

# **The Energy Transition Under The Paris Agreement: Assessing the Existing Normative Directions**

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*The 1.5°C and 2°C temperature goals are still technically deliverable if the global community widely undergoes an energy transition in this decade for strict emission reductions. Among the two operational protocols of the UNFCCC, the 2015 Paris Agreement establishes a robust and comprehensive basis for the shift toward sustainable energy with an inbuilt power to shape the State's behavior. The key legal bases that drive the economy-wide energy transition are mitigation actions under the Nationally Determined Contributions (NDCs) aligned with the temperature goals, supported by market-based tools and oversight mechanisms, and shaped by principles. Articles 2 and 6 adopt a unique softer normative approach that heavily depends on concepts of good faith expectation; flexibility; discretion; cooperation; inclusiveness; non-punitive accountability; reputational harm, and reward to pursue an energy transition. However, despite creating a political, pragmatic mitigation tool widely preferred by State Parties and supported by another well-regarded tool, the market-based complementary cooperative mitigation approach, the Paris Agreement is sparse and not well equipped to secure an energy transition. It also left some fundamental legal questions unanswered that need to be urgently addressed to articulate the energy transition pathways. It must provide an obvious choice or readily available mechanisms for promoting and governing energy transition. There is an urgent need to minimize GHG emissions and recognize the weakness of existing tools. This paper proposes further exploration of the scope, normative force, and legal pathways within the climate governing regime. The aim is to design an adequate legal framework or governance mechanism under the Paris Agreement. This is crucial for the advancement of the clean energy transition, which is necessary to meet mitigation commitments. It is also essential to address the acute global climate crisis. There could be no better time to arrive at such results and contemplate such reforms as the Paris Agreement took effect in 2020, and we are running out of time to fix the global climate change problem.*

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## INTRODUCTION

Over time, it has become increasingly clear that renewable energy is no longer just an issue of domestic laws and policy.<sup>1</sup> It has a significant international dimension through global greenhouse gas (“GHG”) emission reduction to mitigate the adverse impact of climate change.<sup>2</sup> This international dimension of renewable energy requires global collaboration and effort. To ensure that states behave appropriately, international regulatory mechanisms are needed as international law has the potential to strongly influence state behavior.<sup>3</sup> Considering these issues, scholars around the globe emphasize the importance and urgent need to develop a viable international legal framework for a rapid and efficient energy transition.<sup>4</sup> Such a framework must prioritize climate change mitigation, economic development, energy security, and energy justice.

The Paris Agreement to the United Nations Framework Convention on Climate Change (“Paris Agreement”) does guide the energy transition.<sup>5</sup> The “flexible bottom-up pledge and review approach”<sup>6</sup> of Nationally Determined Contributions (“NDCs”) and the supplemented window of market-based mechanisms to achieve the mitigation targets are viable tools to meet the Paris Agreement’s aspirational goals and decarbonize the globe.<sup>7</sup>

Therefore, this paper aims to answer the underlying question: how well equipped is the Paris Agreement to influence a state’s behavior to pursue an economy-wide energy transition? It is worth noting that there is no guaranteed path toward social or behavioral change. Therefore, this paper aims to identify and assess the integrated tools of the Paris Agreement to drive the energy transition. In other words, this paper seeks to examine what tools are embedded in the Paris Agreement and how their normative character is constructed so that they can sway countries’ behavior to pursue emission reduction and energy transition.

The discussion in the paper is divided into three parts. Part One assesses key questions: how enforceable are the temperature goals in the Paris Agreement? What is the relevance of net-zero by 2050 goals and the significance of the decade 2030? It also explores whether the world has already missed its chance to reach

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<sup>1</sup> CINNAMON PIÑON CARLARNE ET AL., *THE OXFORD HANDBOOK OF INTERNATIONAL CLIMATE CHANGE LAW* 358 (1st ed. 2016).

<sup>2</sup> *Id.* at 359.

<sup>3</sup> *Id.*

<sup>4</sup> Peter Kayode Oniemola, *International Law on Renewable Energy: The Need for a Worldwide Treaty*, *GERMAN YEARBOOK OF INTERNATIONAL LAW* (2014) at 281; *See also* Neil Gunningham, *Confronting the Challenge of Energy Governance*, 1 *TRANSNAT’L ENV’T L.* (2012) at 119.

