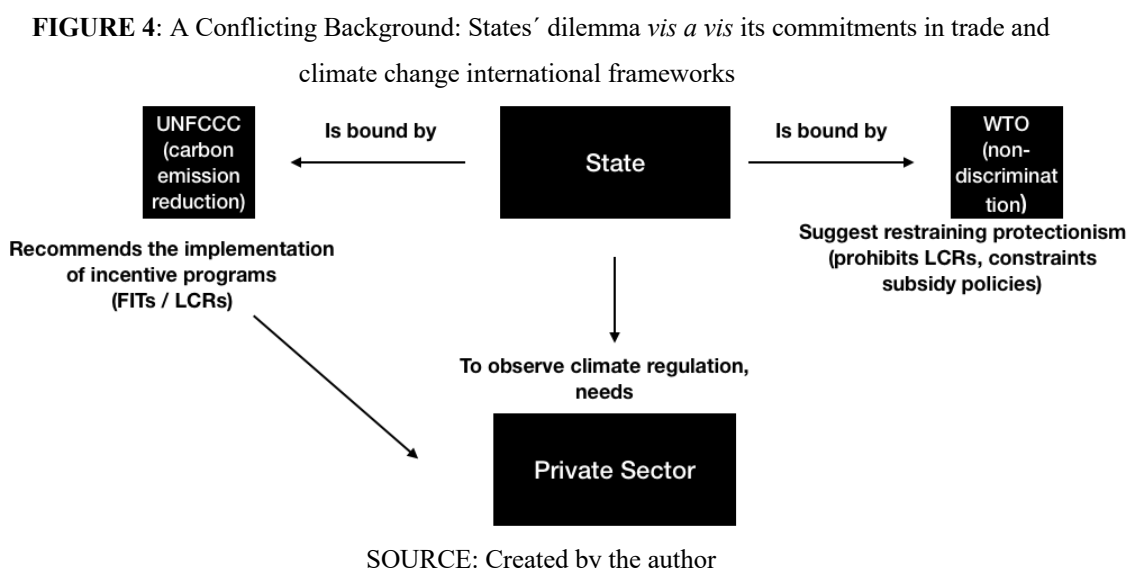
³⁶ In the words of Arunabha Gosh, when speaking of India and China, "*Thus, on one hand, these economies have to balance their priorities on energy access and climate change and, on the other, there are questions about how trade rules would govern energy subsidies in rich and emerging economies*". GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 109.

³⁷ As a matter of fact, Ilaria Espa and Gracia Marin Duran, in an article that is further explored in Chapter 8 of the thesis, have tried to evaluate the legal risks of renewable energy subsidies under the WTO subsidy regulation, more specifically the Subsidies and Countervailing Measures Agreement. In a brief summary, the authors conclude that subsidies that contain LCRs, along with support to RE technologies, are under the higher risk to be inconsistent with WTO regulation, as further argued in Section 4.2 of the thesis. ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 645.

potential of governmental support to clean energy to reduce greenhouse gas emission and to enhance “*energy independence with economic and societal benefits*”. Nonetheless, it also refers to job-creation, technological leadership and fostering the growth of domestic manufacturing industries, which, in her words, could be “*problematic from the point of view of WTO law*”.³⁸

This conflict between the “*competing pressures of energy demand, climate change and trade barriers*” and the fact that they are prioritized in different forums (the IEA, the UNFCCC, the WTO) has inspired Arunabha Gosh to classify the regime as “*a complex of partially overlapping but not hierarchically ordered regimes*”.³⁹

Considering the layers of obligations and competing pressures - that result in challenges to governments face locally and dilemmas to respond to in the international scenario (as shown in Figure 4) - this research tries to be aware of the burden governments must face when implementing a clean energy incentive scheme, even if adopting the multilateral trade perspective.



It is within this conflicting background of different governance forums, interests and rules that this thesis is developed. The next Section aims to explain why the research focus is directed to the multilateral trading system's response to support programs from solar and wind power producing countries in light of the climate change regime to then present

³⁸ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 85-86.

³⁹ GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 112.

a brief overview of renewable energies and the WTO rules that might exert effect on them in the hope to it to justify the limits to the scope of the work.

3.2 WHY THE WTO NOW? WHY THE MULTILATERAL SYSTEM?

Having presented the plethora of interests and international organizations that govern energy in the global scenario, this Section aims to explain why the thesis focuses on the response from the World Trade Organization. The answer includes not only characteristics from the multilateral trading system itself, but also opportunities regarding the global governance of energy presented by the link between the multilateral trading system and renewable energy support policies.

It is recognized by the literature that the international regulation of energy is fragmented.⁴⁰ Because of its characteristics, including a highly developed normative structure and a consolidated dispute settlement system, the role of the WTO has been mentioned as “*pivotal*” in the complex regime of energy governance.⁴¹ Nonetheless, arguments contrary to this statement – even coming from the trade community – see the role of the WTO in the energy governance in a skeptical light.⁴² Further, the thesis does not ignore the crisis situation the Organization currently experiences.⁴³

⁴⁰ GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 106-119. GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. *International Environmental Agreements: Politics, Law and Economics*, vol. 17, 2017, p. 1-21. LEAL-ARCAS, Rafael; FILIS, Andrew. The Fragmented Governance of The Global Energy Economy: a legal-institutional analysis. **Journal of World Energy Law and Business**, 2013, vol. 6, n. 4, p. 348-405. LEAL-ARCAS, Rafael; FILIS, Andrew; ABU GOSH, Ehab S. **International Energy Governance: Selected Legal Issues**. Cheltenham: Edward Elgar, 2014. THORSTENSEN, Vera; et. al. **A regulação do comércio internacional de energia: combustíveis e energia elétrica**. São Paulo: FIESP, 2013. VOLPON, Fernanda; RIBEIRO, Marilda Rosado de Sá. Challenges of global energy governance and participation of brics to the construction of a new energy paradigm. **Brazilian Journal of International Law**, 2018, vol. 15, n. 1, p. 200-221.

⁴¹ GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. *International Environmental Agreements: Politics, Law and Economics*, vol. 17, 2017, p. 5.

⁴² For a summary on the debate, including a contrast with OECD role, see: MARCEAU, Gabrielle. The WTO in the Emerging Energy Governance Debate. In PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 25-42. For a critic analysis on WTO renewable energy disputes, check: COSBEY, Aaron. Renewable energy subsidies and the WTO: the wrong law and the wrong venue. Available at: < <https://www.iisd.org/gsi/subsidy-watch-blog/renewable-energy-subsidies-and-wto-wrong-law-and-wrong-venue>>. Access: 12 January 2019.

⁴³ The crisis of multilateralism relates to several factors, including Brexit, the resistance of the United States to observe the system, issues with the Dispute Resolution Body, the difficulty of regulating new technology and the digital commerce, as well as the questions raised by the growth of China. These challenges have been addressed by the WTO itself and will not be thoroughly discussed herein, since they are not on the scope of this work. CNBC. **Interview with WTO Director-General, Roberto Azevêdo, from the World**

In face of this scenario, why choose the WTO now?

This choice is based in two arguments. First, in characteristics of the Organization itself that provide for its continuing relevance in trade transactions, reflecting, as well, in renewable energy issues. And, second, in the realization of RE support policies being a fertile ground to the study of the interaction of trade and climate change regimes. This brings positives consequences, even, to the field of energy governance, since the lack of studies that cover the interface between its institutions has been perceived as a gap on the specialized literature.⁴⁴

Looking through an international trade perspective, the purpose and logic of the multilateral trading system has been put to test. This question becomes more evident with the standstill of the Appellate Body of the Dispute Settlement Body of the WTO, once considered the “*jewel of the crown*” of the system, due to the lack of approval of new Members by the United States. The issue, however, is not a recent one and has been discussed among the trade community for quite some time.⁴⁵

Nonetheless, it has also been recognized that WTO rules have been used as a benchmark for relations and transactions that take place in the international fora - even in instruments that are a reaction to the “*stagnation of the multilateral trading system*”, such as free trade agreements.⁴⁶ In this sense, even if recognizing the limitations of the WTO as a forum for energy governance and the fact that they were not designed considering the sector, Gabrielle Marceau has stated that WTO rules are, in principle, applicable to the trade of energy and the goods and services related to it.⁴⁷

Economic Forum 2019. Available at < <https://www.cnn.com/2019/01/23/cnn-interview-with-wto-director-general-roberto-azevedo-from-the-world-economic-forum-2019.html> >. Access: 26 August 2019.

⁴⁴ Along with studies that study energy governance as a whole. In this sense, Graaf and Asselt state “*Yet while it has become increasingly clear which institutions are relevant for addressing energy subsidies (Van de Graaf 2013; van Asselt 2014a), it remains unclear how the regime complex for energy subsidies functions as a whole. Furthermore, while significant advances have been made in scholarship on fossil fuel subsidies and renewable energy subsidies in isolation, there is a need to link these debates to draw broader lessons for energy subsidies as a whole.*”. GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. *International Environmental Agreements: Politics, Law and Economics*, vol. 17, 2017, p. 5.

⁴⁵ The thesis covers the subject of WTO Reform and the need for (re)discussion of its purpose in Chapter 7. For a discussion of the challenges of WTO to adapt to the XXI century, see: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017. MELÉNDEZ-ORTIZ, Ricardo; BELLMANN, Christophe; MENDOZA, Miguel Rodriguez. **The Future and the WTO: Confronting the Challenges.** A Collection of Short Essays. International Centre for Trade and Sustainable Development (ICTSD): Geneva, 2012.

⁴⁶ LEAL-ARCAS, Rafael. Climate Change Mitigation from the Bottom Up: Using Preferential Trade Agreements to Promote Climate Change Mitigation. **Carbon & Climate Law Review**, n. 34, 2013, p. 34.

⁴⁷ MARCEAU, Gabrielle. The WTO in the emerging energy governance debate. **Proceedings of the Annual Meeting of the American Society of International Law**, v. 106, p. 386.

Moreover, the fact that the WTO has a dispute resolution system and, therefore, some “*real teeth*”, has been cause for arguing for its importance in the global governance of energy.⁴⁸

In spite of its role of relevance, the cases from the Dispute Settlement Body (DSB) of the World Trade Organization also justify the choice for the international trade perspective, for the disputes seem to be interesting to be examined in the sense that they are *sui generis*. Although governmental measures go under legal scrutiny, the disputes are deeply intertwined with political issues and industry interests. Edwin Vermlust and Madison Meng even argue that the disputes are “*focal points*” to a phenomenon that is happening worldwide: “*government support to stimulate the growth of domestic manufacturing industries*”.⁴⁹

Besides, it is a burden for countries to initiate proceedings in the multilateral dispute settlement system and also to respond to it.⁵⁰ Therefore, one can say that the DSB is used as a political last-resort option and that the adjudicated cases are a symbol of the most challenging controversies faced by members of the Organization.⁵¹ Hence, it seems to be a good laboratory to identify the issues that underlie the RE sector.

⁴⁸ GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. *International Environmental Agreements: Politics, Law and Economics*, vol. 17, 2017, p. 5.

⁴⁹ “*Although the focal points in most of the cases being assessed are the subsidies granted and the domestic or local content schemes instituted to promote an emerging sector, it should be noted that those developments are a global phenomenon. As renewable energy policies tend to rely on some kind of government support to stimulate the growth of domestic manufacturing industries, it is not surprising that they run into conflict with international trading rules*”. VERMLUST Edwin; MENG, Madison. Dumping and Subsidy Issues in the Renewable Energy Sector. In: COTTIER, Thomas; ESPA, Ilaria. **International Trade and Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge: Cambridge University Press, 2019, p. 336.

⁵⁰ Considering the situation from developing countries, Gregory Shaffer, Michelle Ratton Sanchez and Barbara Rosenberg, in a paper part as part of ICTSD’s project on WTO Dispute Settlement and Sustainable Development argue: “*Although developing countries vary significantly in terms of the size of their economies and the role of law and legal institutions in their domestic systems, they generally face three primary challenges if they are to participate effectively in the WTO dispute settlement system. These challenges are: (i) the capacity to organize information concerning trade barriers and opportunities to challenge them, and a relative lack of legal expertise in WTO law, with its common law orientation; (ii) constrained financial resources, including for the hiring of outside legal counsel to effectively use the WTO legal system, which has become increasingly costly; and (iii) fear of political and economic pressure from the United States and EC, undermining their ability to bring WTO claims. We can roughly categorize these challenges as constraints of legal knowledge, financial endowment, and political power, or, more simply of law, money and politics*”. SHAFFER, Gregory, BADIN, Michelle Ratton Sanchez; ROSENBERG, Barbara. **Brazil’s Response to the Judicialized WTO Regime: Strengthening the State through Diffusing Expertise**. Available at: < <https://www.ictsd.org/sites/default/files/downloads/2008/05/brazils-response-to-the-judicialized-wto-regime-strengthening-the-state-through-diffusing-expertise.pdf>>. Access: 23 Jan 2020, p. 22

⁵¹ COZENDEY, Carlos Márcio. O Sistema de Solução de Controvérsias da OMC: para além dos contenciosos, a política externa. BENJAMIN, Daniela Arruda. **O Sistema de Solução de Controvérsias da OMC**. Brasília: Fundação Alexandre Gusmão – FUNAG, p. 369-396.

As mentioned, this thesis is concerned with the conflicting background that States face when implementing renewable energy support policies given the different nature of international commitments they are subject to. In addition, it is aware of the gap in the energy governance literature regarding studies on the links of its different regimes. Therefore, it seems relevant to examine these interactions of regulatory frameworks and values. In this degree, considering what the author has called the “*triangle of trade-energy-environment*”, Joost Pauwelyn argues that “*As if the tensions in each of these three fields considered individually are not yet sufficiently complex, when looking at the interaction between trade, energy and the environment new questions and problems arise*”.⁵²

The WTO, albeit focused on trade liberalization, has recognized the importance of other legitimate interests that are not its traditional agenda, such as sustainable development and environmental protection.⁵³ In this sense, Rafael Leal-Arcas, when speaking about the link between energy and climate change and the benefits of a “*more cohesive energy trade governance*”, highlights the ability of the Organization to be a locus of discussion for the several issues that are already embedded in the trade debate.⁵⁴

One of those legitimate non-trade values is climate change. Especially, when it comes to the object of the thesis (solar and wind power support programs from producing countries). To this extent, Sadeq Z. Bigdeli goes as far as asserting that “*Climate Change has found its way into the World Trade Organization through the backdoor of the profitable and contentious trade in solar and wind energy technologies*”.⁵⁵

⁵² PAUWELYN, Joost. Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 3.

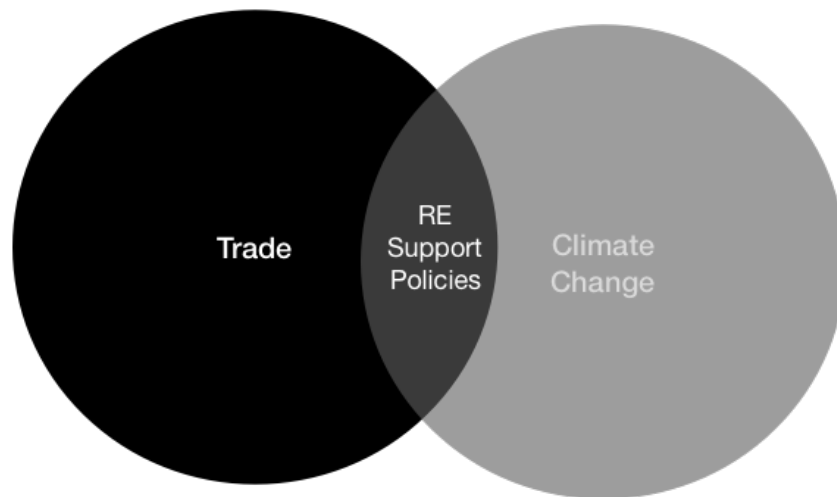
⁵³ MARCEAU, Gabrielle; WYATT, Julian. **Trade and the environment**: The WTO's efforts to balance economic and sustainable development, 2009. Available at < <http://archive-ouverte.unige.ch/unige:34569> >. Access: 20 August 2019. CAVALCANTI, Fernando Antônio Wanderley. o Artigo XX do GATT 1994 e a persecução de objetivos não comerciais pelos membros da OMC: um equilíbrio dinâmico. BENJAMIN, Daniela Arruda. **O Sistema de Solução de Controvérsias da OMC**. Brasília: Fundação Alexandre Gusmão – FUNAG.

⁵⁴ Rafael Leal Arcas, states: “*The nexus between energy and climate change encompasses a range of trade issues such as clean energy subsidies, carbon taxes and border adjustment for carbon emissions. Thus far, the overall approach towards addressing the role of energy in climate change mitigation has involved finding incentives to reduce fossil fuel emissions. However, a more holistic approach towards achieving greener energy may prove more effective in the long run. In other words, arguably, we need more cohesive energy trade governance. International trade in energy spans a number of key policy areas, including trade, investment, economic development, and environmental protection, and currently the international community does not provide cohesive governance over it*”. LEAL-ARCAS, Rafael. Trade Proposals for Climate Action. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 25.

⁵⁵ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 178.

Vyomma Jha states that “*Renewable energy policies are at the centre of a contentious triangle that can be drawn between the international economic regime, the global climate regime and a country’s regulatory autonomy*”,⁵⁶ which is graphically explained in the following Figure 5. As a consequence, “*links between the WTO and global climate policy are obvious*” to Kati Kulovesi.⁵⁷

FIGURE 5 – Trade, Climate Change and Renewable Energy Interaction



SOURCE: Created by the author, based on JAH, Vyoma. Sunny Skies Ahead? Political Economy of Climate Trade and Solar Energy in India. **Trade, Law & Development**, vol. 9, n. 2, 2017, p. 266.

Moreover, Avidan Kent argues that “*The interaction between trade law and climate change policies has never been so contentious. Attempts made by States to address climate change are met with challenges concerning the compatibility of these policies with WTO law*”.⁵⁸ Which is corroborated by Jha, who explains the interaction between trade and climate change by mentioning the possible incompatibility of domestic laws and regulations on renewable energy with WTO rules.⁵⁹

⁵⁶ JAH, Vyoma. Sunny Skies Ahead? Political Economy of Climate Trade and Solar Energy in India. **Trade, Law & Development**, vol. 9, n. 2, 2017, p. 259.

⁵⁷ “Overall, renewable energy can be seen as a rapidly emerging issue where links between the WTO and global climate policy are obvious. It can also be seen as an emerging new track in the trade and environment debate, with possible indications of future legal challenges that will need to be addressed when trying to ensure that WTO law is applied in a way that is genuinely compatible with the objective of sustainable development.” KULOVESI, Kati. International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, vol. 23, n.3, 2014, p. 353.

⁵⁸ KENT, Avidan. The WTO Law on Subsidies and Climate Change: Overcoming The Dissonance? **Trade, Law & Development**, vol. 5, n. 2, 2013, p. 345.

⁵⁹ Vyoma Jha states that “One of the ways in which climate, trade and the respective domestic and international rules and institutions governing them interact with each other is on the issue of law as domestic climate measures could potentially be in violation of WTO rules and may be subject to scrutiny to determine their consistency with WTO rules.” JAH, Vyoma. Sunny Skies Ahead? Political Economy of Climate Trade and Solar Energy in India. **Trade, Law & Development**, vol. 9, n. 2, 2017, p. 266.

This is an important link, inasmuch as the first collaborative effort of the WTO Secretariat and the UNEP - two prominent players of the global trade and the climate change regime - was a study to identify the connections between the two areas. The result, the 2009 WTO/UNEP Report on Trade and Climate Change, analyzed how trade and climate change policies interact and how they can be mutually supportive.

In this report, renewable energy is mentioned as a means to ensure climate change goals. Ultimately, the study approached the issue of how regulatory measures or economic incentives used by countries to mitigate climate change would be seen under the scrutiny of WTO laws. Government measures regarding renewable energies were observed in the work of the WTO and UNEP, including tax fiscal revenues and feed-in-tariffs. The report also mentioned border taxes on greenhouse gases (GHG) emissions and technical requirements to promote the use of climate-friendly goods and technologies, including on RE.⁶⁰

The scholarship has also been interested on this *trade and* debate, with works that study the connections and effects of different fields of international law. A common approach in this direction is to test the compatibility of unilateral measures to promote climate change rules considering WTO regulation.⁶¹

An example is the paper “*The interface between the Trade and Climate Change Regimes: Scoping the Issues*” by Patrick Low, Gabrielle Marceau and Julia Reinaud. The authors assess the compatibility of subsidies in climate change policy and GHG price-based measures, standards and labelling regulations with WTO Agreements, more specifically, the GATT, the TBT and the SCM Agreement.⁶²

⁶⁰ TAMIOTTI, *et all.* **Trade and Climate Change**: A report by the United Nations Environment Programme and the World Trade Organization World Trade Organization – WTO, 2009. Available at: < https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf>. Access on: 29 November 2018. UNITED NATIONS ENVIRONMENT PROGRAMME – UNEP, WORLD TRADE ORGANIZATION – WTO. **Report on Trade and Climate Change** (2009). Available at: < https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf> Access: 14 Jan 2020.

⁶¹ KULOVESI, Kati. International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, vol. 23, n.3, 2014, p. 342. “*Building on the tuna-dolphin and shrimp-turtle cases, the trade and environment debate traditionally tended to focus on trade bans and other environmentally motivated trade measures targeting processes and production methods (PPMs). Analogous legal questions have thus far dominated the discussion on the WTO and climate change, where trade bans and border carbon adjustments (BCAs) feature among the key topics.*”

⁶² LOW, Patrick, MARCEAU, Gabrielle, REINAUD, Julia. The interface between the Trade and Climate Change Regimes: Scoping the Issues. **Journal of World Trade**, vol. 46, n. 3, 2012, p. 486-487. For other examples, see: CONDON, Bradley J. Climate Change and Unresolved Issues in WTO Law. **Journal of International Economic Law**, n.12, vol. 4, 2009 p. 895-926. KENT, Avidan. The WTO Law on Subsidies and Climate Change: Overcoming The Dissonance? **Trade, Law & Development**, vol. 5, n. 2, 2013, p. 344-382.

Therefore, one must not forget, in the words of Joost Pauwelyn, that the WTO can play a positive role in governing energy from a trade and climate change perspective since, based on the outcomes of DSB cases, its rules, as confirmed by environmental disputes, “*do not stand in the way of genuine environmental measures*” and also for they “*firmly condemning discrimination and protectionism (...) and thereby offering guidelines to WTO Members*”.⁶³ An idea that is sound to the main argument of this thesis: that, through DSB understandings, the multilateral trading system has been open to non-trade values, in spite of not losing sight of its funding liberalization-oriented rules.

In short, this Section attempts to present the reason why the thesis has chosen to study the subject of renewable energy in the international scenario, through the perspective of the multilateral trading system— even though it is going through a moment of crisis. The reasons include characteristics from the very same system (i.e. its prominence in the global governance and expertise to deal with values beyond free trade), the existence of its specialized dispute settlement system (and the effects that this entails), and the fact that renewable energy policies have been considered the center of conflict between trade and climate international regimes. Thus, arguably, putting the WTO in a place of relevance and seeming to make this thesis relevant to the field of international trade but also of global energy governance. The next Section’s purpose is to present an overview of the state of the art of renewable energies and their relations with WTO rules to then outline the scope of each that is covered in the thesis, based on the argument that factual elements from the RE sector matter to an international trade law research.

3.3 LIMITING RENEWABLE ENERGY POLICIES AND WTO RULES

Having presented the constant conflict between international obligations undertaken by governments within the climate change and the trade regulatory frameworks, this Section aims, one more time, to take broader view of the background to the thesis to then outline the boundaries the scope of the research is restricted to. In order to do so, it displays an overview of renewables, that covers its definitions, financing, current available technology, differences in the markets of its segments (wind and solar power)

⁶³ PAUWELYN, Joost. Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 3.

as well as, the possibilities and limitations of the expansion of RE added capacity to climate change mitigation.⁶⁴ Still considering the broader picture, it presents the WTO rules that are, arguably, applicable to the sector. Given this scenario, the Section limits the scope of the thesis, respectively, to the current state of the art of solar and wind power, to support programs from producing countries and to WTO non-discrimination rules, general system of exception and subsidy regulation.

The present Section emphasizes the economic and political angles of the subject, sound to the proposal suggested in Section 2.1. To this extent, it builds on the arguments that factual aspects (taking the mentioned definition from Rubini: market, technology and political economy conditions) from the renewable energy sector matter to the assessment from the multilateral trade legal perspective that guides the development of the thesis.⁶⁵

In this sense, it seems that it should already be mentioned that the distinction between the electricity market and the market for renewable technology components or equipment has been pointed out by the scholarship as relevant, since those markets have a different impact on trade flows.⁶⁶ Considering this argument, this Section 3.3 was structured to provide the legal, economic and political elements that, arguably, have defined the limits to the scope of the research.

Renewable energy is still in its early stages of development representing, in 2015, almost one fourth of the total global electricity, according to a study performed by the

⁶⁴ This Section 3.3, focuses on the private sector financing of renewables and does not draw on arguments that are related to State intervention and the need of the implementation of support policies, as the subject is further expounded on in Chapter 4 of the thesis.

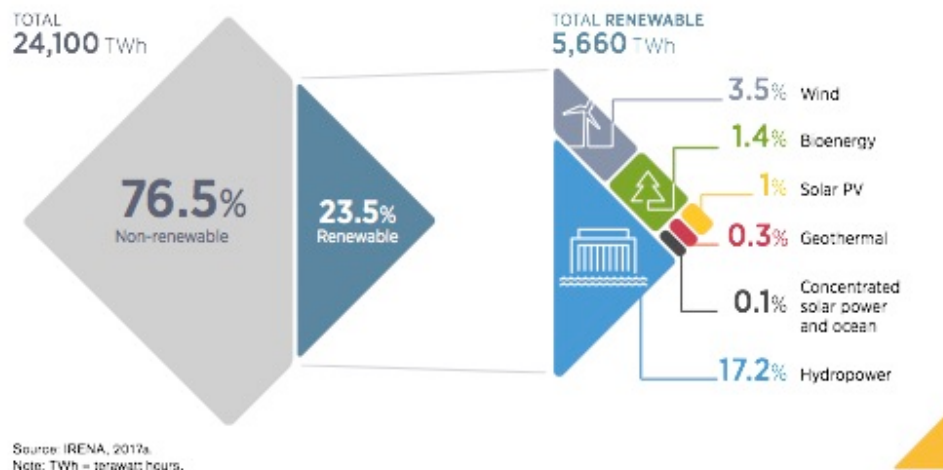
⁶⁵ In the sense that the state of the art of the RE sector matters to WTO analysis, Joost Pauwelyn has argued, in the field of technology, that *“Finally, and perhaps most importantly, what will technologies of tomorrow look like and mean for the viability of renewable energy and carbon emission reductions and carbon mitigation or storage? As one participant pointed out, perhaps in 10 or 20 years time it will be dead-easy and common practice to calculate the precise carbon footprint of a tonne of steel, car or mobile phone, a technique that could enable levelling the environmental playing field without the current risk of creeping protectionism. Even better, perhaps by then we will have invented alternative energies or technology that can end our dependence on fossil fuels or otherwise halt carbon emissions and we will all look back at today's climate change scare as merely a bad dream which human creativity was able to avert.”* PAUWELYN, Joost. *Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction*. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 8.

⁶⁶ In this sense, see: ESPA, Ilaria; DURAN, Gracia Marín. *Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program*. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 642. RUBINI, Luca. *ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies?* In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 313. The discussion is also further developed in chapter 6 of the thesis.

International Renewable Energy Agency (IRENA), the International Energy Agency (IEA) and the Renewable Energy Policy Network for the 21st Century (REN21).

From the total 5,660-terawatt hours (TWh) of energy produced in the world, 3,5% was generated from wind power, 1.2% from hydropower, 1.4% from bioenergy, 1% from Solar PV, 0.3% from geothermal sources, 0.1% from concentrated solar power and ocean, as shown in the chart below.

FIGURE 6 – Global Electricity Generation by Source, 2015



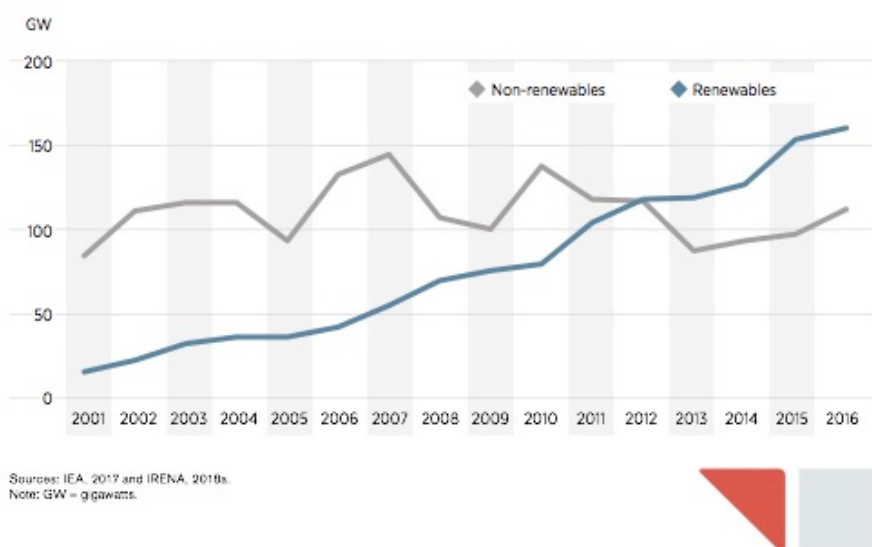
SOURCE: IRENA, OECD/IEA, REN 21, 2018. **Renewable Energy Policies in a Time of Transition.** Figure 4.2. Global electricity generation by source, 2015, p. 58.⁶⁷

However, it can be said that renewable energy has been well accepted by countries and has a significant growth potential, driven by competing interests, such as environmental benefits, technological and industrial development and transformation of the current geopolitical global energy profile, as it will be further explored in Chapter 4 of the thesis. Moreover, the integration of renewables to the grid has not presented costs or challenges as difficult as it had been thought.⁶⁸

This can be verified by the fact that, in what concerns power capacity additions worldwide, renewable sources have surpassed conventional ones since 2012 and, in 2016, represented almost 60% of the global new energy capacity mix, as reported by IRENA, IEA and REN 21.

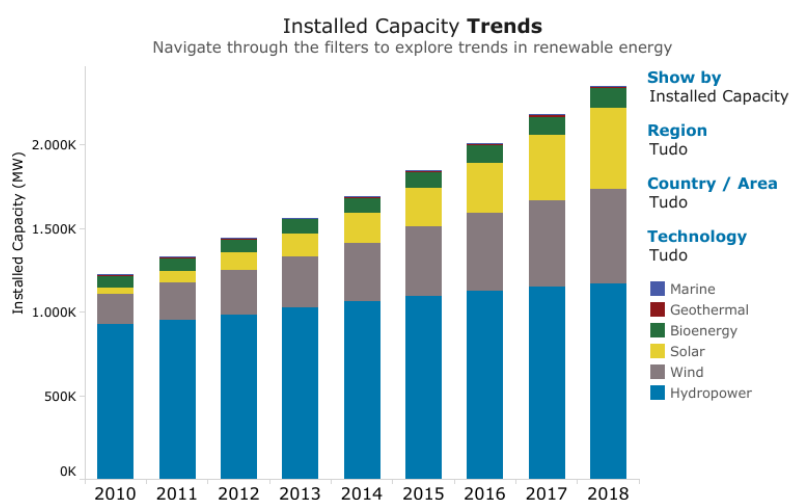
⁶⁷ The numbers have not changed much since 2015. According to the IEA, in 2018, the share of renewables in global electricity generation reached 26% and solar PV, hydropower and wind each accounted for less than one third of 2018 total electricity generation growth, with bioenergy representing most of the rest. INTERNATIONAL ENERGY AGENCY - IEA. **Tracking Power 2019**. Available at: <<https://www.iea.org/reports/tracking-power-2019/renewable-power#abstract>>. Access: 19 Dec 2019.

⁶⁸ MOTYKA, Marlene; SLAUGHTER, Andrew; AMON, Carolyn. Global renewable energy trends: solar and wind move from mainstream to preferred. **Deloitte Insights**. Deloitte Center for Energy Solutions: 2018, p. 9.

FIGURE 7 – Renewable and non-renewable power capacity additions, 2001-2016

SOURCE: IRENA, OECD/IEA, REN 21. 2018. **Renewable Energy Policies in a Time of Transition.** Figure 4.3. Renewable and non-renewable power capacity additions, 2001-16, p. 58.

The year of 2018 maintained the pattern brought by renewable energy installed capacity trends. As shown by data provided by the IRENA, solar and wind energy accounted for 84% of the year's global additions of 171 gigawatts (GW). Renewables already represent around a third of total installed electricity capacity and nearly two-thirds of all new power generation capacity added in 2018, as follows.

FIGURE 8 – Installed Capacity Trends in Renewable Energy

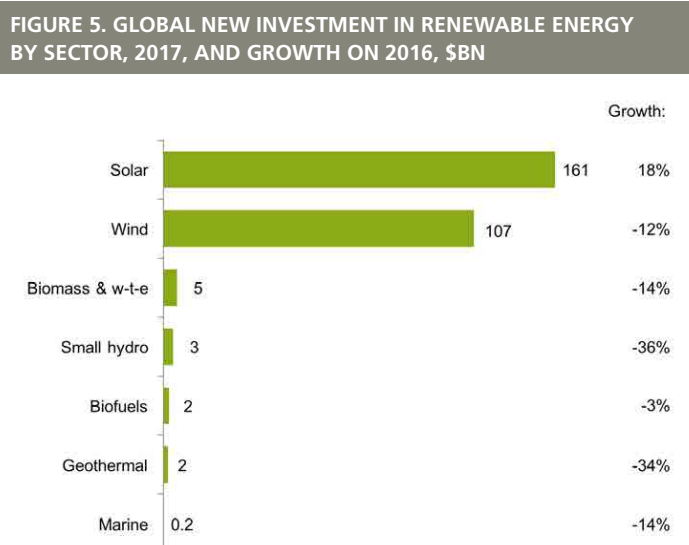
SOURCE: IRENA. 2019. **Installed Capacity Trends.** Available at <<https://www.irena.org/>>. Access in 23 April 2019.

From an economic perspective, clean electricity generation is attracting the attention of the market. According to a study conducted by Bloomberg New Energy Finance and the United Nations Environment Programme (UNEP), in 2017, the amount of money

invested in new green power capacities (US\$265 billion), exceeded the amount of US dollars invested in new fossil fuel generators (US\$103 billion), nuclear reactors (US\$42 billion) and large hydro dams (US\$45 billion).⁶⁹

The same Report also showed that the solar and wind power sectors led the global new investment in renewable energy in the year of 2017.

FIGURE 8: New Investment in Renewable Energy by Sector, 2017, and Growth on 2016



SOURCE: Frankfurt School-UNEP Centre/BNEF. 2018. **Global Trends in Renewable Energy Investment 2018**. Figure 5. Global New Investment in Renewable Energy by Sector, 2017, and Growth on 2016, \$BN, p. 15.

Those investment flows substantiate the statement that “*Renewable energy is rapidly becoming a preferred ‘mainstream’ energy source*”.⁷⁰ The fact that the so-called

⁶⁹ Frankfurt School-UNEP Centre/BNEF. 2018. **Global Trends in Renewable Energy Investment 2018**, p. 32.

⁷⁰ MOTYKA, Marlene; SLAUGHTER, Andrew; AMON, Carolyn. Global renewable energy trends: solar and wind move from mainstream to preferred. **Deloitte Insights**. Deloitte Center for Energy Solutions: 2018, p. 2.

alternative sources are being able to meet the demand for reliable, affordable and environmentally responsible energy directed some movements in the sector.

For instance, there has been a raise in the importance of the role of cities and local communities, as well as individuals, in the deployment of renewable energy. Communities are gradually making more conscious choices about electricity consumption habits and ordinary people are becoming more proactive in this regard, thus, becoming ‘prosumers’.⁷¹ Emerging markets – even if China is not taken into consideration – have also increased its significance.⁷²

Taking Chinese investment into account, “*developing economies accounted for a record 63% of global investment in renewable energy in 2017*”, propelled by the ‘big three’ - the country and India and Brazil.⁷³ Also, China has been considered “*the top country by far in terms of the sums invested in renewables capacity during the current decade. It committed \$758 billion between 2010 and the first half of 2019*”.⁷⁴

Furthermore, corporations have taken an active role advancing in the sector by themselves, even presenting their own commitments and setting their particular targets, including initiatives such as the Renewable Energy Buyers Alliance.⁷⁵ The corporate movement is happening through renewable electricity sourcing, consumption or production for self-consumption. The private sector uses renewable energy certificates (RECs) and, more commonly, power purchase agreements (PPAs).⁷⁶

⁷¹ IRENA, OECD/IEA, REN 21. **Renewable Energy Policies in a Time of Transition**. IRENA, OECD/IEA, REN 21, 2018, p. 20.

⁷² MOTYKA, Marlene; SLAUGHTER, Andrew; AMON, Carolyn. Global renewable energy trends: solar and wind move from mainstream to preferred. **Deloitte Insights**. Deloitte Center for Energy Solutions: 2018. Frankfurt School-UNEP Centre/BNEF. 2018. **Global Trends in Renewable Energy Investment 2018**. Available at: < <http://www.fs-unep-centre.org>>. Access 21 Apr 2019, p. 20 -32.

⁷³ Frankfurt School-UNEP Centre/BNEF. 2018. **Global Trends in Renewable Energy Investment 2018**. Available at: < <http://www.fs-unep-centre.org>>. Access 21 Apr 2019, p. 20.

⁷⁴ Frankfurt School-UNEP Centre/BNEF. 2019. **Global Trends in Renewable Energy Investment 2019**. Available at: < <https://wedocs.unep.org/bitstream/handle/20.500.11822/29752/GTR2019.pdf>>. Access 11 Mar 2020, p. 11.

⁷⁵ In the words of Bradley Condon, “*On the demand side, a group of US companies, including Walmart, General Motors, Google, Facebook and Microsoft, has created the Renewable Energy Buyers Alliance, which plans to use its purchasing power and capacity to enter long-term contracts to develop 60 GW of renewable energy by 2025*”. CONDON, Bradley J. Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World. **Journal of World Trade**, Kluwer Law International, vol. 51, n. 4, 2017 ,p. 676. According to the own initiative: “*REBA is an alliance of large clean energy buyers, developers, and service providers that, together with NGO partners, are unlocking the marketplace for all nonresidential energy buyers to lead a rapid transition to a cleaner, prosperous, zero-carbon energy future*”. RENEWABLE ENERGY BUYERS ALLIANCE – REBA. **About us** Available at: < <https://rebuyers.org/>>. Access 26 August 2019.

⁷⁶ IRENA. **Corporate Sourcing of Renewables: Market and Industry Trends – REMade Index 2018**. International Renewable Energy Agency, Abu Dhabi, 2018.

Besides private direct investment, there has also been some change in the levels of venture capital deals in clean energy technology areas.⁷⁷ Moreover, institutional investor and pension funds - especially, in Europe, but expanding to emerging markets – have started to regard renewable energy projects as an advantageous investment option.⁷⁸

Nonetheless – and in spite of the fall in Europe’s global share of investment in green energy⁷⁹ -, national level policies enacted by governments or energy regulatory bodies in developed countries are still the most fundamental resource for the development of renewable energy worldwide.⁸⁰

In spite being considered, by the private sector, as a market to be explored and a technology development opportunity,⁸¹ renewable energy increase still demand State intervention and participation. According to Ciarreta, Espinosa, and Pizarro-irizarsince investment in technology and infrastructure is needed for renewables to compete with conventional energy and for countries to make the transition to a cleaner power matrix.⁸²

⁷⁷ According to data provided by the IEA, there was a US\$ 2,5 billion investment in clean energy VC in 2017 and a spike of US\$ 2,8 billion in clean transport, in 2016. IEA. 2019. **Innovation**. Reported RD&D spending by firms in clean energy-related sectors. Available at: < <https://www.iea.org/tcep/innovation/>>. Access 22 April 2019.

⁷⁸ IRENA. **REthinking Energy 2017: Accelerating the global energy transformation**. International Renewable Energy Agency, Abu Dhabi, 2017, p. 59 - 60.

⁷⁹ “Europe’s share of world investment fell to just 15% in 2017, the lowest recorded since the data series began in 2004. As recently as 2011, Europe accounted for as much as 45% of the global total. Among the leading markets seeing the biggest falls in investment last year were the U.K., down 65% at \$7.6 billion, Germany down 35% at \$10.4 billion, and Japan down 28% at \$13.4 billion. The U.S. slipped 6% to \$40.5 billion.” Frankfurt School-UNEP Centre/BNEF. 2018. **Global Trends in Renewable Energy Investment 2018**. Available at: < <http://www.fs-unep-centre.org>>. Access 21 April 2019, p. 20 -32.

⁸⁰ IRENA, OECD/IEA, REN 21. **Renewable Energy Policies in a Time of Transition**. IRENA, OECD/IEA, REN 21, 2018, p. 18.

⁸¹ In the words of Bradley Condon: “Technological change has brought clean energy sources into the mainstream. Foot-dragging by many governments has prompted the private sector to address climate change and speed up the transition to clean energy. On the supply side, the cost of unsubsidized photovoltaic (PV) energy generation has fallen below the cost of fossil fuel energy generation in some markets. On the demand side, a group of US companies, including Walmart, General Motors, Google, Facebook and Microsoft, has created the Renewable Energy Buyers Alliance, which plans to use its purchasing power and capacity to enter long-term contracts to develop 60 GW of renewable energy by 2025. The demand for clean energy has prompted some US utilities to allow big private sector customers to contract to purchase of renewables-generated power at the standard retail rate over a three to fifteen-year term”. CONDON, Bradley J. Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World. **Journal of World Trade**, vol. 51, n. 4. Kluwer Law International: The Netherlands, 2017, p. 676.