<sup>5</sup> Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104, 3156 U.N.T.S. 54113.

<sup>6</sup> Sharaban Tahura Zaman, *Exploring the Legal Nature of Nationally Determined Contributions (NDCs) Under International Law*, 26 *Y.B. INT’L ENV’T L.* 98, 100-101 (2015).

<sup>7</sup> *Id.*

the temperature goals, and whether we still have time. Part Two assesses the energy transition concept and attempts to identify the source of energy transition under the international climate regime. Part Three conducts a legal assessment of the Paris Agreement to examine how well-equipped it is to drive the energy transition.

The legal analysis provided in these three parts leads us to conclude that, to pursue energy transition, the unique normative characteristics of Paris Agreement Articles 2 and 6 cannot be considered viable to change the behavior of the states to drive the energy transition. An effective agreement must provide an obvious choice or readily available mechanisms for promoting and governing energy transition. Therefore, considering the urgent need to minimize GHG emissions and underscoring the weakness of existing tools, this paper proposes the need to further explore the scope, normative force, and legal pathways within the climate governing regime, in order to design an adequate legal framework and governance mechanism under the Paris Agreement for the advancement of the clean energy transition, all of which will be needed to meet mitigation commitments and address this acute global climate crisis.

#### I. TEMPERATURE GOALS & NET-ZERO BY 2050: RECAPITULATION

The Paris Agreement is considered a “monumental triumph,” not only for achieving the consensus from almost all sovereign nations but also for the ambitious temperature goals (well below two degrees, preferably to 1.5 degrees Celsius) of the Agreement with a target of achieving net-zero CO<sub>2</sub> emissions by 2050.<sup>8</sup> With these goals, the multilateral agreement brings all sovereign states into a common cause to undertake ambitious emission reduction efforts to fight climate change. Achieving the temperature goals of the Paris Agreement would mean that temperatures have declined from the peak 21<sup>st</sup>-century temperature levels.<sup>9</sup> Such dropping temperatures are sine qua non to scale down long-term adverse impacts of climate change, such as ocean acidification and sea-level rise.<sup>10</sup>

However, temperature and net-zero carbon goals trigger some critical questions. One substantial legal question is: How enforceable will these goals really be? Considering high GHG emissions and the alarm from climate scientists, it is essential to consider whether we have missed our opportunity to reach these temperature goals. This issue then triggers another critical question: why in this

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<sup>8</sup> *UN Chief Hails New Climate Change Agreement as Monumental Triumph*, UN NEWS (Dec. 12, 2015), <https://www.un.org/apps/news/story.asp>. See also Paris Agreement, *supra* note 5, art. 2.1 and 4.1.

<sup>9</sup> *Understanding the Paris Agreements Long Term Temperature Goal*, CLIMATE ANALYTICS, [climateanalytics.org/briefings/understanding-the-paris-agreements-long-term-temperature-goal](https://climateanalytics.org/briefings/understanding-the-paris-agreements-long-term-temperature-goal) (last visited Apr. 7, 2023).

<sup>10</sup> *Id.*

decade has more emphasis been given to net-zero emissions by 2050? Is this a new trend or a crucial target that cannot be sidelined? Answering these questions might help clarify why global communities even need to think about an immense energy transition.

#### A. *Enforceable Rules or Standard?*

This part of the paper assesses the normative content of the Paris Agreement's goals and their relevance to its implementation.

The temperature goals of the Paris Agreement are located not in the preamble of the Agreement but in the operational part, specifically Articles 2.1(a) and Article 4.1.<sup>11</sup> An agreement's operational portions can create rights and duties or set standards for State Parties.<sup>12</sup> However, housing temperature goals within the operational portions of the Agreement does not fundamentally mean that those goals are legally binding or that they create an enforceable obligation on State Parties. To understand whether the goals of the Paris Agreement create legal responsibility or not, it is essential to assess the text's normative content, precision, and language.<sup>13</sup>

Article 2.1 describes itself as setting the "aim" of the Agreement, and Article 3 refers to Article 2 as the "purpose" of the Agreement.<sup>14</sup> Furthermore, Article 4.1 refers to the content of Article 2 as a "long term temperature goal" and underscores this goal by setting forth another aim: "to reach global peaking of GHGs emissions as soon as possible" in order to achieve a net-zero emission by the "second half of the century."<sup>15</sup> The aim of Article 4.1 is a dynamic vision to reach temperature goals.<sup>16</sup> According to Professors Rajamani and Werksman: "by adding this, it seems likely that the pathways . . . will require an even earlier global peaking and achieving a balance of emissions and removals closer to 2050 than 2100."<sup>17</sup>