⁸² CIARRETA, A.; ESPINOSA, M. P.; PIZARRO-IRIZAR, C. Optimal regulation of renewable energy: A comparison of Feed-in Tariffs and Tradable Green Certificates in the Spanish electricity system. **Energy Economics**, 2017, n. 67, p. 387–399. Even the International Renewable Energy Agency (IRENA) that believes that tech innovation, bigger markets and competition and regulatory streamlining have cheapen RE technologies and its costs tend to decline in the upcoming years, foresees, in its 2030 scenario, that to double the clean energy capacity by this term subsidies on renewables will have to add up to US\$238 billion. INTERNATIONAL RENEWABLE ENERGY AGENCY - IRENA. **A Renewable Energy Roadmap, 2014**. Available at: < https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2014/IRENA_REmap_summary_findings_2014.pdf>. Access on 23 Jan 2020.

In addition, the *Stern Review on the Economic of Climate Change*, has deemed climate change to be the “*greatest and widest-ranging market failure ever seen*”.⁸³ As clean power have been considered a way to mitigate its effects, it can be said that they bring societal benefits. However, their current price does not reflect these *positive externalities* and, thus, end up costing more than it would be *socially optimal* (economic jargon).⁸⁴ In addition, the subsidies on fossil fuels, historically granted by governments, artificially make renewables seem to be more costly than they are.⁸⁵

To use governmental intervention to correct market failure and impose fair market pricing would be a standard economic response to this need to “*level the playing field*”.⁸⁶

Incidentally, it is a response that is commonly adopted by governments. More precisely, as indicated by the think-tank REN21, by the end of 2017, 179 countries had renewable energy targets at a national or local government level. From the total, 128 countries counted on policies regarding renewable electricity.⁸⁷

As government support is key to the development of green power, it is, arguably, interesting to investigate it in a Masters’ thesis. As well as to make evident the conflicting scenario States are in when implementing the incentive measures, not to mention the fact that incentive measures to renewable energy support programs have been identified as a conflicting intersection between international trade and climate change, as argued in past Section 3.2.

The energy sector, in general, is unique. In the words of Steve Charnovitz and Carolyn Fischer “*With large networked infrastructure investments required, electricity markets*

⁸³ STERN, Nicholas. **The Economics of Climate Change**. Cambridge University Press: Cambridge, 2007.

⁸⁴ FARAH, Paolo D.; CIMA, Elena. The World Trade Organization, Renewable Energy Subsidies and the Case of Feed-in Tariffs: Time for Reform toward Sustainable Development? **The Georgetown International Environmental Law Review**, vol. 27, 2015, p. 518.

⁸⁵ RUBINI, Luca. *Ain’t Wastin’ Time no More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform*. **Journal of International Economic Law**, Oxford Press, 2012, vol. 15, iss. 2, p. 525-579.

⁸⁶ AMARAL, Manuela Kirschner do. ***Padrões Privados e outras Fontes Não Tradicionais de Governança no Âmbito dos Regimes de Mudança Climática e Multilateral de Comércio da OMC: Conflito ou Convergência?*** Tese de Doutorado em Relações Internacionais apresentada na Universidade de Brasília, Instituto de Relações Internacionais, Programa de Pós-Graduação em Relações Internacionais. Brasília, 2014, p. 125.

⁸⁷ The other programs were related to the transport and the heating and cooling sectors. REN 21, 2018. **Renewables 2018 – Global Status Report**. Available at <https://www.ren21.net/wp-content/uploads/2019/05/GSR2013_Full-Report_English.pdf>. Access: 23 May 2019. Figure 12. National Targets for Share of Renewable Energy in Final Energy, by a Specific Year, in Place at End 2017, p. 49 - 50.

*are naturally imperfectly competitive, highly regulated, and sparsely traded internationally”.*⁸⁸

Thinking about renewable energies specifically, the IEA and the IRENA consider as renewable energy power that is generated from bioenergy, geothermal, hydropower, ocean, solar and wind sources. Each of them present differences that relate to technology, costs, reliability and environmental friendliness. Solar and wind power, along with decentralized production and consumption of energy through smart grids, have presented significant growth in the past years.⁸⁹

These different facets are the reason why governments have built energy matrixes that combine multiple generation technologies – even if not appreciated by consumers, who cannot differentiate electricity once it is made available on transmission grids.⁹⁰

The disparity between renewable energy sources can also be seen on their specific markets. For instance, historically, the solar-PV market was dominated by Europeans. However, nowadays its profile has shifted, presenting a global character and a prominent role of China, as can be seen in the following chart about capacity addition in the year of 2017.

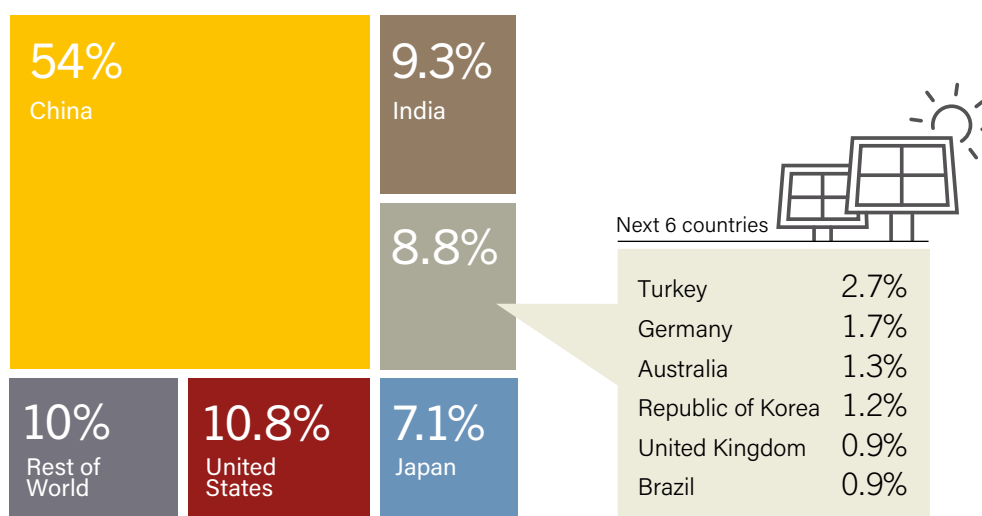
⁸⁸ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 181 -182.

⁸⁹ INTERNATIONAL ENERGY AGENCY – IEA. **Renewables**. Available at < <https://www.iea.org/fuels-and-technologies/renewables>>. Access 12 Feb. 2020. INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **Renewable Energy Sources**. Available at < <https://www.irena.org/>>. Access 12 Feb. 2020.

⁹⁰ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 182

FIGURE 9 – Solar PV Global Capacity Additions, Shares of top 10 Countries and Rest of the World, 2017

FIGURE 27. Solar PV Global Capacity Additions, Shares of Top 10 Countries and Rest of World, 2017



SOURCE: RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY - REN 21. **Renewables 2018 – Global Status Report.** Figure 27. Solar PV Global Capacity Additions, Shares of Top 10 Countries and Rest of World, 2017, p. 95.

According to the OECD⁹¹, the solar-PV value chain can be divided into three segments related to upstream, midstream and downstream activities.

The upstream activities refer to the production and refinement of raw feedstock, such as solar-grade silicon, the midstream activities refer to the manufacturing part of solar energy equipment having ingots, wafers, modules and balance of plant as examples and the downstream part refers to power generation itself, with activities that involve project development and system integration, installation and maintenance.

The downstream segment is the most lucrative and employment-intensive, having as examples construction, installation, system integration, operations, maintenance and sales.⁹² However, the manufacturing activity is the one that accounts the most for international trade, which makes sense given the fact that, according to research conducted by the IEA and the IRENA, Crystalline silicon (c-Si) PV technology accounted

⁹¹ OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment.** Paris: OECD Publishing, 2015, p. 30.

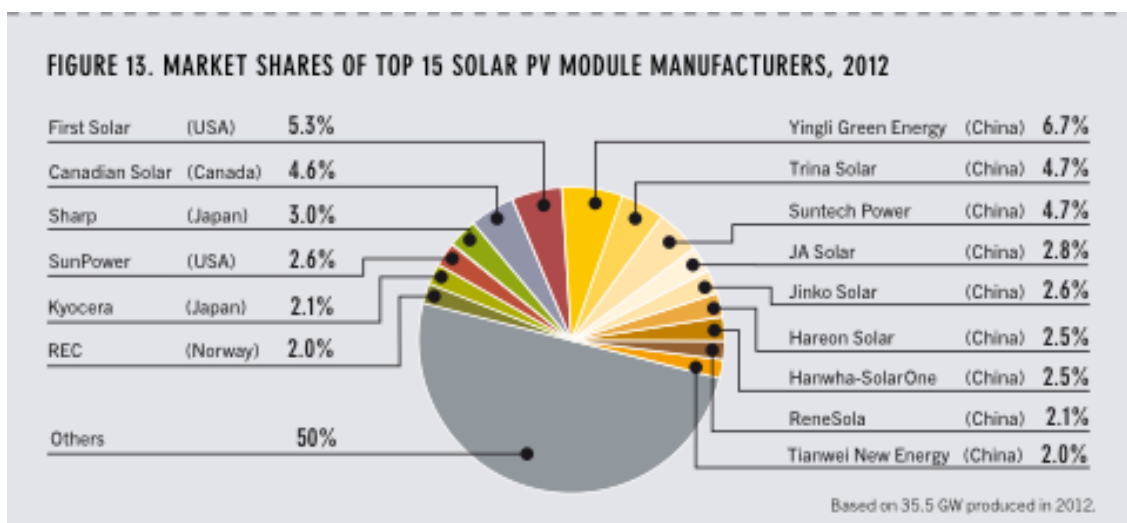
⁹² OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment.** Paris: OECD Publishing, 2015, p. 36.

for 89% of the global market for PV cells and modules in 2011, and almost all the remainder referred to thin-films PV.⁹³

That means that, in the sector, “while local companies account for a large share of the value added of downstream activities foreign companies account for an increasing share of value added for solar- PV module manufacturing”.⁹⁴

Manufacturing of solar-PV modules is relatively concentrated. Chinese companies present a strong participation in this sector, as well.

FIGURE 10 – Market Shares of Top 15 Solar PV Module Manufacturers, 2012



SOURCE: RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY - REN 21. **Renewables 2013** – Global Status Report. Figure 13. Market Shares of Top 15 Solar PV Module Manufacturers, 2012, p. 41.

Notice that the countries that lead the deployment of solar power are not necessarily the same ones that are the top manufacturers of solar PV-cells. That situation creates a need for import and export, as well as an opening for the increase on international trade conflicts.⁹⁵

⁹³ OECD/IEA, IRENA. Technology Policy Brief E11. Available at: <https://iea-etsap.org/E-TechDS/PDF/E11IR_PV_GSMT_Jan2013_final_GSOK.pdf>. Access in 9 May 2019, p. 4.

⁹⁴ OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment**. Paris: OECD Publishing, 2015, p. 30.

⁹⁵ Joanna Lewis states that “Countries that are leading in renewable energy technology manufacturing are not necessarily the same countries leading in renewable energy deployment. Imbalances in manufacturing and utilization of renewables leads to a need for imports and exports, and substantial imbalances can be grounds for international trade tensions.” LEWIS, Joanna. **Emerging Conflicts in Renewable Energy Policy and International Trade Law**. Available at: < https://ases.conference-services.net/resources/252/2859/pdf/SOLAR2012_0724_full%20paper.pdf>. Access on 9 May 2019, p. 2.

In turn and pursuant to the IEA, “*Onshore wind is a proven, mature technology with an extensive global supply chain*”, that utilizes turbines to transform the wind power into electricity.⁹⁶

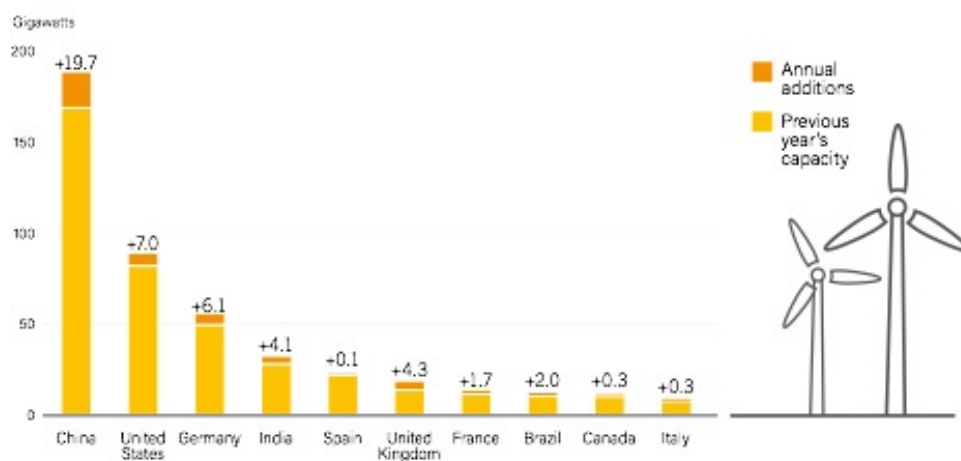
The wind-energy value chain, according to the OECD ⁹⁷ can be divided in two segments: upstream and midstream manufacturing activities and downstream activities. The first refer to design, production and assembly of wind turbines and components. The second refers to deployment and use of the electricity, as well as to project and construction matters.

Although wind-turbine manufacturing is more globalized, because of technical trade barriers such as divergent national product standards, “*intense competition and relatively high transport costs, wind-turbine manufacturers tend to invest in plants close to emerging and large consumer markets such as Brazil, India and the United States.*”⁹⁸

In this market, China is also the leading player in capacity additions, as presented by the following figure.

FIGURE 11 – Wind Power Capacity and Additions, Top 10 Countries, 2017

FIGURE 35. Wind Power Capacity and Additions, Top 10 Countries, 2017



SOURCE: REN 21, 2018. **Renewables 2018 – Global Status Report**. Figure 35. Wind Power Capacity and Additions, Top 10 Countries, 2017, p. 110.

⁹⁶ OECD/IEA. **Wind energy**. Available at: < <https://www.iea.org/topics/renewables/wind/>>. Access in 9 May 2019, p. 4.

⁹⁷ OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment**. Paris: OECD Publishing, 2015, p. 30.

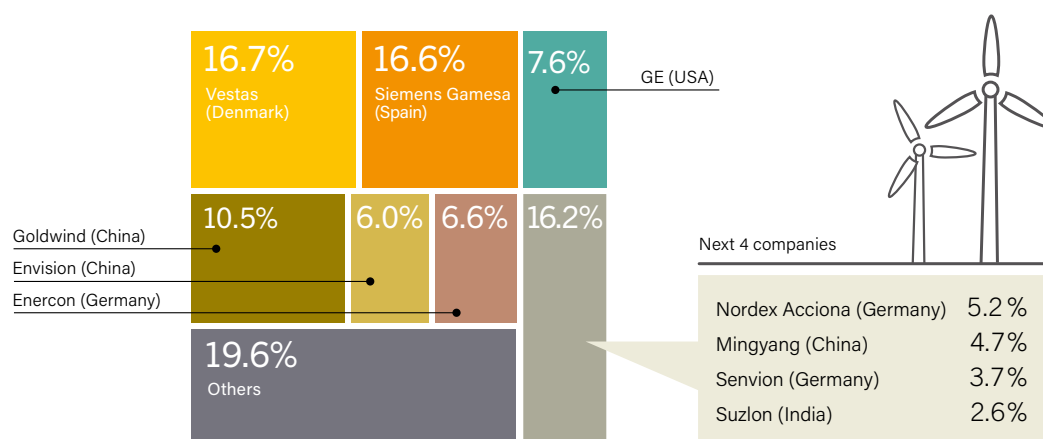
⁹⁸ OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment**. Paris: OECD Publishing, 2015, p. 34.

It is worth mentioning that, due to the circumstances regarding each market, the global interaction of the solar-PV sector was more influenced and driven by international trade of goods, while in the wind-energy sector this integration happened majorly through FDI. OECD. **Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment**. Paris: OECD Publishing, 2015, p. 40.

However, regarding the industry structure, European countries are still the major providers of wind turbines, as can be seen in the figure below.

FIGURE 12 –Market Shares of Top Wind Turbine Manufacturers, 2017

FIGURE 37. Market Shares of Top 10 Wind Turbine Manufacturers, 2017



SOURCE: REN 21, 2018. **Renewables 2018 – Global Status Report**. Figure 37. Market Shares of Top 10 Wind Turbine Manufacturers, 2017, p. 114.

Having presented an overview of renewables financing and technology, as well as, characteristics from its market, as a whole, and from the solar and wind sources, specifically, the Section now turns to the issue of renewables and climate change.

Climate change is a relevant global concern and it is quite consensual, even within the international trade scholarship, that it is a matter that deserves the attention and should be pursued by all countries.⁹⁹

As of 2010, countries have aimed to lower the world temperature by 2°C to get it back to pre-industrial levels through the reduction of greenhouse gas emissions.¹⁰⁰

⁹⁹ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 185; CONDON, Bradley J. Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World. **Journal of World Trade**, Kluwer Law International, vol. 51, n. 4, 2017, p. 675-690. CIMA, Elena. Promoting Renewable Energy Through FTAs? The Legal Implications of a New Generation of Trade Agreements. **Journal of World Trade**, Kluwer Law International, 2018, vol. 52, n. 4, p. 663-696. FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 707-740. FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1103-1116.

¹⁰⁰ Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC).

The international community has developed a specific regulatory framework to mitigate the effects from this issue, that is centered on the United Nations Framework on Climate Change (UNFCCC).¹⁰¹

The UNFCCC is built on a flexible structure and gives room for countries to choose the measures they are willing to take on to fulfill their commitments. It also relies on scientific basis.¹⁰² Arguably, the most important scientific authority on the subject is the Intergovernmental Panel on Climate Change (IPCC). Established, in 1988, by the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP), it provides “*regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation*”, besides policy guidance to governments.¹⁰³

Since 1990, the IPCC has produced Assessment Reports on Climate Change Mitigation. In the 2007 Report, it deemed the price incentives to renewable energy – that cause the replacement of conventional power – as “*one of the most effective incentives for fostering GHG reductions*” and, thus, for the achievement of climate goals.¹⁰⁴

There is where the link between climate change and renewable energy lies. In the words of Kati Kulovesi, “*The energy sector is crucial in this regard (2°C climate target) and renewable energy is projected to play an important role*”.¹⁰⁵ Referring to the subject, Vyoma Jha states: “*Renewable energy has emerged as one of the key areas for undertaking action to address climate change*”.¹⁰⁶

¹⁰¹ As it is further discussed in Section 5.1.

¹⁰² On this wise, “*The Paris Agreement identifies the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge. Furthermore, action under the agreement should be based on the best available science (Articles 4, 7 and 14). The need to enhance and strengthen research, climate services and knowledge sharing is specifically recognised in Article 7*”. UNITED NATIONS CONVENTION ON CLIMATE CHANGE – UNFCCC. **Research**. Available at < <https://unfccc.int/topics/science/workstreams/research>>. Access: 14 Jan 2020.

¹⁰³ Intergovernmental Panel on Climate Change – IPCC. **About**. Available at < <https://www.ipcc.ch/about/>>. Access on: 14 Jan 2020.

¹⁰⁴ Intergovernmental Panel on Climate Change – IPCC. **Climate Change 2007: Mitigation of Climate Change**, p. 762. IPCC has already produced Five Assessment Report, being the last one from 2014 and it is currently conducting the Sixth AR, which is due to be released in 2021. All of them are available at < <https://www.ipcc.ch/>>. IPCC has also released a study focused on renewable energy: IPCC (2011). **IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation**.

¹⁰⁵ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 85.

¹⁰⁶ JAH, Vyoma. Sunny Skies Ahead? Political Economy of Climate Trade and Solar Energy in India. **Trade, Law & Development**, vol. 9, n. 2, 2017, p. 257. Even when referring to Free Trade Agreements (FTAs), Elena Cima explains: “*Renewable energy policies represent one component of the broader category of measures aimed at protecting the environment and promoting sustainable development. It follows that provisions that pursue environmental or sustainable development objectives are related and often applicable to renewable energy as well, in particular when they focus on specific environmental*

However, it must be said that increasing clean energy consumption is not enough to achieve climate goals. In fact, transition to a greener global power matrix is the way to get there. On the subject, Steve Charnovitz and Carolyn Fischer argue:

Even though renewable energy deployment is only a partial solution, as it ignores opportunities to reduce the carbon content of non-renewable generation or increase conservation, political consensus forms much more readily around renewable energy incentives than comprehensive but controversial policies like carbon pricing.¹⁰⁷

Another reason is because of the intermittence of power generated from renewable sources and its use demands the combination with other kinds of electricity. This need is usually filled by burning fossil fuels. This is why for some countries that already present a clean energy matrix, such as the case of Brazil, the enhancement of new renewable energy capacity might not be an effective solution for the country to meet its commitments under the UNFCCC.¹⁰⁸

Be it as it may, a combination with other measures from the policy tool is needed so that the world successfully achieves climate targets. The reduction of consumption of fossil fuels is one example. Another is the enhancement of energy efficiency.¹⁰⁹

issues that are directly relevant to renewable energy, such as climate change mitigation.” CIMA, Elena. Promoting Renewable Energy Through FTAs? The Legal Implications of a New Generation of Trade Agreements. **Journal of World Trade**, Kluwer Law International, 2018, vol. 52, n. 4, p. 665

¹⁰⁷ The authors go further on their argument by stating that: “*For this reason, the environmental community and many governments are particularly wary of potential impediments that WTO interpretations might create for ‘green’ subsidies*”. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 186.

¹⁰⁸ Considering the natural characteristics of its energy matrix, the country already has a profile relatively decarbonized, in view of the large share of use of hydroelectric plants. Furthermore, a study carried out by Instituto Acende Brasil, demonstrated that the national electrical system - due to its largely hydro matrix - represents only 27% of the carbon emissions for which the country is responsible, with little viable prospect of decreasing this number. Thus, decarbonization of its headquarters will not have a direct effect on the fulfillment of the goals to which Brazil has committed upon signing the Agreement. Nevertheless, cleaning up the countries' energy mix does not bring advantages of energy security and of being a sustainable way to do so - at least compared to the use of fossil fuels. INSTITUTO ACENDE BRASIL. *O Setor Elétrico Brasileiro no Contexto das Mudanças Climáticas e do Acordo de Paris*. **White Paper n. 17**, 2017. On the other hand, about the advantages of renewable energy policies over fossil fuel support programs, Charnovitz and Fischer state that: “*Many renewable energy measures can be construed, from an economic perspective, as subsidies for investment in new renewable energy capacity, implemented through generation subsidies. This nuance is important, as once installed, renewable energy generally has negligible variable costs and will always be dispatched if available (assuming the grid can absorb the supply). Thus, generation subsidies do not tend to encourage more power generation from existing renewable capacity; this fact stands in contrast to fossil fuel subsidies, which can encourage greater generation and dispatch, as well as capacity investment in non-renewable sources*”. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 182.

¹⁰⁹ UNITED NATIONS FRAMEWORK CLIMATE CONVENTION – UNFCC. **Policy Options**. Available at < <https://unfccc.int/resource/climateaction2020/tep/policy-options/index.html>>. Access: 12 Feb. 2020. GOSH, Arunabha. Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions. **Global Policy**, vol. 2, special issue, 2011, p. 106.

So far, this Section 3.3 has aimed to have presented the state of the art of the renewable energy considering: its definition, financing, current available technologies, considering the sector as whole as well as solar and wind power specifically; and the potential and limitations of expanding RE capacity to mitigate climate change effects.

This overview was deemed to be important since the present research is developed under the multilateral trading system perspective and argues that the sector economic and political angles matter to the study of international trade law. And, arguably, to the way it is applicable in different activities of the sector, as follows.

It seems that WTO rules have a wide range of applicability in the renewable energy sector.¹¹⁰ In this sense, Vera Thorstensen *et. al* when referring to the multilateral regulation of energy have identified multiple rules that apply to the energy sector from different aspects. The authors refer to WTO rules such as the General Agreement on Tariffs and Trade (GATT), bringing elements such as the most favored nation rule (MFN), national treatment, state trading enterprises (STEs), general exceptions, market access, among others and the Agreement on Technical Barriers to Trade (TBT), when it considers non-tariff measures (NTMs), process and production methods (PPMs) and labelling. The work also mentions the Energy Charter Treaty (ECT), which is a multilateral treaty, albeit not signed by all WTO members, that has within its objectives energy security, the promotion of more open and competitive markets and sustainable development within a framework that respects national sovereignty over energy resources. The ECT regulates not only energy trade, but also energy investments, including dispute resolution by arbitration provisions.¹¹¹

When specifically referring to the issue of subsidies, the research mentions the themes of dual pricing, renewable energy and FIT programs. For the latter, the rules mentioned are the Subsidies and Countervailing Measures Agreement (SCM Agreement), the

¹¹⁰ MARCEAU, Gabrielle. The WTO in the emerging energy governance debate. **Proceedings of the Annual Meeting of the American Society of International Law**, v. 106, p. 386.

¹¹¹ The ECT focuses on four broad areas: “*the protection of foreign investments, based on the extension of national treatment, or most-favoured nation treatment (whichever is more favourable) and protection against key non-commercial risks; non-discriminatory conditions for trade in energy materials, products and energy-related equipment based on WTO rules, and provisions to ensure reliable cross-border energy transit flows through pipelines, grids and other means of transportation; the resolution of disputes between participating states, and - in the case of investments - between investors and host states; the promotion of energy efficiency, and attempts to minimise the environmental impact of energy production and use.*”. THE ENERGY CHARTER – ETC. **Energy Charter Treaty**. Available at: < <https://www.energycharter.org/process/energy-charter-treaty-1994/energy-charter-treaty/>>. Access 12 Feb 2020. For a comprehensive analysis, see: SELIVANOVA, Yulia. Changes in Renewables Support Policy and Investment Protection under the Energy Charter Treaty: Analysis of Jurisprudence and Outlook for the Current Arbitration Cases. **ICSID Review**, 2018, p. 1-23.

Agreement on Agriculture (AoA) and the ECT. In the Chapter that addresses renewable energy, environment and climate change it refers to barriers to the trade of environmental goods and services, carbon taxes, border tax adjustment (BTA), proposals from the Doha Round, the ECT, the UNFCCC and the Kyoto Protocol.¹¹²

Carolina Maria Lembo has mentioned the GATT when considering energy to be a good and the GATS when considering energy to be a service, as well as the TRIPS Agreement and Sustainable Development provisions in the WTO system. When Lembo specifically investigated subsidies granted to renewable energy, she mentioned the SCM Agreement.¹¹³

Given the complexity of the renewable energy sector, this thesis had to make choices and limit its scope. The remainder of the Sector, therefore, aims to explain why the thesis focuses, considering WTO Law, on non-discrimination rules, its general exception system and subsidy regulation and, considering RE support policies, from solar and wind power producing countries.

Paolo Davide Farah and Elena Cima propose “*three new, substantives sources of law governing subsidies*”, incorporated to the legal international trade framework by Article XVI of the Marrakesh Agreement Establishing the World Trade Organization and related to the subject matter. They are the SCM Agreement, the AoA and the non-binding case law from the DSB.¹¹⁴

In spite of Chapter 6 of the thesis further delving in the case law of the WTO, some notes over renewable energy disputes multilateral trading dispute resolution system must be here made, as they, arguably matter to the reasons that led to setting the limits to the scope of the research.

First, it should be mentioned that only subsidies for energy from renewable sources have been the target of questions within the WTO dispute settlement system.

¹¹² THORSTENSEN, Vera; et. al. *A regulação do comércio internacional de energia: combustíveis e energia elétrica*. São Paulo: FIESP, 2013.

¹¹³ LEMBO, Carolina Maria. *Energia e o Sistema Multilateral de Comércio: O Paradigma do Desenvolvimento Sustentável. Tese (Doutorado em Direito Internacional) Departamento de Direito Internacional e Comparado da Faculdade de Direito Universidade de São Paulo – USP e Departamento de Direito e Economia Internacionais da Faculdade de Direito da Universidade de Barcelona - UB*. São Paulo, 2014.

¹¹⁴ FARAH, Paolo D.; CIMA, Elena. The World Trade Organization, Renewable Energy Subsidies and the Case of Feed-in Tariffs: Time for Reform toward Sustainable Development? *The Georgetown International Environmental Law Review*, vol. 27, 2015, p. 521.

Given that the programs to encourage fossil fuels are older and have more relevant effects within the commercial flow of countries, this fact should be better considered.¹¹⁵

Second, it seems to be evident, and recognized by the trade scholarship, that the subject of renewable energy has been subject to challenges in the multilateral trade dispute settlement system when these incentive schemes have contained local content requirements.¹¹⁶ This has occurred in the *Canada - Renewable Energy* case, a dispute that has been seen as the paradigm to WTO- compatibility of RE support programs in which the panel and the Appellate Body have discussed non-discrimination rules from the GATT and the TRIMs and the subsidy definition in the terms of the SCM Agreement.¹¹⁷

As a parenthesis, LCRs might be a clear example of WTO non-observance and, perhaps, that is the reason why they have been adjudicated and so thoroughly discussed by the scholarship. Building from the questioning of the environmental effectiveness of local contents, Gracia Duran even questions the emphasis granted to this policy tool by the literature that studies the interaction between trade and climate regimes.¹¹⁸

Third, scholars have recognized a relation between the key players in the market, the US, China and EU Members, with disputes launched under the WTO.¹¹⁹ In this sense, Joanna Lewis identifies four different drivers that can be the cause for the use of trade disputes in the renewable energy sector, they are: “(1) *the increasing scale of the renewable energy industry*; (2) *the increasing role of emerging markets, especially*

¹¹⁵ ASME LASH, Henok Birhanu. Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies are Challenged. *Journal of International Economic Law*. Oxford Press, 2015, vol. 18, p. 261–285.

¹¹⁶ In this sense, Kuntze and Moerenhout have argued that: “LCRs are an example of a national policy tool that is increasingly being used to achieve green growth. By its very nature it has considerable repercussions on employment and international trade. It is also controversial due its protectionist nature, as can be seen in multiple cases that have been brought to the WTO recently. In these cases and within the wider debate, it was not the support mechanisms for renewable electricity generation that were challenged, but rather the LCRs that were attached to them.”. KUNTZE, Jan-Cristoph; MOERENHOUT, Tom. **Local Content Requirements and the Renewable Energy Industry – A Good Match?** International Center for Trade and Sustainable Development - ICTSD: Geneva, 2013, p. 4.

¹¹⁷ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy*: Implications for WTO Law on Green and Not-So Green Subsidies. *World Trade Review*, 2018, n. 17, vol. 2, p. 177.

¹¹⁸ Duran states “*In this sense, the Canada – Renewable Energy (2013) dispute may have placed too much emphasis on the wrong green electricity support measure (FITs with LCRs) and on the wrong WTO rules (SCM multilateral track). From the perspective of ensuring mutual supportiveness between the international trade and climate change regimes, the focus should be on whether FIT schemes without LCRs actually face genuine legal risks under current WTO subsidy disciplines.*”. DURAN, Gracia Marín. Sheltering Government Support to ‘Green’ Electricity: the European Union and the World Trade Organization. *International & Comparative Law Quarterly*, 2018, v. 67, n. 1, p. 158-163.

¹¹⁹ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. *Trade, Law & Development*, vol. 6, n. 1, 2014, p. 85-86 and 88.

China; (3) the increasing imbalances between renewable energy technology producers and users, and (4) the rise of locally owned technology manufacturers in key markets”.¹²⁰

Resuming the idea that facts matter to the study of RE support programs from a multilateral trade legal perspective, limiting the scope of the present research has taken into consideration the distinction between the electricity market and the market for renewable technology components or equipment.

If renewable technology products are traded intensively, electricity *per se* is not - an effect that might be the result of the physical limitations of the technology that electricity distribution grids use.¹²¹ In this sense, generators and manufacturers are not equally active in the global market. Nor are governments that sport different profiles towards the implementation of renewable energy policies, that is, countries that incentivize renewable energy for its own internal consumptions as opposed to the ones that incentivize it to promote exportation (of power, equipment or associated technology). Therefore, it could be argued that, like goods, the intention of States might have an effect on global markets.¹²²

Since this thesis aims to answer the question of how the WTO has responded to renewable energy support policies, thus, adopting the perspective from multilateral trade, it has chosen to focus on the wind and solar power from its equipment and technology producing countries, since, as shown in the overview of the present Section, seem to present the most significant growth in recent times; to be part of a globalized value chain; and the programs from these countries seem to the ones which are relevant enough to international trade flows to the point of being questioned in the DSB.

¹²⁰ LEWIS, Joanna. The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development. **Global Environmental Politics** vol. 14, n. 4, 2014, p. 21 - 27.

¹²¹ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 184 – 185.

¹²² In this sense, Joanna Lewis, by observing the reality of the renewable energy sector, has come to the realization that emerging markets have increased their shares in the market and, as a consequence, countries that presented high levels of deployment of wind and solar-PV power, a situation she has called “dethroning of leaders”. By developing her argument, Lewis concludes that: “*As a result, the upsurge in disputes is not due to the increasement of problematic policies, but rather to the growth in size of the renewable energy industry and the amount of money it involves, the increasing role of China and complications related to its non-market economy status and to the Chinese government’s direct involvement in these industries, and the imbalances between renewable energy technology producers and users described above*”. LEWIS, Joanna. **Emerging Conflicts in Renewable Energy Policy and International Trade Law**. Available at: < https://ases.conference-services.net/resources/252/2859/pdf/SOLAR2012_0724_full%20paper.pdf > . Access on 9 May 2019, p. 2.

In addition, building from works from the trade literature and WTO case law, it has chosen to focus on the review of three legal aspects of the multilateral system: non-discrimination provisions, exception rules and subsidies regulation.

Summarizing the findings of this Section, it is argued that while the enhancement of new renewable generation capacity alone is not enough to mitigate climate change, clean energies are, arguably, on the rise given the innovations and trends that might come to reality in the future – such are the promised results of smart grids and the institution of a global grid. The present work, however, limits its scope to the elements that, arguably, to date, more evidently impact WTO regulations and case law. It concludes that they relate to the commercialization of equipment and technology of renewable energy generation sources that depend on a highly advanced and globally interconnected manufacturing industry. As a result, the thesis proposes to focus on policies from producer countries of solar and wind power generation equipment and technology and their interaction with specific multilateral trade rules: non-discrimination, exception system and subsidy regulation.

4 INTERNATIONAL TRADE CONCERNS: RENEWABLE ENERGY DRIVERS, EQUIPMENT, TECHNOLOGY AND STATE INTERVENTION

The previous Chapter tried to limit the scope of the thesis mentioning which kind of renewable energy, market players and multilateral trade rules are studied in the work. This Chapter 4, in its turn, aims to focus on renewable energy support programs and to demonstrate where lie the issues that might matter from the international trade perspective and how has the trade scholarship reacted to them.

In this sense, it revisits and elaborates on the argument from Section 3.2 of the need of state intervention in the sector, from an economic and political perspective, as well as on the argument from Section 3.1 that there are competing interests in governments motives to implement those policies.

Building from this scenario, the present Chapter argues that, besides climate change mitigation, there are *further rationales*, that is, reasons or motivations that lead governments to support renewables (i.e. technological, industrial, commercial and geopolitical interests). Arguably, these rationales are constantly in tension in the local level and might give cause to trade concerns in an international level, hence, being constrained by WTO rules (Section 4.1). Thus, after presenting a definition and the measures used by governments to support clean energy, it tries to identify which of those incentive schemes seem to be most at risk under the normative multilateral trading system (Section 4.2). It then refers to works from the trade scholarship on the hopes to demonstrated that there are different views on the level of State intervention that should be allowed under WTO Law. Arguably some of the trade narratives are concerned with protectionism and warn against its disguise behind environmental discourses (*greenwashing*) while others see multilateral trade rules as a too strict barrier to legitimate (green) industrial policy and seek to *carve-out* policy space to protect their implementation (Section 4.3).

4.1 FURTHER RATIONALES TO RENEWABLE ENERGY POLICIES?

Having identified that renewables lay in a background full of tensions (Section 3.1) and that these energy sources rely on government support to grow (Section 3.3), the

following Section intends to investigate what could be the interests that might be affected from an international trade perspective when States implement support measures to renewable energy. It identifies the reasons or motivations, calling it *rationales*, that may drive State action in the sector and argues that the stressing points from the multilateral trade perspective are not limited to green legitimate objectives (i.e. climate change mitigation) but also include other interests (i.e. technology and market enhancement and industrial policy) that can be “*problematic*” under WTO rules.

Support policies to renewables have been implemented globally as a way to reduce carbon emissions in the use of energy. It is “*largely uncontested*” that renewable energy capacity addition is an important element in climate change mitigation.¹²³ This Section, however, focuses on the identification of *further rationales* that fundament the implementation of these RE programs and the tensions that might arise from it, especially, from the international trade perspective.

In reports performed by the IRENA, a specialized and relevant international organization in the field, the *rationales* linked to renewable energy polices relate to environment protection, climate change mitigation, technology and market enhancement, industrial policy and geopolitical positions.¹²⁴

In a research that consisted in a literary review of subsidies on electricity from renewable energy sources, Christopher Beaton and Tom Moernhout have identified three varieties of policy objectives behind the subsidization of renewable energy. They are: environmental goals, social and economic goals and security goals.

For the scholars, environmental goals would be the main argument to implement renewables, especially relating to climate change mitigation. However, social and economic goals, such as job creation and industry development, are increasing in importance and a more powerful political argument. According to them, the decentralization of electricity produced from clean sources could also have social

¹²³ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 621.

¹²⁴ Global Commission on the Geopolitics of Energy Transformation. **A New World: The Geopolitics of the Energy Transformation**. International Renewable Energy Agency – IRENA: Abu Dhabi, 2019. INTERNATIONAL RENEWABLE ENERGY AGENCY - IRENA. **REthinking Energy 2017: Accelerating the global energy transformation**. International Renewable Energy Agency: Abu Dhabi, 2017.

impacts, in the sense that it allows more energy access to people and the independence granted by alternative power sources impacts security-related goals.¹²⁵

In the sense, Beaton and Moernhout state that “*Historically energy security has played a bigger role in driving renewable subsidies than climate change or aspirations to stimulate green economic growth, particularly around the oil crises of the 1970’s*”.¹²⁶

Arunabha Gosh and Humani Gangani suggest four sets of policy tensions that are present in the renewable energy subsidies international debate. First, the *environment tension*, represented by the construction of renewable energy as a response to climate change. Second, the *economic tension*, represented by the needed choice of resource allocation, the needed investment in renewables and the mercantilist purpose subsidies could assume in a recession period. Third, the *technology tension*, represented by the urgency to cheapen or scale up clean energy, in addition to the consequences of countries having - or not having - developed its manufacturing capacity, as well as the results of internationally celebrated partnerships, including through joint ventures. Fourth, the *trade tension* represented by the effect of incentives programs favoring domestic industries over foreign enterprises, not to mention the initiatives that promote clean energy product exports and grant local firms a privileged position in the global market.¹²⁷

Considering this discussion of policy tensions, Gosh and Gangani identify four reasons why governments subsidize clean energy: the public good argument in face of market failures, the industrial policy argument, the job creation argument and the tit-for-tat argument.¹²⁸

¹²⁵ BEATON, Christofer; MOERNHOUT. A literature review on subsidies to electricity from renewable energy sources. NCCR TRADE. **Working Paper** n. 2011/63, 2011, p. 6 – 8.

¹²⁶ BEATON, Christofer; MOERNHOUT. A literature review on subsidies to electricity from renewable energy sources. NCCR TRADE. **Working Paper** n. 2011/63, 2011, p. 7. Given the rise of security related preoccupation in international politics and the approximation of economic and political intents by figures such as the President of the United States, Donald Trump, the interest of scholarship on the subject has also increased. On the effects of energy on security, see: SCHOLTEN, Daniel (ed.). **The geopolitics of renewables**. Cham: Springer International Publishing AG, 2018.

¹²⁷ GOSH, Arunabha; GANGANI, Humani. **Governing Clean Energy Subsidies: What, Why and How Legal?** International Centre for Trade and Sustainable Development – ITCSD. Global Platform on Climate Change, Trade and Sustainable Energy, 2012, p. 8 - 11. About the economic tension, Gosh and Gangani further argue that “*subsidies during a recession could assume a mercantilist purpose as well, especially if domestic industrial development, manufacturing capacity and employment generation come at the expense of other countries*”. ¹²⁷GOSH, Arunabha; GANGANI, Humani. **Governing Clean Energy Subsidies: What, Why and How Legal?** International Centre for Trade and Sustainable Development – ITCSD. Global Platform on Climate Change, Trade and Sustainable Energy, 2012, p.2.

¹²⁸ In the words of the authors: “*The tit-for-tat argument suggests that if one country supports its domestic industry and labour force, other governments, fearing unfair trade competition and loss of potential market opportunities, would seek to level the playing field.*” In: GOSH, Arunabha; GANGANI, Humani. **Governing Clean Energy Subsidies: What, Why and How Legal?** International Centre for Trade and

In an article that aims to deliver an overview of renewable energy policies and its impacts, Tarek Safwat Kabel and Mohga Bassim identified and organized studies regarding the aspects of economic growth, job creation, welfare, CO2 emissions, electricity prices, and fuel import – aspects that, ultimately, corroborate the above proposed rationales.¹²⁹

When looking at country specific clean electricity support initiatives there is evidence that might support the argument that there are reasons besides climate change, or even environmental and sustainable development, that might drive State intervention in the RE market.

For instance, arguably, the most significant example of renewable energy enhancement through the use of FITs is the German program *Energiewende* (that means energy transformation). By implementing a premium feed-in tariff scheme and investing in energy storage, smart grids and interconnectors with neighboring countries, the country enabled the use of RE and has become an example of the clean power transition.¹³⁰ To make an economic assessment of *Energiewende*, Anna Pegels and Wilfried Lutkenhorst base their study on five policy objectives: climate change goals, the creation of a leading position of the German industry in RE technologies, the boost to innovative capabilities and the creation of employment opportunities in future growth markets in the country.¹³¹

In addition, countries like Brazil, have been considering renewable energy as part of a domestic industrial green policy, and pursuing clean energy to enhance local economic value and create jobs. Other, such as China, use it to develop its manufacturing domestic sector as well as to ensure a leadership position the technological innovation field.¹³²

Sustainable Development – ITCSD. Global Platform on Climate Change, Trade and Sustainable Energy, 2012, p. 3; p. 11-20.

¹²⁹ KABEL, Tarek Safwat; BASSIM, Mohga. Literature Review of Renewable Energy Policies and Impacts. **European Journal of Marketing and Economics**. Vol. 2, issue 2, 2019, p. 28-41.

¹³⁰ SATTICH, Thomas. (2018). The international reverberations of Germany's *Energiewende*; Geoeconomics in the EU's geo-energy space. In: Scholten, Daniel (ed.). **The geopolitics of renewables**. Cham: Springer International Publishing AG, 2018, pp.163-185.

¹³¹ To Pegels and Lutkenhorst, based on mixed evidence, the country would have reached their aims “*at reasonable cost*”. However, the merits and the future of this kind of industrial policy program implementation is “*hotly debated*”. PEGELS, Anna; LUTKENHORTS, Wilfried. Is Germany's energy transition a case of successful green industrial policy? Contrasting wind and solar PV. **Energy Policy**, vol. 74, 2014, p. 522-534.

¹³² THE WORLD BANK. **Inclusive Green Growth: the Pathway to Sustainable Development**. Washington D.C.: International Bank for Reconstruction and Development / International Development Association or The World Bank, 2012, p. 65.

One cannot forget that green industrial policy, especially the ones that involve the development of clean energy technologies, has been considered – if not the most – a significant cause for tensions between trade and environmental goals.¹³³

All in all, this Section argues that there are *further rationales*, that is, reasons besides climate change (i.e. commercial, industrial, technological and geopolitical aspects), that seem to be, concurrently, drivers for the implementation of renewable energy support measures. According to the set of tensions identified by Gosh and Gangani, they become particularly relevant to international trade tension when they involve the favoring of local industries over foreign ones or put these domestic players in a favorable position in the global market. Considering this realization, the following Section tries to present renewable energy support policies, through the lens of the multilateral trading system.

4.2 WHAT MATTERS IN RENEWABLE ENERGY POLICIES IN THE INTERNATIONAL TRADE PERSPECTIVE

This thesis aims to investigate WTO's response to renewable energy support policies by solar and wind power equipment and technology producing countries, from a legal perspective. Nonetheless, it makes an effort to consider economic and political angles from the RE sector. The present Section 4.2 is part of this effort. In this sense, it aims to present an overview of support programs as well as how the international community sees renewable energy policies - including proposals to classify measures and policies used by governments to incentivize clean power. Here, it emphasizes the works from Luca Rubini and Ilaria Espa and Gracia Duran, since the scholars seem to consider of relevance the factual aspects from the subject matter, in the terms of Section 2.1 of the thesis. Beforehand, however, it brings forth the discussion of the definition of subsidy and explains why this thesis has chosen the use of the expression renewable energy support policies or programs, when the reader might be of the impression that the subject of the research are renewable energy subsidies.

¹³³ On that tone, Aaron Cosbey states that “*Green industrial policy is at the heart of many of the most vexing current trade and environment frictions.*” COSBEY, Aaron. Green Industrial Policy and the World Trading System. **Entwined**, Issue Brief 17, 2013, p. 3. In this sense, also see: SHADIKHODJAEV, Sherzod. Renewable Energy and Government Support: Time to ‘Green’ the SCM Agreement? **World Trade Review**, 2018, n. 14, vol. 3, p. 479-506.

It is important to mention that this task is a complex one, for the definition of subsidy, has not reached a consensus, neither within the scholarship nor within the international organizations relevant to the RE sector, including the WTO jurisprudence, as demonstrated in Chapter 6 of the thesis.¹³⁴ This lack of definition also poses the problem of making it difficult to precisely measure the quantity of subsidies in the global scenario.¹³⁵

The IEA defines energy subsidies as “*any government action that concerns primarily the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers*”.¹³⁶ The OECD’s definition is “*any measure that keeps prices for consumers below market levels, or keeps prices for producers above market levels or that reduces costs for both producers and consumers*”¹³⁷. The UNEP has pondered that the element that is essential to define what is a subsidy is the baseline of costs and prices and defines it as “*any attempt by a government to address market failures by reducing the price or cost of energy to internalize an external environmental or social benefit would constitute a subsidy*”.¹³⁸

As a representative of the international trade academic community, Steve Charnovitz, coined the expression *green subsidies*. The author defines it as “*the allocation of public resources for the purpose of improving sustainability over what would otherwise occur via the market*”.¹³⁹

¹³⁴ On this wise, Beaton and Moernhout argue: “*Although the general definition of a subsidy may sound simple – any form of preferential treatment granted to consumers or producers by a government – identifying and categorizing subsidies can be complicated. Not only governments tend to support economic actor in many ways, but there is also no clear ‘best way’ to identify and categorise these different support measures in a sensible order*”. BEATON, Christofer; MOERNHOUT. A literature review on subsidies to electricity from renewable energy sources. NCCR TRADE. **Working Paper** n. 2011/63, 2011, p. 5.

¹³⁵ HEYMI, Baha; EGELAND, Jagoda; STEENBLIK, Ronald. Domestic Incentive Measures for Renewable Energy with Possible Trade Implications, **OECD Trade and Environment Paper 2013/01**. OECD Publishing: Paris, 2013.

¹³⁶ INTERNATIONAL ENERGY AGENCY – IEA. **World Energy Outlook 1999: Looking at Energy Subsidies: Getting the Price Right**. Paris: OECD/IEA, 1999, p. 43.

¹³⁷ ORGANIZATION OF ECONOMIC COOPERATION AND DEVELOPMENT - OECD. Subsidy Reform and Sustainable Development: Economics, Environmental and Social Aspects. **OECD Sustainable Development Studies**. Paris: OECD Publishing, 2006, p. 25.

¹³⁸ UNITED NATIONS ENVIRONMENT PROGRAMME - UNEP. **Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda**. Geneva: UNEP, 2008, p. 12.

¹³⁹ CHARNOVITZ, Steven. Green Subsidies and the WTO. World Bank Group. Office of the Chief Economist. Climate Change Group. **Policy Research Working Paper** n. 760, 2014. This paper was commissioned by the Office of the Chief Economist, Climate Change Group, World Bank on behalf of the Green Growth Knowledge Platform (GGKP). The GGKP (www.greengrowthknowledge.org) is a global partnership of over 30 leading organizations, research institutes and think tanks that identify and address major knowledge gaps in green growth theory and practice. It was founded by the Global Green Growth Institute (GGGI), Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP) and World Bank.

The WTO SCM Agreement defines subsidies as a financial contribution granted by a government or any public body that gives a benefit to the recipient.¹⁴⁰

Looking at these definitions, it seems quite consensual that the direct transfer of money from the government to the private sector consists in a subsidy.¹⁴¹ The problem lies, however, in the fact that there are other ways of reallocation of resources. As observed, the definitions range “*from as narrow as a direct cash payment by a government to an energy producer or consumer to as broad as any government interventions that, directly or indirectly, affect prices or costs.*”, in the words of according Henok Brihanu Asmelash.¹⁴²

Graaf and Asselt identify this disagreement as a political matter rather than a technical one, to the extent that to define a subsidy is a “*an inherently value-laden exercise*”. As argued by the scholars, according to the *eye of the beholder* – and the value it stands for – support programs might have different implications to policy problems.¹⁴³

These different definitions led the OECD to illustrate energy subsidies in concentric circles of different layers (Figure 12).¹⁴⁴ Building from this image, Ivetta Gerasimchuk has visualized it as a matryoshka nesting doll: in the center are incentives that everyone considers to be a subsidy (i.e. direct budget and tax expenditure), but as the classification of government measure as a subsidy become more controversial (i.e. indirect market price support, foregone revenue from state-owned assets and

¹⁴⁰ As argued below, the thesis has elected to choose the definition from the OECD instead of the definition from the SCM Agreement, for neither the WTO treaty language nor the WTO case law has not yet been able to make it clear which kind of support measure should be considered a subsidy.

¹⁴¹ In this sense, the first Oxford Dictionary definition of subsidy reads: “*A sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low.*” Available at < <https://en.oxforddictionaries.com/definition/subsidy>>, access on: 10 May 2019.

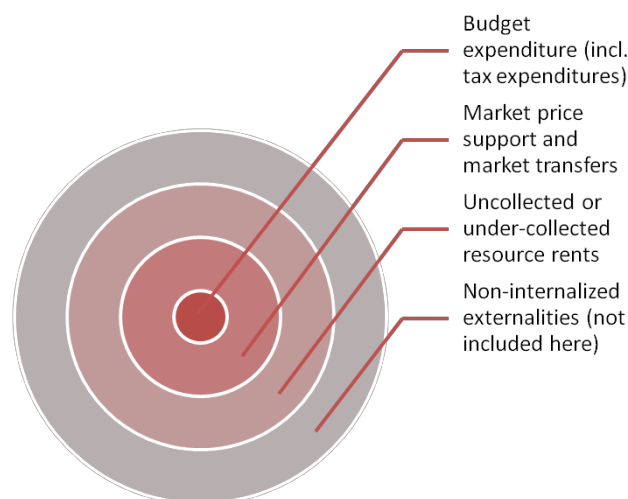
¹⁴² ASMELASH, Henok Brihanu. Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged. **Journal of International Economic Law**, Oxford Press, 2015, vol. 18, p. 265.

¹⁴³ In this sense, Graaf and Asselt explain: “*These diverging estimates obviously convey different messages about the magnitude and urgency of the policy issue at hand, and what kind of reforms (if any) are recommended. The disagreement over what should be counted and how is thus an inherently value-laden exercise (Van de Graaf and Zelli 2016). The IEA’s estimate of US\$493 billion covers consumer subsidies, which are especially rampant in non-OECD countries, but leaves out production subsidies, which might actually contribute to the energy security of the IEA’s member governments, still the agency’s primary objective. For the economists at the IMF, energy subsidies have typically been framed in terms of fiscal stability, which is related to the organization’s core tasks, but they also increasingly factor in various externalities such as climate change, air pollution, and traffic congestion. In WTO terms, subsidies are only relevant insofar as they are trade distorting, because that could make them legally actionable.*”. GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy subsidies at the intersection of climate, energy, and trade governance. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 3.

¹⁴⁴ ORGANIZATION OF ECONOMIC COOPERATION AND DEVELOPMENT - OECD – **Measuring Support to Energy** — Version 1.0. Available at: < <https://www.oecd.org/env/45339216.pdf>>. Access: 16 Mar 2020.

externalities), so expand the layers of the Russian folkloric bibelot.¹⁴⁵ That is why the OECD prefers to use the term support instead of subsidy, a term that has also been adopted by this thesis.¹⁴⁶

FIGURE 13 – Ever-widening definitions of “subsidy” or “support”



SOURCE: OECD. Figure 1. Ever-widening definitions of “subsidy” or “support”, p. 7.

Having demonstrated the plethora of programs that the term subsidy might entail and the range of national measures this thesis considers by using the term support policies, this Section 4.2 now turns to government practice and schemes regarding the incentives to renewable energy.

As mentioned here is a wide variety of mechanisms that can be implemented in order to incentivize the development of power electricity from renewable sources.¹⁴⁷ The

¹⁴⁵ GERASIMCHUK, Ivetta. **A Crash Course on Subsidy Definition by Dante, Shakespeare and Russian Folklore**. Available at: < <https://www.iisd.org/gsi/subsidy-watch-blog/crash-course-subsidy-definition-dante-shakespeare-and-russian-folklore> >. Access: 16 Mar 2020.

¹⁴⁶ It is thought that this definition is comprehensive enough to cover programs that the definition of the SCM Agreement was not able to clearly cover and that have spurred controversy in the WTO disputes. As is the example of the policy from Ontario, in the case *Canada-Renewable Energy*, in which neither the panel nor the Appellate Body were able to clearly identify whether a feed-in tariff program was a subsidy or not. This inclusive understanding has been target of criticism by the trade scholarship, as is further developed in the thesis, especially in Chapter 6.

¹⁴⁷ For instance, a 2012 report by UNEP has identified the following policies: feed-in tariffs, renewable portfolio standards, quota systems, tax credits, and competitive tenders. UNITED NATIONS ENVIRONMENT PROGRAMME - UNEP. **Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economics in Developing Countries**. Available at: < https://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/unep_us_ws2.pdf >. Access on 23 May 2019. IRENA has conducted a study in 2015, which is a result from a comprehensive study referring to “a synthesis of 20 IRENA Renewable Energy Policy Briefs, which describe in detail the policy support for renewables in each Latin American country (*) and provide detailed references and hyperlinks to the original official documents.

The information cited in this report has been obtained from over 325 primary sources including legislation from the respective countries and official government sources such as plans, reports and press releases.”

choice of what kind of measure to use is linked to local needs and specificities from each country, including the way their industries are placed on the international market.

Paolo Davide Farah and Elena Cima state that “*Governments employ a variety of measures to transfer an economic advantage to companies investing in renewables or to consumers who buy renewable energy, including grants, loans, tax incentives and price support. Price support include FITs.*”¹⁴⁸

FIT, the abbreviation for feed-in-tariff, is a support scheme in which a minimum price is guaranteed to be paid for the power producer by a governmental institution. In this way they ensure reliable and stable prices and demands for renewable energy, especially along with other support measure such as “*tax deductions, “soft” loans and investment incentives for selected technologies*”.¹⁴⁹

These schemes were quite common in the beginning of renewable energy deployment and were implemented through the following model: electricity companies would reward small independent electricity producers (using clean sources) through the payment of a feed-in premium, that is, an above the market fixed price.¹⁵⁰ FITs were effective and enabled the growth and development of the green generation of power, having as significant examples the case of Germany, Denmark and Spain, albeit employed by 71 countries and 28 states or provinces as of 2013.¹⁵¹

The report mentions the feed-in tariffs - FIT, feed-in premiums and quotas, and renewable portfolio standards as the most common form of government incentive to renewable energy. But also considers mechanisms that have been on the rise, due to the development of the sector and the maturation of clean energy technology: competitive auctions, power purchases agreements - PPAs for the deployment of renewable energy projects, favorable regulation for net metering and facilitated access to public funds. IRENA. **Renewable Energy in Latin America 2015: An Overview of Policies**. IRENA: Abu Dhabi, 2015, p. 7;.

¹⁴⁸ FARAH, Paolo D.; CIMA, Elena. The World Trade Organization, Renewable Energy Subsidies and the Case of Feed-in Tariffs: Time for Reform toward Sustainable Development? **The Georgetown International Environmental Law Review**, vol. 27, 2015, p. 518 Joanna Lewis mentions feed-in tariffs, capital subsidies, grants, favorable loan terms and rebates. LEWIS, Joanna. The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development. **Global Environmental Politics** vol. 14, n. 4, 2014, Table 1.

¹⁴⁹ Paolo Davide Farah and Elena Cima state: “*FITs*” FARAH, Paolo D.; CIMA, Elena. The World Trade Organization, Renewable Energy Subsidies and the Case of Feed-in Tariffs: Time for Reform toward Sustainable Development? **The Georgetown International Environmental Law Review**, vol. 27, 2015, p. 519.

¹⁵⁰ The definition of FIT presented by Irena is: “*Feed-in tariffs are regulatory instruments that provide guaranteed purchase at a (often above market price) tariff to eligible producers of electricity from renewable energy sources for a defined period of time (e.g. 20 years). Tariff design can account, among others, for technology, capacity installed, electricity prices and overall cost. As such, feed-in tariffs in some countries are designed with digression mechanisms to account for the reduction in generation costs*”. On this wise, feed-in premiums would compensate the power producer for having used a renewable source of energy by fixing the tariff at a value that is above the market.

¹⁵¹ RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY - REN 21. **Renewables 2013 – Global Status Report**. Available at <https://www.ren21.net/wp-content/uploads/2019/05/GSR2013_Full-Report_English.pdf>. Access: 23 May 2019. p. 68.

More recently, Ilaria Espa and Gracia Durán have identified the insertion of competition to the dispatch of power produced from renewable energy, as happens in the competitive bids occurring in countries like Brazil and South Africa.¹⁵² Other measures that were identified to be on the rise due to the development of the sector and the maturation of clean energy technology: competitive auctions, power purchases agreements (PPAs) for the deployment of renewable energy projects, favorable regulation for net metering and facilitated access to public funds.¹⁵³

An observation that should be made is that, despite the plethora of measures used to incentivize green power, some of them are more frequently approached by the trade community. The most significant example is feed-in tariff (FIT) schemes. They were subject of cases in the WTO multilateral dispute settlement system, including *Canada – Renewable Energy*, as is shown in Chapter 6 of the thesis.

In line with the *further rationales* that drive public support to renewables, and as mentioned before in Section 3.1, governments have, in many cases, added local content requirements (LCRs) to their FIT schemes. LCRs are a requirement for the use of a percentage of domestic inputs, equipment, personnel, service or investment that, even if not stated explicitly in government measures, aim to develop local industry or technology or generate employment.¹⁵⁴

¹⁵² ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 632. The Irena has stated that “*The number of countries that adopted renewable energy auctions increased from 9 in 2009 to at least 44 by early 2013, out of which 30 were developing countries.*”. INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **Renewable Energy Auctions in Developing Countries**. Available at < www.irena.org/Publications>. Access: 15 Mar 2020.

¹⁵³ INTERNATIONAL RENEWABLE ENERGY AGENCY - IRENA. **Renewable Energy in Latin America 2015: An Overview of Policies**. IRENA: Abu Dhabi, 2015, p. 12. The definitions for these mechanisms presented by Irena are: “*Auctions refer to competitive bidding procurement processes for electricity from renewable energy or where renewable energy technologies are eligible. The auctioned product can be either capacity (MW) or energy (MWh). Project developers who participate in the auction submit a bid with a price per unit of electricity at which they are able to realise the project. The government evaluates the others on the basis of the price and other criteria and signs a contract with the successful bidder, usually a long-term power purchase agreement (PPA).*” “*Net metering and Self-supply policies allow consumers to generate their own electricity from renewable energy sources and inject surplus generation into the grid, either to be balanced against future consumption or to be remunerated under contractual terms. Specific design elements include, among others, connection provisions, remuneration terms, banking, balancing periods, off-site generation, transmission costs and losses and fiscal regime.*” INTERNATIONAL RENEWABLE ENERGY AGENCY - IRENA. **Renewable Energy in Latin America 2015: An Overview of Policies**. IRENA: Abu Dhabi, 2015, p. 12 - 17.

¹⁵⁴ In the definition of Jan-Cristoph Kuntze and Tom Moerenhout, in a paper produced under the Sustainable Energy Trade Initiative (SETI), a project of ICTSD’s Global Platform on Climate Change: “*Local content requirements are policy measures that require foreign or domestic investors to source a certain percentage of intermediate goods from local manufacturers or producers. These local producers can be either domestic firms or localized foreign-owned enterprises. The policy measure is by definition a performance requirement that can be enacted at the state, sub-state or regional level. Often, the legislation foresees a*

They are a controversial measure, and much has already been argued over the outcomes of the use of local content requirements.¹⁵⁵ Nonetheless, China has favored their local wind manufacturers with their “Buy Chinese” policy, which has been challenged by the United States in the WTO – thus, having made use of them “*with perhaps the greatest intensity and success*”.¹⁵⁶ LCRs, however, are not a strategy exclusive to China.¹⁵⁷

Since these requirements discriminate between local and imported goods, the trade regime is concerned with its effects of distortion. From the legal perspective, they are one of the few circumstances of prohibited subsidies, as is shown in Chapter 5, and have been the subject of multilateral disputes in the trading system, as is shown in Chapter 6. Interestingly, they are not condemned by the climate change regime.

The multiple ways to incentivize renewables also pose a difficulty to classify different State policies and measures.¹⁵⁸ IRENA, in the previously mentioned Report, has

gradual increase of the percentage of inputs that needs to be sourced locally. The overall objective of content requirements is seldom spelled out explicitly, but may be either developing local competitive industries or increasing employment”. KUNTZE, Jan-Cristoph; MOERENHOUT, Tom. **Local Content Requirements and the Renewable Energy Industry – A Good Match?** International Center for Trade and Sustainable Development - ICTSD: Geneva, 2013, p. 5.

¹⁵⁵ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 177-209. HUFBAUER, Gary Clide; SCHOTT, Jeffrey J. **Local Content Requirements: A Global Problem**. Peterson Institute for International Economics: Washington, 2013. KUNTZE, Jan-Cristoph; MOERENHOUT, Tom. **Local Content Requirements and the Renewable Energy Industry – A Good Match?** International Center for Trade and Sustainable Development - ICTSD: Geneva, 2013. KROETZ, Maria Eugênia do Amaral. O Uso de Requisito de Conteúdo Local no Incentivo às Energias Renováveis: Legalidade do PROINFA à luz do Sistema OMC. In: Thorstensen, Vera Helena. Nogueira, Thiago Rodrigues São Marcos. **Anais da Conferência Anual de Comércio Internacional da Cátedra OMC no Brasil**. São Paulo: 2019. p. 29 – 60. HESTERMEYER, Holger P.; NIELSEN, Laura. The Legality of Local Content Measures under WTO Law. **Journal of World Trade**, vol. 48, n. 3, Kluwer Law International: The Netherlands, 2014, p. 553 - 592.

¹⁵⁶ Paolo Davide Farah and Elena Cima state: “*FITs*” FARAH, Paolo D.; CIMA, Elena. The World Trade Organization, Renewable Energy Subsidies and the Case of Feed-in Tariffs: Time for Reform toward Sustainable Development? **The Georgetown International Environmental Law Review**, vol. 27, 2015, p. 519.

¹⁵⁷ According to Sherry Stephenson, in a paper produced under the Sustainable Energy Trade Initiative (SETI), a project of ICTSD’s Global Platform on Climate Change, in the period between 2008 and 2013 20 local content measures have implemented. The data was gathered based on Appendix A of the Gary Hufbauer work mentioned above (footnote 31). STEPHENSON, Sherry. **Addressing Local Content Requirements in a Sustainable Energy Trade Agreement**. International Center for Trade and Sustainable Development - ICTSD: Geneva, 2013, p. 2. Moreover, Brazil is also known for having implemented LCRs as a way to develop its local wind power industry. For more see: ORGANIZATION OF ECONOMIC COOPERATION AND DEVELOPMENT – OECD. **Towards Green Growth in Emerging Market Economies: Evidences from Environmental Performance Reviews**. Available at: < <https://www.oecd-ilibrary.org/docserver/d5e5b5d7-en.pdf?expires=1579799790&id=id&accname=guest&checksum=15CC57060C348B6507B8943E0FAE2C97> >. Access: 23 Jan 2020.

¹⁵⁸ The International Renewable Energy Agency - IRENA has proposed in a 2017 report a classification of the policies and measures regarding RE, including six categories: “*national policy, regulatory instruments, fiscal incentives, grid access, access to finance and policies guided by benefits*”. The measures considered in the report were: “*renewable energy targets, renewable energy law/strategy, technology-specific law/programme (national policy); feed-in tariff, feed-in premium, auction, quota, certificate system, net*

tried to organize them in a table that provides six types of public policies that have been implemented by governments and the respective measures used to enact them, as follows.

FIGURE 14 - Organization of Renewable Energy Policies by Type and Measures

Table 2.1 Overview of the types of renewable energy policies and measures adopted

NATIONAL POLICY	REGULATORY INSTRUMENTS	FISCAL INCENTIVES	GRID ACCESS	ACCESS TO FINANCE ^a	SOCIO-ECONOMIC BENEFITS ^b
<ul style="list-style-type: none"> ◆ Renewable energy target ◆ Renewable energy law/strategy ◆ Technology-specific law/programme 	<ul style="list-style-type: none"> ◆ Feed-in tariff ◆ Feed-in premium ◆ Auction ◆ Quota ◆ Certificate system ◆ Net metering ◆ Mandate (e.g., blending mandate) ◆ Registry 	<ul style="list-style-type: none"> ◆ VAT/ fuel tax/ income tax exemption ◆ Import/export fiscal benefit ◆ National exemption of local taxes ◆ Carbon tax ◆ Accelerated depreciation ◆ Other fiscal benefits 	<ul style="list-style-type: none"> ◆ Transmission discount/exemption ◆ Priority/ dedicated transmission ◆ Grid access ◆ Preferential dispatch ◆ Other grid benefits 	<ul style="list-style-type: none"> ◆ Currency hedging ◆ Dedicated fund ◆ Eligible fund ◆ Guarantees ◆ Pre-investment support ◆ Direct funding 	<ul style="list-style-type: none"> ◆ Renewable energy in rural access/cook stove programmes ◆ Local content requirements ◆ Special environmental regulations ◆ Food and water nexus policy ◆ Social requirements

Note: a) Instruments that support access to finance are crucial for deployment, considering the high upfront cost of some renewable energy technologies, and they are discussed in Chapter 3.

b) Some policies and measures can ensure the socio-economic benefits of renewables and help fulfil development goals discussed in Chapter 6.

Source: IRENA, 2015b

SOURCE: IRENA. **REthinking Energy 2017: Accelerating the global energy transformation**. Table 2.1 Overview of the types of renewable energy policies and measures adopted, p. 30.

The diversity can lead to different effects inside the international trade legal system. Espa and Durán explain the phenomenon by stating that “*This is because under the general label of ‘renewable energy subsidies’ are a wide range of government support measures whose features and more proximate objectives vary quite considerably*”.¹⁵⁹

metering, mandate (e.g. blending mandate), registry (regulatory instruments); VAT/fuel tax/ income tax exemption, priority/ dedicated transmission, grid access, preferential dispatch, other grid benefits (grid access), currency hedging, dedicated fund, eligible fund, guarantees, pre-investment support, direct funding (access to finance); renewable energy in rural access/ cook stove programmes, local content requirements, special environmental regulator, food and water nexus policy, social requirements(socio-economic benefits).” IRENA. **REthinking Energy 2017: Accelerating the global energy transformation**. Table 2.1 Overview of the types of renewable energy policies and measures adopted, p. 30.

¹⁵⁹ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 624. In the already mentioned literature review from Kabel and Bassim,

the authors classify renewable energy policies in two categories: financial incentives and Renewable Portfolio Standards (RPS). Based on the study from UN Environment, Kabel and Bassim include tax incentives, loans, or feed-in tariff as financial incentives policies. KABEL, Tarek Safwat; BASSIM, Mohga. Literature Review of Renewable Energy Policies and Impacts. **European Journal of Marketing and Economics**. Vol. 2, issue 2, 2019, p. 28-41

As they are aware of this, experts from the field have made an effort to classify subsidies on RE from the international trade perspective.¹⁶⁰ For instance, Charnovitz proposes a tripartite matrix, establishing a three-color topography of Mint, Red and Grey that, respectively, indicates the legality, illegality and the ambiguous legal status of subsidies with regards to WTO rules. His objective is to “*map out how WTO rules affect the policy space available for green*” policies, an idea that is further developed in Chapter 8 of the thesis.¹⁶¹

The remainder of the Section presents the classifications from Luca Rubini and Ilaria Espa and Gracia Durán. As already mentioned, both researches consider political and economic aspects when analyzing the organization of subsidies on renewable energy in a way that makes sense when analyzing legal aspects of the multilateral trading system, and, arguably when assessing their interaction with, at least, climate change goals. To this end, the classifications are instrumental to the argument developed in the final Chapter of this work.

Based on the element that is being subsidized, Luca Rubini proposes five different “*scenarios*”:

1. *Subsidy on green technology*: refers to public support to manufacturing of clean energy technologies, such as solar panels and wind turbines and its inputs.
2. *Subsidy on green energy*: refers to public support to green energy itself, by incentivizing its production or implementing R&D programs or feed-in tariffs – FIT schemes.

¹⁶⁰ Based on the concerns of their conceivers, several frameworks have been proposed on the use of renewable energy in face of subsidies. The OECD’s framework for categorizing renewable energy transfers refers the idea of promoting consumption and production of clean energy. The Organization has created a sophisticated matrix that establishes a difference between the consumption of clean energy (called “*market pull*”) and the promotion of the production of clean energy (called “*technology push*”). HEYMI, Baha; EGELAND, Jagoda; STEENBLIK, Ronald. Domestic Incentive Measures for Renewable Energy with Possible Trade Implications, **OECD Trade and Environment Paper 2013/01**. OECD Publishing: Paris, 2013. The WTO Secretariat proposed classification of environmental subsidies, develops four types of subsidies: Type 1: subsidy to reduce environmental externalities (e.g. pollution); Type 2: subsidy to promote an external benefit from a firm (e.g. forestation); Type 3: subsidy to defray the cost of compliance with environmental regulation; Type 4: subsidy to enhance consumer information about environmental benefits of consuming certain goods. WORLD TRADE ORGANIZATION – WTO. **World Trade Report 2006** – Exploring the links between subsidies trade and the WTO. Available at < https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf>. Access: 13 May, 2019, p. 189-208.

¹⁶¹ CHARNOVITZ, Steven. Green Subsidies and the WTO. World Bank Group. Office of the Chief Economist. Climate Change Group. **Policy Research Working Paper** n. 760, 2014, p. 23 -33.

3. *Subsidy on green electricity*: refers to public support to the generation, transmission, distribution or storage of green electricity, such as the implementation of bid models or, here as well, feed-in tariffs – FIT schemes.
4. *Subsidy on support transmission, distribution*: refers to the public support to infrastructure needed to enable the use of green energy, be it for its grid storage, transportation or higher quality transmission.
5. *Subsidy on energy consumption*: refers to public support to the consumer of green energy and not its producer, such as tax incentives to persons who use electricity generated from renewable sources.¹⁶²

Ilaria Espa and Gracia Durán, in turn, propose three elements to distinguish renewable energy subsidies.:

1. *Type of measure*: subsidies may occur through (i) fiscal measures; (ii) investment support measures; and (iii) price support mechanisms.
2. *The product being subsidized*: the public incentive may refer to the renewable energy itself or the technological equipment and associated components used to produce that electricity.
3. *The most proximate objectives of renewable energy subsidies*: the intention from the government may be one of industrial policy to generate local employment and develop domestic industries or it may be to enhance the competitiveness of the RE sector, by stimulating it regardless of the origin of the industry.¹⁶³

Based on this classification, it can be argued that Rubini as well as Espa and Durán consider the specificities of the renewable energy sector in order to classify renewable energy subsidies - including technological and economic aspects, presented in Chapter 3 of the thesis, and political aspects, represented in the *rationales* discussed in the previous Section 4.1.¹⁶⁴

This work by Ilaria Espa and Gracia Marin Duran, is an attempt to fill in a gap in the trade literature left by works that assess hypothetical renewable energy support measures

¹⁶² RUBINI, Luca. ASCM disciplines and recent WTO case law developments: what space for ‘green’ subsidies? EUI **Working Paper** RSCAS 2015/03, p. 2 -4.

¹⁶³ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 624 - 628.

¹⁶⁴ There are a few main ideas, arguably found in these classifications, that are instrumental for the compatibility investigation conducted in the following Chapters of the thesis, and in the next Section, in spite of not having a legal nature, which is the focus of the work. In the economic perspective, the difference between incentivizing clean energy equipment or electricity itself or between incentivizing the power producer when it is a prosumer or a manufacturer. In the political perspective, the driver of the policy (i.e. environmental protection or job creation).

compatibility with trade regulation. In that article, the authors aim to make a risk assessment of renewable energy policies in light of WTO rules taking facts into account, by looking to the programs that were implemented and to the data available at the time of the writing – that showed an increase in clean power during the years – without building on criticism to the decisions from the Appellate Body.¹⁶⁵

Espa and Duran start from the idea that LCRs are the element challenged in WTO jurisprudence and that they are seemingly incompatible with trade rules. However, after making an assessment regarding the definition of subsidy and adverse effects under the SCM Agreement, the authors come to the conclusion that public incentives to manufacturers of RE generation equipment face a higher legal risk, since “*the benefit analysis is likely to be more straightforward and not involve convoluted questions as to what constitutes the relevant market and appropriate benchmark prices*” than what would happen with FIT programs that do not provide for LCRs.

Arguably, support policies to RE manufacturing technology would be under higher legal risk because they could be subject to unilateral measures such as countervailing duty and anti-dumping proceedings, as it is further argued in Chapter 6 of the thesis.¹⁶⁶

Moreover, Espa and Duran’s investigative exercise refers back to the classification of RE incentives that considers the functioning of the sector and the rationales that motivate its implementation, mentioned before.

¹⁶⁵ “To begin with, FIT programmes have continued to represent the lion share of RE subsidies: according to the latest Global Status Report of the Renewable Energy Network (REN 21), 110 FIT schemes were in place in 2015, at either state, province or country levels. Significantly, this represents an increase (by 11) since the adoption of the Canada – Renewable Energy/FIT Program (2013) report, when only 99 FIT schemes were in place. Accordingly, and contrary to some initial fears, the Appellate Body’s ruling has seemingly had no ‘chilling effect’ on the use of FIT programmes – apart from the withdraw of the Ontario’s programme which, as explained below, was not itself required as a matter of WTO-compliance”. ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 635. This is not a sporadic effort. In another paper, that focus on free trade agreements, Elena Cima states: “The multilateral trading system, embodied by the World Trade Organization (WTO), has experienced a certain difficulty in the integration of provisions dealing with renewable energy and, more broadly, environmental protection into its substantive rulemaking. The same difficulties do not seem to characterize bilateral and regional trade negotiations: while an ‘environmental’ clause, in one form or another, did not find its way into the General Agreement on Tariffs and Trade (GATT) in 1947 nor in the WTO in 1994, free trade agreements (FTAs) devote an ever growing space to environmental and renewable energy concerns within their texts. Yet, the scholarly debate is mostly focused on the relevance and applicability of WTO rules to the renewable energy sector, neglecting, with only a few exceptions, the role played by FTAs in integrating renewable energy provisions”. CIMA, Elena. Promoting Renewable Energy Through FTAs? The Legal Implications of a New Generation of Trade Agreements. **Journal of World Trade**, Kluwer Law International, 2018, vol. 52, n. 4, p. 664.

¹⁶⁶ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 643.

The authors argue that the first scenario, that refers to *subsidy technology*, is the one that reverberates the most on international trade. This is because the market of technological equipment and its components is a global one, in which these goods are easily commercialized. Further scenarios, on the other hand, are not that important to the international order. In this regard, cross border trade of energy is mostly irrelevant since the existence of a global grid is still doubtful and there are physical constraints for the transportation of energy over long distances.¹⁶⁷

This Section aims to argue that there are multiple ways for governments to support renewable energy (i.e. fiscal incentives, long term contracts and public auctions) and that the international community has made an effort to define and classify it. However, it argues that the main focus of the trade community seems to be on feed-in tariffs, for these schemes have been challenged at the WTO. The section also resumes and elaborates on the idea that, from the international trade perspective, there are programs that, arguably, are most under risk when it comes to WTO rules. Building from the work by Espa and Duran, it seems that they are the policies to RE technology and equipment – and not electricity *per se* – that include a local content requirement in their schemes, a realization that is further discussed in the thesis (Chapter 6 and Chapter 7). In light of this realization, the next section comments different views of the scholarship regarding the constraint of WTO rules and degree of State intervention that should be granted to governments when it comes to renewable energy programs.

4.3 HAS THE FEAR OF PROTECTIONISM GONE TOO FAR? GREENWASHING VS. CARVE-OUTS TO GREEN INDUSTRIAL POLICY

The past sections have tried to present the interests that underly renewable energy policies and how the multilateral trading system has perceived them. It has been argued that, depending on the objective or the element that is been prioritized by governments, these support programs can be deemed incompatible with WTO rules. The constraints established by the multilateral trading system have been, at the same time, praised and

¹⁶⁷ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 642. This conclusion is in accordance with Luca Rubini's argument that the second distinction of his subsidy classification, that refers to the *product being subsidized*, is “*arguably more important from an international trade law perspective*”. RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for 'Green' Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 313.

criticized by trade literature, according to different views on the level of State intervention that should be granted to countries within the Organization regulatory framework. Arguably one can identify, in works of the scholarship, a narrative that is concerned with the disguising of protectionist practices by climate change discourse, in a practice called *greenwashing* and, meanwhile, a narrative that see WTO rules as too constraining to the accomplishment of legitimate governmental goals and try to *carve out* policy space for them to be enacted. The present Section brings the state of the art of this discussion.

Past Section 4.1 argued that there are *further rationales*, that is, motivations besides climate change that drive governments to implement renewable energy policies. In this sense, rationales such as technological leadership, global market positions and industrial policy might cause trade tensions, as argued by Gosh and Gangani. Albeit agreeing that climate change is an issue that should be tackled by WTO Members and that to make the global energy matrix greener would be a relevant way to lower global carbon emissions, scholars, sound to the background of renewable energy, conflict on the limits to State intervention that should be imposed by the multilateral trading system rules in face of RE support programs.

The WTO is an organization guided by the principle of free fair trade and, in the words of Joost Pauwelyn, its “*core objective remains to open export markets and limit import restrictions or other domestic distortions such as subsidies*”.¹⁶⁸ Therefore, it does not seem to be surprising that, when it comes to renewable energy policies, trade literature present concerns over *greenwashing* practices, that is, the use of climate change discourse to disguise protectionism measures.¹⁶⁹

A prime example is the work of Daniel C. Crosby, who argues that, as a response to the global economic crisis,¹⁷⁰

¹⁶⁸ PAUWELYN, Joost. Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 2.

¹⁶⁹ COSBEY, Aaron. MAVROIDIS, Petros. A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 11-47. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 177-210. RUBINI, Luca. ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 895-938.

¹⁷⁰ Crosby reinforce this argument several times: “*During times of economic crisis, governments come under intense pressure to preserve state revenue and protect jobs in their national markets. Renewable energy industries have recently grown to commercial scale, and in addition to national interests in diversifying sources of energy from fossil fuels, governments see great potential for national economic*

Countries have taken steps to discriminate in favour of domestic industries through economic policies to restrict exports of raw materials, including primary energy products and essential inputs for the energy sector. In the renewable energy sector, governments attempt to justify such measures based on laudable environmental policy goals. When the policies fail to advance legitimate legislative goals and instead merely protect domestic industries, the measures are likely WTO-inconsistent, disguised restrictions on trade or are more trade restrictive than necessary to achieve the stated policy goals.¹⁷¹

On the one hand, Sadeq Bigdeli argues that this is a result from the neo-liberal stream of thought that has been strong in the WTO scenario and which has made scholars unable to differentiate between industrial policies and protectionism.¹⁷² On the other hand, it can be argued that it is a reaction to mainstream economic theories that caution against governments' financial grants and the use of industrial policy tools.

Economics analysis as such are often linked to the “*state skepticism of the rent seeking school within public choice theory*” and argue in favor of a “*win-win narrative of “free trade” and environment*”.¹⁷³ For instance, generally, subsidies are a sensitive matter in the mainstream economic literature. Because of its potential effect of distorting the market, this kind of State intervention has been considered by the field to be an optimal solution to correct market failures only in specific situations. Moreover, it is strongly recommended that subsidy programs are accompanied by sunset clauses.¹⁷⁴

development and job creation based on the development and implementation of new technologies.”; “The economic crisis continues apace in many countries and protectionism is on the rise, so it is only a matter of time until industries are injured and jobs are lost. Therefore, it appears that challenges are set to increase in the near term.”. In: CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 327; 335.

¹⁷¹ CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 330.

¹⁷² “Today, most of the dominant trade legal discourses do not draw a line between “protectionism” and “industrial policy”. Many, if not most, trade lawyers consider protectionism to include any domestic regulation intended to promote national industry at the expense of foreign competition, regardless of its potential merits.¹⁶ This should not be surprising given that the WTO was born in the mid-1980s during the post-Import Substitution Industrialization (‘ISI’) era. The neo-liberal spirit of that era was increasingly questioning the regulatory role of the state in managing the economy. (...) One can, however, clearly observe a regular resurfacing of a particular discourse of state-market relations (especially regarding the potential role of the state in economic development) largely dominating and forming the habitus of the trade legal community. Discursive elements such as 1) drawing sharp distinctions between state and the market, 2) a typical reliance on the notion of “distortion” and “competition” as neoclassical microeconomic analytic, and 3) a bias against the so-called “developmental state”¹⁹ (as a by-product of state scepticism of the rent seeking school within public choice theory)²⁰, all of which seem to have been “institutionalized” as the WTO system’s existing “rationality.” BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 181-182.

¹⁷³ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 182 and 201.

¹⁷⁴ For a comprehensive study: COPPENS, Dominic. **WTO Disciplines on Subsidies and Countervailing Measures**, Cambridge: Cambridge University Press, 2014, especially p. 5 -17. VAN DEN BOSSCHE,

Explicitly doing so and after citing a statement from Argentina's Foreign Minister Hector Timerman in favor of development and growth as a response to the economic crisis, Daniel Crosby says "*Such statements suggest that protectionist trade policies may protect jobs, but this contradicts the theory of the international economic system that short-term protectionism only weakens national economic performance.*".¹⁷⁵

At the same time, there are contributions that view industrial policy instruments in a lighter tone and defend the expansion of policy autonomy for States within the WTO framework.¹⁷⁶ In addition, there is no lack of examples from the scholar debate that seem not to have a positive reaction to the choice of non-trade values within the renewable energy sector.¹⁷⁷

Sadeq Bigdeli attributes this shift to the "*the failure of the so-called Washington Consensus and the success of pro-active state policies in the emerging East Asian economies*" and points to the emergence of theories akin to infant industry arguments and a closer relationship between the private and the public sector.¹⁷⁸

Peter; ZDOUC, Werner. **The Law and Policy of the World Trade Organization**, 4th Edition, Cambridge: Cambridge University Press, 2017, p. 771-844.

¹⁷⁵ In a comprehensive passage, Daniel Crosby: "*The renewable energy sector has logically become a focus area in recent years for governments to try to develop, often with measures not based on market principles or WTO rules. At the same time, the 'alternative' energy sector competes in many ways with traditional industries and related vested interests. To the extent that the development of alternative energy technologies and related products is often not driven by economic considerations, but rather by concerns over the environmental effect of using carbon based fuel and on dependence on traditional, imported fossil fuels, the sector may not fit well into WTO economic efficiency model where products should be made in the most efficient location notwithstanding externalities. These factors can combine with the economic crisis to form a cocktail of government policies that violate basic WTO rules*". CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 330.

¹⁷⁶ GALLAGHER, Kevin P., AYALA, Francisco Aguayo. **Preserving Policy Space for Sustainable Development: The Subsidies Agreement at the WTO**. Winnipeg, Canada: International Institute for Sustainable Development, 2005, p. x.

¹⁷⁷ CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 337-338.