So, Article 2 sets out what the Agreement ultimately wants to achieve, and Article 4.1 describes the timeframe. However, by setting forth these goals, does the Agreement also set forth an enforceable rule or a standard, the application of which involves discretion and flexibility?<sup>18</sup>

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<sup>11</sup> Paris Agreement, *supra* note 5, art. 2.1(a) and 4.1.

<sup>12</sup> Lavanya Rajamani & Jacob Werksman, *The Legal Character and Operational Relevance of the Paris Agreement's Temperature Goal*, 376 PHIL. TRANSACTIONS OF THE ROYAL SOCIETY (May 13, 2018) at 1, 3-4.

<sup>13</sup> *Id.*

<sup>14</sup> Paris Agreement, *supra* note 5, art. 2.1 and 3.

<sup>15</sup> *Id.* art. 2.1 and 4.1.

<sup>16</sup> Rajamani & Werksman, *supra* note 12, at 6.

<sup>17</sup> *Id.*

<sup>18</sup> DANIEL M. BODANSKY, *THE ART AND CRAFT OF INTERNATIONAL ENVIRONMENTAL LAW* 105 (2011).

### B. Legal Bindingness

This section aims to study how enforceable the temperature goals will be. Can they be considered as enforceable rules or standards? Under Article 2, the 1.5 and 2 degrees Celsius temperature goals are specifically outlined in Article 2.1(a). So, we'll focus our discussion on dissecting this specific article with Article 4.1. A careful look at the textual articulation of Articles 2.1(a) and 4.1 reveals that phrases which indicate binding legal obligation (such as “must,” “shall,” or “required”) are missing in both Articles' texts.<sup>19</sup> Instead of using this mandatory language, both Articles refer to a common phrase, “aims to.” Moreover, Article 2.1(a) identifies no actors (or subjects), though Article 4.1, which explains Article 2.1(a), does refer to “Parties.” From a textual perspective, both Articles' texts are not sufficiently clear to determine what nations are obliged to do, what norms are permissible, or what conduct would trigger accountability or compliance.<sup>20</sup> The wording in Article 2.1(a) such as “holding”, “well below”, “pursuing efforts”, and in Article 4.1, “Parties aim to reach global peaking,” are examples of aspirational language and are inadequate to determine the obligatory norms of State Parties.<sup>21</sup> Furthermore, the acknowledgment in Article 4.1 of the limitations of developing country parties to reach global peaking of GHG emissions by 2050 indicates flexibility and discretion instead of a precise binding norm. So, considering the normative content, and precise language of Articles 2.1(a) and 4.1, it is clear that both Articles specify the purpose or vision of the entire Agreement instead of setting forth a legally binding obligation or enforceable rule.<sup>22</sup>

One may wonder whether the reference to two temperature goals (an upper limit at 2.0°C and a lower limit at 1.5°C) creates confusion. Additionally, having two different temperature goals may allow the state to choose one or the other. While it could be argued that confusion is created in this way, that would just be a misinterpretation.<sup>23</sup> The goal is specific here, with clear textual articulation. State Parties continuously need to pursue efforts toward achieving 1.5°C while holding temperatures well below 2°C.<sup>24</sup> This unequivocally denotes that the highest warming must be “well below 2°C,” but ultimately State Parties need to limit the temperature increase to 1.5°C in the event of a temporary overshoot.<sup>25</sup>

So, considering the foregoing discussion it can be validly stated that while these goals are not enforceable, they are precise enough to indicate what the Agreement wants to achieve. Moreover, referring to “well below 2°C” also underscores that

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<sup>19</sup> Daniel M. Bodansky, *The Legal Character of the Paris Agreement*, 25 REV. EUR. COMPAR. & INT'L ENV'T. L. 142, 152-153 (2016); See also Paris Agreement, *supra* note 5, art. 2.1(a) and 4.1.

<sup>20</sup> Zaman, *supra* note 6, at 112; See also The Paris Agreement, *supra* note 5, art. 2.1(a) and 4.1.