¹⁷⁸ In a more comprehensive passage, Sadeq Bigdeli argues: *In development policy circles, especially in the last two decades or so, there has been a revival of some form of industrial policy as a legitimate discourse in economic development expertise. The revival has occurred in light of the failure of the so-called Washington Consensus and the success of pro-active state policies in the emerging East Asian economies. This new trend in the mainstream development policy does not usually go as far as the old generation of ISI policies. However, the underlying theory behind this trend is akin to "infant industry" arguments – arguments widely regarded as having been "discredited" by the 1980s.*

The emerging trend envisages a much closer public-private interaction than public choice theorists would normally endorse. The interaction is one in which states would in certain cases support "activities" (rather than actors), and would cautiously create "rents" in the domestic economy under certain institutional constraints seeking to address certain information and coordination externalities. In this vein, WTO scholarship is increasingly paying attention to and critiquing Rodrik's notion of the "policy space" to be carved out for developing countries.

Energy and Environmental circles of expertise are also developing fragments of knowledge that are not consistent with the neoclassical microeconomic analytics. Studies are emerging on the circumstances under

In this vein, one can say that works from the trade academic community assimilate ideas advocated by the Turkish economist and Ford Foundation Professor of International Political Economy at the John F. Kennedy School of Government at Harvard University, Dani Rodrik, relating to Green Industrial Policy.

Tilman Altenburg and Dani Rodrik define industrial policy as “government actions to alter the structure of an economy, encouraging resources to move into particular sectors that are perceived as desirable for future development”.¹⁷⁹ The authors note that, while traditionally the goals of those programs are related to productivity, they have been extended and, nowadays, go beyond the rational of capital and labor enabling economic growth. The current society admits that industrial policy is developed in a way that is in harmony with environmental challenges and is capable of achieving sustainability goals through the influence of structural changes.¹⁸⁰

Aaron Cosbey, based on the definition of industrial policy from Schwazer¹⁸¹, refers to green industrial policies as “policies that create a more conducive investment climate for innovative ventures across a range of sectors — such as science and innovation policies”.¹⁸² In his definition, the economist covers all public stimulus to the development of “green goods”. In the words of the author, that means, goods that:

Have better environmental performance in operation than their competitors (e.g., electric vehicles, renewable electricity- generating equipment, biofuels);
Directly address environmental problems (e.g., environmental remediation

which industrial or localization policies might prove an effective way to promote environmental goals. That is paradigmatically different from purely “market-oriented” approaches to environmental policy in which the role of the state is limited at best to internalizing polluting activity (through pollution tax or emissions trading), and at worst by nondiscriminatory subsidization of positive externalities such as the promotion of the consumption, rather than local production of clean energy. While such win-win approaches to the trade-environment relations hold a general bias against the use of subsidies for the production of clean energy, or any other localization policies (import-substituting subsidies, local content requirements, etc.), the emerging literature on energy/environmental policy has kept its toolbox open to empirical and institutional analysis with a view to what could work best under which circumstances. BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 182-183.

¹⁷⁹ ALTENBURG, Tilman; RODRIK, Dany. Green Green industrial policy: Accelerating structural change towards wealthy green economies. In: Altenburg, T., & Assmann, C. (Eds.). **Green Industrial Policy. Concept, Policies, Country Experiences**. Geneva, Bonn: UN Environment; German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), 2017. p. 2.

¹⁸⁰ ALTENBURG, Tilman; RODRIK, Dany. Green Green industrial policy: Accelerating structural change towards wealthy green economies. In: Altenburg, T., & Assmann, C. (Eds.). **Green Industrial Policy. Concept, Policies, Country Experiences**. Geneva, Bonn: UN Environment; German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), 2017. p. 2.

¹⁸¹ For Schwarzer, industrial policy is “a set of policies that selectively favours the development of certain industries over others”. Schwarzer, Johannes, 2013. Industrial Policy for a Green Economy. **IISD Report**, Trade Investment and Climate Change, 2013. Winnipeg: International Institute for Sustainable Development.

¹⁸² COSBEY, Aaron. Green Industrial Policy and the World Trading System. **Entwined**, Issue Brief 17, 2013, p. 3.

technologies); Are produced in a way that is environmentally preferable to their competitors (e.g., organic agriculture).¹⁸³

This theory is more open to the interaction between State and private sector. Rodrik supports the use of public resources in the achievement of sustainable growth, in view of the positive spillovers that are not captured initially by green technologies investors. Collective global social returns, underpricing of carbon and R&D externalities are other reasons mentioned by the author as reinforcement to the argument for governmental support.¹⁸⁴

Nonetheless, even as a conceiver of the green industrial policy, Rodrik concedes that “*The theoretical justification for industrial policies to promote green industries is strong*”¹⁸⁵ since it “*has a very chequered history*”,¹⁸⁶ in paradigmatic terms, being a difficult task to achieve its effective implementation. This led Altenburg and Rodrik to recommend the adoption, by policy makers, of three essential elements when implementing this kind of strategy. They include:

1. Embeddedness, in what concerns the building of a close relationship with the private sector,
2. Discipline, against capture by market and private related sector interests; and
3. Accountability, referring to policy makers and implementation agencies.¹⁸⁷

Regardless of the controversy on the benefits of green industrial economy, the fact is that governments have been supporting renewable energy through the implementation of policies that involve State intervention and that might entail trade impacts and, thus, be of relevance to the international trading system.¹⁸⁸

¹⁸³ COSBEY, Aaron. Green Industrial Policy and the World Trading System. **Entwined**, Issue Brief 17, 2013, p. 3.

¹⁸⁴ RODRIK, Dani. Green Industrial Policy. **Oxford Review of Economic Policy**, vol. 30, n. 3, 2014, p. 470–471. RODRIK, Dani. **Industrial Policy for the Twenty-First Century**. United Nations Industrial Development Organization - UNIDO, Viena, Áustria, 2004.

¹⁸⁵ RODRIK, Dani. Green Industrial Policy. **Oxford Review of Economic Policy**, vol. 30, n. 3, 2014, p. 483.

¹⁸⁶ RODRIK, Dani. Green Industrial Policy. **Oxford Review of Economic Policy**, vol. 30, n. 3, 2014, p. 472.

¹⁸⁷ ALTENBURG, Tilman; RODRIK, Dany. Green Green industrial policy: Accelerating structural change towards wealthy green economies. In: Altenburg, T., & Assmann, C. (Eds.). *Green Industrial Policy. Concept, Policies, Country Experiences*. Geneva, Bonn: UN Environment; German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), 2017. p. 2.

¹⁸⁸ “*While green economy remains a contested concept in its infancy, various governments around the world are implementing policies designed to support the development and deployment of clean technologies.*” KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 85.

Perhaps the most important example of this divergence in the scholar debate is the legal WTO compatibility versus the effectiveness of local content requirements imbedded not only in FITs, but in a variety of other renewable energy public support programs. While a part of the academic production is adamantly against this policy tool, others present their advantages and argue in favor of their usage.¹⁸⁹

As already mentioned, renewable energy support policies impact on the international and local level, since they influence on issues such as employment – which is relevant to internal politics – and might be considered protectionist – which is relevant to global trade flows.¹⁹⁰ In the case of LCRs, they are even prohibited under the GATT (art. III:4 of the GATT) and, expressly, under the SCM Agreement (art. 3 of the SCM Agreement).

Scholars, such as David and Cima deem it to be important to balance trade liberalization interests with the local needs of developing countries, arguing for a flexible interpretation of WTO rules that enable the carving-out of policy space for countries to implement their support measures.¹⁹¹ Meanwhile other scholars, such as Graaf and Asselt, do not question the freedom of countries, but rather the adverse effects of such measures and the economic consequences they entail to public budget.¹⁹²

¹⁸⁹ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 177-209. KROETZ, Maria Eugênia do Amaral. O Uso de Requisito de Conteúdo Local no Incentivo às Energias Renováveis: Legalidade do PROINFA à luz do Sistema OMC. In: Thorstensen, Vera Helena. Nogueira, Thiago Rodrigues São Marcos. **Anais da Conferência Anual de Comércio Internacional da Cátedra OMC no Brasil**. São Paulo: 2019. p. 29 – 60. HESTERMEYER, Holger P.; NIELSEN, Laura. The Legality of Local Content Measures under WTO Law. **Journal of World Trade**, vol. 48, n. 3, Kluwer Law International: The Netherlands, 2014, p. 553 - 592.

¹⁹⁰ KUNTZE, Jan-Cristoph; MOERENHOUT, Tom. **Local Content Requirements and the Renewable Energy Industry – A Good Match?** International Center for Trade and Sustainable Development - ICTSD: Geneva, 2013, p. 4.

¹⁹¹ About recurrent effort to find a balance between trade liberalization and legitimate non-trade values, see the following conclusion by Paolo Davide Farah and Elena Cima: “(...) *the need to condemn local content requirement should be balanced with the necessity, for developing countries and emerging economies, to develop or improve their own domestic renewable energy industry, and a subsidy programme completely void of a local content requirement would hardly help the country develop its own domestic production and market*”. FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1116.

¹⁹² In this sense, Graaf and Asselt state: “*E Energy subsidies may thus be adopted to meet a range of objectives, but it remains unclear to which extent they actually achieve those aims. Moreover, energy subsidies are notorious for leading to other (unintended) adverse effects. Economically, energy subsidies often pose a considerable burden on the public purse. In some Middle Eastern and North African countries, for instance, fuel subsidies take up to 35% of the government budget (Fattouh and El-Katiri 2015). Socially, fuel subsidies tend to be regressive, meaning that they mainly benefit the richer part of the population which consumes more energy anyway (Koplow 2014). Environmentally, energy subsidies can have adverse effects. By increasing consumption and undermining investments in efficiency and renewables, fossil fuel subsidies contribute to climate change. Renewable subsidies, by contrast, help to reduce emissions but may lead to other adverse environmental impacts (e.g., in the case of bioenergy or large hydro) (van Asselt and Skovgaard 2016).*”. GRAAF, Thijs Van de; ASSELT, Harro van. Introduction to the Special Issue: energy

In sum, the trade scholarship debate over WTO regulation to renewable energy support programs, arguably, replicates the background in which they are enacted (Figure 3): renewables' growth demand State intervention, which can be performed by a wide variety of policy and measures and that can be justified, or unauthorized, through different arguments.

This Chapter has aimed to identify where the international trade interest lies in the discussion of renewable energy policies, arguing that increasing its generation capacity, besides being a way to mitigate climate change, might also be related to commercial, industrial, technological and geopolitical interests. These economic and political aspects influence the way the trade law community sees – and classifies – the different measures for providing RE incentives, as well as discuss the level of State intervention that should be allowed by WTO regulation. Trade scholarship, arguably, replicates these tensions as it seems, on the one hand, to have developed a narrative that is concerned with protectionism, the risk of *greenwashing* and the effectiveness of these measures and, on the other hand, it seems to have developed a narrative more open to *carve-out* space to governments for them to promote green industrial policy, and, in that way, pursue objectives it deems legitimate, along with climate change mitigation. Hence, this conflict in academia, arguably, reflects the conflicting background of renewables and the dilemma governments face when implementing support policies, as expounded on in the beginning of the thesis.

subsidies at the intersection of climate, energy, and trade governance. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 4.

**PART 2 – BETWEEN WTO AND UN REGULATIONS, APPELLATE BODY
INTERPRETATIONS AND LAW REFORM**

5 A COHESIVE INTERNATIONAL REGULATORY FRAMEWORK?

In the previous Chapters (Part 1), it arguably becomes clear that the renewable energy sector is one full of contradictions. It grants private players opportunities and it needs public support. From a multilateral trade perspective, it provides alternatives for pursuing legitimate values, such as the mitigation of climate change, but, at the same time, opportunities to governments to disguise protectionist goals behind green discourses. Given this context of conflict, the present Chapter 5 aims to identify, from a strictly legal perspective, whether there is an incompatibility *per se* between the provisions from the multilateral trading system and the climate change regime. Thus, it focus on individual regulatory aspects of each field – trade (Section 5.1) and climate change (Section 5.2) - to only then make a brief assessment on the interaction between the two systems (Section 5.3).

Apart from its own findings, the next Sections are instrumental to answering the research questions proposed by the thesis. They make an effort to present the International Trade Framework through World Trade Organization rules and exceptions applicable to renewable energy support programs and, then, regulations referring to Climate Change Framework, which is led by the United Nations Convention. These treaties are essential to the study of WTO case law (Chapter 6) that is crucial to the final assessment of limitations and challenges regarding the Organization's response to renewable energy support policies (Chapter 7).

5.1 MULTILATERAL TRADE FRAMEWORK

To contribute to the aim of this Chapter 5, the present Section tries to examine the WTO multilateral trade rules that present the most relevant applicability in the subject discussed herein – renewable energy support policies.

Therefore, according to the reservations previously made when limiting the scope of the work (Chapter 3), the present Section 5.1 introduces basic rules and exceptions provided by the agreement that is basis to the WTO – the General Agreement on Tariffs and Trade (GATT) – and then the most specific Agreement that regulates the subject of subsidies within the Organization – the Agreement on Subsidies and Countervailing Measures (SCM Agreement).

Before doing so, it is important to elaborate on the argument that, despite being the backbone of our economy, historically, energy has not been extensively discussed within the multilateral system and its regulation is fragmented in the international level.¹⁹³

Indeed, there is no specific instrument regarding the trade of energy goods and services in the WTO system. Even if, as is demonstrated in Section 3.2, there are rules in the Organization that could serve as regulatory parameters for the sector – even if, arguably, not ideally so.¹⁹⁴

In this vein, according to Paolo Davide Farah and Elena Cima, “*The word ‘energy’ does not appear in any Agreement signed within the framework of the WTO*”.¹⁹⁵ Moreover, “*Although progress has been made and the WTO system appears more flexible towards the energy issue, many problems remain unsolved. A legal definition of ‘energy’ still lacks...*”.¹⁹⁶

This would represent a problem, for, as argued in another piece of their authorship, “*the non-inclusion of ‘energy’ or ‘renewable energy’ in any WTO agreement makes it hard for WTO rules to fully acknowledge and value the specific obstacles faced by renewable energy producers and consumers.*”¹⁹⁷

In the first researches that were concerned with subsidies on renewable energy, scholars have tried to frame incentive programs under existing WTO agreements. However, they have differed in their approach when making this compatibility assessment. Interestingly, this production has inspired the Brazilian academy to develop studies that cover the subject of renewable energy in the international trade scenario.¹⁹⁸

¹⁹³ LEAL-ARCAS, Rafael; FILIS, Andrew; ABU GOSH, Ehab S. **International Energy Governance: Selected Legal Issues**. Cheltenham: Edward Elgar, 2014. p. 18. VOLPON, Fernanda; RIBEIRO, Marilda Rosado de Sá. *Desafios da governança energética global e a participação do brics na construção de um novo paradigma energético*. *Revista de Direito Internacional*, v. 15, n. 1., 2018, p. 205.

¹⁹⁴ MARCEAU, Gabrielle. The WTO in the emerging energy governance debate. **Proceedings of the Annual Meeting of the American Society of International Law**, v. 106, p. 386.

¹⁹⁵ FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 709.

¹⁹⁶ FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 711.

¹⁹⁷ FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1116.

¹⁹⁸ BARRAL, Welber, AMARAL, Renata; SOARES, Thiago. International Trade in Energy: A Glance at Selected Issues, in COSTA, José Augusto Fontoura; RIBEIRO, Marilda Rosado de Sá; XAVIER JÚNIOR, Ely Cetano; GABRIEL, Vivian Daniele Rocha (ed). **Energy Law and Regulation in Brazil**. Springer: Switzerland, 2018, p. 261-273; CAIADO, José Guilherme Moreno. Bioenergy Development and Trade in WTO Context. In: SELIVANOVA, Yulia. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011, p. 242. BASSANI, Matheus Linck. A challenge in the World Trade Organization: the feasibility of an energy plurilateral agreement. **Brazilian Journal of International Law**, 2018, vol. 15, n. 1, p. 185. THORSTENSEN, Vera; et. al. *A regulação do comércio internacional de energia: combustíveis e energia elétrica*. São Paulo:

A usual approach was to regard the subject of energy in a broad context and theorize about how they could relate to WTO rules. Using this framework, many works have discussed the compatibility of energy issues – and here referring specially to RE subsidies – with the General Agreement on Trade Tariffs (GATT) and the Subsidies and Countervailing Measures Agreement (SCM Agreement).¹⁹⁹

To Jaemin Lee:

Among the WTO covered agreements, arguably the SCM Agreement is the one most concerned with the core element of green and renewable energy policies, since the SCM Agreement regulates whether a Member's government can or cannot provide financial assistance to industries and corporations operating within its territories, and since the core element of green policy is to provide such governmental support to those entities. Thus, to the extent that 'governmental support' remains the centerpiece of renewable energy programs, it is the SCM Agreement that addresses the core of the program. This explains why the SCM Agreement is critical in terms of introducing and maintaining renewable energy programs. Discussions and findings of the three conditions of a subsidy in Canada–Renewable Energy/ FIT dispute are set forth below, respectively. They would provide a glimpse of the outcome of the application of the subsidy norms to green programs such as various renewable energy-related projects.²⁰⁰

Some research works had a broader scope and mentioned other WTO Agreements, such as the Agreement on Technical Trade Barriers (TBT),²⁰¹ the Agreement on Agriculture²⁰², the Agreement Trade-Related Investment Measures (TRIMs), the

FIESP, 2013. LEMBO, Carolina Maria. *Energia e o Sistema Multilateral de Comércio: O Paradigma do Desenvolvimento Sustentável. Tese (Doutorado em Direito Internacional) Departamento de Direito Internacional e Comparado da Faculdade de Direito Universidade de São Paulo – USP e Departamento de Direito e Economia Internacionais da Faculdade de Direito da Universidade de Barcelona - UB*. São Paulo, 2014.

¹⁹⁹ FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 707-740. YANOVICH, Alan. WTO Rules and the Energy Sector. In: SELIVANOVA, Yulia. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011, p. 22 – 42. KARIM *et al.* *Energy Revolution for Our Common Future: An Evaluation of the Emerging International Renewable Energy Law*. **Energies**, 2018, v. 11. Disponível em: <doi:10.3390/en11071769> Acesso em: 19 dez. 2018. LEAL-ARCAS, Rafael. Trade Proposals for Climate Action. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 11-54. TAMIOTTI, Ludivine; KULAÇOGLU, Vesile. National Climate Change Mitigation Measures and Their Implications for the Multilateral Trading System: Key Findings of the WTO/ UNEP Report on Trade and Climate Change. CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 325-355.

²⁰⁰ LEE, Jaemin. SCM Agreement Revisited: Climate Change, Renewable Energy, and the SCM Agreement. **World Trade Review**, 2018, n. 15, vol. 4, p. 621.

²⁰¹ Especially referring to the discussion of Process and Production Methods (PPMs) and like products, see: CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 333-335. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 200-202.

²⁰² YANOVICH, Alan. WTO Rules and the Energy Sector. In: SELIVANOVA, Yulia. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011, p. 22 - 42. FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO:

Government Procurement Agreement (GPA) and the Agreement on Trade-Related Intellectual Property (TRIPS).²⁰³ Sometimes providing general regulatory frameworks that mention several of these instruments, as set out in Section 3.2 of the thesis.²⁰⁴

Another concern that can be seen in works from this approach is the nature of energy, and whether it should be deemed a good or a service and its consequential regulation by the GATT or the General Agreement on Trade in Services (GATS).²⁰⁵ Farah and Cima emphasize the importance of this distinction:

Doubts arise even in the way ‘energy’ should be classified, whether as a service (therefore under the scope of the GATS) or as a good (thus falling under the GATT), and such distinction is not to be underestimated because the treatment provided by the two Agreements is fairly different. Moreover, many forms of energy – because of their complexity – include aspects of both trade in goods and services.²⁰⁶

Given this context, the remainder of the section aims to present WTO basic rules and exceptions that are founded in the core principle of non-discrimination, referring to the General Agreement on Tariffs and Trade (GATT), and then it focuses specifically on

Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 707-740.

²⁰³ YANOVICH, Alan. WTO Rules and the Energy Sector. In: SELIVANOVA, Yulia. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011, p. 22 - 42. It is interesting to notice that this text is part of a book called Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter, written in 2011, and that the subject of subsidies to renewable energy – except from biofuels - is only mentioned in this chapter that presents a broad analysis of the energy sector by Alan Yanovich. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011.

Patrick Low, Gabrielle Marceau and Julia Reinaud when writing about the interface between trade and climate change regimes have directed the scope of their article to “border measures, technical regulations on trade, standards and labelling, and subsidies and countervailing duties”. Therefore, the article makes a compatibility assessment with the GATT, the TBT and the SCM Agreement. However, the author continues by saying that “Other areas of WTO rules important in the climate change and trade policy discussion are either treated more briefly or not addressed at all. These include preferential trade agreements and rules of origin, government procurement, customs valuation; anti-dumping, trade-related investment measures (TRIMs), trade in services (GATS) and trade-related intellectual property rights (TRIPS).” LOW, Patrick, MARCEAU, Gabrielle, REINAUD, Julia. The interface between the Trade and Climate Change Regimes: Scoping the Issues. **Journal of World Trade**, vol. 46, n. 3, 2012, p. 486-487.

²⁰⁴ When it aimed to limit the scope of the thesis but presenting to the reader multilateral trading rules that could regulate energy transactions, such as the ones mentioned above and others (i.e. the ECT), supported by the following works: THORSTENSEN, Vera; et. al. *A regulação do comércio internacional de energia: combustíveis e energia elétrica*. São Paulo: FIESP, 2013. LEMBO, Carolina Maria. *Energia e o Sistema Multilateral de Comércio: O Paradigma do Desenvolvimento Sustentável. Tese (Doutorado em Direito Internacional) Departamento de Direito Internacional e Comparado da Faculdade de Direito Universidade de São Paulo – USP e Departamento de Direito e Economia Internacionais da Faculdade de Direito da Universidade de Barcelona - UB*. São Paulo, 2014.

²⁰⁵ YANOVICH, Alan. WTO Rules and the Energy Sector. In: SELIVANOVA, Yulia. **Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter**. The Netherlands: Kluwer Law International, 2011, p. 22 - 42.

²⁰⁶ FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 711.

the regulation from the WTO regarding subsidies: the Agreement on Subsidies and Countervailing Measures (SCM Agreement),. This explanation is important since those Agreements were mentioned in the renewable energy disputes that have been ruled by the Dispute Settlement Body.

5.1.1 *WTO Rules and Exceptions*

The remainder of the present Chapter aims to present WTO basic rules and exceptions *per se*, without looking at provisions from the climate change regime specifically. Nonetheless, it aims, by the end of the Section, to show that, even within the legal multilateral system on its own, some concerns that could be considered as non-trade values (i.e. environmental protection and sustainable development), have entered the language of the treaties from the Organization. That seems to enhance the interaction between the two systems studied in this thesis, as is further argued in Section 5.3.

The preamble to the WTO Marrakesh Agreement indicates the intention of drafters - and, consequently, of Members that signed it – to “*develop an integrated, more viable and durable multilateral trading system.*”

This reflects in several aspects of the Organization, including – and, perhaps, most importantly – the enforcement of traditional WTO rules (i.e. no discrimination, no quantitative restrictions, no investment conditions that discriminate or restrict trade and no unfair trade).²⁰⁷

Therefore, instruments such as the General Agreement on Tariffs and Trade (GATT), establish provisions that are aimed at substantially reducing tariffs and other barriers to trade and eliminating discriminatory treatment in international markets, based on the core principle of non-discrimination. It discourages discriminatory treatment between the national and non-national as well as among foreign countries themselves.

These obligations are represented by the national treatment principle - which states that like products shall be given treatment “*no less favourable*”, regardless of their origin, whether domestic or imported. And the most-favored-nation principle (MFN),

²⁰⁷ Trade rules enlisted by Daniel C. Crosby and deemed by the author as the most important for the energy sector. In this token, “*The most important and most basic trade rules that apply to the energy sector have existed at least since the creation of the General Agreement on Tariffs and Trade (GATT) in 1947. The most fundamental rules have been restated and reinforced in the World Trade Organisation (WTO) agreements and in a multitude of free trade agreements (FTAs) that have proliferated throughout the world.*”. In: CROSBY, Daniel C. Energy discrimination and international rules in hard times: what’s new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 327.

which refers to equal treatment of all WTO Members, that is, the obligation that if facilitated conditions are given for a trading partner, the same advantages shall be given “*immediately and unconditionally*” to all other contracting parties.²⁰⁸

The national treatment obligation was originally provided for in Article III: 2²⁰⁹ and III:4²¹⁰ of the GATT regarding internal taxes and regulations respectively. MFN, in turn, in Article I:1 of the GATT.²¹¹ However, the same rationale has been transplanted to other WTO Agreements, as is the case of the TRIMs.

Pursuant to Article 2.1 of the TRIMs, no Member shall apply any trade-related investment measure, which is inconsistent with the provisions of Article III (national treatment) or Article XI (elimination of quantitative restrictions) of GATT 1994. Therefore, a trade-related investment measure that does not respect the principle of national treatment will not be considered compatible with the TRIMs Agreement.

This non-discriminatory basis, created by the GATT, encourages economic interdependency and international security through the establishment of a stable, rules-based global framework for trade.²¹² Meanwhile, GATT also establishes a system of

²⁰⁸ It must be said that non-discrimination obligations are only imposed on *like* products. The jurisprudence has developed a four-criteria approach to assess this condition. In the *EC-Asbestos* case, the Appellate Body has referred to the “*traditional approach for determining 'likeness'*”. The AB cited four general criteria: “(i) the properties, nature and quality of the products; (ii) the end-uses of the products; (iii) consumers' tastes and habits – more comprehensively termed consumers' perceptions and behaviour – in respect of the products; and (iv) the tariff classification of the products”. European Communities – Measures Affecting Asbestos and Asbestos-Containing Products (WT/DS/135/AB/R), par. 85. Discussions over the likeness of renewable and conventional energy products – a necessary finding to continue the analysis of discrimination under the GATT - and local content requirements can be easily found. FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 707-740. TAMIOTTI, Ludivine; KULAÇOGLU, Vesile. National Climate Change Mitigation Measures and Their Implications for the Multilateral Trading System: Key Findings of the WTO/ UNEP Report on Trade and Climate Change. CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 325-355

²⁰⁹ Article III:2 of the GATT reads: “*The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1.*”

²¹⁰ Article III:4 of the GATT reads: “*The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product.*”

²¹¹ Article I:1 of the GATT reads: “*any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.*”

²¹² THORSTENSEN, Vera. *OMC – Organização Mundial do Comércio*. São Paulo: Aduaneiras, 1999, p. 15.

exceptions that operate to provide for the suspension of the application of the obligations under the Agreement, when it understands that there are legitimate reasons to do so (Article XX of the GATT) or it relates to sensitive sovereignty concerns from Members, such as national security (Article XXI of the GATT) and government procurement (Article III:8 of the GATT).

This means that, in spite of the WTO considering trade liberalization as a main goal, the Organization is aware of legitimate non-trade values. Indeed, it has incorporated *sustainable development* as one of the its objectives in the preamble of the document that constitutes it: the Marrakesh Agreement.²¹³ In the past years, it has also adopted a more flexible stance toward non-trade values, especially when it comes to environmental causes.²¹⁴

In this sense, the Brazilian diplomat Fernando Antônio Wanderley Cavalcanti Jr. states:

(...) the existence of a dynamic balance between non-trade and trade goals in the WTO, managed through the conditionings inserted in the exceptions dispositions from the Covered Agreement, and sound to the accumulated jurisprudence by the panels and the AB during several disputes solved in the DSS from the Organization.²¹⁵

²¹³ The preamble of the Marrakesh Agreement says that WTO Members recognize that “*their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world’s resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development*”.

²¹⁴ Referring to the history of sustainable development in the WTO, Gabrielle Marceau and Julian Wyatt state: “*On the basis of the evolution of the international community’s attitude towards the importance of the environment reflected in the new reference to « sustainable development » in the WTO preamble, which the Appellate Body has said « gives colour, texture and shading to the rights and obligations of Members under the WTO Agreement », together with the creation of the new trade and environment committee,5 the Appellate Body felt that it was entitled, or even obliged, to read the provisions of GATT article XX in a more expansive manner to ensure that Members’ rights to take environmental measures are not « illusory ». This new WTO objective to respect sustainable development was interpreted as a consecration of WTO Members’ fundamental right to take measures to protect the environment and, as discussed further below, at a level they consider appropriate*”. MARCEAU, Gabrielle; WYATT, Julian. **Trade and the environment**: The WTO’s efforts to balance economic and sustainable development, 2009. Available at < <http://archive-ouverte.unige.ch/unige:34569> >. Access: 20 August 2019, p. 225.

²¹⁵ Free translation from “*a existência de um equilíbrio dinâmico entre objetivos não comerciais e comerciais na OMC, operado por meio das condicionantes inseridas nos dispositivos de exceção dos Acordos Abrangidos, e em consonância como a jurisprudência acumulada pelos painéis e pelo OA ao longo dos diversos contenciosos dirimidos no SSC da Organização*”. CAVALCANTI, Fernando Antônio Wanderley. o Artigo XX do GATT 1994 e a perseguição de objetivos não comerciais pelos membros da OMC: um equilíbrio dinâmico. BENJAMIN, Daniela Arruda. **O Sistema de Solução de Controvérsias da OMC**. Brasília: Fundação Alexandre Gusmão – FUNAG, p. 416.

In fact, since its conception the multilateral trade system had to manage other interests that conflict with their liberalization and deregulation objectives, such as State sovereignty, mercantilism and strategic trade.²¹⁶

It is important to note that these exceptions can only be imposed where the conditions and circumstances listed in the relevant provisions are satisfied.

For instance, Article XX of the GATT sets forth a system of general exceptions. It consists of a *chapeau* and ten paragraphs. The *chapeau* provides that “*nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures*”. The paragraphs then identify the types of legitimate goals and circumstances with respect to which or in which a Member may be exempted from observing non-discrimination obligations.

In this manner, it can be said that it sets forth the legitimate purposes for which Members are afforded policy space under the WTO system.²¹⁷ Such purposes include arguments that seemingly could be used in the case of renewable energy support programs with an environmental protection or climate change mitigation vocation such as: “*protection of human, animal or plant life or health*” (Article XX (b) of the GATT); “*necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement,*” (Article XX (d) of the GATT); “*relating to the conservation of exhaustible natural resources*” (Article XX (g) of the GATT), amongst others.

Under the language of its *chapeau*,²¹⁸ whenever invoking the positive defense of Article XX of the GATT, the party must also undertake another necessity test. This test considers the structure, content and design of the measure and whether there is a rational relationship between the local action taken and the protection of the legitimate goal at issue. It also speaks to the requisite link or connection between the defended “*action*” and the protected policy purpose, apart from prohibiting all measures that “*would constitute (...) a disguised restriction to trade*”.

²¹⁶ John Braithwaite enlist those principle, amongst others (i.e. transparency, harmonization, mutual recognition, most favored nation, national treatment and reciprocity) to be historically and currently contested principles in the WTO forum. BRAITHWAITE, John; DRAHOS, Peter. **Global Business Regulation**. Cambridge University Press: Cambridge, 2000, p. 206-214.

²¹⁷ THORSTENSEN, Vera. **OMC – Organização Mundial do Comércio**. São Paulo: Aduaneiras, 1999, p. 54.

²¹⁸ GATT, Article XX: “*Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade (...)*”.

In that sense, while the GATT provides for a balance of rights and obligations, that equilibrium requires that a Member relying on a specific defense goes beyond its mere invocation.²¹⁹

The language of Article XX of the GATT has been interpreted as establishing an exception and an affirmative defense. In this sense, the Appellate Body in the *US – Shrimp case* has stated that “*Article XX is entitled General Exceptions and ... the central phrase in the introductory clause reads: ‘nothing in this Agreement shall be construed to prevent the adoption or enforcement (...) of measures(...)’*” Citing the Panel Report in *US – Section 337 of the United States Tariff Act of 1930*, it went on to state that “*Article XX (d) thus provides a limited and conditional exception from obligations under other provisions*”.²²⁰

As an important consequence, the party innovating the defense bears the burden of proof to substantiate its elements. In other words, it falls upon the respondent to put forward sufficient evidence to show that the constituent elements of the defense are present and that they apply to justify its WTO-inconsistent action.²²¹ Thus, demonstrating that the measures implemented are justified under one of the circumstances described in its paragraphs.

The past Section tried to bring light to the fact that WTO grounding rules, represented in the GATT and repeated in other Agreements of the Organization, such as the TRIMS, are strongly built on the principle of non-discrimination, which is embedded in the value of trade liberalization. Meanwhile, these core principles seem to be balanced, even through endogenous elements, with other legitimate concerns, something that is exemplified by the exception system provided for in Article XX of the GATT. Bearing these findings in mind, the following Section explores WTO-specific subsidy regulation.

5.1.2 *The Subsidies and Countervailing Measures Agreement*

After the overview of the WTO core rules and exceptions, the present Section 5.1.2 presents the rules from the Organization that regulate subsidies in a more specific

²¹⁹ VAN DEN BOSSCHE, Peter; ZDOUC, Werner. **The Law and Policy of the World Trade Organization**, 4th Edition, Cambridge: Cambridge University Press, 2017, p. 554.

²²⁰ Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998, par. 157.

²²¹ RUBINI, Luca. ASCM disciplines and recent WTO case law developments: what space for ‘green’ subsidies? EUI Working Paper RSCAS 2015/03, p. 320.

manner. It tries not to neglect the main goal of the thesis, that is, to assess the interaction between the multilateral trade and the climate change international regimes, by laying out the provisions that possibly limit or encourage subsidization practices from WTO members. Even if they tend not to be encouraged by the trade community, as argued in Section 3.3 of the thesis.

This exercise is instrumental for the continuation of the research, as it covers concepts that are relevant in the WTO case law study that follows.²²²

Subsidies – and these include green subsidies of industrial nature on renewable energy – are generally subject to the Agreement on Subsidies and Countervailing Measures (SCM Agreement). This instrument, in its Article 1, introduced a definition of subsidy in the multilateral trading system, which encompasses two main elements. First, the existence of "*a financial contribution by the government (or any public entity) or any form of income support or price*" and second "*conferring a benefit to the recipient*".²²³

The SCM Agreement was not established to regulate all subsidies, but only those that cause trade distortion.²²⁴ As such, the Agreement has one more key element that is the one of specificity, as set forth in its Article 2.²²⁵ Under the scope of the SCM, all

²²² As already mentioned in Chapter 3, even the concept of subsidy could become an issue under the WTO system. As an important example, the trade scholarship is prolific on the debate about the status of FIT programs under the SCM Agreement, with a great concentration on whether the public policy could be considered a subsidy – or not – under its Article 1 definition, especially since the analysis of the matter at hand has been found to be inclusive by the Appellate Body, as is further discussed in Chapter 6. WILKE, Marie. Feed-in Tariffs for Renewable Energy and WTO Subsidy Rules: An Initial Legal Review. **Trade and Sustainable Energy Series** Issue Paper No. 4; International Centre for Trade and Sustainable Development – ITCSD: Geneva, 2011.

²²³ "Article 1 - Definition of a Subsidy

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

(a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as "government"), i.e. where:

(i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);

(ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);

(iii) a government provides goods or services other than general infrastructure, or purchases goods;

(iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments; or

(a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994; and

(b) a benefit is thereby conferred."

²²⁴ VAN DEN BOSSCHE, Peter; ZDOUC, Werner. **The Law and Policy of the World Trade Organization**, 4th Edition, Cambridge: Cambridge University Press, 2017, p. 170.

²²⁵ "Article 2 - Specificity

2.1 In order to determine whether a subsidy, as defined in paragraph 1 of Article 1, is specific to an enterprise or industry or group of enterprises or industries (referred to in this Agreement as "certain enterprises") within the jurisdiction of the granting authority, the following principles shall apply:

subsidies granted to a "*company or sector or groups of companies or groups of sectors*" are prohibited, even if they are located in specific geographic regions. On the other hand, non-specific subsidies are non-actionable within the multilateral trading system and, thus, can be unrestrictedly granted by WTO members.

The SCM Agreement implemented a system that became known as a traffic-light approach. It was developed considering the potential of government measures to distort trade.²²⁶

According to Article 3 of the SCM Agreement, export subsidies - that is, those linked *de jure* or *de facto* to the exporters' performance within the market in question - and subsidies that are reliant on the use of domestic content are prohibited. Therefore, they are framed in the *red-light* category.

The Agreement also provides for a residual category of *yellow-light* actionable subsidies. In the terms of its Article 5, whenever a specific subsidy – as understood by the Agreement – causes adverse effects on trade, the affected WTO member may impose countervailing measures against it or challenge the program in the multilateral system.

According to Article 5 of the SCM Agreement, the causes for adverse effects are:

- (a) injury to the domestic industry of another Member¹¹;
- (b) nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994 in particular the benefits of concessions bound under Article II of GATT 1994;
- (c) serious prejudice to the interests of another Member.

(a) Where the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises, such subsidy shall be specific.

(b) Where the granting authority, or the legislation pursuant to which the granting authority operates, establishes objective criteria or conditions governing the eligibility for, and the amount of, a subsidy, specificity shall not exist, provided that the eligibility is automatic and that such criteria and conditions are strictly adhered to. The criteria or conditions must be clearly spelled out in law, regulation, or other official document, so as to be capable of verification.

(c) If, notwithstanding any appearance of non-specificity resulting from the application of the principles laid down in subparagraphs (a) and (b), there are reasons to believe that the subsidy may in fact be specific, other factors may be considered. Such factors are: use of a subsidy programme by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large amounts of subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy. In applying this subparagraph, account shall be taken of the extent of diversification of economic activities within the jurisdiction of the granting authority, as well as of the length of time during which the subsidy programme has been in operation.

2.2 A subsidy which is limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority shall be specific. It is understood that the setting or change of generally applicable tax rates by all levels of government entitled to do so shall not be deemed to be a specific subsidy for the purposes of this Agreement.

2.3 Any subsidy falling under the provisions of Article 3 shall be deemed to be specific.

2.4 Any determination of specificity under the provisions of this Article shall be clearly substantiated on the basis of positive evidence."

²²⁶ STEGER, Debra P. The Subsidies and Countervailing Measures Agreement: Ahead of its Time or Time for Reform? *Journal of World Trade*, vol. 44, n. 4, 2010, p. 782.

They are to be proven by the claimant of the dispute, along with the existence of the subsidy, that is, whether the questioned measure meets the requirements established in the definition of the Article 1 of the Agreement.

Subsidization multilateral procedural rules are established in Article 4 of the SCM Agreement for prohibited subsidies and Article 7 of the SCM Agreement for actionable subsidies. The most significant difference between them and the procedure established in the DSU is that they set forth shorter time frames for dispute settlement proceedings.²²⁷

The panel or the Appellate Body can recommend that a measure they understand to be a prohibited subsidy is withdrawn. If the subsidizing WTO Member fails to comply with this recommendation, the DSB has the power to authorize “*appropriate countermeasures*”²²⁸, upon request by the complainants and reverse consensus.²²⁹

When the measure is considered to have caused adverse effects to the interests of a WTO member, thus having been found to fit within the actionable subsidy definition, then “*the Member granting or maintaining such subsidy shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy*” (Article 7.8 of the SCM Agreement).

Panels established to consider prohibited subsidies issues may refer to a Permanent Group of Experts, according to Article 4.5 of the SCM Agreement. However, this possibility is yet to be used in the WTO.²³⁰

Finally, the SCM Agreement used to provide for a category of *green light* non-actionable subsidies. This safe harbor for research and development activities, and environmental requirements established in Articles 8 and 9, expired in 1999 and is no longer provided within the normative framework of international trade.²³¹

²²⁷ VAN DEN BOSSCHE, Peter; ZDOUC, Werner. **The Law and Policy of the World Trade Organization**, 4th Edition, Cambridge: Cambridge University Press, 2017, p. 805.

²²⁸ Footnote 9 of the SCM Agreement defines appropriate in *appropriate countermeasures* as “*This expression is not meant to allow countermeasures that are disproportionate in light of the fact that the subsidies dealt with under these provisions are prohibited.*”

Van den Bossche and Prévost argue that “*Appropriate countermeasures differ from the ‘suspension of concessions or other obligations’ (i.e. retaliation measures) under the DSU (...) in that the level of appropriate countermeasures could be the amount of the subsidy rather than the level of nullification or impairment of benefits arising from the WTO-inconsistent measures*”. VAN DEN BOSSCHE, Peter; PRÉVOST, Denise. **Essentials of WTO Law**. Cambridge: Cambridge University Press, 2016, p. 166.

²²⁹ Article 4.10 of the SCM Agreement: In the event the recommendation of the DSB is not followed within the time-period specified by the panel, which shall commence from the date of adoption of the panel’s report or the Appellate Body’s report, the DSB shall grant authorization to the complaining Member to take appropriate countermeasures, unless the DSB decides by consensus to reject the request.

²³⁰ VAN DEN BOSSCHE, Peter; ZDOUC, Werner. **The Law and Policy of the World Trade Organization**, 4th Edition, Cambridge: Cambridge University Press, 2017, p. 808.

²³¹ The consequences of the expiration of green light subsidies is discussed in Chapter 7.

All in all, this Section aimed to demonstrate that, although subsidization is not among encouraged practices within an organization that favors trade liberalization, like the WTO, its regulation, represented by the SCM Agreement does not seem prevent the right of Members to subsidize, as long as their measures are not prohibited nor cause trade distortions. Furthermore, since the expiration of green light subsidies in 1999, the instrument does not provide for an exception system, nor does it mention non-trade values – something that is further discussed in the thesis along with its implications for the interaction with renewable energy policies, as well as for the multilateral trading system itself (Chapter 7).

This past Section 5.1 has aimed to present the ground rules and exceptions from the WTO, as well as the specific subsidy regulation, bearing in mind that the Organization does not provide an international trade instrument tailor-made for addressing energy issues, much less renewable energy measures originating from State interventions in the market. It aimed to present those basic concepts as they are the primary source to address the research question that is the backbone of the thesis, and thus, to the assessment of WTO response to renewable energy support programs. Additionally, those concepts are instrumental to the case law review that follows in Chapter 6 of the work. The research now turns its attention to the climate change regime.

5.2 CLIMATE CHANGE FRAMEWORK

The past Section makes an effort to present what is considered the most relevant multilateral trade regulation applicable to renewable energy support policies, considering the aims of the thesis. As argued, even if focusing on the trading system itself, the study ends up mentioning intersection areas, since the WTO regime is permeable to climate change areas of interest. The present Section 5.2 aims to and focus on the climate change international regulatory framework. It aims to do so by presenting a climate change framework text from the United Nations (the UNFCCC) and its most recent instrument (the Paris Agreement), according to the reasoning that follows, and keeping the RE sector at the forefront of its concerns.

Similarly to what is seen in the trade arena, renewable energy has yet to be regulated by specific provisions within the environmental or sustainable development international regulation.

However, the transition to a low carbon energy matrix has been deemed on more than one occasion to be a means to achieve climate change targets.²³²

Bradley Condon states that countries usually choose from three categories of policies to respond to climate change: “ (i) *the cap-and-trade approach*; (ii) *standards-based policies, which require the adoption of specific measures or set source-specific emissions limits and (iii) carbon taxes.*”²³³ Manuela Kirschner do Amaral argues that climate change goals can be achieved through regulatory, market and financial- economic measures and that, to be successful, countries should adopt a policy mix. When referring to specific measures, the author mentions regulations and standards linked to performance e technology basis, research and development incentives, mechanism to inform the public, tax and finance instruments, voluntary agreements, besides the cap-and-trade and carbon taxes.²³⁴

The Fifth Assessment Report from the Convention (AR5) - the most recent assessment report, performed in 2014, by the IPCC - follows the structure from the Convention. Consequently, it approaches policies regarding climate change in two prongs: to address mitigation and to support and promote adaptation. According to the study, efforts to reduce emissions, are the most employed by countries.²³⁵

Regarding mitigation policy instruments, the AR5 creates a classification of policy instruments to be framed in the following categories: Economic Instruments – Taxes (carbon taxes may be economy-wide); Economic Instruments – Tradable

²³² Even if in a not very determined manner. As argued by Michel Hertel: “*With respect to the international climate change regime, the use of unilateral trade measures to achieve climate change objectives has not been the subject of extensive discussions within the UNFCCC. Although the Convention anticipates that Parties may resort to unilateral trade measures to achieve its objectives, the circumstances under which they may do so are far from clear.*” HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 656.

²³³ CONDON, Bradley J. Climate Change and Unresolved Issues in WTO Law. **Journal of International Economic Law**, n.12, vol. 4, 2009 p. 895-926.

²³⁴ AMARAL, Manuela Kirschner do. ***Padrões Privados e outras Fontes Não Tradicionais de Governança no Âmbito dos Regimes de Mudança Climática e Multilateral de Comércio da OMC: Conflito ou Convergência?*** Tese de Doutorado em Relações Internacionais apresentada na Universidade de Brasília, Instituto de Relações Internacionais, Programa de Pós-Graduação em Relações Internacionais. Brasília, 2014, p. 131-133. The same logic applies to climate change. On this wise, Kati Kulovesi argues that “*Different countries have highly divergent emission profiles. (...) Considering potential for renewable energy and energy efficiency improvements also varies considerably, as does their economic development. Thus, there is no one-size-fits all-countries solution to climate change mitigation.*” KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 69.

²³⁵ “Also, “*adaptation has historically received less attention than mitigation in international climate policy (robust evidence, medium agreement).*” THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE – IPCC. **Climate Change 2014: Synthesis Report**. Geneva: World Meteorological Organization (WMO), 2015, p. 105.

Allowances (may be economy-wide); Economic Instruments – Subsidies; Regulatory Approaches; Information Programmes, Government Provision of Public Goods or Services and Voluntary Actions.²³⁶

Speaking from the energy sector perspective, the IEA has identified key measures to contribute to decarbonization. They relate to energy efficiency measures in the industry, building and transport sectors and power generation, here regarding the reduction on the use of coal, investment in renewable energy, enhancement of technology to reduce methane emission from oil and gas and phasing out fossil fuel subsidies.²³⁷

International Law documents also mention the power transition as a means to achieve climate targets. This happens for instance, in initiatives such as the recently launched Agreement on Climate Change, Trade and Sustainability (or ACCTS) initiative and the United Nations Framework Convention on Climate Change (UNFCCC).

Another example is the United Nations 2030 Agenda on Sustainable Development and Sustainable Development Goals (SDGs), an instrument signed by UN Member States, which aims to eradicate poverty, protect the planet and ensure the inclusive development of all.²³⁸ In this structure, climate change is addressed by a SDG of its own (Goal 13: Climate Action), while renewable energy is the focus of one of the 17 Goals proposed by the UN (Goal 7: Affordable and clean energy). However, the electricity transition and decentralized clean power production are considered within the “*Affordable, scalable solutions are now available to enable countries to leapfrog to cleaner, more resilient economies.*”, mentioned in the context of Goal 13, that refers to climate initiatives.²³⁹

²³⁶ Regarding the Energy sector AR5 mentions in each category a few policies. They are: “*Economic Instruments – Taxes (carbon taxes may be economy-wide): Carbon tax (e.g., applied to electricity or fuels); Economic Instruments – Tradable Allowances (may be economy-wide): Emission trading, Emission credits under the Clean Development Mechanism (CDM), Tradable Green Certificates; Economic Instruments – Subsidies: Fossil fuel subsidy removal, Feed in tariffs (FITs) for renewable energy; Regulatory Approaches: Efficiency or environmental performance standards, Renewable Portfolio Standards (RPS) for renewable energy (RE), Equitable access to electricity grid, Legal status of long-term CO2 storage; Government Provision of Public Goods or Services: Research and development, Infrastructure expansion (district heating/cooling or common carrier). Policies are not mentioned in the Information Programmes and Voluntary Actions categories.*”. THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE – IPCC. **Climate Change 2014: Synthesis Report**. Geneva: World Meteorological Organization (WMO), 2015, IPCC – Table 4.7, Sectoral Policy Instruments.

²³⁷ INTERNATIONAL ENERGY AGENCY – IEA. **Energy, Climate Change and Environment: 2016 Insights**. OECD/IEA: 2016, Paris, p. 21.

²³⁸ UNITED NATIONS – UN. **About the Sustainable Development Goals**. Available at < <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>>. Access: 10 Jan. 2018.

²³⁹ UNITED NATIONS – UN. **Goal 13: Take urgent action to combat climate change and its impacts**. Available at < <https://www.un.org/sustainabledevelopment/climate-change/>>. Access: 12 Feb. 2020.

The work focuses on the regulation from the UNFCCC, a framework that plays a leading role in influencing global action toward climate change.²⁴⁰ Besides, the study of this instrument has been considered relevant for the thesis since the UN Convention is somewhat binding from an internal State perspective and has already been invoked in WTO disputes, such as the *India – Solar Cells* case, which is subsequently addressed (herein and in Chapter 6).

By describing first the UNFCCC and then Paris Agreement, the present Section tries to show that, while the multilateral trading system regulates free fair trade mostly grounded on binding rules that prevent discrimination (Section 5.1), the climate change regime chooses a softer approach, based on the principle of Common but Differentiated Responsibilities (CBDR), expecting that countries endeavor in actions to prevent global temperature rising and be more resilient to face its effects.²⁴¹

5.2.1 *The United Nations Framework Convention on Climate Change*

Having aimed to present the reasons that arguably justify the study of the UNFCCC and the Paris Agreement in the thesis, the following Section aims to present the Convention and the logic it follows, which is based on a soft approach that respects countries' differences and willingness to address the environmental issue at hand, without being a barrier to economic development and, hence, to international trade. To this end, it considers, mostly, the language of the treaty and some elements of the transition from the Kyoto Protocol to the UNFCCC.

Climate change is recognized as a global challenge that needs collective action to be resolved. This need is based on scientific studies and activities. In this token, works from international organizations, such as the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the Intergovernmental

²⁴⁰ In this vein, countries' adoption of the UNFCCC Paris Agreement is mentioned as a means “*To strengthen the global response to the threat of climate change*” in the context of SDG 13. UNITED NATIONS – UN. **Goal 13:** Take urgent action to combat climate change and its impacts. Available at < <https://www.un.org/sustainabledevelopment/climate-change/>>. Access: 12 Feb. 2020.

²⁴¹ These parallels are more in depth drawn in the Section *Clashing Systems?* (Section 5.3, the last from the present Chapter), in which the thesis aims to verify whether the regimes discussed herein are (in)compatible *per se*. The challenges caused by the interaction of the multilateral trade and climate change systems vis a vis their simultaneous applicability in renewable energy support programs is addressed by the end of the research (Chapter 8).

Panel on Climate Change (IPCC), have urged the signing and guided the activities from the United Nations Framework Convention on Climate Change (UNFCCC).²⁴²

The international treaty, signed by 166 countries,²⁴³ has the objective of “*stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*”, as provided for in the Article 2 of the UNFCCC. In the 2010 UN Climate Change Conference in Cancun, Parties have agreed to a more concrete goal to lower the global temperature by 2° C, from to pre-industrial times and, more boldly, to 1.5° C.²⁴⁴

As mentioned before, the Convention plays a leading role in coordinating collective action to achieve climate change goals. Its main objective is to reduce greenhouse gases emissions in a way that does not hinder economic development, nor endangers food production.²⁴⁵

The UNFCCC is set on the strong belief that all governments are equally responsible for mitigating the damages caused by climate change and, thus, that its response should be the result of a joint effort. It makes the caveat, however, to take into consideration the specific needs and circumstances of developing countries, as well as of the signatories Parties for which it would be more burdensome to observe the

²⁴² Fact that is recognized in the preamble from the United Nations Framework Convention on Climate Change: “*Conscious of the valuable analytical work being conducted by many States on climate change and of the important contributions of the World Meteorological Organization, the United Nations Environment Programme and other organs, organizations and bodies of the United Nations system, as well as other international and intergovernmental bodies, to the exchange of results of scientific research and the coordination of research,*

Recognizing that steps required to understand and address climate change will be environmentally, socially and economically most effective if they are based on relevant scientific, technical and economic considerations and continually re-evaluated in the light of new findings in these areas (...),”.

²⁴³ UNITED NATIONS CLIMATE CHANGE. Status of Ratification of the Convention. Available at: <<https://unfccc.int/process-and-meetings/the-convention/status-of-ratification/status-of-ratification-of-the-convention>>. Access on: 18 Jan 2019.

²⁴⁴ UNITED NATIONS CONVENTION ON CLIMATE CHANGE UNFCCC. **FCC/CP/2010/7/Add.1.** Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010. Available at: <<https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>>. Access: 18 Jan 2019.

²⁴⁵ As stated in Article 2 from the UNFCCC: “*Article 2 – Objective - stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.*” The principle is also to be found in the Rio Declaration, which states, in its Principle 6 “*The special situation and needs of developing countries (...) shall be given priority*” and its Principle 7 “*States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem.*”.

Convention.²⁴⁶ Meanwhile, in its Article 3.1, it calls for developed countries to “*take lead in combating climate change and the adverse effects* (that arise from it)”.

This logic of consideration of the ability, historic characteristics and context and development level of countries has been known as the principle of Common but Differentiated Responsibilities (CBDR) and respective capacities, in accordance with what is provided in Article 3.1 of the Convention.²⁴⁷

Yet, in the words of Michael Hertel, “*precisely what CBDR entails in terms of the distribution of mitigation responsibilities, and the extent to which developing countries ought to ‘shoulder the burden’ of mitigation efforts, remains a highly contested issue in climate negotiations*”.²⁴⁸

Tuula Honkonen is of the opinion that the principle is more akin to function as soft law than as an obligation setter, in the sense that its terms are vague and not sufficiently determined. Indeed, the author argues that Article 3 of the UNFCCC “*is not expressed in legally obligatory terms and leaves (...) considerable room for interpretation and further elaboration*”.²⁴⁹

Further, the framework sets forth language that prioritizes collective actions by the Parties. Nonetheless, it provides for unilateral trade measures to be taken by governments in order to address climate change. Unlike the GATT, the main focus of the Convention is not directed at trade distortions. Nonetheless, that has not refrained it from setting forth the following provision in Article 3.5 of the UNFCCC: “*Measures taken to*

²⁴⁶ As stated in Article 3.2 from the UNFCCC: “*Article 3.2 The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention*”.

²⁴⁷ As stated in Article 3.1 from the UNFCCC: “*Article 3.1 The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.*” The idea is also present in the Preamble of the Convention (“*the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs.*”) and in Principle 7 of the Rio Declaration, that states: “*(...) In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.*”.

²⁴⁸ HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 657. KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 65.

²⁴⁹ HONKONEN, Tuula. The Principle of Common But Differentiated Responsibility in Post-2012 Climate Negotiations. **Review of European Community and International Environmental Law**, vol.18, issue 3, 2009, p. 259.

combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."

In spite of the similarity of Article 3.5 of the UNFCCC to Article XX of the GATT, it is interesting to note the argument put forward by Hertel that "(...) *the very substance of discrimination under the UNFCCC - by virtue of the principle of CBDR - is that parties that have different responsibilities and capabilities to address climate change should have different obligations*".²⁵⁰ Therefore, according to the author, measures that would treat developing and developed countries equally would be discriminatory within the meaning of Article 3(5) of the Convention.²⁵¹

Moreover, the UNFCCC has set forth an Annex 1. It lists the States which were considered developed countries at the time of its signing in 1992.

Throughout the years, the Convention has been modified to accommodate commitments and frameworks that Members could agree to deliver. This is illustrated in the transition from the Kyoto Protocol to the Paris Agreement.

The Kyoto Protocol, adopted in 1997, represented an endeavor to bind governments to lower their carbon emissions based on specific target commitments. Under the Treaty, Annex I countries were legally bound to carbon emission reduction targets. This top down approach, however, has not been successful in terms of adherence and some important Parties have not ratified it – such as the United States – or have withdrawn from it – such as Canada.²⁵²

Kati Kulovesi, inspired by the work of Daniel Bodansky, states:

This complexity has its roots in a long-standing philosophical divide between the EU and the US on the role of international law and the UNFCC in global climate policy, as well as in persistent differences between developed and developing countries. As Bodansky explains, the EU has, since the early days of the UNFCC, preferred a top-down regime with economy-wide, legally-

²⁵⁰ HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 667.

²⁵¹ In the words of the author: "*It follows that interpreting Article 3(5) in light of the principle of CBDR suggests that unilateral trade measure requiring developing countries to adopt GHG reduction policies comparable in effect to those adopted by developed countries would amount to discrimination within the meaning of Article 3(5) and would thus be prohibited.*" HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 667.

²⁵² SAAB, Anne. **The Super Wicked Problem of Climate Change Action**. Available at <<https://graduateinstitute.ch/communications/news/super-wicked-problem-climate-change-action>>. Access on: 3 December 2019.

biding targets, while the US advocates for a bottom-up approach with an emphasis on nationally-determined goals and softer international controls.²⁵³

Since 2009, in the UN Climate Change Conference in Copenhagen, the bottom-up approach has become dominant. It was based on mitigation pledges, that is, voluntary announcement from governments indicating which internal climate policies they are willing to implement. These announcements are issued to the UNFCCC Secretariat through different information documents specifically designed for Annex 1 and non-Annex 1 countries. This approach of the development dimension is, arguably, “groundbreaking”.²⁵⁴

This Section has aimed to describe provisions from the UNFCCC that were deemed relevant to the study of the thesis, including its Article 3.5, in which trade concerns are explicitly mentioned in a wording similar to the one found in Article XX of the GATT – even if their meaning might not be same as argued. It has also tried to emphasize the soft bottom-up approach adopted by the Convention since it, arguably, is an important element to answer the research questions of the work.

5.2.2 *Paris Agreement and Nationally Determined Contributions*

It is believed that the past Section has been able to set the background and the general framework of the UNFCCC. Thus, trying not to miss its focus on the subject of renewable energy support policies, the thesis now turns to the most recent instrument adjacent to it, the Paris Agreement. By the presentation of its provisions and structure - including one of its mechanisms, the Nationally Determined Contributions (NDCs) - the research aims to show that this Agreement sought to introduce some teeth to the UN climate change regulatory framework, without compromising its soft approach.

Resulting from the negotiations of 21st Conference of the Parties (COP), the Paris Agreement sets out the primary target to reduce the global temperature by 2 degrees

²⁵³ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 70.

²⁵⁴ Expression used by Kati Kulovesi in the following context: “*The system has been groundbreaking from the perspective that it engages a number of developing countries in climate change mitigation efforts under the UNFCCC*”. KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 71. Indeed, the system was adopted not only by developed economic powers, such as the US and Japan, but also emergent developing economies, such as, but not limited to, Russia, Brazil, China and South Africa.

Celsius above pre-industrial levels by 2025, as well as to enhance countries' capacity to respond to the impacts of climate change and to make finance flows consistent with low-carbon goals.²⁵⁵

The instrument does not contain any specific provision over renewable energy. However, in the Proposal of the President to the Adoption of the Paris Agreement, from November 2015, it expressly mentioned alternative power sources in its Preamble, as follows: "*Acknowledging the need to promote universal access to sustainable energy in developing countries, in particular in Africa, through the enhanced deployment of renewable energy*".²⁵⁶

The Paris Agreement recognizes the complexity of tackling the "*wicked problem*"²⁵⁷ of climate change, providing for more elements than carbon emission reduction targets (i.e. adaptation, financing, technology framework and capacity building).

Being aware of the need of widespread commitment among the world's biggest economies – whether they are developed or developing countries. Consequently, the Agreement prioritizes giving freedom for countries to outline the commitments they are willing to undertake through a country report called Nationally Determined Contributions (NDCs). Along these lines, it grants Parties more flexibility to choose the measures that reflect their national interests.²⁵⁸

²⁵⁵ According to Article 2.1 of the Paris Agreement and its subparagraphs: "*Article 2. 1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.*"

²⁵⁶ Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015), Available at <<https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>>. Access on: 29 November 2019.

²⁵⁷ Anne Saab qualifies climate change as a "*super wicked*" problem, by explaining that "*its causes are multiple and complex, its impacts are uncertain and interrelated, and potential solutions to climate change might well cause further problems*". SAAB, Anne. **The Super Wicked Problem of Climate Change Action**. Available at <<https://graduateinstitute.ch/communications/news/super-wicked-problem-climate-change-action>>. Access on: 3 December 2019.

²⁵⁸ In this regard, David Victor states: "*This pledge-and-review system (...) made it easier for national governments to tailor their commitments to what they know they can deliver at home*". In the same regard "*The pledging approach lets these countries offer packages of policies that align with their self-interests, while also doing something to slow the growth of global climate pollution.*". VICTOR, David. **Conference Why Paris Worked: A Different Approach to Climate Diplomacy**. Available at: <https://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy>. Access on: 3 December 2019.

The Paris Agreement refers to it and establishes that, and in accordance to decision 1/COP21, communications shall “*provide the information necessary for clarity, transparency and understanding*” and be issued by a Party every five years (Article 4.8 and Article 4.9 of the Paris Agreement).²⁵⁹

Article 4 of the Paris Agreement prescribes instructions to the completion and issuing of NDCs, establishing a ratchet mechanism - or ambition mechanism. They are to be successive and each shall “*represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.*” (Article 4.3 of the Paris Agreement).^{260 261}

In the interpretation of Benjamin Stephan, Stefan Schurig and Anna Leidreiter, this means that countries can present the national determined contributions in two ways: by communicating their intended GHG emission outcomes (indicating absolute numbers or percentages comparing different periods of time) or non-GHG emission outcomes (indicating measures they are willing to implement and that reflect on climate change mitigation, including energy efficiency targets or renewable energy increase).²⁶²

Consequently, NDCs would reflect some of UNFCCC founding principles. Being subject to the obligation of indicating emission and adaptation actions, the communication transpires Paris Agreement idea of addressing climate change through the two strategies of reducing the emission of GHG gases and building resilience against damages caused by the (un)natural phenomenon. Arguably, more importantly, it also

²⁵⁹ Parties agreed on the information that they would be required to inform in their NDCs in the 20th Conference of the Parties, that took place in Lima. The decision taken (document 1/CP20) reads: “[The Conference of Parties] Agrees that the information to be provided by Parties communicating their intended nationally determined contributions, in order to facilitate clarity, transparency and understanding, may include, as appropriate, inter alia, quantifiable information on the reference point (including, as appropriate, a base year), time frames and/or periods for implementation, scope and coverage, planning processes, assumptions and methodological approaches including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals, and how the Party considers that its intended nationally determined contribution is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2.”

²⁶⁰ Also, Article 4.19 of the Paris Agreement reads “All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”

²⁶¹ Further, Article 4 of the Paris Agreement provides different prescriptions for developed countries, developing countries and small islands, in light of the CDR principle (Articles 4.3, 4.4, 4.5, 4.6, 4.15 of the Paris Agreement); procedural rules as of the working of NDCs (Articles 4.10, 4.11, 4.12 of the Paris Agreement); and rules regarding regional economic integration action (Articles 4.16, 4.17, 4.18 of the Paris Agreement).

²⁶² STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 2.

refers to the ideas of fairness and ambition in the sense that it guarantees developing countries the right to establish targets and actions, according to their socio-economic conditions, at the same time giving all the Parties to the Convention the opportunity to increase their national contributions.²⁶³

However, the lack of straight direction given to countries on how to formulate their NDCs, make it, in the words of Stephan, Schurig and Leidreiter, to be “*up to the country as to how much detail it wants to provide on how this outcome is supposed to be achieved.*”²⁶⁴

Countries already knew that the Paris Agreement would demand more direction regarding its implementation and operation. Responding to this need, Parties have taken action. One of them was the set of decisions taken in the Conference that was held in December 2018 and has become known as the “*Katowice Climate Change Package*”.²⁶⁵

Apart from covering the subjects of adaptation, rules for functioning of the Transparency Framework, establishment of a committee to facilitate the implementation and promote compliance with the Paris Agreement, the Global Stocktake, assessment of progress on the development and transfer of technology and support developing countries (with finance and information), the package also addresses National Determined Contributions.

In this sense, decisions 4/CMA.1, 5/CMA.1 and 6/CMA.1 are directed to the second round of NDCs, that shall happen in 2025, but that can be voluntarily applied to the first round. They contain operational guidance on the contents and approach to the mitigation and activities, aiming to make comparability across communications possible. It also addresses mitigation co-benefits, capacity building to support to developing countries, common timeframes for NDCs, negative impacts of response measures on certain countries and sectors and modalities for the operation and use of a public NDC registry.²⁶⁶

²⁶³ VICTOR, David. **Conference Why Paris Worked: A Different Approach to Climate Diplomacy.** Available at: <https://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy>. Access on: 3 December 2019.

²⁶⁴ STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 5.

²⁶⁵ UNITED NATIONS FRAMEWORK CONVENTION - UNFCCC. **The Katowice climate package: Making the Paris Agreement work for all.** Available at: <<https://unfccc.int/process-and-meetings/the-paris-agreement/katowice-climate-package>>. Access: 19 Jan 2020.

²⁶⁶ UNITED NATIONS FRAMEWORK CONVENTION - UNFCCC. **FCCC/PA/CMA/2018/3/Add.1.** Available at: <https://unfccc.int/sites/default/files/resource/cma2018_3_add1_advance.pdf>. Access: 19 Jan 2020.

The flexibility of the Paris Agreement has been seen as a negotiation diplomatic success for it would be a practical solution for the climate change challenge, providing provisions soft enough to be accepted by countries, but with enough teeth to overcome the problems of the Copenhagen Convention. David Victor also praises the NDCs, for they have the merit of making “(...) *it easier for national governments to tailor their commitments to what they know they can deliver at home.*”²⁶⁷ Another advantage provided by these country-specific communications would be that Parties would have the chance to learn from other experiences and scale-up its initiatives by the time of presentation of the next document, in five years.²⁶⁸

When making the assessment of renewable energy intended targets in NDCs, Stephan, Schurig and Leidreiter highlight some characteristics in all 158 documents comprised in the study. According to their study “*142 INDCs mention renewable energy, 108 name the increase of renewable energy as one of them mitigation action, of which 75 include quantified goals*”.²⁶⁹

Stephan, Schurig and Leidreiter also argue that countries provide different information on RE targets that go from quantified targets to the mere mention of an implementation of policies that would enhance its participation in the countries’ respective electricity matrix. Another point raised by the authors is that UNFCCC parties do not always approach the clean energy subject in the same manner. In this regard, some address renewable energy in general while others focus on sources separately –

²⁶⁷ VICTOR, David. **Conference Why Paris Worked:** A Different Approach to Climate Diplomacy. Available at:

<https://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy>.

Access on: 3 December 2019. Victor also argues: “*Now, instead of setting commitments through centralized bargaining, the Paris approach sets countries free to make their own commitments. These “nationally determined contributions” are a starting point for deeper cooperation that will unfold over time. Once the Paris agreement enters into force and is fully in motion, around the year 2020, each nation will be expected to adopt a new pledge every five years in tandem with periodic overall efforts to take stock of how the group of nations is doing.*

This pledge-and-review system helped transform climate diplomacy from the gridlock and impotence of the past, and it did so because it created flexibility.”.

²⁶⁸ STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 5. Despite this wide range of choice for countries to integrate in the UNFCCC system and efforts, in November 2019, the Trump Administration has started the formal process of withdraw of the United States of the Paris Agreement. THE GUARDIAN. **Trump begins year-long process to formally exit Paris climate agreement.** Available at: <<https://www.theguardian.com/us-news/2019/nov/04/donald-trump-climate-crisis-exit-paris-agreement>>. Access on: 3 Dec 2019.

²⁶⁹ STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 3.

sometimes referring to only one of them (i.e. wind power, solar power). Moreover, the amount of information made available by countries is quite divergent.²⁷⁰

IRENA has made a comparison between the NDCs and stated that 135 countries have set unconditional renewable power pledges at national level, which means that not all of them listed them in their communications. According to the International Agency, even if the RE targets are listed in both internal regulation and NDCs, the targets submitted in the later tend to be less ambitious. Consequently, the communications under the UNFCCC are not able to reflect the actual growth of renewable power (8.6% per year since 2015).²⁷¹

The UNFCCC Secretariat Synthesis report on the aggregate effect of the intended nationally determined contributions comes to similar conclusions. Based on 119 NDCs, submitted as of October the First 2015, it states that “*most of the INDCs are national in scope; they address all major national GHG emissions or at least the most significant sources*”. Regarding renewable energy, it identifies that some Parties have proposed RE targets, but that they have used different indicator to do so (i.e. share in the energy matrix, installed capacity).²⁷²

In so far, there are doubts regarding the capacity of NDCs for being the stimulus and creating momentum for the implementation of measures capable to mitigate climate

²⁷⁰ Stephan, Schurig and Leidreiter also mention that: “*With regard to quantified targets INDCs differ in what type of information they provide. They either provide the share of renewables in the energy mix (22), the share of renewables in the electricity mix (25), the share of renewables in electric generation capacity (10), renewable energy penetration (3), the share of renewables during peak electricity demand (1), annual electricity supply in GW/h (1), additionally installed electric generation capacity in GW (6) or total installed electric generation capacity in GW (7) y. (...) In addition there is a large difference in the detail of information that is provided: While some countries only provide information on the share of renewables or total installed renewable capacity other countries break this down into different energy types (wind, solar, hydro, biomass) and some even provide lists of envisioned projects (number and locations of new windparks, etc..)*”. STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 3.

²⁷¹ INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **NDCs in 2020: Advancing renewables in the power sector and beyond**, IRENA: Abu Dhabi, 2019, p. 6-7. Another interesting information is that: “*To date, only 94 countries include renewable power targets in both NDCs and national plans, whereas 41 only set targets in national energy strategies, and 38 countries only include them in NDCs (see Figure 7). Interestingly, most countries in the latter group (i.e., with targets only in NDCs) are in Sub-Saharan Africa, and Latin America and the Caribbean. This is because developing country Parties in these regions often include conditional renewable electricity targets, which are more ambitious pledges that countries intend to implement provided that international support is made available, and that do not imply any use of domestic resources*”. INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **NDCs in 2020: Advancing renewables in the power sector and beyond**, IRENA: Abu Dhabi, 2019, p. 18.

²⁷² UNITED NATIONS FRAMEWORK CONVENTION - UNFCCC. FCCC/CP/2015/7 - Synthesis Report on the Aggregate Effect of the Intended Nationally Determined Contributions. Available at: <<https://undocs.org/FCCC/CP/2015/7>>. Access: 19 Jan 2020, p. 4; 27.

change harmful effects and to achieve the long-term target of the Paris Agreement.²⁷³ Kati Kulovesi states that *“In order for the most cost-effective ways of achieving the 2° C target to succeed, climate policy efforts would need to be considerably stepped up by 2020”*.²⁷⁴ The most recent UNEP report regarding the emission gap, make a similar comment arguing that *“dramatic strengthening of the NDCs is needed”* to achieve UNFCCC goals and that GHG emission continue to rise, in spite of political commitments.²⁷⁵ Even optimistic assessments, such as the one from the Climate Action Tracker, foresee an elevation on global temperature by the end of the century.²⁷⁶

Stephan, Schurig and Leidreiter state that *“From a renewables perspective, part of the problem is the absence of a requirement to include renewable targets and implementation strategies into the INDCs – and a standardized way as to how this was supposed to be done”*.²⁷⁷

Therefore, it can be argued that the Paris Agreement provides a more sophisticated structure to the national pledges from the Copenhagen Convention. It establishes provisions that provide for transparency on the NDCs; follow up on the implementation of the commitments; and mechanisms that enable Members to propose bolder goals under the Agreement. According to Bodansky, this gives the Agreement a *“hybrid architecture”*, for it would be a rules-based system founded on a bottom-up approach.²⁷⁸

²⁷³ LEVIN, Kelly. FRANSEN, Taryn. **INSIDER: Why Are INDC Studies Reaching Different Temperature Estimates?** Access Jan 16, 2020. Available at: < <http://www.wri.org/blog/2015/11/insider-why-are-indc-studies-reaching-different-temperature-estimates> >

²⁷⁴ KULOVESI, Kati. Real or Imagined Controversies? A Climate Law Perspective on the Growing Links Between the International Trade and Climate Change Regimes. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 60.

²⁷⁵ United Nations Environment Programme - UNEP. **Emissions Gap Report 2019**. UNEP: Nairobi, 2019.

²⁷⁶ The study was based on the NDCs submitted until by December 2019 and estimates a 2.8°C elevation of the global temperature. Climate Action Tracker - CAT. **Effect of current pledges and policies on global temperature** Access Jan 16, 2020. Available at: <<http://climateactiontracker.org/global.html>>

²⁷⁷ STEPHAN, Benjamin; SCHURIG, Stefan; LEIDREITER Anna. **What Place for Renewables in the INDCs?** World Future Council, 2016, p. 5. IRENA presents a different number stating that: *“135 countries have renewable electricity targets in their national and sub-national energy plans; 140 NDCs mention renewables in the power sector, but only 105 NDCs of the 140 include quantified targets for renewable electricity”*. INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **NDCs in 2020: Advancing renewables in the power sector and beyond**, IRENA: Abu Dhabi, 2019, p. 7.

²⁷⁸ In this regard, Dan Bodansky states: *“Finally, the Paris Agreement has a hybrid architecture, supplementing the bottom-up system of NDCs with internationally-negotiated rules to introduce some discipline into the national pledging process, which had been something of a free-for-all in Copenhagen. For example, the agreement requires parties to provide the information necessary to ensure that their NDCs are clear and transparent and to track progress in implementation, and provides that NDCs are to become progressively more ambitious over time.”*. BODANSKY, Dan. **Reflections on the Paris Conference**. Available at: < <http://opiniojuris.org/2015/12/15/reflections-on-the-paris-conference/> >. Access on: 3 December 2019.

The previous Section has aimed to present the climate change regulatory framework from the United Nations, by describing selected provisions from the UNFCCC and providing elements that, arguably, demonstrate how it has adopted a bottom up approach that observes and respects countries' abilities and willingness to tackle the *wicked problem* of climate change. Furthermore, it describes the Paris Agreement and some of its mechanisms, specially the NDCs, trying to demonstrate that the instrument makes an effort to add some teeth to its soft law provisions. Finally, it can be said that, just as it happens in the WTO system, the UN framework does not seem to be limited to its climate interests and includes, even if briefly, trade concerns in the wording of its treaty (Article 3.5 of the UNFCCC). These parallels between the two regimes are further addressed in the next Section, which primarily aims to assess the compatibility *per se* of the legal systems.

5.3 CLASHING SYSTEMS?

It can be said that the Chapter, so far aimed to present the legal aspects of the multilateral regulatory frameworks of the areas of interest: international trade and climate change. This exercise alone has already touched on intersection points where the regimes meet. This present Section, in turn, tries to focus on this area of where the legal systems overlap - plainly speaking Article 3.5 of the UNFCCC, Article XX of the GATT and the expired green light subsidies from the SCM Agreement - to investigate whether the WTO and UN systems, *per se*, are conflicting, to then look to this research finding in light of the concrete application in the case of renewable energy support policies WTO multilateral disputes (Chapter 6).²⁷⁹

Having presented the framework of the trade and climate change regimes, it seems to become clear that the WTO Agreements and the UNFCCC treaty language set forth provisions concerned with the trade distortive risk posed by unilateral measures taken by governments and encourage the national enactment of measures that promote legitimate values, such as environmental protections and conservation of natural resources. Therefore, it could be argued that the multilateral trade and climate change regimes are not, *per se*, conflicting or incompatible.

²⁷⁹ The exercise of this Section 5.3 is inspired by the skepticism present in the works that question the fear of scholarship that trade rules could be an insurmountable barrier to the implementation of green policies and, thus, hinder the achievement of legitimate goals such as climate change mitigation.

However, as they come from different backgrounds, they seek to achieve different primary objectives and present different logics on how to get there. The aforementioned intentions are also regulated in a different manner when one compares the two systems.

On the one hand, international trade provisions are concerned with unilateral measures taken by governments that may potentially be the cause of trade distortions, barriers to the free flow of goods between borders, limitations to market access or disguising forms of protectionism, through a strong system of rules that are enforceable through a binding dispute resolution system. The WTO system allows some flexibilities to these rules when they are designed to support green objectives (i.e. renewable energy support programs), through an exception system, mainly represented by Article XX of the GATT.²⁸⁰ On the other hand, climate change regulations aim to have Members commit to achieve certain agreed targets, according to their own abilities and internal context, via a bottom-down flexible system. Within this set of soft law, one of the provisions – Article 3.5 of the UNFCCC – discourages the implementation of unilateral government measures that cause trade distortive effects.

What seems to call one's attention is that the language of the rules that fall within the area of intersection between the systems, Article XX of the GATT and Article 3.5 of the UNFCCC, is very similar. However, as argued in the previous Section, this might not mean that their meaning is the same.

As stated by Hertel, discrimination in climate change discussions relates to “*how mitigation responsibilities are distributed. In this regard, it suggests that mitigation responsibilities are not differentiated according to countries' CBDR are discriminatory*”.²⁸¹ This would be a very different approach from the GATT, in which, discrimination relates to types of policy and “*will generally occur when countries are not accorded the same treatment as other WTO members*”.²⁸²

This different approach of the two regimes, added to the lack of an agreed methodology to solve this overlap of systems could be the cause problems in concrete

²⁸⁰ The repercussions of Article XX of the GATT in subsidy regulation and the effects of the expiration of the green light subsidies that used to be provided by Article 8 of the SCM Agreement are discussed in Chapter 8 of the thesis.

²⁸¹ HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 677.

²⁸² Here the author makes a connection with the jurisprudence from the *US- Shrimp* case. HERTEL, Michel. Climate-Change-Related Trade Measures and Article XX: Defining Discrimination in Light of the Principle of Common but Differentiated Responsibilities. **Journal of World Trade**, Kluwer Law International, 2011, vol. 45, n. 3, p. 667.

situations, as well as of serious concerns because it has the potential to “*imperil the efforts of countries to transition towards a low-carbon economy.*”, according to Vyoma Jha.²⁸³

This Section aimed to show that, although differently, both the WTO and the UN systems have recognized the value of trade liberalization and climate targets, establishing provisions that allow these legitimate values to coexist under their scope. Therefore, it has argued that the multilateral trade and climate change regimes are not clashing *per se* and can be compatible.

However, the different background and nature of the systems along with the lessons from the Law and Development line of thought, and the well-known fear of the scholarship that international trade rules might harm the implementation of States’ green support policies, mentioned in Chapter 3 of the thesis, seem to pose some questions.

Continuing the thesis, Chapter 6 aims to address how the Dispute Settlement Body of the WTO has responded when demanded to consider renewable energy support measures that could be subject of the overlap of international trade and climate change regulations. It is expected that, from the study of two specific cases – *Canada Renewable / FIT Programme* and *India – Solar Cells* – some considerations might be drawn considering the current WTO subsidy regulation as well as the response of the multilateral trading system to the conflict presented above to enable the assessment of WTO’s response in the Chapter 7.

²⁸³ Vyoma Jah argues this point and still poses questions relating to the position of governments towards this challenge: “*Disjointed fragments of rules governing the renewable energy sector coupled with the absence of an observable method to resolve normative and institutional conflicts between the global climate and trade regimes could in turn imperil the efforts of countries to transition towards a low- carbon economy. How do countries deal with the complexities between the global regimes for trade and climate change? How are the fundamental tensions between these different legal regimes resolved? Will the objectives of one legal regime take precedence over the other? Is there any value in reinterpreting the existing international trade rules to make countries’ climate commitments work?*”. JAH, Vyoma. *Sunny Skies Ahead? Political Economy of Climate Trade and Solar Energy in India. Trade, Law & Development*, vol. 9, n. 2, 2017, p. 259.

6 HOW HAS THE WORLD TRADE ORGANIZATION DISPUTE SETTLEMENT BODY TACKLED THIS ISSUE?

As argued in the previous Chapter, multilateral trade and climate change rules do not seem to conflict *per se*, even incorporating values that are important to their companion framework. However, the difference in the premises and logic that found each of the regimes poses the question of whether they do not clash when enforced in the case of clean energy support programs. It has been suggested that mechanisms such as LCRs might spur this conflict. Based on this inquiry, the present Chapter 6 aims to investigate how the dispute settlement body has applied WTO Agreements when it has been provoked to resolve issues regarding renewable energy policies, paying special attention to the points where the international trade provisions could potentially conflict with climate change rules.

As already mentioned, this exercise of delving into the case law from the WTO Dispute Settlement Body is founded on the lessons from Law and Development studies that show that language of the law does not always coincide with the way it is enforced. It is also a way to see the limits of WTO rules on regulating renewable energy as well as its possible interaction with the UN framework when applied by trade law experts.

The Chapter is organized as follows. First it provides an overview of the RE disputes that have been discussed in the WTO system, as well as to the litigant interaction between key players of the sector: the United States, the European Union and China. By this introduction, the thesis aims to present the context in which renewable energy multilateral cases are present, as afterwards, it turns its attention to two disputes: *Canada Renewable Energy / FIT Program* and *India Solar Cells*.²⁸⁴ Finally, it makes brief observations on the Chapter, based on the cases investigated and works from the trade literature.

Regarding the multilateral procedures, it can be said that, mostly, countries tend to argue a violation of non-discrimination obligations and prohibited subsidies due to the use of local content requirements (LCRs). In a more general note, this Chapter argues that WTO disputes on the subject of renewable energy happen between key players in the

²⁸⁴ As stated in the Methodology Section, the disputes were selected because *Canada Renewable Energy / FIT Program* case was the first case in which renewable energy policies and the only one in which subsidy regulation were discussed in the DSB, having been several times commented by the scholarship and because UNFCCC rules were explicitly mentioned in the *India Solar Cells* case.

sector and revolve around anti-dumping and countervailing measures, as is aimed to be exposed in the following Section.

6.1 WTO DISPUTES: THE PREDOMINANCE OF LCRS AND UNILATERAL PROCEDURES

As stated, this Section aims to investigate case law from the World Trade Organization, focusing on how the trade regulation has been understood vis a vis renewable energy policies and regarding the overlap with climate change rules (more specifically the Paris Agreement), in the hope that this exercise is capable of shedding some light on the parallels that can be drawn between the two systems and the challenges the multilateral trading system face when regulating renewable energy.

Before looking at two multilateral disputes commonly approached by the scholarship (*Canada - Renewable Energy/FIT Program*, specially, and *India – Solar Cells*) in more details, the present Section tries to present an overview of the WTO case law. As is argued, conflict in the RE sector seems to be mostly centered in unilateral procedures (anti-dumping and countervailing measures) and the presence of LCRs seem to be cause for adjudication of clean power programs under the DSU, in its multilateral track.

By May 2019, eight cases related to energy support programs were questioned within the multilateral dispute resolution system of the WTO.²⁸⁵ Six were related to clean energy manufacturing solar and wind technology, as shown in the table below, that was inspired by the work performed by Ilaria Espa and Gracia Marin Durán²⁸⁶ and completed by the author, with cases raised until May 2019. The other two cases refer to European Union policies that require the production of biodiesels inside its territory. The table also

²⁸⁵ Canada — Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS412/DS426); China — Measures concerning wind power equipment (WT/DS419); United States — Countervailing Duty Measures on Certain Products from China (WT/DS437); European Union and a Member State — Certain Measures Concerning the Importation of Biodiesels (WT/DS443); United States — Countervailing and Anti-dumping Measures on Certain Products from China (WT/DS449); European Union and certain Member States — Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS452); India — Certain Measures Relating to Solar Cells and Solar Modules (WT/DS456); European Union and certain Member States — Certain Measures on the Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry (WT/DS459); European Union — Anti-Dumping Measures on Biodiesel from Argentina (WT/DS473); European Union — Anti-Dumping Measures on Biodiesel from Indonesia (WT/DS480); United States — Certain Measures Relating to the Renewable Energy Sector (WT/DS510); United States — Certain Measures Related to Renewable Energy; DS572; Peru — Anti-dumping and countervailing measures on biodiesel from Argentina (WT/DS563).

²⁸⁶ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 629 - 630.

presents specifically which discriminatory element, according to WTO regulation, was invoked in each case.