<sup>21</sup> Paris Agreement, *supra* note 5, art. 2.1(a) and 4.1.

<sup>22</sup> Rajamani & Werksman, *supra* note 12, at 4.

<sup>23</sup> CLIMATE ANALYTICS, *supra* note 9.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

anything beyond this limit should be considered “fatal” and therefore should be prevented by achieving net-zero emission by 2050.<sup>26</sup> By referring to “Parties,” it also clarifies that the goals are collective and apply to all.<sup>27</sup> In the next part of this paper, I evaluate how useful and important the temperature goals are in practice and how the Paris Agreement links these goals with its essential tools.

### C. Operational Relevance

A careful look at the textual articulation of Article 3 reveals another significant aspect of temperature goals and net-zero emissions pledges. Article 3 lays out the nexus which connects the Paris Agreement’s temperature and emissions goals to the measures necessary to achieve them, namely tracking State Parties’ individual and collective mitigation actions and assessing global collective progress over time.<sup>28</sup> As such, Article 3 links the Agreement’s goals with Article 4’s Nationally Determined Contributions (“NDCs”) and Article 13’s transparency framework to strengthen individual states’ mitigation pledges and actions with review mechanisms.<sup>29</sup> According to Article 3, all State Parties must “undertake and communicate ambitious efforts” to achieve the goals set out in Article 2 with a “progression over time” aligned with the temperature targets.<sup>30</sup>

The nexus between temperature goals and Article 4 is crucial, as NDCs are the critical mitigation tool of the Paris Agreement for emission reduction actions. To uphold temperature goals, Article 4 not only sets an earlier global peak (“reach the global peaking of GHGs as soon as possible”) but also establishes legally binding obligations for each party, stating that they “shall prepare, communicate and maintain” NDCs, and pursue domestic efforts implementing the objectives of those NDCs.<sup>31</sup> The Agreement’s global temperature goals are also at the heart of the State’s “ambition cycle” while maintaining successive NDCs with highest possible ambition.<sup>32</sup> A State Party needs to consider these goals when determining its pledge/targets in its respective NDCs. According to Article 4.3, successive

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<sup>26</sup> Rajamani & Werksman, *supra* note 12, at 4.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at 6.

<sup>29</sup> In NDCs, states will communicate targets and actions they will take to reduce their GHG to reach the Paris Agreement goals. Countries also communicate in their NDCs actions they will take to build resilience to adapt to the impacts of climate change.

<sup>30</sup> Paris Agreement, *supra* note 5, art. 2 and 3.

<sup>31</sup> *Id.* art. 4.2.

<sup>32</sup> The “ambition cycle” of NDCs under the Paris Agreement refers to the process by which countries increase the level of ambition in their climate action plans over time. The Paris Agreement calls for countries to submit NDCs, which outline their efforts to reduce greenhouse gas emissions and adapt to the impacts of climate change, every five years. The first round of NDCs were submitted in 2015, and countries are now working to update and enhance their NDCs ahead of the next round of submissions in 2025; See also Zaman, *supra* note 6, at 101; Paris Agreement, *supra* note 5, art. 4.2, 4.3



NDCs of each State Party need to show progression with the “highest possible ambition.”<sup>33</sup> This provision reiterates what is stated in Articles 3 and 4.1 and establishes a crucial link between Articles 3 and 4.1 with temperature goals. It is important to point out that, the legally binding obligations under Articles 3 and 4.1 are all procedural obligations (undertake, prepare, communicate, and maintain NDCs) without the obligation to achieve the individual mitigation targets, pledged and submitted in the respective NDCs.<sup>34</sup> Moreover, the Agreement sets forth no mandatory legally binding obligation on the State to assess whether each Party’s pledges and targets are aligning with the pathway toward the global temperature goals or not.<sup>35</sup>