TABLE 1 - DSB CASES ON RENEWABLE ENERGY

Dispute number	Dispute title	Consultation Request	Current status	Type of Government Support	Discriminatory Element
1 412/426	<i>Canada - Renewable Energy</i> (Complainant: Japan) / <i>Canada - Feed-In Tariff Program</i> (Complainant: EU)	13/09/2010 11/08/2011	Panel/AB reports adopted (24/05/2013) Implementation notified (5/06/2014)	Feed-in tariffs to renewable electricity generators	For wind- and solar PV-generated electricity, contingent upon use of domestically-produced generation equipment
2 419	<i>China - Measures Concerning Wind Power Equipment</i> (Complainant: US)	22/12/10	In consultations	Grants, funds, awards to wind-power equipment manufacturers	Contingent upon the use of domestic over imported inputs
3 443	<i>European Union and a Member State - Certain Measures Concerning the Importation of Biofuels</i> (Complainant: Argentina)	17/08/12	In consultations	Mandatory targets for biofuels, especially the Spanish Ministerial Order IET/822/2012.	Contingent upon the production of biofuels within the territory of Spain or other EU States.
4 452	<i>European Union and Certain Member States - Certain Measures Affecting the Renewable Energy Sector</i> (Complainant: China)	05/11/12	In consultations	Feed-in tariffs to renewable electricity generators (Italy and Greece)	For solar PV-generated electricity, contingent upon use of domestically-produced generation equipment
5 456	<i>India - Certain Measures Relating to Solar Cells and Solar Modules</i> (Complainant: US)	06/02/13	Panel/AB reports adopted (14/10/2016) Compliance proceedings ongoing (06/06/2019)	Feed-in tariffs to solar power developers	Contingent upon use of domestically-produced solar cells and modules
6 459	<i>European Union and Certain Member States - Certain Measures on the Importation and Marketing of Biofuels and Measures Supporting the Biofuels Industry</i> (Complainant: Argentina)	15/05/13	In consultations	Excise duty/internal consumption tax reductions for sustainable biofuels* (Belgium and France)	Only EU-produced bio-fuels may qualify for reduction
7 510	<i>United States - Certain Measures Relating to the Renewable Energy Sector</i> (Complainant: India)	19/09/16	Panel report consulted (19/06/2019)	Several fiscal and financial measures by eight US States, including to renewable energy generators, manufacturers of REC technologies and bioethanol/distributors	Contingent upon use of domestically-produced REC equipment/components (California, Massachusetts, Michigan, Washington) Only Montana-produced bioethanol may benefit from tax refund, while Montana-produced ethanol benefits from greater tax reduction
8 563	<i>United States - Certain Measures Related to Renewable Energy</i> (Complainant: China)	14/08/18	In consultations	Incentives to the use of renewable energy from three US States and one municipality, including price recovery for customer-generators, installation of solar equipment and a REC program.	Contingent upon the uses of LCERs

SOURCE: created by the author based on the work by Ilaria Espá and Gracia Marín Durán. ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. *Journal of International Economic Law*, Oxford Press, 2018, vol. 0, p. 629 - 630.

By looking to the enlisted disputes in the table, it can be said that, mostly, countries tend to argue a violation of the non-discrimination obligation (Article III:4 of the GATT and Article 2:2 of the TRIMS) which could be defended by the use of exception systems (such as Article XX of the GATT). Claims on the SCM Agreement are also common and they tend to revolve around its Article 3: it is usual for claimants to allege that a power incentive program constitutes a prohibited subsidy that, as such, must be withdrawn.

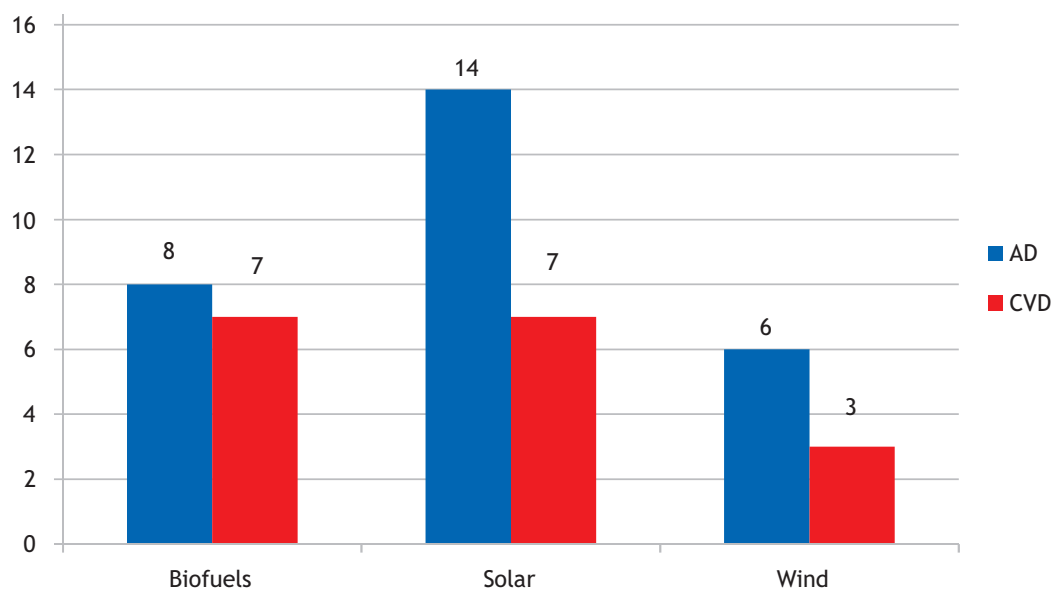
This might be the result from the fact of local content requirements - very frequently introduced in national renewable energy programs - being, at the forefront, inconsistent with WTO regulation. Especially, when it comes to the national treatment obligation from GATT (Article III:4) and the prohibited subsidy contingent on the use of local content from the SCM Agreement (Article 3.1 (a)).

Besides the multilateral disputes, this thesis deems it important to bring forward a panorama of anti-dumping and countervailing measures proceedings on renewable energy, because of the significant number of trade remedies procedures directed to renewable energy related equipment. Research carried by the United Nations Conference on Trade and Development - UNCTAD has shown that, between 2008 and 2014, forty-one investigations concerning policies to encourage renewables have been notified to the WTO. Eighteen of them concerned controversies related to equipment that uses solar technology.²⁸⁷

Regarding the measures that have been undertaken in the WTO unilateral system, the general framework present similar characteristics. A study conducted by Kim Kampel shows that there were 45 antidumping and countervailing notifications (17 and 25, respectively) against clean energy technology between the years of 2006 and 2015. Almost all of them (21) targeted solar energy products, being followed by biofuels products (15) and wind power products (9). The goods involved were solar cells and modules, solar grade polysilicon, solar glass, biodiesel, bioethanol, wind turbine blades and wind towers.²⁸⁸ The difference between antidumping and countervailing procedures is presented in the following chart.

²⁸⁷ UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT - UNCTAD. **Trade Remedies: Targeting the Renewable Energy Sector** (2014). Disponível em: http://unctad.org/en/PublicationsLibrary/ditcted2014d3_en.pdf

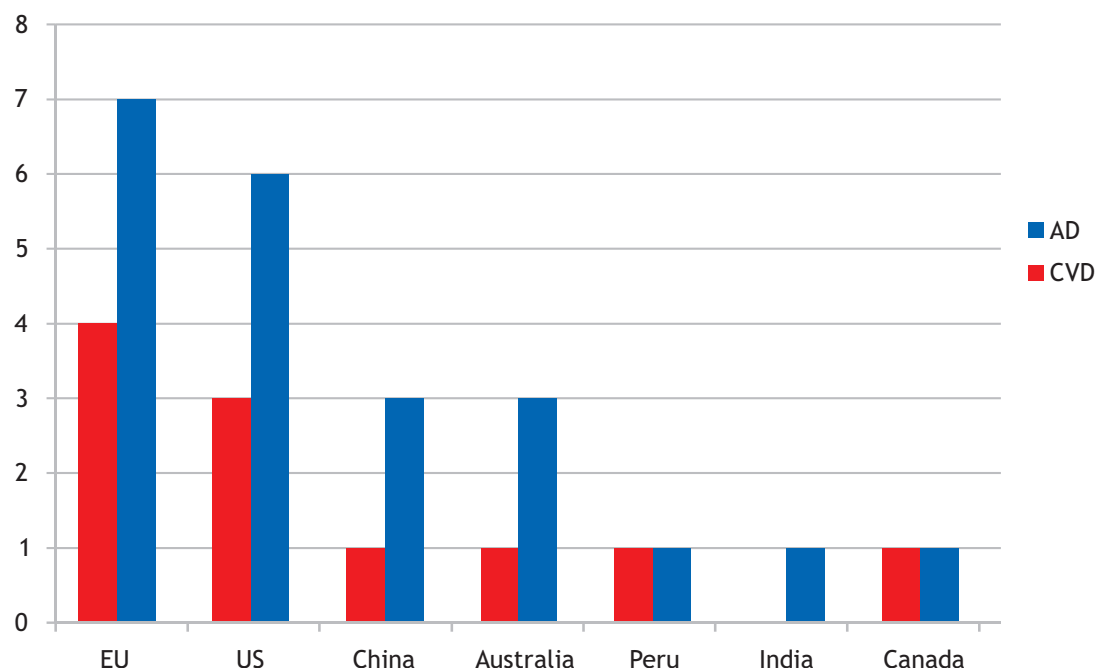
²⁸⁸ KAMPEL, Kim. **Options for Disciplining the Use of Trade Remedies in Clean Energy Technologies**. E15 Initiative. Geneva: International Centre for Trade and Sustainable Development -ITCSD, 2017, p. 12 - 15.

FIGURE 15 – AD and CVD Notifications by Clean Energy Technology, 2006-2015**Figure 10. AD and CVD notifications by clean energy technology, 2006-2015**

Source: WTO Notification Statistics

SOURCE: KAMPLE, Kim. **Options for Disciplining the Use of Trade Remedies in Clean Energy Technologies**. Figure 10. AD and CVD notifications by clean energy technology, 2006–2015.

The major users of the system and main players on the imposition of final measures are China, the EU, and the US, followed by Australia – more evidently -, Canada, India and Peru.

FIGURE 16 – Measures by Country, 2006-2015**Figure 12. Measures by country, 2006-2015**

Source: WTO Notification Statistics

SOURCE: KAMPLE, Kim. **Options for Disciplining the Use of Trade Remedies in Clean Energy Technologies**. Figure 12. Measures by country, 2006–2015.

Besides the economic impact – between 2008–2012, trade remedies affected approximately US\$32 billion worth of trade in clean energy technology goods²⁸⁹ - the problem with the use of unilateral measures is that they might raise “*the cost of the ultimate product—making renewable energy more expensive both for domestic producers purchasing the intermediate goods as well as for the final consumers of the particular clean energy technology in the form of electricity*”.²⁹⁰ This is because the components used in clean energy technology equipment are part of international transactions that occur inside global supply chains.

In this sense, Gary Horlik identifies them as being an instrument of protectionism, supported by local lobby, in order to set abusive duties, thus, impairing foreign competitors and industries to advance in the technological development.²⁹¹

²⁸⁹ KAMPLE, Kim. **Options for Disciplining the Use of Trade Remedies in Clean Energy Technologies**. E15 Initiative. Geneva: International Centre for Trade and Sustainable Development -ITCSD, 2017, p. 17.

²⁹⁰ KAMPLE, Kim. **Options for Disciplining the Use of Trade Remedies in Clean Energy Technologies**. E15 Initiative. Geneva: International Centre for Trade and Sustainable Development -ITCSD, 2017, p. 12.

²⁹¹ HORLICK, Gary. **Trade Remedies and Development of Renewable Energy**. E15 Initiative. Geneva: International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum, 2013.

Moreover, Hufbauer and Cimino allege that the excessive utilization of trade remedies is particularly problematic in the sector. The reason is that it reduces the certainty and – consequently – the appeal of private players to invest in this market. Therefore, it can diminish the speed of the convergence of clean and standard energy costs.²⁹²

This Section aimed to present an overview of the renewable energy case law in the WTO, showing that it could be summarized by multilateral cases that contest the inclusion of LCRs in national support measures and, in a greater number, trade remedies procedures (anti-dumping and countervailing measures) initiated by key players from the RE sector, mostly, China, the United States and the European Union. Having painted this background framework, the remainder of the Chapter focuses on the litigant relationship between these countries as well as on specific cases from the multilateral system.

6.2 WTO CASE LAW

Previously, the thesis aimed to present a general panorama of the WTO cases regarding renewable energy domestic measures. The present Section aims to further this background overview by describing cases multilaterally initiated by China, the US and the EU that, for economic and political arguments, in the terms of Chapter 3 of the thesis, have yet to reach a Panel phase under the DSU, but show particularities of the procedures from the Organization. Then, the Chapter resumes its focus on legal aspects of the thesis's debate by briefly describing specific cases from the WTO multilateral renewable energy jurisprudence and weaving comments about them, based on commentaries from the trade literature.

One of the objectives of this exercise is to show how the panel and the Appellate Body have acted in the first case regarding green energy, *Canada – Renewable Energy / FIT Program*, and the only one where arguments referring to the SCM Agreement were pursued. This dispute is emblematic for not only it has been used as paradigm to the treatment of the WTO dispute settlement system has tackled the issue of renewable energy policies,²⁹³ but it has also been, in several occasions, target for scrutiny – and criticism –

²⁹² HUFBAUER, Gary; CIMINO, Cathleen. **Trade Remedies Targeting the Renewable Energy Sector**. Report Presented at the UNCTAD Ad Hoc Expert Group Meeting on Trade Remedies in Green Sectors, 3–4 April 2014, Geneva: UNCTAD, p. 13.

²⁹³ Regarding the allegations of GATT violation, the rational construed on this dispute (*Canada – Renewable Energy / FIT Program*) has been replicated in two later cases regarding green electricity (*India – Solar Cells* and *United States – Renewable Energy*).

by the scholarship.²⁹⁴ As such, it is believed that it has the potential to show some challenges of WTO law when dealing with non-trade values – in which climate targets are included – in the case of RE support policies.

Another objective is to provide a succinct presentation of the *India – Solar Cells* case, focusing on the arguments presented by India to defend its Solar Program and the provision of LCR present in it. This choice was made for the Member has invoked the exception of Article XX (d) of the GATT, expressly mentioning the Paris Agreement and, thus, giving an opportunity to the Appellate Body to make a direct manifestation on the conflict between provisions from the international trading system and climate change regulatory framework. This dispute was cause for Indian retaliation, expressed in the case *United States –Renewable Energy Sector*.²⁹⁵

6.2.1 *What Underlies WTO Disputes: the litigant interaction between the United States, China and the European Union*

This Section tries to provide some observations about the cases *EU – Renewable Energy Sector* and *China – Wind Power* and their consequences so that one is given a piece of the litigant context in which the United States, China and the European Union have operated, as well as the overall scenario of renewable energy cases in the WTO Dispute Settlement Body.

In the European Union and certain Member States — Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS452), China has requested consultations, that never got through, challenging EU renewable energy policies, specially from Greece and Spain.

Chinese claims referred to alleged inconsistencies in the European FIT programs with local content requirement regarding Articles I, III:1, III:4 and III:5 of the GATT; Articles

²⁹⁴ COSBEY, Aaron. MAVROIDIS, Petros. A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 11-47. RUBINI, Luca. ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 895-938. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy*: Implications for WTO Law on Green and Not-So Green Subsidies. **World Trade Review**, 2018, n. 17, vol. 2, p. 177-210.

²⁹⁵ In the case *United States – Certain Measures Relating to the Renewable Energy Sector* (WT/DS510), India has challenged support programs to renewable energy from US Federal States. The panel report has been circulated to Members on June 27th 2019. In short, it follows the same rational used in the previous disputes of *Canada – Renewable Energy/FIT Program* and *India – Solar Cells* and condemns the use of discriminatory measures, such as LCRs, in the North American measures.

3.1(b) and 3.2 of the SCM Agreement; and Articles 2.1 and 2.2 of the TRIMs Agreement. The arguments presented are similar to the ones raised in *Canada – Renewable Energy/FIT Program* and *India Solar Cells*.²⁹⁶

The impact on trade of the measures implemented by the EU, including FIT programs contingent upon local contents, has created an incentive so that both countries used trade remedies, having as example the *AD590-Solar Panels* procedure. This dispute represents an important investigation by the European Commission against China's solar panel exports to the EU.²⁹⁷

In *China - Measures Concerning Wind Power Equipment (WT/DS419)*, the United States has challenged a Chinese public fund that supported domestic wind-power manufacturers. In an initial manifestation, the US alleged that the program from China would be inconsistent with WTO regulation, as the local content requirement present in the Sino-measure would violate Article 3.1(b) of the SCM Agreement.

The case received public repercussion as- having taking place in 2011, which means, before *Canada –Renewable Energy / FIT Program* - it was the first dispute regarding green technology and could have been the time in which the DSB would consider the compatibility of a climate change measure with WTO regulation.²⁹⁸²⁹⁹

²⁹⁶ VERMLUST Edwin; MENG, Madison. Dumping and Subsidy Issues in the Renewable Energy Sector. In: COTTIER, Thomas; ESPA, Ilaria. **International Trade and Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge: Cambridge University Press, 2019, p. 348.

²⁹⁷ For a detailed analysis of the case: KULOVESI, Kati. International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, vol. 23, n.3, 2014, p. 342-353. For a detailed analysis of the EU's solar cases: VERMLUST Edwin; MENG, Madison. Dumping and Subsidy Issues in the Renewable Energy Sector. In: COTTIER, Thomas; ESPA, Ilaria. **International Trade and Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge: Cambridge University Press, 2019, p. 336-356.

²⁹⁸ Marie Wilke has suggested that public repercussion was also fueled by trade experts, North Americans, even, supporting the Chinese measure. In this sense: “Robert Howse, for instance, suggested with regard to environmental necessity under Article XX GATT and local content requirements that ‘China has good grounds, environmental grounds, for wanting to ensure its security of a domestic supply of alternative energy technologies in the future. [Thus] there might be a plausible argument, which is that China's demand for clean energy is so enormous that it would be irresponsible for China not to take measures to ensure it has an adequate domestic industry in this area,’ This would then justify local content requirements that ensure the development of a local manufacturing industry, so the argument goes, in a subsequent discussion, he further clarified that ‘much would depend on the existence of exceptional facts about China – not only its status as a developing country with limited possibility for technology transfer [...] but its exceptionally great demands for alternative energy, and the life and death environmental situation behind those needs’. WILKE, Marie. Feed-in Tariffs for Renewable Energy and WTO Subsidy Rules: An Initial Legal Review. **Trade and Sustainable Energy Series** Issue Paper No. 4; International Centre for Trade and Sustainable Development – ITCSD: Geneva, 2011, p. 22.

²⁹⁹ BRIDGES. US Proclaims Victory in Wind Power Case; China Ends Challenged Subsidies. Bridges, vol. 15, n. 21. Available at: < <https://www.ictsd.org/bridges-news/bridges/news/us-proclaims-victory-in-wind-power-case-china-ends-challenged-subsidies>>. Access: 7 Nov. 2019.

After a period of consultations and negotiations between the two countries, the Chinese government revoked the wind-power support program and matters were settled. But this was not the end of the contentious relationship between the countries. As of 2011, the US and China have started a set of AD and CVD disputes targeting different goods linked to the solar industry (i.e. polysilicon and solar panels). The result of these investigations has impacted the market as a whole.³⁰⁰

What is interesting about this case, though, is the different North American and Chinese visions of the outcome of *China – Wind Power*. While, the US private sector seems to have regarded it as a great victory and encouraged "*the Administration to continue to work to level the playing field for clean technology companies and American workers to grow sustained employment and good job opportunities*" - as said by Leo Gerard, president of the United Steelworkers Union (USW), Chinese companies were not that impressed, which is sound to the statement "*It is understandable that the Chinese government is ending subsidies to an industry that is strong enough to compete with international players*" from Shi Pengfei, vice-president of the China Wind Energy Association.³⁰¹

On 14 August 2018, China requested consultations with the United States concerning measures allegedly adopted and maintained by the governments of certain US states and municipalities in relation to alleged subsidies or alleged domestic content requirements in the energy sector. In this case *United States — Certain Measures Related to Renewable Energy (WT/DS563)*, the European Union asked to join the consultations, a request that was accepted by the US.

This brief outline of the disputes highlights the argument, already mentioned in Chapter 2 of the thesis, that DSB cases and, thus, WTO case law are *sui generis*. Although governmental measures go under legal scrutiny, the disputes are deeply intertwined with political issues and industry interests. Moreover, it is a burden for countries to initiate

³⁰⁰ For a detailed analysis of the US' solar cases: VERMLUST Edwin; MENG, Madison. Dumping and Subsidy Issues in the Renewable Energy Sector. In: COTTIER, Thomas; ESPA, Ilaria. **International Trade and Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge: Cambridge University Press, 2019, p. 336-356. KENT, Avidan. The WTO Law on Subsidies and Climate Change: Overcoming The Dissonance? **Trade, Law & Development**, vol. 5, n. 2, 2013, p. 344-382.

³⁰¹ BRIDGES. US Proclaims Victory in Wind Power Case; China Ends Challenged Subsidies. Bridges, vol. 15, n. 21. Available at: < <https://www.ictsd.org/bridges-news/bridges/news/us-proclaims-victory-in-wind-power-case-china-ends-challenged-subsidies>.>. Access: 7 Nov. 2019.

proceedings in the multilateral dispute settlement systems and to respond to them as well.³⁰²

Therefore, one can say that the dispute resolution system of the WTO is used as a political last resort option and that the adjudicated cases are a symbol of the most challenging controversies faced by members of the Organization.³⁰³ And, hence, a good laboratory to identify critical issues that underlie the RE sector.

In this sense, notice that they involve key market players from the renewable energy sector, as presented in Chapter 4: United States, European Union and China. This realization is sound to the argument from Edwin Vermlust and Madison Meng that the disputes are “*focal points*” to a phenomenon that is happening worldwide: “*government support to stimulate the growth of domestic manufacturing industries*”.³⁰⁴

The frameworks indicated by the previous Sections aimed to show that multilateral disputes and anti-dumping and countervailing measures procedures are instruments available to countries in their strategies to litigate in the renewable energy sector. In this context, perhaps for being, at least *a priori*, inconsistent with WTO law, LCRs seem to be the most common subject of the first while the second, unilateral procedures, are more commonly initiated.

³⁰² Considering the situation from developing countries, Gregory Shaffer, Michelle Ratton Sanchez and Barbara Rosenberg, in a paper part as part of ICTSD’s project on WTO Dispute Settlement and Sustainable Development argue: “*Although developing countries vary significantly in terms of the size of their economies and the role of law and legal institutions in their domestic systems, they generally face three primary challenges if they are to participate effectively in the WTO dispute settlement system. These challenges are: (i) the capacity to organize information concerning trade barriers and opportunities to challenge them, and a relative lack of legal expertise in WTO law, with its common law orientation; (ii) constrained financial resources, including for the hiring of outside legal counsel to effectively use the WTO legal system, which has become increasingly costly; and (iii) fear of political and economic pressure from the United States and EC, undermining their ability to bring WTO claims. We can roughly categorize these challenges as constraints of legal knowledge, financial endowment, and political power, or, more simply of law, money and politics*”. SHAFFER, Gregory, BADIN, Michelle Ratton Sanchez; ROSENBERG, Barbara. **Brazil’s Response to the Judicialized WTO Regime: Strengthening the State through Diffusing Expertise**. Available at: <<https://www.ictsd.org/sites/default/files/downloads/2008/05/brazils-response-to-the-judicialized-wto-regime-strengthening-the-state-through-diffusing-expertise.pdf>>. Access: 23 Jan 2020, p. 22

³⁰³ COZENDEY, Carlos Márcio. O Sistema de Solução de Controvérsias da OMC: para além dos contenciosos, a política externa. BENJAMIN, Daniela Arruda. **O Sistema de Solução de Controvérsias da OMC**. Brasília: Fundação Alexandre Gusmão – FUNAG, p. 369-396.

³⁰⁴ “*Although the focal points in most of the cases being assessed are the subsidies granted and the domestic or local content schemes instituted to promote an emerging sector, it should be noted that those developments are a global phenomenon. As renewable energy policies tend to rely on some kind of government support to stimulate the growth of domestic manufacturing industries, it is not surprising that they run into conflict with international trading rules*”. VERMLUST Edwin; MENG, Madison. Dumping and Subsidy Issues in the Renewable Energy Sector. In: COTTIER, Thomas; ESPA, Ilaria. **International Trade and Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge: Cambridge University Press, 2019, p. 336.

The remainder of the Chapter discusses the parties' arguments and panel and Appellate Body considerations in the cases *Canada-Renewable Energy/FIT Program* and *India – Solar Cells*.

6.2.2 Canada - Renewable Energy/FIT Program case

Taking a more in depth approach of WTO, the present section discusses *Canada – Renewable Energy / FIT-Programi*, the result of the unification between two complaints initiated by Japan and the European Union: Certain Measures Affecting the Renewable Energy Generation Sector (WT/DS 412) and Canada — Measures Relating to the Feed-in Tariff Program (WT/DS 426). It was the first case in which a renewable energy policy was discussed within the WTO system and, to date, represents the benchmark for predicting the treatment of other green energy programs within the multilateral trading system. The Appellate Body has acted in another RE incentive related case, *India – Solar Cells*, and a panel has delivered conclusions on another dispute, *United States – Renewable Energy*. The outcome of those later disputes is aligned with the forerunner decision. It can be summarized as the recommendation to withdraw the regulatory measure, given the non-observation of the national treatment obligation caused by the introduction of a local content requirement in the green incentive schemes.³⁰⁵

The applicability of the SCM Agreement on a renewable energy support program - and, more specifically, a FIT - has only been discussed in *Canada – Renewable Energy / FIT-Program*. In this dispute, the DSB focused its analysis on the status of a FIT program in light of the subsidy concept proposed by the WTO Agreement. The status of the Canadian RE support program as a subsidy under the SCM Agreement was found to be inconclusive by the Appellate Body.

³⁰⁵ United States – Certain Measures Relating to the Renewable Energy Sector (WT/DS510)

After the report of the *Canada Renewable – FIT Program* was made available, it was criticized by trade law commentators.³⁰⁶ Some works having at its main object to specifically scrutinize this decision, as was the case with some of Luca Rubini papers.³⁰⁷

Nonetheless, it is worthy to present the rationale that has led to this result, since, as the thesis aims to demonstrate in Chapter 4, local content requirements are a common element in renewable energy support programs and may give reasonable space for the argument of the existence of a prohibited subsidy, pursuant to Article 3.1 of the SCM Agreement and of a discriminatory measure, pursuant to Article III:4 of the GATT.

In *Canada – Renewable Energy/FIT Program* (WT/DS412 e WT/DS426) Japan and then the European Union questioned the Ontario government's conditioning of the use of Canadian equipment in electricity production in order to obtain benefit in the form of feed-in tariffs relative to the generated renewable energy.

Three measures were targeted by the claimants: (i) the FIT Program, formally launched in 2009, for facilities located in Ontario that generate electricity exclusively from renewable energy sources; (ii) Individual FIT Contracts for wind or solar photovoltaic (for projects with a production capacity of more than 10 KW); and (iii) MicroFIT individual contracts for photovoltaic solar energy (for projects with a capacity to produce up to 10 KW of electricity).

Therefore, in short, the Government of Ontario guaranteed a premium fixed price per KWh of electricity generated from renewable energy sources (wind and solar) that was delivered to the electric power system of the Province. This arrangement was based on 20-year or 40-year contracts with the Ontario Energy Authority and conditioned to the use of a minimum level of domestically produced equipment.³⁰⁸

³⁰⁶ Some analyses have highly criticized the AB response, such as: COSBEY, Aaron. MAVROIDIS, Petros. *A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO*. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 11-47. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 177-210. At the same time, other analyses have seen it as a positive progressive response to climate and trade conflict, such as: KENT, Avidan. *The WTO Law on Subsidies and Climate Change: Overcoming The Dissonance?* **Trade, Law & Development**, vol. 5, n. 2, 2013, p. 344-382.

³⁰⁷ RUBINI, Luca. 'The Good, the Bad, and the Ugly.' *Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies*, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 895-938.

³⁰⁸ ONTARIO. 4.0 Feed-In Tariff Program. Available at: < [https://www.ontario.ca/document/renewable-energy-development-ontario-guide-municipalities/40-feed-tariff-program#%23targetText=The%20Feed-In%20Tariff%20\(%20FIT,electricity%20generating%20projects%20in%20Ontario.>](https://www.ontario.ca/document/renewable-energy-development-ontario-guide-municipalities/40-feed-tariff-program#%23targetText=The%20Feed-In%20Tariff%20(%20FIT,electricity%20generating%20projects%20in%20Ontario.>).

By reading the reports, one could say that both the panel and the AB were adamant in showing that “*a fixed rate was paid conditional on the use of local content machinery producing renewable energy*”.³⁰⁹

The European Union and Japan understood that such a requirement would represent discriminatory practice, contrary to the principle of national treatment, according to the provisions of art. III: 4 and art. III: 8 (a) of the GATT, thus violating Article 2.1 of TRIMS. The same claim was made by the United States in *India – Solar Cells*. Japan also claimed a violation of the prohibition on import substitution subsidies in Articles 3.1(b) and 3.2 of the SCM Agreement.

Facing claimants’ allegations of incompatibility of the Canadian measures, the respondent argued that their actions fell within the government procurement exception of Article III:8 of the GATT.³¹⁰ However, it did not have a successful outcome.

In short, the finding of the DSB regarding the SCM Agreement allegation was that it was inconclusive whether the FIT program implemented by Canada was, indeed, a subsidy and, thus, fell within the scope of the Agreement, as neither the panel nor the AB had been provided with enough information by the complaining parties to assert whether the challenged measure *conferred a benefit to the recipient* and, hence, complied with all the requirements prescribed in its Article 1.1 definition.³¹¹

³⁰⁹COSBEY, Aaron. MAVROIDIS, Petros. A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 15.

³¹⁰ In the words of Leandro Rocha de Araujo, that presents the *Canada – Renewable Energy/FIT Program*, concerned over the issue of policy space: “Article III of the GATT 1994 establishes the principle of national treatment, which prohibits Members from imposing taxes or other internal burdens on imported products in excess of those applied to domestic products in order to protect domestic production (Articles III: 1 and III: 2). In addition, Article III: 4 provides that imported products shall be subject to treatment no less favorable than that accorded to like products of domestic origin in respect of all laws, regulations and requirements affecting their domestic sale, offer for sale, purchase, transportation, distribution or use. Thus, Members are not allowed to confer less beneficial treatment on imported products solely on the basis of their origin.

If, on the one hand, Article III of the GATT 1994 establishes a significant restriction on the development of policies that could confer more beneficial treatment on domestic products, on the other, Article III: 8 (a) of the GATT 1994, which refers to government purchases, establishes an important exception to the principle of national treatment. By allowing Member States to adopt public policies when making government purchases, it states that the principle of national treatment - and the resulting policy limitations - should not apply to purchases made by products which are purchased for governmental purposes and which are not intended for commercial resale or use in the production of goods for commercial sale.” (Translated by the author). ARAUJO, Leandro Rocha de. *O caso “Energia Renovável” na OMC: um precedente sobre os limites para a adoção de políticas públicas*. In: BENJAMIN, Daniela Arruda (org.). **O Sistema de Solução de Controvérsias da OMC: uma perspectiva brasileira**. Brasília: FUNAG - Fundação Alexandre Gusmão, 2013, p. 459 - 460.

³¹¹ In the words of Kati Kulovesi, “In the *Canada – Renewable Energy* case, it was the question whether the FIT programme conferred a ‘benefit’ within the meaning of the SCM Agreement that proved to be the stumbling block for Japan’s legal challenge”. KULOVESI, Kati. *International Trade Disputes on*

Although it was understood that the Ontario Program fulfilled the "*financial contribution*" requirement set forth in Article 1.1 (a) of the SCM Agreement, the ruling indicates that there was insufficient material evidence to prove that the Canadian measure conferred an advantage, the *benefit* required in Article 1.1 (b) of the SCM Agreement, to its recipients.

In the case *Canada – Aircraft*, the Appellate Body ruled that “*a financial contribution will only confer a “benefit” if it is provided on terms that are more advantageous than those that would have been available to the recipient on the market*”.³¹²

In *Canada – Renewable Energy / FIT Program*, the AB also seems to refer to a “*benchmark*” to reach the benefit analysis when it notes whether “*a financial contribution confers an advantage on its recipient cannot be determined in absolute terms, but requires a comparison with a benchmark, which in the case of subsidies, derives from the market*”.³¹³

To summarize the ruling of the case, both the Appellate Body and the panel reached an, arguably, similar, inconclusive outcome. Due to a lack of sufficient factual evidence neither was able to conclude that the challenged measure fulfilled the requirement of Article 1.1(b) of the SCM Agreement, and, thus, fell within its meaning of subsidy. Consequently, they were not able to infer whether the Canadian renewable energy support program violated Articles 3.1(b) and 3.2 of the SCM Agreement.

Regarding the benefit concept, the claimants argued that the measures in question would confer an advantage on the program participants because: (i) they guaranteed that FIT and MicroFIT power generators would receive a price for electricity that would exceed the price of electricity in the Marketplace electricity wholesaler in Ontario or alternatively in any of the four jurisdictions outside of Ontario (Alberta, New York, New England, and the Mid-Atlantic region of the USA); and (ii) the program was designed to

Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, n. 23, 2014. L. 342, p. 346.

³¹² WTO Appellate Body Report, *Canada – Measures Affecting the Export of Civilian Aircraft* (Canada – Aircraft), WT/DS70/AB/R, para. 5.157.

³¹³ WTO Appellate Body Report, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program* (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.164.

facilitate private investment in the generation of renewable energy that the wholesale market in Ontario was unable to attract.³¹⁴

Canada asserted that the appropriate price benchmark for benefit analysis in the subsidy examination should be found in the market for electricity produced from wind and solar technology because of the different costs associated with different technologies.³¹⁵

According to the panel, there would be a benefit if an advantage were conferred on the recipient. That advantage should be determined by comparing the situation of the recipient with and without the financial contribution. However, the panel did not accept the benchmarks proposed by the complainants, including the suggested alternatives, by stating that they would not be accurate enough to permit an assessment of the energy market conditions in Ontario. One of the arguments to support this understanding was that the wholesale electricity market -generated from all sources of energy - was not a competitive market and therefore could not be used as a parameter.³¹⁶

Thus, the majority of the panel considered that claimants had not presented adequate evidence that, in the absence of the FIT Program, power producers supported by the government could not operate in a competitive electricity wholesale market. By failing to comply with the claimants' arguments on the existence of a benefit, the panel concluded, by a majority of votes, that the measures in question did not constitute a *benefit* under the SCM Agreement. The panel, however, declined to indicate what would be the appropriate parameters to complete the benefit analysis.³¹⁷

There was a dissenting opinion as to the analysis of the existence of the *benefit*. The dissident panelist presented a broader view of the benchmark concept, indicating that not only competitive markets should be used as a parameter, but also imperfect markets, if that was the case. In addition, this panelist suggested that the focus of the benefit

³¹⁴ WTO Panel Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/R e WT/DS426/R, para. 7.255.

³¹⁵ WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.6.

³¹⁶ WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.6.

³¹⁷ WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.6.

analysis should be on the market in question, regardless of its specific characteristics or imperfections.³¹⁸ On this basis, the dissident panelist concluded that

by bringing these less-efficient and costly electricity producers to the wholesale electricity market, when they otherwise would not be present, the Government of Ontario's purchases of electricity from solar photovoltaic and wind power through FIT Program, clearly conferred an advantage on FIT generators under the terms of Article 1.1 (b) of the ASMC when they otherwise would not be present, the Government of Ontario's purchases of electricity from solar photovoltaic and wind power through FIT Program, clearly conferred an advantage on FIT generators under the terms of Article 1.1 (b) of the ASMC.³¹⁹

The Appellate Body, in turn, considered that a market-based analysis of benefit parameters should not preclude the assessment of situations in which governments intervene to create markets that would otherwise not exist, such as the supply of electricity (constant and reliable). In the relevant market analysis, it diverged with the Panel's assessment and indicated that government action in regulated markets, such as electricity, would not *per se* exclude the assessment of the resulting prices as market prices for the purposes of the benefit analysis of Article 1.1 (b) of the SMC Agreement. In this sense, it stated:

while introducing legitimate policy considerations into the determination of a benefit cannot be reconciled with Article 1.1 (b) of the SMC Agreement, we do not think that a market-based approach to benefit benchmarks excludes taking into account situations where governments intervene to create markets that would otherwise not exist.³²⁰

In spite of reaching the same ultimate result – whether FIT programs would or would not confer a *benefit* within the meaning of the SCM Agreement – the Appellate Body developed a different argumentation from the one construed by the panel.

³¹⁸ WTO Panel Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/R e WT/DS426/R, para. 9.6.

³¹⁹ WTO Panel Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/R e WT/DS426/R, para. 9.23.

³²⁰ WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.185.

For the Appellate Body, the government's definition of the source mix for Ontario's energy supply shaped the markets in which electricity generators compete through different technologies.³²¹

Significant differences in the structural and operational costs on the supply side would prevent the existence of wind and solar power generation, were it not for the combination of sources established by the government for the supply of electricity from different energy generation technologies.³²²

In this context, the AB suggested what would be an appropriate parameter in the present case for the benefit analysis. This benchmark should take into account the combination of sources for the energy supply established by the Government of Ontario as well as the specifics of wind and solar technologies in the context of the energy market in question.³²³

Therefore, it considered as a *relevant market* benchmark to the Ontario Program, the energy generated exclusively from solar or wind energy sources and not the wholesale electricity market, produced from all sources of energy - conventional included - as the panel had previously considered.³²⁴

³²¹ In the words of the Appellate Body: “[...]considerations relating to the choice of the energy supply mix by a government, including wind- and solar PV-generated electricity, may be crucial to the viability and sustainability of the electricity market in the long term”. WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.186.

³²² In the words of the Appellate Body: “[...] there is high demand-side substitutability between electricity generated through different technologies”. WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.170. It also indicated that: “[...] supply-side factors suggest that wind-power and solar PV producers of electricity cannot compete with other electricity producers because of differences in cost structures and operating costs and characteristics”. WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.174.

³²³ In the words of the Appellate Body: “[...] we believe that benefit benchmarks for Wind – and solar PV-generated electricity should be found in the markets for wind - and solar PV – generated electricity that result from the supply-mix definition. Thus, where the government has defined an energy supply-mix that includes wind power and solar PV electricity generation technologies, as in the present disputes, a benchmark comparison for purposes of a benefit analysis for wind power and solar PV electricity generation should be with the terms and conditions that would be available under market- based conditions for each of these technologies, taking the supply-mix as a given.”. WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R e WT/DS426/AB/R, para. 5.190.

³²⁴ In the words of the Appellate Body: “[...]Had the Panel more thoroughly scrutinized supply-side factors, it would have come to the conclusion that, even if demand-side factors weigh in favour of defining the relevant market as a single market for electricity generated from all sources of energy, supply-side factors suggest that important differences in cost structures and operating costs and characteristics among generating technologies prevent the very existence of wind power and solar PV generation, absent

Ultimately, neither the panel nor the Appellate Body were able to determine that the implementation of the Ontario FIT Program had left participants in a better off position compared to the precluded RE power producers that performed their commercial activities in the same marketplace. Being unable to complete the analysis of Article 1.1(b) of the SCM Agreement, it was not possible to deem the support program inconsistent with Articles 3.1(b) and Article 3.2 of the SCM Agreement.

Nonetheless, the Ontario measure was deemed to be inconsistent with WTO regulation, for the AB has found that its LCR provision did not observe Article III:4 of the GATT and, consequently, Article 2.1 of the TRIMs and therefore recommended that it be amended. Bearing these jurisprudential findings in mind, the next Section aims to present the *India - Solar Cells* dispute, focusing not so much on the application of the trading system discrimination rules and subsidy regulation, but rather on the aspect of the interaction of the multilateral trade and climate change regimes.

6.2.3 India – Solar Cells case

The past Section has tried to identify the legal analysis of rules from the multilateral trade regulatory framework, by looking to the *Canada – Renewable Energy/FIT Program* dispute. The following section, passes its attention to the part where trade and climate change overlap, by presenting the *India – Solar Cells* dispute, focusing on the action of the DSB towards the interaction of their values and rules (illustrated by its response to the invocation of Article XX of the GATT and the mention of the Paris Agreement by the respondent).

The measure questioned in *India - Solar Cells* was the program implemented in 2010 by the Indian government called Jawaharlal Nehru National Solar Mission, also known as India Solar.

It operated from the conclusion of 25-year power purchase agreements (PPAs) with guaranteed payment of an adjusted rate. The energy purchased by the government was resold to low voltage distribution companies, which passed it on to final consumers.

*government definition of the energy supply-mix of electricity generation technologies. This, in turn, would have lead the Panel to conclude that the benefit comparison under Article 1.1(b) should not be conducted within the competitive wholesale electricity market as a whole, but within competitive markets for wind- and solar PV- generated electricity, which are created by the government definition of the energy supply-mix. ”. WTO Appellate Body Report, **Canada – Certain Measures Affecting the Renewable Energy Generation Sector, Canada Measures Relating to the Feed-in Tariff Program** (Canada – Renewable Energy/FIT Program), WT/DS412/AB/R and WT/DS426/AB/R, para. 5.178.*

The program was structured by two phases, designed to achieve objectives related to the capacity of installation of solar energy, technological advances and development of the national industry.

One of the conditions of the PPAs was the fulfillment of a local content requirement for cells and photovoltaic modules, which referred to the upstream phase of the solar power generation process. The levels of this obligation -that is, the percentage of the use of domestic equipment - changed over time, thus, enabling the Indian industry to adapt to the technologies needed to build the modules.

In the first batch of the first phase, between 2010 and 2013, all solar pile drivers (SPDs) using c-Si technology were to purchase c-Si modules produced by Indian manufacturers, with the use of foreign c-Si cells and thin-cells authorized. In the second batch of the first phase, between 2013 and 2017, all projects using c-Si technology were to use c-Si cells and modules manufactured in India. The use of imported modules containing thin-film or concentrator cells remained authorized. In the second phase, all solar cells and modules should be manufactured in India, regardless of which technology they used.

The United States questioned the local content requirement in the Indian program for violation of Article III: 4 of the GATT and Article 2.1 of TRIMS and the discriminatory effect it causes. Like the EU and Japan in *Canada – Renewable/FIT Program*, the US argument was based on the allegation that the India Solar disrespected the principle of national treatment because it favored local products - cells and photovoltaic modules - to the detriment of imported ones.

India – Solar Cells have followed pretty much the same path as the one developed towards the Canadian program: the Appellate Body considered the measure in question as inconsistent with TRIMs and GATT national treatment obligations because of the local content requirement established on the Indian measure.

However, as argued before, there are aspects from this dispute that make it interesting to mention this particular case as a self-standing subsection of the present work. The first is that the respondent has tried to invoke the exception from Article XX (d) of the GATT. Faced with allegations of incompatibility of the Solar India program with GATT principles, India has attempted to argue that the distinction treatment between local and imported products would be valid, justifying it under the exception of GATT Article XX.

Based on the analysis of WTO jurisprudence, Van der Bossche and Prévost claim that in determining whether a measure can be justified by Article XX, two factors must be examined:

1. First, whether the measure can be justified on one of the specific grounds listed in Article XX, paragraphs (a) to (j);
2. If this condition is met, secondly, if the implementation of the measure complies with the requirements of the caput of Article XX.³²⁵

In this sense, in the case *US – Gasoline*, the Appellate Body has defined the applicability of Article XX as:

In order that the justifying protection of Article XX may be extended to it, the measure at issue must not only come under one or another of the particular exceptions - paragraphs (a) to (j) - listed under Article XX; it must also satisfy the requirements imposed by the opening clauses of Article XX. The analysis is, in other words, two-tiered: first, provisional justification by reason of characterization of the measure under XX(g); second, further appraisal of the same measure under the introductory clauses of Article XX.³²⁶

In the dispute, *India – Solar Cells*, India has used the argument of Article XX (d) trying to demonstrate that its India Solar program was necessary for the fulfillment of four Indian public policies and four international instruments, including the Preamble of the WTO Agreement, the United Nations Framework Convention on Climate - UNFCCC, Rio Declaration on Environment and Development of 1992 and the United Nations General Assembly Resolution on "*The Future We Want*."

In order for a measure to fall within this paragraph, it must:

1. Be designed to ensure compliance with national laws or regulations, which, per se, are not incompatible with GATT disciplines;
2. The measure needs to be necessary to ensure this compliance.

Prior to the *India - Solar Cells* case, the term "*national laws and regulations*" was understood by the Appellate Body as "*rules that are part of a Member's domestic legal system*".³²⁷

³²⁵ VAN DEN BOSSCHE, Peter; PRÉVOST, Denise. *Essentials of WTO Law*. Cambridge: Cambridge University Press, 2016, p. 86.

³²⁶ As an important example: *US – Gasoline*, AB Report, par. 22.

³²⁷ On this wise, *Mexico – Taxes on Soft Drinks*, AB Report, par. 69: "*the terms 'laws or regulations' are generally used to refer to domestic laws or regulations. As Mexico and the United States note, previous GATT and WTO disputes in which Article XX (d) has been invoked as a defence have involved domestic measures. (...) We agree with the United States that one does not immediately think about international law when confronted with the term 'laws' in the plural. (...) In our view, the terms 'laws or regulations' refer to rules that form part of the domestic legal system of a WTO Member*".

However, it seems to have changed its understanding in recognizing the possibility that international obligations - even not contracted within the WTO system - could be valid justifications for the use of Article XX (d).³²⁸

From this perspective, the Appellate Body stated that:

An assessment of whether a given international instrument or rule forms part of the domestic legal system of a Member must be carried out on a case-by-case basis, in light of the nature of the instrument or rule and the subject matter of the law at issue, and taking into account the functioning of the domestic legal system of the Member in question.³²⁹

However, the fact that an international instrument is considered to be part of a Member's legal system is not a sufficient condition for establishing the existence of a rule such as "*law or regulation*" within the meaning of Article XX (d).

On the matter, the Appellate Body ruled that:

To sum up, in determining whether a responding party has identified a rule that falls within the scope of "*laws or regulations*" under Article XX(d) of the GATT 1994, a panel should evaluate and give due consideration to all the characteristics of the relevant instrument(s) and should avoid focusing exclusively or unduly on any single characteristic. In particular, it may be relevant for a panel to consider, among others: (i) the degree of normativity of the instrument and the extent to which the instrument operates to set out a rule of conduct or course of action that is to be observed within the domestic legal system of a Member; (ii) the degree of specificity of the relevant rule; (iii) whether the rule is legally enforceable, including, e.g. before a court of law; (iv) whether the rule has been adopted or recognized by a competent authority possessing the necessary powers under the domestic legal system of a Member; (v) the form and title given to any instrument or instruments containing the rule under the domestic legal system of a Member; and (vi) the penalties or sanctions that may accompany the relevant rule.³³⁰

Regarding the continuation of the applicability test of GATT Article XX (d), the Appellate Body placed the importance, on the one hand, on distinguishing between the specific rules, obligations or requirements with respect to which the measure challenged seeks to ensure compliance. And, on the other hand, the objectives of the laws or regulations in question, as follows:

³²⁸ On this wise, Marianna Kartunen and Michael O. Moore state that "*In the current case, the AB seems to acknowledge the possibility that non-WTO international obligations could justify domestic regulations under Article XX(d), without applying it to the current case. Doubt therefore remains as to the exception's applicability to international instruments in the future.*" KARTTUNEN, Marianna; MOORE, Michael O. *India–Solar Cells: Trade Rules, Climate Policy, and Sustainable Development Goals. World Trade Review*, 2018, n. 17, vol. 2, p. 233.

³²⁹ WTO Appellate Body Report, *India – Certain Measures Relating to Solar Cells and Solar Modules* (India – Solar Cells), WT/DS456/R., par. 5.140.

³³⁰ WTO Appellate Body Report, *India – Certain Measures Relating to Solar Cells and Solar Modules* (India – Solar Cells), WT/DS456/R., par. 5.113.

The "*more precisely*" a respondent is able to identify specific rules, obligations, or requirements contained in the relevant "*laws or regulations*", the "*more likely*" it will be able to elucidate how and why the inconsistent measure secures compliance with such "*laws or regulations*".³³¹

In light of these conditions, in the case studied, India was unable to make the necessary demonstration for the application of GATT Article XX (d).

India has also attempted to argue that its measure could be justified under GATT Article XX (j), unheard of in WTO case law.

The thesis was that the existence of local content requirements within the India Solar program would be justified because it is classified as "*essential for the purchase or distribution of products of which there is a general or local shortage*". It was argued that the "*shortage*" was due to the Indian industry's inability to produce photovoltaic modules and cells. In addition, the Party argued that local content measures would be essential to respond to the shortage situation because energy security and sustainable growth objectives require the manufacture of the products in question.³³²

In order for a measure to fall within this paragraph, it must:

1. Be designed to meet the demand for the purchase or distribution of products in a local or general supply shortage situation;
2. Be essential to meet the purchase or distribution of such products.

Regarding the concept of "*products of which there is a general or local shortage*", the Panel understood, in the case of *India - Solar Cells*, that this concept refers to

the terms '*products in general or local short supply*' refer to a situation in which the quantity of available supply of a product, from all sources, does not meet demand in a relevant geographical area or market. They do not refer to products in respect of which there merely is a lack of domestic manufacturing capacity.³³³

Therefore, this section aimed to show that *India – Solar Cells* case, regarding non-discrimination rules had a similar outcome when compared to the result of *Canada – Renewable Energy/ FIT Program*. This would be because the local content requirement in the Indian program was deemed inconsistent with GATT and TRIMs provisions and the defendant's affirmative defense, through the use of Article XX (d) and Article XX (j) of the GATT has not been successful. Was that the best strategy to be employed by India?

³³¹ WTO Appellate Body Report, **India – Certain Measures Relating to Solar Cells and Solar Modules** (India – Solar Cells), WT/DS456/R, par. 6.203.

³³² WTO Appellate Body Report, **India – Certain Measures Relating to Solar Cells and Solar Modules** (India – Solar Cells), WT/DS456/R, Section 5.46.

³³³ WTO Panel Report, **India – Certain Measures Relating to Solar Cells and Solar Modules** (India – Solar Cells), WT/DS456/R, par. 7.236.

This and other questions that arise from the outcome of the two disputes studied in Sections 6.1 and 6.2 are debated in the following Section 6.3.

6.3 “LEGAL ACROBATICS” TO SAVE RE POLICIES?

Having tried to present the general overview of WTO case law on the subject of renewable energy support programs and two specific cases in detail, the thesis turns to commentaries to be made to the players involved in the DSB disputes. This presents some repercussions from the outcomes of the cases presented above *Canada – Renewable Energy/FIT Programme* case and *India – Solar Cells* case based on works from the trade scholarship.

After the report of the *Canada Renewable – FIT Program* was made available, it was criticized by trade law commentators from both the *greenwashing* and the *carve-out* narratives.³³⁴ Some researches were developed to specifically scrutinize this decision.³³⁵

Many contributions seem to transpire the concern that the final result from the *Canada Renewable Energy – FIT Program* provided by DSB activity would have represented an opening to protectionist industrial policy practices from WTO Members. Rajib Pal, for instance, has argued that the ruling “*permits WTO Members to parse an existing product market into separate markets defined according to production technology, and provide support to chosen higher cost producers (...) without fear of repercussions under the SCM Agreement*”.³³⁶ Aaron Cosbey and Petrus Mavroidis warn that the outcome from the case “*seems to have opened the door wide to infant industry protection*” and to “*industrial policy unlimited*”, without providing a lasting safe haven for FITs, since there would be the possibility of them being considered as a “*subsidy*” in future WTO disputes.³³⁷ Luca Rubini expresses the same kind of criticism, although expanding it, when he refers

³³⁴ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 205.

³³⁵ This was the case of the Luca Rubini piece ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies. RUBINI, Luca. ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 895–938.

³³⁶ PAL, Rajib. Has the Appellate Body Decision on *Canada-Renewable Energy – Feed-in Tariff Program* Opened the Door for Production Subsidies? **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 135–136.

³³⁷ COSBEY, Aaron. MAVROIDIS, Petros. A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 26 and 28.

to the idea of vagueness in the language of the report to state that it is a “*dangerous analogic reasoning in cases to come, and not necessarily in the clean energy sector only*”.³³⁸ Which could result in “*serious systemic implications*”.³³⁹

From another standing point, scholars such as Paolo Farah and Elena Cima deem that “*both the panel and the Appellate Body have interpreted the rules quite narrowly, so as to not leave much space to State’s policies in favour of renewables*”.³⁴⁰

Commentaries to the dispute also seem to raise arguments in the sense that concerns *a priori* unrelated to trade law were taken into account by the panel and the Appellate Body when issuing the understanding in the dispute matter. Arguably, in this sense, Cosbey and Mavroidis have coined the expression “*legal acrobatics*”, when they stated:

The reader of the reports is left with the impression that the WTO adjudicating bodies felt that it was necessary to engage in legal acrobatics in order to avoid finding that a scheme aimed at promoting a public good—the underlying feed-in tariff (FIT) for renewable energy—was in fact a subsidy.³⁴¹

Steve Charnovitz and Carolyn Fisher, building on the argument of *greenwashing*, in the sense of the use of environmental discourses to disguise protectionism, seem to have registered the same impression – besides having suggested the need of further investigation of the rationale that leads governments to implement RE support programs.³⁴² In their words:

³³⁸ RUBINI, Luca. ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 914.

³³⁹ In this sense, Luca Rubini has argued that: “*Although the implications of these potentially far-reaching findings are not yet clear, there is broad agreement that they may offer a carve-out for many policies in support of renewable energy and even beyond this sector. The eventual outcome is that certain ‘subsidy’ measures are not covered by the ‘subsidy’ definition with possible serious systemic implications. It therefore comes as no surprise that these decisions have been strongly criticised in the literature*”. RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 305 - 306.

³⁴⁰ FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1106. What is interesting is that the authors seemed to be concerned with protectionism they state “*In this contribution, we are going to draw the attention to the effects of renewable energy subsidies, distinguishing subsidies which are necessary for desirable and acceptable purposes from those that are nothing but disguised protectionist measures and that might trigger international trade remedies*”. In: FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1105.

³⁴¹ COSBEY, Aaron. MAVROIDIS, Petros. A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 2.

³⁴² On this note, Charnovitz and Fischer when referring to the climate change mitigation rationale and industrial policy rationale for renewable energy subsidies, warn that “*Of course, in reality, many of the stated rationales merit closer scrutiny (Fischer and Preonas, 2010). Renewable sources typically do displace emitting sources, thus avoiding emissions both from CO₂ and also of the conventional air pollutants (...). However, the actual environmental effectiveness is highly sensitive to the amount and type*

Perhaps showing how the ghost of the *Tuna-Dolphin* reports still haunt the WTO, the Appellate Body seemed to go out of its way to express its environmental bona fides. How else could one interpret the Appellate Body's holding that '*fossil fuel resources are exhaustible, and thus fossil energy needs to be replaced progressively if electricity supply is to be guaranteed in the long term*'. In our view, such a holding is hardly justified by the norms of trade law. Indeed, this particular statement is not persuasive on environmental grounds, as it seems to imply that the most compelling reason to replace conventional energy with renewable energy is that the planet is running low on conventional energy, not that it is facing the challenge of climate change.³⁴³

Even if presenting a different focus on the consequences of the outcome of the dispute, Sadeq Bigdeli has considered the method of adjudication of the Appellate Body "*strategically formalist*". It could, then, be argued that the scholar also sees the influence of non-legal rationales in the AB understanding. In this token, Bigdeli argues:

In a strategically formalist method of adjudication, the AB decided to "split the difference" or stakes among various conflicting interests present in the disputes. Based on this strategy, which politically might well have made sense under the circumstances, FIT-LCRs were declared illegal under the GATT and at the same time exonerated (at least tentatively) under the SCM Agreement, which is not discussed in this article. This way, the real decision about the eventual WTO legality of FIT-LCRs was postponed to when and if a Member would be willing to defend them on environmental grounds by invoking GATT Article XX.³⁴⁴

Nonetheless, there are scholars who have seen the outcome of the case in a good light. Sherzod Shadikhodjaev, concludes that "*the appellate interpretations concerning the FIT programme deserve praise as they carve out some policy space for governments promoting clean energy*".³⁴⁵

The *India - Solar Cells* case outcome, having been in accordance with previous case law, was not such a popular object of investigation of the scholarship. Commentaries about it tend to revolve on the use of the Article XX exception by the respondent. On a technical tone, Marianna Karttunen and Michael O. Moore highlight its importance for

of energy they displace, which varies by location, as well as the stringency and type of environmental regulation already in place". CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 207.

³⁴³ CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 207.

³⁴⁴ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 194-195.

³⁴⁵ SHADIKHODJAEV, Sherzod. Renewable Energy and Government Support: Time to 'Green' the SCM Agreement? **World Trade Review**, 2018, n. 14, vol. 3, p. 487. BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 194-195.

establishing more precise criteria for identifying the meaning of the term "*laws and regulations*" and for ruling out the origin of the rule as a determining factor.³⁴⁶

When commenting on the case, the authors also argue that while the position of the Appellate Body was not innovative in this case, there are elements in the report's development that hint at the possibility of future use of Article XX exceptions to justify climate objectives.³⁴⁷ In this sense, the AB has already mentioned the possibility of using Article XX (b) of the GATT to "*measures adopted in order to attenuate global warming and climate change*".³⁴⁸

Nonetheless, regarding this question, one should bear in mind that the balance between commercial and non-trade values is delicate and should be done on a case-by-case basis. In that sense, the Appellate Body on the *US – Shrimp* case has considered that:

The task of interpreting and applying the chapeau is, hence, essentially the delicate one of locating and marking out a line of equilibrium between the right of a Member to invoke an exception under Article XX and the rights of the other Members under varying substantive provisions (e.g., Article XI) of the GATT 1994, so that neither of the competing rights will cancel out the other and thereby distort and nullify or impair the balance of rights and obligations constructed by the Members themselves in that Agreement. The location of the line of equilibrium, as expressed in the chapeau, is not fixed and unchanging; the line moves as the kind and the shape of the measures at stake vary and as the facts making up specific cases differ.³⁴⁹

Based on WTO jurisprudence, Marceau and Trachtman specifically refer to the challenge of weighing between the GATT Article XX exception system and the Article III:4 obligation:

This line of equilibrium must find expression in the respective scope of application of Articles III:4 and XX. In *US—Gasoline*, the Appellate Body stated that Article XX(g) cannot "*be read so expansively as seriously to subvert*

³⁴⁶ On this wise, Marianna Karttunen and Michael O. Moore state that: "*By imposing this case-by-case consideration of the normativity and specificity factors, the AB applies clearer criteria to identify the scope of laws and regulations: the domestic or international source of the instrument no longer appears as the determining factor.*" KARTTUNEN, Marianna; MOORE, Michael O. *India–Solar Cells: Trade Rules, Climate Policy, and Sustainable Development Goals*. **World Trade Review**, 2018, n. 17, vol. 2, p. 234.

³⁴⁷ "*While India's policies were considered discriminatory in the current case, the AB's response to India's claims hints about possible future uses of Article XX exceptions based on climate goals. In particular, the AB adopts a wider interpretation than in previous case law of Article XX(d) on compliance with laws and regulations not inconsistent with GATT; thus perhaps opening the way for future defenses on the basis of international environmental obligations.*" (p. 216); "*The AB report in India–Solar Cells did not offer an innovative position in this regard. Its reasoning on general exceptions under Article XX(j) and (d) does seem to open some possibilities for justifying environmental policies in the future, albeit very cautiously.*" "*Although the AB rejected India's arguments, the ruling leaves open the possibility to use these provisions to justify climate change policies in the future.*" In: KARTTUNEN, Marianna; MOORE, Michael O. *India–Solar Cells: Trade Rules, Climate Policy, and Sustainable Development Goals*. **World Trade Review**, 2018, n. 17, vol. 2, p. 216, p. 235 e p. 232.

³⁴⁸ WTO Appellate Body Report, *Brazil — Measures Affecting Imports of Retreaded Tyres* – Report of the Appellate Body [Brazil – Retreaded Tyres (2007)], WT/DS332/AB/R, adopted 17 December 2007.

³⁴⁹ *US – Shrimp*, par. 59.

*the purpose and object of Article III:4. Nor may Article III:4 be given so broad a reach as effectively to emasculate Article XX(g) and the policies and interests it embodies". But, in EC— Asbestos, the Appellate Body also said—in justifying its decision that health risks ought to be taken into account in assessing the competitive relationship between imports and domestic like goods—"The scope and meaning of Article III:4 should not be broadened or restricted beyond what is required by the normal customary international law rules of treaty interpretation, simply because Article XX(b) exists and may be available to justify measures inconsistent with Article III:4. The fact that an interpretation of Article III:4, under those rules implies a less frequent recourse to Article XX(b) does not deprive the exception in Article XX(b) of effet utile. Article XX(b) would only be deprived of effet utile if that provision could not serve to allow a Member to 'adopt and enforce' measures 'necessary to protect human ... life or health'."*³⁵⁰

Therefore, it can be said that the mere invocation of Article XX of the GATT does not necessarily result in a shelter for renewable energy support programs. On the matter, Ilaria Espa and Gracia Marín Durán argue that "*In sum, while applying Article XX GATT may seem as an easy route at first sight, it becomes apparent upon closer analysis that it will not go a long way in safeguarding policy space for trade-distortive RE subsidies*".³⁵¹ Be it as it may, the limitations of this WTO judicial shelter for clean energy policies are further developed in Chapter 7 of the thesis.

This Section has aimed to show the response from the trade scholarship regarding two specific WTO disputes: *Canada – Renewable Energy/FIT Program* and *India – Solar Cells*. In short, regarding the first dispute, scholars have, from different standing points, criticized the inconclusive finding by the panel and the Appellate Body on the status of FIT programs under subsidy regulation because of its systemic implications (Paal; Rubini; Farah and Cima) and because of its, allegedly, misplaced concern with environmental values opposed to the, arguably, rightful focus on WTO law (Cosbey and Mavroidis; Charnovitz, Fischer;). On the other hand, scholars have praised the outcome of *Canada Renewable – Energy/FIT Program*, for it would have carved-out policy space, enabling the implementation of renewable energy policies (Shadikhodjaev; Lang).

This Chapter has tried to demonstrate a panorama of WTO renewable energy disputes, indicating that it is mostly happening in anti-dumping and countervailing measures procedures, but when it comes to multilateral disputes, it usually involves

³⁵⁰ MARCEAU, Gabrielle; TRACHTMAN, Joel P. *The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade: A Map of the World Trade Organization Law of Domestic Regulation of Goods*. *Journal of World Trade*, vol. 36, n. 5. Kluwer Law International: The Netherlands, 2002, p. 854.

³⁵¹ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. *Journal of International Economic Law*, Oxford Press, 2018, vol. 0, p. 646.

LCRs. Even in cases that have yet to reach panel phases and in both disputes specifically analyzed. Another possible finding of the Chapter had already been mentioned in the beginning of the thesis and refers to the realization that WTO multilateral disputes represent situations of relevant distortions of trade, involving RE sector players, whose conflicts might also involve unilateral track proceedings and investigations (Chapter 3).

Giving attention to SCM Agreement DSB analysis on *Canada Renewable Energy – Fit Program* and the exception DSB analysis on *India – Solar Cells*, the following Chapter 7 builds on the trade scholarship jurisprudence criticism construed in the past Section 6.3 and aims to make an assessment of the main research question, that is, to investigate how the WTO has responded to RE support policies in light of the conflict posed by the multilateral trade and climate change regimes.

7 ASSESSING WTO'S RESPONSE, ITS LIMITATIONS AND CHALLENGES

So far, this thesis has aimed to provide a brief overview of the renewable energy sector, outlining its market characteristics, key players and the programs and measures used by governments to promote its development. Also, it has made an effort to present the international regulatory framework that might be applicable to clean energy support policies, especially subsidies, with a focus on the multilateral trading system and the climate change regimes. This effort has been made in the hope to present that States face a conflicting background, of different local and international obligations, when designing public policies.

The present Chapter turns its attention to the thesis research question of “*How has the World Trade Organization responded to renewable energy support policies from producing countries of solar and wind power technology and equipment? What are the limitations and challenges that arise from the multilateral trading system response?*”

To answer it, the next Chapter argues, in short, that, through the action from the DSB, the WTO's response to renewable energy support policies seems to be permeable to other debates (i.e. climate change), without losing sight of concerns on the trade field (Section 7.1). Recognizing the limitations to the Appellate Body and panels interpretation in the Organization, it makes the case for subsidy law reform (Section 7.2). By looking at the challenges caused by the way the WTO has addressed the issue in question, it argues that the reform negotiations could better benefit from academic works that are concerned with the purpose of the multilateral trading system (Section 7.3). Finally, focusing on the way forward, the work raises suggestion for a future research agenda.

7.1 WTO'S RESPONSE TO RENEWABLE ENERGY SUPPORT POLICIES: OBSERVING NON-TRADE VALUES AS CLIMATE CHANGE AS WELL AS TRADE RULES

The present Section argues that the WTO's response to renewable energy policies seems to be aware of non-trade values, such as climate change, without losing sight of its liberalization-oriented rules. The Section claims that it does so through judicial interpretations from the DSB, that seem to consider the purpose of national programs, without being permissive to evident violations of WTO Agreements. To draw this

conclusion, it readdresses WTO case law and revisits arguments developed throughout the thesis (Section 3.2, Section 5.3, Section 4.3, Section 6.1), as follows.

As already mentioned in the research, “government policies to boost renewable energy and clean technology are emerging as the most concrete testing ground for assessing the mutual supportiveness of WTO rules and climate change law”, using the wording of Kati Kulovesi.³⁵²

Both Gabrielle Marceau and Joost Pauwelyn, admit that the WTO system is not a “self-contained regime” and that its norms can, eventually, conflict with other international law norms, such as the UNFCCC.³⁵³ In short, the authors believe that Multilateral Environmental Agreements (MEAs) might impose on countries obligations that conflict with trade principles.³⁵⁴ To apply the exception system from Article XX of the GATT could be the solution, in the sense that it justifies violations of trade rules in face of legitimate environment objectives. General international law could also be a way to solve the conflict, in the terms of the Article 30 and Article 41 of the Vienna Convention.³⁵⁵ A logic that could be applied to the UN Convention.

³⁵² KULOVESI, Kati. International Trade Disputes on Renewable Energy: Testing Ground for the Mutual Supportiveness of WTO Law and Climate Change Law. **Review of European Community and International Environmental Law**, vol. 23, n.3, 2014, p.352. The author makes this statement opposing it to “(...) the continuing scholarly emphasis on such politically controversial but practically non-existent climate policies seems disproportionate in the current policy context. The idea of trade bans and BCAs gained prominence in a particular historical situation where the free-rider problem in global climate policy was particularly eminent. Notably, there are no current examples of such climate policies; partly because trade bans and BCAs are not considered to be the most effective means to mitigate climate change; and partly because all major emitters have subsequently started implementing domestic policies to reduce greenhouse gas emission, making finger-pointing more difficult”.

³⁵³ MARCEAU, Gabrielle. Conflict of Norms and Conflicts of Jurisdictions: The relationship between the WTO Agreements and MEAs and other Treaties. **Journal of World Trade** n. 35, vol. 6, 2001, p. 1081-1131. PAUWELYN, Joost. How to Win a World Trade Organization Dispute Based on Non-World Trade Organization Law? Questions of Jurisdictions and Merits. **Journal of World Trade** n. 37, vol. 6, 2003, p. 997-1030.

³⁵⁴ On this wise, Avidan Kent mentions that “In order to meet the obligations and goals set by international climate change agreements and declarations, many states have adopted appropriate domestic climate change policies(...)”. KENT, Avidan. The WTO Law on Subsidies and Climate Change: Overcoming The Dissonance? **Trade, Law & Development**, vol. 5, n. 2, 2013, p. 345.

³⁵⁵ For a more detailed report on the authors position, see: AMARAL, Manuela Kirschner do. **Padrões Privados e outras Fontes Não Tradicionais de Governança no Âmbito dos Regimes de Mudança Climática e Multilateral de Comércio da OMC: Conflito ou Convergência?** Tese de Doutorado em Relações Internacionais apresentada na Universidade de Brasília, Instituto de Relações Internacionais, Programa de Pós-Graduação em Relações Internacionais. Brasília, 2014, p. 86-116.

³⁵⁵ UNEP, 2008. **Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda**, p. 17.

Fábio Morosini and Luisa Zuardi Niencheski suggest that the interpretation of the international agreements, including those from the WTO, should take sustainable development into consideration, even when it does not refer to conflicting matters.³⁵⁶

Nonetheless, this clash between the two regimes will likely occur in a specific situation.³⁵⁷ And, so far, the Appellate Body has discussed the compatibility between trade regulation and the climate regime in a WTO renewable energy case. It was the *India – Solar Cells* dispute, already mentioned in this thesis, in which the Claimant was not able to use the Article XX exception of the GATT successfully.

As argued before (Section 6.3), the WTO adjudicating body does not seem to be oblivious to interests that are not included in its agenda of trade liberalization. On the contrary, even without using the Article XX exception, in the *Canada – Renewable Energy / FIT Program* dispute the Appellate Body and the Panel seem to have tried to interpret the benefit element in the subsidy definition from Article 1 of the SCM Agreement in a way that considered the legitimate objective of the policy.³⁵⁸

³⁵⁶ In this sense, Fábio Morosini and Luisa Zuardi Niencheski state that “Assim, de forma a melhor responder às consequências impostas pela complexidade do direito internacional, é incontroverso que os acordos da OMC sejam interpretados consoante os ditames dos tratados multilaterais ambientais. Compreende-se que o artigo 3.2 do ESC orienta o caminho para interpretação das decisões do Painel e do Órgão de Apelação, aceitando a incidência dos métodos interpretativos dispostos na Convenção de Viena de 1969, possibilitando o diálogo e a comunicação entre os subsistemas. Além do mais, percebe-se a relevância de realizar uma interpretação fundamentada no conceito e nos objetivos primordiais do desenvolvimento sustentável que deve ser perseguida em todas as circunstâncias, e não apenas nas situações de conflitos, permeadas pela dúvida e obscuridade.

Com efeito, não obstante a interpretação da OMC acerca desse assunto tão polêmico estar longe de ser definitiva, variando de acordo com circunstâncias particulares, notase uma forte tendência de diálogo por parte do organismo internacional comercial com os interesses ambientais, evidenciado a partir da aplicação em caráter evolutivo do artigo XX”. MOROSINI, Fábio; NIENCHESKI, Luisa Zuardi. *A relação entre os tratados multilaterais ambientais e os acordos da OMC: é possível conciliar o conflito?* **Revista de Direito Internacional**, vol. 12, n. 2, 2014, p. 165.

³⁵⁷ Marceau believes that the conflict shall happen within a dispute from the DSB, as Article 23 from the DSU determines that WTO jurisdiction prevails over other fora. MARCEAU, Gabrielle. Conflict of Norms and Conflicts of Jurisdictions: The relationship between the WTO Agreements and MEAs and other Treaties. **Journal of World Trade** n. 35, vol. 6, 2001, p. 1112.

³⁵⁸ Something that is recognized by scholars who argue both in favor and against the rational or methodology chosen by the Appellate Body to come to this conclusion. Respectively, Andrew Lang states “The clearest illustration of this comes from the Appellate Body’s reasoning in *Canada—Renewable Energy*. As noted above, the Appellate Body suggested that the appropriate benchmark to establish whether the feed-in-tariffs constituted subsidies should take into account the broader strategic goals of the Ontario government”. LANG, Andrew. Heterodox markets and ‘market distortions’ in the global trading system. **Journal of International Economic Law**, Oxford University Press: 2019, n. 22, p. 717. Luca Rubini, in its turn, argues “In the recent *Canada – Renewable Energy/FIT*, both the Panel and the Appellate Body interpreted the requirement of a ‘benefit’. They called into question the established ‘market-orientation’ of the benefit test and, at the same time, injected the analysis of public policy objectives into the analysis of the benefit.”. RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 305.

In this sense, the Appellate Body has stated that:

competitive wholesale electricity markets, although a theoretical possibility, will only rarely operate in a way that remunerates the mix of generators needed to secure a *reliable* electricity system with enough revenue to cover their all-in costs, let alone a system that pursues *human health and environmental* objectives through the inclusion of facilities using solar PV and wind technologies into the supply mix.³⁵⁹

As extensively demonstrated in Section 6.3 of the thesis, this understanding has received severe criticism from the scholarship. Nevertheless, it seems to be clear that “*legal acrobatics*”, and here the term from Cosbey and Mavroidis is not used on a reproving tone, were performed so that countries could still be implement national renewable energy programs.³⁶⁰

Albeit very discussed, or using the vocabulary from Luca Rubini, “*right, wrong, or seriously wrong*”, the DSB seems to have guaranteed a space of discretion for Members to implement the policies they deem necessary.³⁶¹ However, this thesis argues, that it was, at least in part, within the parameters that the WTO membership agreed upon and, presumably, understood to be enough to ensure the smooth functioning of international trading transactions. Or, at least, taking trade concerns seriously into consideration, as it is shown by the recurrent understanding of violation of Article III: 4 of the GATT and Article 2.1 of the TRIMs whenever local content is required in renewable energy support policies challenged in WTO multilateral procedures.³⁶²

³⁵⁹ *Canada – Renewable Energy / FIT Program*. Panel Report, para. 7.309 (emphasis in the original).

³⁶⁰ COSBEY, Aaron. MAVROIDIS, Petros. *A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO*. **Journal of International Economic Law**, Oxford University Press: 2014, n. 17, p. 13. Idea that Steven Charnovitz and Carolyn Fischer have expressed as “*the Appellate Body seemed to go out of its way to express its environmental bona fides*”. CHARNOVITZ, Steven; FISCHER, Carolyn. *Canada-Renewable Energy: Implications for WTO Law on Green and Not-So Green Subsidies*. **World Trade Review**, 2018, n. 17, vol. 2, p. 194.

³⁶¹ Luca Rubini, when investigating WTO case law on subsidies, has argued that the understanding from *Canada – Renewable Energy / FIT Program* could be regarded as *seriously wrong* opposed to other *right* and *wrong* dispute outcomes. The judgement is made regarding the parameter the author considers to be optimal regarding judicial interpretation for the WTO Dispute Resolution system (so that the interpretation of the texts can be as close to the meaning that has been originally negotiated), an argument that is further developed in the next Section 7.2. RUBINI, Luca. *The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study*. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 276-317.

³⁶² As demonstrated in Section 6.1 of the thesis, that makes an overview of WTO renewable energy disputes. For a more thorough analysis on the subject, see KROETZ, Maria Eugênia do Amaral. *O Uso de Requisito de Conteúdo Local no Incentivo às Energias Renováveis: Legalidade do PROINFA à luz do Sistema OMC*. In: Thorstensen, Vera Helena. Nogueira, Thiago Rodrigues São Marcos. **Anais da Conferência Anual de Comércio Internacional da Cátedra OMC no Brasil**. São Paulo: 2019.

Therefore, the question does not seem to be one of a conflict between the climate change regime opposed to the multilateral trading system, but much more a question of whether the WTO framing of renewable energy subsidies gives Members enough flexibility - and enough legal assurance - to implement clean energy measures that pursue climate change goals.³⁶³ And whether this space should be created by this Appellate Body “*evolutionary interpretation*” or by Members through a political renegotiation of WTO subsidy regulation (Section 7.2).³⁶⁴

According to the risk assessment referred to in Section 3.3 of the thesis and inspired by the research from Ilaria Espa and Gracia Marín Durán, assessments of incompatibility with WTO regulation would be more evident in renewable energy support programs that: i) sport a local content provisions – for LCRs more evidently would not comply with trade rules and ii) are directed to manufacturers of RE generation technology and equipment - because these good and services are part of a global market, and, thus, more easily commercialized cross-border and more frequently challenged in countervailing duty and anti-dumping proceedings.³⁶⁵

A risk that is sound to the conclusion drawn from the overview from WTO case law, conducted in Section 6.1: disputes regarding the RE sector seem to be mostly centered in unilateral procedures (anti-dumping and countervailing measures) and the presence of LCRs seems to be cause for adjudication of clean power programs under the DSU, in its multilateral track.

Hence, it can be said that the multilateral trading system does not restrain Members to implement the policies to support renewable energy and, consequently,

³⁶³ In this vein, Article 3.5 from the UNFCCC reads “*Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.*”.

³⁶⁴ In this sense, following Section 7.2 seems to build on the following argument by Joost Pauwelyn: “*Even if these rules were not written with energy in mind, they can be applied in this new light. The big question in this respect is then whether such “evolutionary interpretation” can be left in the hands of the WTO dispute settlement system (and, in particular, its seven member Appellate Body) or is better handled through a political renegotiation of the agreements or explicit new rules on energy*”. PAUWELYN, Joost. *Global Challenges at the Intersection of Trade Energy and the Environment: an Introduction*. In: PAUWELYN, Joost. **Global Challenges at the Intersection of Trade Energy and the Environment**. Centre for Trade and Economic Integration: the Graduate Institute of International and Development Studies, Geneva, 2010. p. 5.

³⁶⁵ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 643.

reduce carbon emissions or produce environmental goals, to the extent that they do not provide blatant incompatibilities with WTO law.³⁶⁶ But, is this space enough?

This Section aimed to make an assessment of WTO response to renewable energy programs, by showing that the Organization seems to have made an effort to provide policy space for Members to implement renewable energy support programs – as demonstrated in Section 5.3 – unless they are adamantly against trade rules (as happens in the case of LCRs). And has done so not by using the exception system from Article XX of the GATT, but by, arguably, considering legitimate policy concerns in the SCM Agreement subsidy analysis. The next Section claims that there seem to be limitations to the judicial interpretation in the Organization, thus, making a case for the renegotiation of WTO law, focusing on the SCM Agreement.³⁶⁷ It also aims to develop the argument that scholarship narratives that are concerned with the objectives of the Organization would better help future negotiations opposed to narratives that focus on carving-out policy for Members.

7.2 LIMITATIONS: MAKING THE CASE FOR WTO SUBSIDY LAW REFORM

Having tried to outline how the WTO has responded to the renewable energy policy issue, regarding the rules and behavior from the Organization, and especially the outcomes from the WTO multilateral disputes, the next Section aims to make the case for WTO law reform, by visiting the work from Luca Rubini regarding the limitations the judicial response from the WTO might have regarding the creation of a shelter to future renewable energy support programs and the (lack of) range and flexibility in the SCM Agreement.

The previous Section has argued that WTO's response to RE policies can be shortly summarized by the balance of trade rules and non-trade values through the understanding presented by panels and the Appellate Body, which tend to follow the rationale developed in the *Canada-Renewable Energy* dispute.

³⁶⁶ On this wise, Espa and Duran state: “(...) the probability of SCM-inconsistency is very high for any RE support measure that is linked to local content requirements. However, for the reasons previously stated, this should not be miss-labelled as a direct conflict between WTO law and international climate change mitigation objectives”. ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 643.

³⁶⁷ It has chosen the SCM Agreement, since the expiring of green light subsidies– and, thus, the inexistence of a safe haven for legitimate policies - has been frequently identified by the scholarship as reason to reform multilateral trade regulation, as presented in the following Section 7.2.

In spite of having, so far, guaranteed the survival of RE support programs, there are limitations to this response. When the WTO started to be called to mediate Members' issues regarding clean energy support programs, arguably, the scholar debate circled around the need to safeguard policy space within the current multilateral trade subsidy regulation, especially, expressed by the SCM Agreement.³⁶⁸ The researches would emphasize the clash from WTO rules and environmental-friendly goals in a way that this alleged incompatibility had almost become an uncontested argument in the academia. The performed studies would often lead to the conclusion that the system, especially regarding the SCM Agreement, should be reformed.³⁶⁹

In the words of Ilaria Espa and Gracia Marín Duran:

Since the Canada – Renewable Energy/FIT Program (2013) dispute at the World Trade Organization (WTO), it has become almost conventional wisdom in the scholarship that a clash exists between international climate change mitigation goals and WTO law, with a growing consensus (if not anxiety) that WTO subsidy rules ought to be reformed in order to safeguard 'policy space' for government support to renewable energy.³⁷⁰

In spite of the vast literature on the subject, this Section focuses on the work of Luca Rubini, a competition and trade law expert and professor, who authors the first theoretical analysis of the definition of subsidy in the WTO and the EU, that has authored a "*pioneering and influential piece on this call for reform*".³⁷¹ It develops the argument of this Section - that there are limitations to WTO's response to renewable energy and policies and, thus, law reform should be pursued - based in two claims identified in the

³⁶⁸ WU, Mark; SALZMAN, James. The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy. **Northwestern University Law Review**, 2014, vol. 108, n. 2, p. 401-474. LEAL-ARCAS, Rafael. Trade Proposals for Climate Action. **Trade, Law & Development**, vol. 6, n. 1, 2014, p. 11-54.

³⁶⁹ BIGDELI, Sadeq Z. Clash of Rationalities: Revisiting the Trade and Environment Debate in Light of WTO Disputes over Green Industrial Policy. **Trade, Law and Development**, 2014, n. 6, vol. 1, p. 177-209. WEBER, Rolf H.; KOCH, Rika. International Trade Law Challenges by Subsidies for Renewable Energy. **Journal of World Trade**, Kluwer Law International, vol. 49, n. 5, 2015, p. 757-780. GALLAGHER, Kevin P., AYALA, Francisco Aguayo. **Preserving Policy Space for Sustainable Development: The Subsidies Agreement at the WTO**. Winnipeg, Canada: International Institute for Sustainable Development, 2005. CROSBY, Daniel C. Energy discrimination and international rules in hard times: what's new this time around, and what can be done. **Journal of World Energy Law and Business**, 2012, Vol. 5, No. 4, p. 342.

³⁷⁰ ESPA, Ilaria; DURAN, Gracia Marín. *Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program*. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, Abstract.

³⁷¹ Named *Ain't Wastin Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform*. Assesment by ESPA, Ilaria; DURAN, Gracia Marín. *Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program*. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 623.

works of the scholar: first, that there are limitations to WTO adjudicating activity and, second, that there are limitations in WTO subsidy law.

As mentioned, Luca Rubini has expressed disapproval to the *Canada-Renewable Energy/FIT Program* outcome and to overall WTO subsidy jurisprudence as well. In one of its recent researches, he has argued that this reproach is not directed to the Appellate Body or panels, but rather “*The gist of these criticisms is that certain decisions are wrong because they overlook the nature of WTO law, the ‘negotiated balance’ underlying it, and the corresponding role of WTO dispute settlement.*”³⁷²

The scholar fundamentals this position in its interpretation of the nature of WTO law. It would relate more to the nature of a contract than to the nature of a constitution and, thus, should be construed based on the objective meaning of its terms rather than on expectations from the society. This premise would mean that: “*the attitude and focus of the interpreter or adjudicator should be more on ‘discovering’ rather than on ‘inventing’ meaning*”.³⁷³

Arguably, this reflects on the ideas that the dispute settlement body cannot add or diminish rights or obligations from Members, and its mandate would be one of simple “*clarification*” of the law. Ideas that are expressed by Articles 3.2 of the DSU and Article 19.2 of the DSU – and constantly mentioned by the United States.³⁷⁴

³⁷² RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 278-280; p. 280.

³⁷³ To Rubini, “*This is the essence of being simply agents with a limited mandate, and not principals crafting negotiating scenarios and possibilities*”. RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 278-280; p. 280.

³⁷⁴ In its criticisms to the WTO Dispute Settlement System, the United States has constantly accused panels and the Appellate Body of “*judicial activism*”. For instance, when speaking over Article 3.2 of the DSU, the United States Trade Representative (USTR) has stated that “*As explained above, the dispute settlement system is plainly structured around the idea that panels and the Appellate Body cannot add to or detract from obligations undertaken by WTO Members. The use of “clarify” in this text, therefore, does not and cannot authorize panels or the Appellate Body to provide interpretations in the abstract or on issues not necessary to resolve the particular dispute. Indeed, nothing in this language acts as a directive to panels or the Appellate Body nor an authorization for them. There is no “shall” or “may” in this text. Rather, it is simply a statement of what WTO Members agreed flowed from the dispute settlement system when it operated in accordance with the agreed provisions. Thus, any “clarification” resulting from the system cannot take the form of judicial activism by panels or the Appellate Body. This limit stands in contrast to the authority explicitly provided to some other international tribunals in their respective legal texts. When national governments intend for an international tribunal to issue advisory opinions, they can and have made this intention clear in the text that establishes the tribunal.*” UNITED STATES TRADE REPRESENTATIVE – USTR. **Report on the Appellate Body of the World Trade Organization.** Available at: <https://ustr.gov/sites/default/files/Report_on_the_Appellate_Body_of_the_World_Trade_Organization.pdf>. Access: 12 Mar 2020.

To Rubini, being treaty text “*the centre of hermeneutic practice*”, as the document in which the rights and obligations of parties were defined by themselves, it should, thus, be “*both the starting point and the limit of interpretation*”. In his view, panels and the Appellate Body should only look for the “*negotiated balance*” of the applicable rules in the case matter.³⁷⁵

Calling it an example of the “*jurisprudence of invention*”, Rubini argues that the “*in the Canada – Renewable Energy/FIT dispute, where both the Panel and the Appellate Body intentionally inject public policy considerations into the benefit determination, and thus clearly depart from the conception of benefit and subsidy that the negotiators had in mind*”.³⁷⁶

Arguing over the matter, Rubini has stated “*The result (from Canada – Renewable Energy/FIT Program) is a limited but unwarranted carve-out of certain types of subsidies from subsidy disciplines*”.³⁷⁷

Limitations to WTO jurisprudence as a means to “*carve-out policy space*” have also been discussed on a different light. For instance, scholars that develop their researches through a Law and Development perspective have also highlighted the challenges of participation of developing countries in this process, since they would not always have the means to do so, sound to arguments set forth in Section 3.3.³⁷⁸

In this sense, Alvaro Santos, has stated the following:

Development scholars argue that by imposing tight legal restrictions the WTO system hinders poor countries’ prospects for economic growth. As I will show, however, many of the legal restrictions are open-ended and remain in flux through constant interpretation. Whereas there are important limits set by the architecture of the WTO and the asymmetry of power between its members, there is flexibility within the system to expand developing countries’ regulatory autonomy beyond what is currently recognized. By the same token, I challenge the liberal trade scholars’ assumption about the WTO as a rule-

³⁷⁵ In its words “(the negotiated balance) *is the equilibrium of the negotiated deal, what was agreed to (or was not agreed to) in its essence and, if possible, in its details*”. RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 282.

³⁷⁶ RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 310.

³⁷⁷ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law.** Cambridge University Press: Cambridge, 2017, p. 330.

³⁷⁸ For an interesting account on how Brazil has acted in the WTO dispute settlement system, from a Law and Development perspective, see: BADIN, Michelle Ratton Sanchez. Developmental Responses to the International Trade Legal Game.. In: TRUBEK, David M *et al.* **Law and the New Developmental State: The Brazilian Experience in Latin American Context.** Cambridge University Press: Cambridge, 2013, p. 246-300.

based system providing a level playing field and equality of opportunity between members in the WTO dispute settlement system. I show that there are important structural asymmetries that disfavor developing countries. Thus, although attainable, policy space is expensive and, above all, requires a deliberate strategy.³⁷⁹

Getting back to the argument of Luca Rubini that courts “*cannot create law by filling gaps and making fundamental decisions on what is good and what is bad*”, the scholar argues that “*the only real option*” to the way forward would be law reform. A statement that is also based on the argument of subsidy regulation being uncertain and unsound.³⁸⁰

Presenting a strong concern with the factors of *uncertainty, paradox* and *inconsistency* – that are repeated in other works from his authorship - ³⁸¹ Rubini proposes key legal questions to the framing of subsidization of renewable energy and the SCM Agreement discipline:

What type of public action supporting renewable energy is covered by WTO rules applicable to subsidies? How does the regulatory framework cope with the distorted nature of energy markets? Are the guidelines originating from the legal disciplines in line with the policy prescriptions? Is the legal framework coherent? Is it sufficiently or appropriately friendly towards the use of desirable subsidies to support renewable energy?³⁸²

In order to answer these questions, the author develops arguments based on former Appellate Body reports – since, at the time, the report of the *Canada Renewable – FIT Programme* case had yet to be published - regarding the status of RE policies under the WTO industrial subsidy and examples of EU case-law, to ascertain discipline is. After

³⁷⁹ SANTOS, Alvaro. Carving Out Policy Autonomy for Developing Countries in the World Trade Organization. In: TRUBEK, David M *et al.* **Law and the New Developmental State: The Brazilian Experience in Latin American Context**. Cambridge University Press: Cambridge, 2013, p. 168. The author explains the distinction as follows: “*The global financial crisis also threw the WTO into the limelight and reenergized a vigorous debate between two main positions, which I call the “liberal trade” and “development” positions. Liberal trade scholars defend the WTO as an institution that can bring prosperity and increase economic welfare in the world. Development scholars, on the other hand, criticize the WTO for curtailing developing countries’ policy autonomy and hindering their ability to undertake the kind of policies that wealthy countries undertook to become rich. Interestingly, although liberal trade and development scholars disagree about the merits of the WTO, they both share an assumption that the WTO effectively restricts a state’s capacity to regulate in favor of its own domestic economic interests; the difference is that the former group celebrates this condition and the latter bemoans it.*” SANTOS, Alvaro. Carving Out Policy Autonomy for Developing Countries in the World Trade Organization. In: TRUBEK, David M *et al.* **Law and the New Developmental State: The Brazilian Experience in Latin American Context**. Cambridge University Press: Cambridge, 2013, p. 168.

³⁸⁰ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 331; p. 329.

³⁸¹ RUBINI, Luca. ‘The Good, the Bad, and the Ugly.’ Lessons on Methodology in Legal Analysis from the Recent WTO Litigation on Renewable Energy Subsidies, **Journal of World Trade**, Kluwer Law International: The Netherlands, 2014, p. 895–938. RUBINI, Luca. ASCM disciplines and recent WTO case law developments: what space for ‘green’ subsidies? EUI **Working Paper** RSCAS 2015/03.

³⁸² RUBINI, Luca. Ain’t Wastin Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform, **Journal of International Economic Law**, vol. 15, n. 2, 2012, p. 532.

separating tax incentives from regulatory measures, Rubini addresses issues like the “*otherwise due*” determination provided in item (ii) of Article 1.1(a)(1) of the SCM Agreement; the need (or not) to consider the objectives of a measure; the “*‘elusive frontier’ of subsidy law and policy*”; and the notion of “*financial contribution*” and “*any form of income or price support*” expressed in Article 1 of the SCM Agreement, paying special attention in the “*‘normal’ ‘governmental conduct’ regarding its ‘function’ and ‘practice’*”.³⁸³

Based on sophisticated argumentation, the author concludes that:

It seems that some of the most common measures of support of renewable energy (tax incentives, minimum quantitative requirements and pricing requirements) still have an unclear status under the legal definition of subsidy of the SCM Agreement. This either depends on the inherent nature of the measure (tax) or the uncertainty of the legal standard (regulation). Either way, from a policy space perspective, this results in a serious situation of legal uncertainty.³⁸⁴

In the same article, Rubini comments on the issues of the benefit analysis present in SCM Agreement claims, considering the specificities of the electricity market. Which is a regulated sector, that must correct failures, thus being a distorted market and, consequently, presenting challenges for the establishment of the benchmarks needed to make the analysis.

Among other subjects such as specificity and adverse effects – which the author considers a “*paradox*” - he also points out the legal analysis of discriminatory subsidies, arguing that it is “*not fully coherent or definite*”, based on the comparison between the treatment granted to “*local-content subsidies*”, “*production subsidies*” and “*purchase obligations in FITs*”.³⁸⁵

In a more recent work, based on the ideas of *point of balance and trade off*, Rubini argues that “*subsidy laws are uncertain and unsound*”, making, first a technical legal analysis and then an assessment that relates to the “*factual dimension of the issue of policy autonomy*”.³⁸⁶

³⁸³ RUBINI, Luca. Ain’t Wastin Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform, **Journal of International Economic Law**, vol. 15, n. 2, 2012, p. 541 - 543.

³⁸⁴ RUBINI, Luca. Ain’t Wastin Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform, **Journal of International Economic Law**, vol. 15, n. 2, 2012, p. 544.

³⁸⁵ RUBINI, Luca. Ain’t Wastin Time No More: Subsidies for Renewable Energy, the SCM Agreement, Policy Space and Law Reform, **Journal of International Economic Law**, vol. 15, n. 2, 2012, p. 545-546; p. 550-554.

³⁸⁶ The idea of *point of balance* is related to a comparative study between the exception regime from Article XX of the GATT and the difficulties regarding to actually use trade remedies from the SCM Agreement, including the burden of proof on claimants. The idea of *trade-offs* would be inherent to subsidization in the sense that “*Subsidies are equivocal because they may have various positive and negative effects at the same time. As we have noted elsewhere, underlying any policy decision and any legal compromise, there is a*

The regulation would be *uncertain* in the sense that neither WTO rules nor its case law has been able to clarify what amounts to a financial contribution; what is the status of tax incentives; what is the status of regulatory measures (such as FIT programs); what is the meaning of any form of income or price support; what is the meaning of benefit; regarding the character of the specificity test; and regarding the difficulty to prove adverse effects. The SCM Agreement would be *unsound* in the sense that it would not be in line with subsidy policy prescription nor be coherent to system, since they no longer provide carve-outs to the standard regime, unlike the Article XX exception regime in the GATT. As mentioned in the beginning of this Section, the expiration of green light subsidies and, consequently, the end of the safe-harbor to environmental policies – here including renewable energy support programs – has been a recurrent concern in trade scholarship works that discuss the policy space granted by the WTO system to its Members.³⁸⁷

Here a caveat must be made. Another commonly proposed option to give Members freedom to implement renewable energy policies that could, among others, mitigate the effect of climate change was the one to extend the use of the exception regime from Article XX of the GATT to the SCM Agreement.³⁸⁸

However, Ilaria Espa and Gracia María Duran argue that the solution to extend the use of Article XX of the GATT “*appears attractive since it would overcome the lack of an exception clause in the SCM Agreement through flexible interpretation by the Appellate Body, without need for law reform requiring consensus among the WTO membership*”, were it not for that fact that they are not capable of sheltering RE programs from unilateral trade measures – that are under the most contentious risk in the WTO, as argued above (Section 7.1).³⁸⁹

trade-off”. RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 323-328.

³⁸⁷ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 318-322.

³⁸⁸ CONDON, Bradley J. Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World. **Journal of World Trade**, vol. 51, n. 4. Kluwer Law International: The Netherlands, 2017, p. 675–690. FARAH, Paolo D.; CIMA, Elena. WTO and Renewable Energy: Lessons from the Case Law. **Journal of World Trade**, Kluwer Law International, 2015, vol. 49, n. 6, p. 1103-1116. HOUSE, Robert. **Securing Policy Space for Clean Energy under the SCM Agreement: Alternative Approaches**. Available at: <<http://e15initiative.org/publications/securing-policy-space-for-clean-energy-under-the-scm-agreement-alternative-approaches/>>. Access on 23 Jul 2019. SHADIKHODJAEV, Sherzod. Renewable Energy and Government Support: Time to ‘Green’ the SCM Agreement? **World Trade Review**, 2018, n. 14, vol. 3, p. 479-506.

³⁸⁹ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International**

In addition, building from the idea from Rubini that there are limitations to the role of WTO courts, it seems that Members would need to negotiate language that is more specific if they understand it to be important to the trading system to allow measures that are expressly contrary to trade liberalization current rules. In this sense, and stretching the argument further, the GATT exception system has yet to be able to shelter local content and it does not seem that the extension of Article XX of the GATT to subsidy disputes will be enough to protect renewable energy equipment support programs sporting LCRs – the ones which are most at risk of WTO incompatibility, as claimed in the previous Section 7.1.

All in all, the present research primarily argues that the WTO response towards renewable energy support policies has considered both trade and non-trade values, including climate change, through interpretations from the DSB. Having mentioned the limitations of the judicial interpretation in the Organization and, consequently, of this response, it has made the case for subsidy law reform. The next Section, elaborates on the arguments of the carving-out narrative (Section 3.3), arguing that works that are concerned with the purpose of the multilateral trading system could better orientate a future negotiation of WTO rules.

7.3 CHALLENGES: (RE)NEGOTIATING WTO RULES IN LIGHT OF THE ORGANIZATION'S OBJECTIVES

Having argued for the need of subsidy law reform, the following Section aims to assess the challenges that can be identified from the way the WTO has responded to RE public incentives. To achieve this goal, however, it does not intend to make a deep evaluating assessment of the current regulation or suggest proposals to the reform. But rather to claim, building from the argument developed by Andrew Lang, that scholarship works that are concerned with the multilateral trade objective could better support potential future negotiations of the SCM Agreement opposed to the carve-out narrative, presented along the thesis.

Economic Law, Oxford Press, 2018, vol. 0, p. 25; p. 648-651. For a more developed construction of the argument, leading to the same conclusion, see: DURAN, Gracia Marín. Sheltering Government Support to 'Green' Electricity: the European Union and the World Trade Organization. **International & Comparative Law Quarterly**, 2018, v. 67, n. 1, p. 158-163.

When referring to the lack of clarity of WTO subsidy laws, Luca Rubini seems to raise an interesting point. The author argues that:

The ultimate reason for this (*subsidy laws being notoriously unclear*) is that Members have – and have always had – different views on subsidisation. And these views change with time, and with the rise or fall of certain stakeholders. Ideologies also come and go. As repeatedly noted, technology develops, markets evolve and the political economy alters. For these reasons, fundamental features of subsidy laws – such as the definition itself of what constitutes a subsidy, or the conclusion that a certain subsidy is good or bad – have always been controversial.³⁹⁰

The SCM Agreement is a successful result of intense negotiations in the Uruguay Round that aimed to balance developed and developing countries interests in the tantalizing matter of subsidies. That in the sense that it was able to establish a definition of subsidy and fairly objective parameters to regulate measures that can, simultaneously, be tools for the achievement of legitimate local goals and cause trade distortion.³⁹¹

This has been even recognized by the DSB that in the panel of the *United States – FSC (2000)* case, when it stated “*the inclusion of this detailed and comprehensive definition of the term ‘subsidy’ is generally considered to represent one of the most important achievements of the Uruguay Round in the area of subsidy disciplines.*”³⁹²

At the time of the Uruguay Round the liberal discourse was standard and the SCM Agreement is influenced by the ideas from the Washington Consensus. On the subject, Farah and Cima state that

The ASCM was negotiated in the late 1980s and early 1990s when the world was moving towards embracing the free market and privatization. It is therefore not surprising to find that the ASCM Agreement imposes strict disciplines and contains no general exceptions. The only provisions on non-actionable subsidies—which can be viewed as narrowly tailored exceptions to the ASCM disciplines and which cover certain assistance to research activities, to disadvantaged regions, and to promote the adaptation of existing facilities

³⁹⁰ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for ‘Green’ Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 328.

³⁹¹ In this sense, Luca Rubini argues “*This multifactorial complexity explains why, during the Uruguay Round negotiations (and indeed the Tokyo Round), very different views on the regulation of subsidies clashed. The conclusion of an agreement was thus both a challenge and a success. But a hefty price had to be paid. Subsidy rules lack clarity – paradigmatically. This vagueness is a true test for those called to interpret the rules and make them operative.*”. RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO Dispute Settlement: Subsidies as a Case Study. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. **Assessing the World Trade Organization: Fit for Purpose?** Cambridge: Cambridge University Press, 2017, p. 277.

³⁹² Panel Report, US – FSC (2000), par. 7.80.

to new environmental requirements—expired in 1999, after the Members could not agree on their extension.³⁹³

However, this kind of logic no longer seems to be compatible with current interests of WTO Members. In 2010, Debra Steger had already realized that even players that were prone to the hardening of rules meant to avoid trade distortion during the SCM Agreement negotiations, such as the United States and the European Union, started to take actions incompatible with this discourse.

In the words of the author:

In recent year subsidization has taken on new prominence in the economic policy toolkit as governments around the globe have responded to the financial crisis with massive stimulus packages, including equity infusions into failing financial institutions as well as sectoral assistance programs for industries such as the auto industry. Subsidy programs for biofuels and other alternative energy industries are also a popular policy choice for governments in their rush to respond to the exigencies of climate change. (...).³⁹⁴

Another important factor noted by Steger is that *“Even though it is commonly believed that export and sector-specific subsidies, in particular, distort trade, politicians need to get re-elected and industry groups often lobby aggressively for assistance from their governments.”*³⁹⁵

In the current scenario of multilateral crisis, an argument that seems to be of consensus between the Membership is the one that WTO regulation is not being able to answer to industrial subsidies. For instance, although having different positions on the issue of the Appellate Body, the United States and the European Union have converged on talks regarding state-owned enterprises and extraterritorial subsidization, even presenting a joint proposal, with other Members, to strengthen WTO notification requirement.³⁹⁶ China, in its turn, has argued for the revival of green light subsidies in the

³⁹³ FARAH, Paolo D.; CIMA, Elena. Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel. **Journal of International Economic Law**, n.16, vol. 3, p. 715.

³⁹⁴ STEGER, Debra P. The Subsidies and Countervailing Measures Agreement: Ahead of its Time or Time for Reform? **Journal of World Trade**, vol. 44, n. 4, 2010, p. 780.

³⁹⁵ STEGER, Debra P. The Subsidies and Countervailing Measures Agreement: Ahead of its Time or Time for Reform? **Journal of World Trade**, vol. 44, n. 4, 2010, p. 780.

³⁹⁶ While the EU is an advocate for the multilateral dispute settlement system, the US has vetoed new appointments for Members of the Appellate Body that have culminated in its shutting down by December 2019. The proposal is available at: Procedures to Enhance Transparency and Strengthen Notification Requirements under WTO Agreements - Communication from Argentina, Australia, Canada, Costa Rica, the European Union, Japan, New Zealand, the Separate Customs Territory Of Taiwan, Penghu, Kinmen and Matsu, and the United States. **JOB/GC/204/Rev.1**. Available at < https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?MetaCollection=WTO&SymbolList=JOB%2fGC%2f204%2fRev.1&Serial=&IssuingDateFrom=&IssuingDateTo=&CATTITLE=&ConcernedCountryList=&OtherCountryList=&SubjectList=&TypeList=&FullTextHash=371857150&ProductList=&Bo

SCM Agreement.³⁹⁷ Although, the proposals seem to go in different directions, they both show that the current trade rules are not being able to attend to Members' expectations.

It is true that to reform WTO law on subsidies might represent a practical challenge, especially in the present time.³⁹⁸ It seems, thus, that the idea from Luca Rubini to see it as a *process* and not as its result, that is, *new substantive disciplines*, makes sense.³⁹⁹

As already mentioned in the thesis, when the scholarship has debated WTO's response to renewable energy policies, it has, through several ways and suggestions, tried to carve-out policy space to preserve the implementation of RE support programs already in place and to protect government initiatives yet to come. This thesis proposes that the issue is seen in a different light.

Andrew Lang has called the trade community to discuss a "*legitimizing collective purpose to ground the work of the trade regime*". This statement is made based on the argument that WTO law is ambiguous and that ideational shifts, caused by real world events, make the "*yardsticks*" to construe it and, consequently, the legitimate the Organization change over time.⁴⁰⁰

Performing a historical reconstruction of the WTO, Lang argues that, in the time of the GATT, the system had the purpose "*to ensure a stable and relatively open international economic order, and above all to avoid a repeat of the tariff wars seen*

dyList=&OrganizationList=&ArticleList=&Contents=&CollectionList=&RestrictionTypeName=&PostingDateFrom=&PostingDateTo=&DerestrictionDateFrom=&DerestrictionDateTo=&ReferenceList=&Language=ENGLISH&SearchPage=FE_S_S001&ActiveTabIndex=0&languageUIChanged=true# >. Access: 01 Feb. 2020.

³⁹⁷ CHINA. **China's Proposal on WTO Reform**. Communication from China. Available at: <https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?CatalogueIdList=254127&CurrentCatalogueIdIndex=0>. Access: 23 January 2020.

³⁹⁸ Espá and Durán, on this wise, state that "*the big practical challenge is to get WTO members to agree on an SCM exemption clause that at once shields 'good' RE subsidies and yet is not to be abused*". Among the reasons for that would be the need for consensus between all the membership on what subsidies would be under the carve-out from SCM discipline, appropriate notification and monitoring procedures, conflicting interests between WTO members and the calibration of legal clarity with reasonableness eligibility criteria. ESPÁ, Ilaria; DURÁN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 648-649.

³⁹⁹ "*It is crucial to consider law reform for what it is, especially in the international arena: a process. This means that we should not think only, or immediately, about what substantive disciplines should emerge from reform. This is the outcome of the process. The suggestion made here is that the focus and energy should be directed towards how to start and how to design the process so that it creates the right conditions for possible future negotiations.*" RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for 'Green' Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 323-328.

⁴⁰⁰ LANG, Andrew. **World Trade Law after Neoliberalism**. Oxford University Press: Oxford, 2011, p. 347.

during the interwar period” in which diplomats would try to find a balance of international obligations and national measures through “*embedded liberalism*”.⁴⁰¹

Something that changed with the prevalence of neoliberalism, especially in the United States, and the economic crisis in the 1970’s. In that moment the yardstick would refer to “*optimally regulated free market*”. In the sense that experts, including, trade lawyers, would try to guarantee that national measures –tariffs and, specially, regulations, since they were now seen as trade distortions – were implemented in a globally harmonized level. The legitimacy of the WTO would encounter an impasse in the post-neoliberalism phase, when legal interpretation started to balance interests and apply standard of reviews.⁴⁰²

Arguably, this is what has happened in the case of renewable energy support programs. Especially considering WTO case law, what this research was able to detect was that the Panels and the Appellate Body tried as much as possible to include non-trade values in the FIT legal analysis, but for the elements in the programs that adamantly were against trade rules. Therefore, it does not seem neither that trade liberalization was the only value taken into account by the Organization nor that countries themselves were responsible to carve out policy space to enact their national measures.

What seems to have happened was an internal resignification of WTO treaty language that seemed to accommodate for values that are legitimate for the society and WTO Membership - if the numbers of State and private investment in the sector are any indication - that reproduces the interest of supporting renewable energy.

Granted, Lang has not been an advocate to law reform. In this sense, the scholar, discussing the issue of fair and unfair competition in the WTO, has stated

(...) what the history of the GATT/WTO system reveals is that the frictions caused by intra-capitalist diversity have in the past been addressed—provisionally, incompletely, but adequately—through a series of messy compromises, expressed in legal rules and concepts that are just ‘good enough’ to help hold together a multilateral system, which its members perceive to be on balance in their own long-term interests.⁴⁰³

⁴⁰¹ The definition of “*embedded liberalism*” was inspired in the work by John Ruggie and refers to a balance able to support the wealth-fare State model, reflecting the concerns of the negotiating States post-world war. LANG, Andrew. **World Trade Law after Neoliberalism**. Oxford University Press: Oxford, 2011, p. 7.

⁴⁰² Therefore, the concept of free market to Lang is not one of unregulated market. The optimal regulation inspired by neoliberalism targeted both over and under regulation, based on the market and the product matter. LANG, Andrew. **World Trade Law after Neoliberalism**. Oxford University Press: Oxford, 2011, p. 346.

⁴⁰³ This statement is made after the following argument: “That is to say, it is not a question of the right rules to define fair and unfair competition in a single global market order, but of the right rules to govern competition between differently- instituted market orders, each organized around their own conceptions of

Nonetheless, one must consider the criticism the jurisprudence has received on taking non-trade values into legal analysis, as it is shown by the scholarly reaction to the outcome of the *Canada Renewable Energy/FIT Program* dispute, along with limitations to the role of dispute settlement and the legitimacy crisis currently passed by the Organization. In this context, the reform of WTO subsidy regulation seems to make better use of Lang's effort "*to re-open space for the imagination and contestation of appropriate collective purposes on which to found the practice of international economic governance*" rather than of works that focus on carving-out space for the implementation of legitimate programs.⁴⁰⁴

Lang writes from the realization of a mismatch between human rights and multilateral trade. This thesis has tried to observe WTO's response from the perspective of the interaction of multilateral trade and climate change regimes. There are several problematics and values that could be chosen to be the starting point or the core of a discussion of purpose that guides the WTO – be it "*legitimizing collective*" or not.⁴⁰⁵ Nonetheless, taking the language from Rubini, the reform of WTO law as a *process*, arguably, benefits from debates that (re)think the purpose of the Organization.

In short, this Section revisits the case for law reform and tries to argue that these possible negotiations could better use from the support of works that focus on (re)thinking the purposes of the WTO rather than the ones which try to develop ways for Members to carve-out policy space within trade constraints and, in this way, implement (renewable energy) support programs.

fair and unfair competition. It would, at least in present circumstances, be naïve to imagine that a single, shared conception of what constitutes 'fair' competition is achievable among the diverse WTO membership. The task is, therefore, neither to produce such a shared conception, nor to reduce an existing shared conception into legal rules. Furthermore, it would be equally naïve to imagine that a solution can be found simply by finding the crafting the right rules and interpreting them in the right way. There is simply no single set of logical or normative principles by which we can give definite content to the notion of 'market distortion' without trespassing upon deeply sensitive and contested questions, and we should not imagine that our job is to find such principles. That is just not what a 'solution' to this sort of problem looks like.". LANG, Andrew. *Heterodox markets and 'market distortions' in the global trading system. Journal of International Economic Law*, Oxford University Press: 2019, n. 22, p. 717.

⁴⁰⁴ LANG, Andrew. *World Trade Law after Neoliberalism*. Oxford University Press: Oxford, 2011, p. 7.

⁴⁰⁵ In this sense, Simon Lester has identified the purpose to be anti-protectionism and have been very skeptical of "*purposes that go beyond this*". LESTER, Simon. *LESTER, Simon. The Role of the International Trade Regime in Global Governance*. Available at: < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1813184>. Access: 21 Jan 2020. On the other hand, James Bacchus writes from the perspective of the clash between the environment and the economy and uses sustainable development as the normative argument to ingrate their strands. BACCHUS, James. *The Willing World: Shaping and Sharing a Sustainable Global Prosperity*. Cambridge: Cambridge University Press, 2018.

7.4 THE WAY FORWARD: DEBATES FOR A FUTURE RESEARCH AGENDA

As mentioned before, the aim of the thesis was to assess WTO response to renewable energy support policies from solar and wind power equipment and technology producing countries, in the interaction between the multilateral trade and climate change regimes, highlighting its limitations and challenges. Thus, the work did not intend to make judgements on the current regulation or propose solutions to RE regulation. Nevertheless, this last part aims to put on record some ideas that have arisen from the present work and that could be pursued in other opportunities within this research agenda. Also, taking into consideration the fact that the troubled scenario lived by the multilateral trading system, leaves researches distraught, when developing their works. As a result, present Section 7.3 is structured in two parts: first, it suggests ideas on the way forward regarding WTO regulation of renewable energy policies and, second, it makes more conceptual proposals on the future of the Organization's system as a whole.

For all that was said, regulating the support of renewable energy is complex – especially in the international trade arena. Different interests are involved and some of them are sound to the Organization objectives - such as increasing energy access to poor communities or decreasing carbon emissions – while others – such as enhancing technology capacity through the implementation of discriminatory measures – go blatantly against trade liberalization.

Nonetheless, climate change is an issue that must be addressed with urgency and in the best way possible, which is, arguably, only achievable within a global market that complies with trade rules.

As, hopefully, demonstrated in the past Section 7.2, the scholarship has made a point on proposing WTO law reform, especially regarding subsidy regulation. Albeit the solutions being several and of different nature, it seems that the mentioned ideas of *point of balance* and *trade-offs* from Luca Rubini are worth pursuing in possible discussions about the way forward.⁴⁰⁶ Especially since to reform subsidy regulation also seem to be in the agenda of Members of the Organization. It would be interesting, thus, if further

⁴⁰⁶ RUBINI, Luca. ASCM Disciplines and Recent WTO Case Law Developments: What Space for 'Green' Subsidies? In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 323-328.

research could investigate the motivations that lead Members to defend the flexibilization of rules in discussions that involve WTO reform.⁴⁰⁷

It is thought that every proposal regarding modifications within the WTO system could gain from soaking on the spirit expressed by Luca Rubini in the following quotation:

In any event, the two key words should be pragmatism and imagination – the essence of the spirit of the GATT. What is sought is not a revolution, but a well-thought-out evolution of the system and its disciplines. This is the narrative that should prevail and should reassure Members, and all relevant stakeholder, that they are in the driving seat, and that no back-door coup is planned.⁴⁰⁸

Due to the current political moment, that is not very welcoming to multilateral negotiations, another arena that seems to be worth pursuing is the one that aims to see the Organization beyond the dispute settlement system and try to think how green policies, such as renewable energy support measures, would fare in this DSB crisis moment.⁴⁰⁹

In this sense, Espa and Duran suggest that:

as a first modest step in this direction, the existing WTO transparency and institutional cooperation mechanisms could be used more effectively to collect better information on WTO members' practice in relation to renewable energy subsidies, as well as on their environmental effectiveness and possible trade-distortive effect – something which is presently lacking, other than for non-discriminatory FIT programmes, even outside the WTO.⁴¹⁰

⁴⁰⁷ As mentioned, China has recently advocated for the return of green light subsidies in the SCM Agreement, while other countries, such as the US and the EU, have submitted a proposal that calls for the enhancement of transparency obligations compliance. CHINA. **China's Proposal on WTO Reform**. Communication from China. Available at: < https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?CatalogueIdList=254127&CurrentCatalogueIdIndex=0>. Access: 23 January 2020. Procedures to Enhance Transparency and Strengthen Notification Requirements under WTO Agreements - Communication from Argentina, Australia, Canada, Costa Rica, the European Union, Japan, New Zealand, the Separate Customs Territory Of Taiwan, Penghu, Kinmen and Matsu, and the United States. **JOB/GC/204/Rev.1**. Available at < https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?MetaCollection=WTO&SymbolList=JOB%2fGC%2f204%2fRev.1&Serial=&IssuingDateFrom=&IssuingDateTo=&CATTITLE=&ConcernedCountryList=&OtherCountryList=&SubjectList=&TypeList=&FullTextHash=371857150&ProductList=&BodyList=&OrganizationList=&ArticleList=&Contents=&CollectionList=&RestrictionTypeName=&PostingDateFrom=&PostingDateTo=&DerestrictionDateFrom=&DerestrictionDateTo=&ReferenceList=&Language=ENGLISH&SearchPage=FE_S_S001&ActiveTabIndex=0&languageUIChanged=true#>. Access: 01 Feb. 2020.

⁴⁰⁸ RUBINI, Luca. *ASCM Disciplines and Recent WTO Case Law Developments: What Space for 'Green' Subsidies?* In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017, p. 333.

⁴⁰⁹ As the raising of the hypothesis that the WTO is going to a new phase that is not necessarily adjudicatory see: PAUWELY, JOOST. **New Proposal to Strengthen WTO Notification Requirements: From Dispute Settlement to Compliance Regime?** Available at: < <https://ielp.worldtradelaw.net/subsidies/>>. Access: 01 Feb. 2020.

⁴¹⁰ ESPA, Ilaria; DURAN, Gracia Marín. Renewable Energy Subsidies and WTO Law: Time to Rethink the Case for Reform Beyond Canada – Renewable Energy/Fit Program. **Journal of International Economic Law**, Oxford Press, 2018, vol. 0, p. 652. The suggestion to strengthen the use of transparency

An issue that has not been discussed in the thesis but seems worth to be mentioned, in the context of the interaction of trade and climate change and WTO subsidy regulation reform, is support policies to fossil fuels. It seems to be important to study why there are not as challenged as RE programs.⁴¹¹ Further, adding their phase out to the equation seems to mean that Members should agree upon what constitutes a good subsidy (arguably, to renewable energy) and a bad subsidy (arguably, to fossil fuels) – a discussion that has already started within the Organization regarding the negotiation of fisheries subsidies.⁴¹²

Other debate that has not been developed in this thesis, but that might worth pursuing is the one that takes into account the existence of different stake holders that have a voice in the clean energy sector. In 2019, IRENA proposed the institution of a comprehensive police that would encompass governments, financing institutions, the private sector and civil society. This suggestion arises from worries over closing the financial gap between climate change targets and renewable energy projects, that have been expressed by experts, as well as by the civil society.⁴¹³

To expand WTO academic investigation from State action also seem to be a good strategy. Bradley James Condon, for instance, has dissociated his research from a government support and policy space agenda and focused on the role of the private sector in the development of renewable energy.⁴¹⁴

Having presented suggestions that might be interesting to be investigated under the perspective of the multilateral trade regulation of renewable energy policies, the thesis now turns to more conceptual questions that have arisen from the development of the work.

and cooperation instruments already available in the WTO system to better inform Members seems to be a popular one in the scholarship. In this sense: RUBINI, Luca. *ASCM Disciplines and Recent WTO Case Law Developments: What Space for 'Green' Subsidies?* In: COTTIER, Thomas (ed.). **International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law**. Cambridge University Press: Cambridge, 2017.

⁴¹¹ ASMELASH, Henok Birhanu. *Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies are Challenged*. **Journal of International Economic Law**. Oxford Press, 2015, vol. 18, p. 261–285. BIÈVRE, de Dirk; ESPA, Ilaria; POLETTI, Arlo. No iceberg in sight: on the absence of WTO disputes challenging fossil fuel subsidies. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 411–425.

⁴¹² YOUNG, Margaret. *Energy transitions and trade law: lessons from the reform of fisheries subsidies*. **International Environmental Agreements: Politics, Law and Economics**, vol. 17, 2017, p. 371–390.

⁴¹³ INTERNATIONAL RENEWABLE ENERGY AGENCY – IRENA. **NDCs in 2020: Advancing renewables in the power sector and beyond**, IRENA: Abu Dhabi, 2019.

⁴¹⁴ CONDON, Bradley J. *Disciplining Clean Energy Subsidies to Speed the Transition to a Low-Carbon World*. **Journal of World Trade**, vol. 51, n. 4. Kluwer Law International: The Netherlands, 2017, p. 675–690.

The thesis argues that, through the action of its adjudicating bodies, the WTO was able to be open to non-trade values, such as environmental and climate protection, without losing sight of its liberalization goals. In one hand, there has been, criticism of this approach of the panel and the Appellate Body, not only by the academia, but also from the membership.⁴¹⁵ On the other hand, trade scholars have praised the openness of the Appellate Body to these legitimate values.⁴¹⁶ Which approach should be followed? Which one of them fulfills in the most optimal manner the expectations from WTO Members?

These questions seem to be not only worth to be pursued in future works, but also to refer to the work of Andrew Lang. As mentioned (Section 3.3), Lang suggests the argument that the WTO system has been able to accommodate a change in its orientation from “*embedded liberalism*” to “*neoliberalism*” during the years. Building from his work, it can be said the Organization membership would need to come up with a new collective purpose to guarantee its legitimacy in the eyes of the expectations from the Membership and interests and needs of the current society. Lang, however, does not provide a normative proposal to this new objective, but rather, it tries to foster the discussion on the subject.⁴¹⁷

Carolyn Deere-Birkbeck proposes that an institutional reform of the WTO should focus on the sustainability and development imperatives. For there would be a “*clear legal rationale*” that support the statement.⁴¹⁸ Do these imperatives make sense? Or are there other issues, (i.e. further trade liberalization, human rights, enhancement of services production, revenue distribution, job availability, private sector participation), that would be better suited to be “*objective*” of the WTO and, thus, to orient the regulation of trade in the XXI century? It seems that to accept Lang’s invitation, would be a fruitful path the scholarship could follow.

Another point that could be further explored is the interaction from the multilateral trade and climate change regimes. It would be interesting to investigate whether the conclusion that is drawn in the present research, that focused on the example of renewable

⁴¹⁵ RUBINI, Luca. The Age of Innocence: Evolution of Case Law of the WTO. **Dispute Settlement: Subsidies as a Case Study**. In: ELSIG, Manfred; HOEKMAN, Bernard; PAUWELYN, Joost. *Assessing the World Trade Organization: Fit for Purpose?* Cambridge: Cambridge University Press, 2017, p. 276-317.

⁴¹⁶ LANG, Andrew. Heterodox markets and ‘market distortions’ in the global trading system. **Journal of International Economic Law**, Oxford University Press: 2019, n. 22, p. 717.

⁴¹⁷ LANG, Andrew. **World Trade Law after Neoliberalism**. Oxford University Press: Oxford, 2011.

⁴¹⁸ DEERE-BIRCEK, Carolyn. The Future of the WTO: Governing Trade for a Fairer More Sustainable Future. In: MELÉNDEZ-ORTIZ, Ricardo; BELLMANN, Cristophe; MENDOZA, Miguel Rodriguez. **The Future and the WTO: Confronting the Challenges. A Collection of Short Essays**. International Centre for Trade and Sustainable Development (ICTSD): Geneva, 2012, p. 119-129.

energy support policies, could be expanded to other cases or to the systems as whole. The study of the systems concurrently, could also lead to works that try to draw parallels between them. For instance, the treatment of developing countries, could benefit from a joint analysis of the regimes and the scheme set forth in the Trade Facilitation Agreement of the WTO, along with the CDBR principle from the UNFCCC seems to be a good way to start.⁴¹⁹

In conclusion, to take into consideration the multiplicity of interests, actors and interests that have been linked to the RE sector in the thesis and highlighted in the past Section could, arguably, be a strategy to a future research agenda. Both, to study the conceptual questions involving the multilateral trading system and to study the regulation of something as mystic as energy - as illustrated by Duffy and presented in the beginning of the work: in the midst of conflicting interests in the global (i.e. trade and climate change) and in the local (i.e. governmental challenges to implement support programs) environments.

⁴¹⁹ PAUWELYN, Joost. The End of Differential Treatment for Developing Countries? Lessons from the Trade and Climate Change Regimes. **Review of European Community and International Environmental Law – RECIEL**, n. 22, v.1, 2013, p. 29-41. MOROSINI, Fábio, Trade and Climate Change: Unveiling the Principle from Common But Differentiated Responsibilities from the WTO Agreements. **The Geo. Washington International Review**, vol. 42, 2010, p. 713- 748.

8 CONCLUSION

The purpose of this research was to investigate how international regulatory scenario has framed the transformations identified in the renewable energy field through a trade law perspective. In order to so, it has studied the way the World Trade Organization has responded to renewable energy support policies from solar and wind power equipment and technology producing countries.

It aimed to argue that the WTO, at least in this particular case, has been open to non-trade values (i.e. climate change) without neglecting the rules from the multilateral trading system - which seem to be oriented by trade liberalization ideas. The work also recognized that there are limitations and challenges that arise from this response, that should be addressed by the (re)negotiation of the Organization's rules.

The thesis started by presenting the panel of frescos by Raoul Dufy, titled *La Fée Electricité*, for it was thought that its magnitude and diversity in colors could represent the myriad of facets identified in the clean power field. Renewable energy can be a tool in the environmental protection as well as an opportunity to innovation and technology development. A profiting market for the private sector as well as an enabler to bring electricity – and thus progress - to remote and poor communities. A way to decentralize energy production and empower consumers as well as a turning point in geopolitical relations.

Hence, it is a sector that involves different players and, therefore, different interests. Depending on the player's point of view, these interests can prove themselves to be competing or, even, contradicting.

The present work has chosen to investigate renewable energy support policies through the multilateral trade perspective. It has, therefore, its limitations. It made an effort to not be oblivious to the background full of conflicts and stressing points that the performers of the measures, States, must deal with. However, it has not been able to sufficiently address them all: the layers of international commitments they are subject to, in the global; the interests that legitimate the employment of the policies, in the local, among other issues.

Being part of a Law and Development Master's Program, the thesis considered legal, political and economic angles from renewables and subsidies in order to set the ground for a legal analysis that comprised the investigation of the multilateral trade and climate change frameworks and WTO case law. From this multidisciplinary exploration, it tried

to show that both trade liberalization and climate change mitigation are legitimate objectives that, arguably, should be pursued by governments and that green electricity programs might be an important contribution to this debate, by being in its contentious intersection. Also, and, arguably more important, that the World Trade Organization does not seem to have, so far, hindered government support in the renewable energy sector worldwide – opposed to a long-standing fear of the trade scholarship, that tried to carve-out policy space to enable the survival of RE public incentives. Rather, the risk under multilateral trading system rules seems to be most carried by programs that incentivize equipment and technology for solar and wind power generation, through the use of trade remedies.

In general, trade rules do not seem to be incompatible with climate change goals. Then again, it seems that the situation becomes more complex when one adds, what the thesis has called, further rationales into the equation. In this sense, trade scholars have differed on the level of State intervention to incentivize renewables that should be allowed under WTO rules. The present research has identified, at least, two different narratives regarding the issue. One warns against the use of the climate change mitigation discourse as means to disguise protectionism, *greenwashing* and argues for the dangers of government intervention in markets. The other is in favor of *carve-out* policy space for countries to implement (green) industrial policy, as it considers several objectives of the measures as legitimate. Even if they are, traditionally seen as non-desirable by the multilateral trading system (i. e. the use of LCRs to promote local industry development, national technology enhancement, and domestic job creation).

By looking into cases from the WTO Dispute Settlement Body that analyzed solar and wind power support programs and building from commentaries of the trade scholarship, the research, mainly, argued that the DSB was responsible for opening the trading system to values not traditionally related to it, such as climate protection, without foregoing blatant violations of the rules from the Organization.

In addition, the work recognized that there are limitations to the Appellate Body and panels' interpretations and, as such, made the case for WTO law reform. Moreover, it suggested that the challenges posed by this process of reform to the membership seem to be better oriented by the academic narrative concerned with the purpose of the multilateral system.

One might say that there is little value in discussing the response of an Organization that is going through a crisis situation to a specific subject that, historically, has not been

linked to it. On the contrary, the study of WTO's response to renewable energy support policies from solar and wind power equipment and technology producing has seemed to raise interesting points that, hopefully and modestly, might fuel future researches that are concerned with renewable energy, policy making in a national and international level, Law and Development methodology, governance of energy or with the future of the Trade Organization itself.

On a final note and, perhaps, most importantly, this thesis has been, from the start, warned by the paintings of Dufy that it would be challenging to think that WTO legal provisions could comprehensively regulate something as fairylike as renewable energy. What the development of the research has shown is that the Membership seems to be living a moment resignification of its rules and that now may be the time to rethink the objectives of the multilateral trading system in a way that includes global challenges, such as climate change, in the constant quest for free fair trade that has been the everlasting foundation of the World Trade Organization.

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