The nexus of temperature goals with Article 13 (Transparency Framework) to some extent mitigates the lack of a legally binding obligation requiring States to assess whether each Party’s pledges and targets align with the pathway toward the Agreement’s global temperature goals. As part of the Paris Agreement’s oversight mechanism, the Transparency Framework tracks and assesses State Parties’ progress towards achieving their NDCs.<sup>36</sup> This tracked progress is then presented at the global stocktake established in Article 14, which takes place every five years to measure collective progress towards achieving the long-term temperature goals of this Agreement.<sup>37</sup> Under the Transparency Framework, a group of technical experts is charged with reviewing each state Party’s implementation actions and achievement of NDCs targets and pledges.<sup>38</sup> However, the Transparency Framework has no mandate to measure whether an individual state’s NDCs have been designed “to achieve the Agreement’s purpose as set out in Article 2.”<sup>39</sup> The review reports of the technical expert group will provide inputs to the global stocktake to assess collective progress.<sup>40</sup> The global stocktake is mandated only to assess collective progress rather than individual progress.<sup>41</sup> Nevertheless, it is not yet clear whether a report submitted under the Transparency Framework from a high emitter country, which significantly impacts collective efforts toward achieving global temperature goals, should be counted by the global stocktake.<sup>42</sup>

However, the substantial nexus between temperature and emissions targets and the Paris Agreement’s mitigation tool, NDCs, and oversight mechanisms makes

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<sup>33</sup> Paris Agreement, *supra* note 5, art. 4.3.

<sup>34</sup> Rajamani & Werksman, *supra* note 12, at 107.

<sup>35</sup> *Id.* at 7.

<sup>36</sup> Zaman, *supra* note 6, at 119.

<sup>37</sup> *Id.* at 118.

<sup>38</sup> *Id.* at 119. See also Daniel Bodansky, *The Paris Climate Change Agreement: A New Hope?*, 110 AM. J. INT’L L. 32 (2016).

<sup>39</sup> Rajamani & Werksman, *supra* note 12, at 7; The Paris Agreement, *supra* note 5, art. 3.

<sup>40</sup> Zaman, *supra* note 6, at 121.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

it clear that the operational relevance of these goals in Paris Agreement implementation is substantial, even though these temperature goals are not legally enforceable and cannot be considered legal rules. State Parties must consider these goals while articulating their targets and ambition cycles in each successive NDC.<sup>43</sup> A similarly important function of these goals is as yardsticks to measure individual and collective progress via the transparency framework and global stocktake. Therefore, considering the discussion above, can we consider temperature goals and net-zero by 2050 as standards, if not rules?<sup>44</sup>

According to Professor Bodansky, standards set forth “open-ended” tests, the application of which depends “on the exercise of judgments or discretion.”<sup>45</sup> Norms that represent standards are imprecise, flexible, and allow states to decide what appropriate measures they might take to implement the norm.<sup>46</sup> The temperature goals and net-zero by 2050 target are specific aims of the Paris Agreement.<sup>47</sup> Still, State Parties have the discretion to decide how they will design the pathways toward these goals and what appropriate measures they plan to adopt to achieve these goals. In the same vein, the oversight mechanism outlined in the Agreement will regard these goals as guiding pointers and establish benchmarks to evaluate whether individual states are in the right direction in addressing the issue of climate change or not.

Therefore, it can be validly stated that the goals of the Agreement are standards set forth not only to resolve the anthropogenic impact of climate change, but also to keep individual and global climate actions and ambition cycles of each successive NDC on track.<sup>48</sup>

#### *D. Holding the Temperature Train: Relevance of Net-Zero by 2050 Goals and The Significance of The Decade 2030*

This section of the paper briefly reflects on the status of achieving temperature goals and the necessity of adequate mitigation actions in this decade to achieve 2050 net-zero goals. The discussion is indispensable to setting the scene for the energy transition.

##### 1. Temperature Goals: Missed The Train?

According to the IPCC report published in early 2022, “there is at least a greater than 50% likelihood that global warming will reach or exceed 1.5° C in the near term . . . and catastrophic effects of climate breakdown could soon outpace

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<sup>43</sup> The Paris Agreement, *supra* note 5, art. 4.3.

<sup>44</sup> Rajamani & Werksman, *supra* note 12, at 6.

<sup>45</sup> Bodansky, *supra* note 18, at 105.

<sup>46</sup> *Id.*

<sup>47</sup> The Paris Agreement, *supra* note 5, art. 2.1 and 4.1.

<sup>48</sup> Rajamani & Werksman, *supra* note 12, at 2.

humanity's ability to adapt to it."<sup>49</sup> <sup>50</sup> The report highlights the stark reality billions of people face worldwide, where climate change would cause water shortages, extreme weather events, land loss, food insecurity, and the threat of species extinction.<sup>51</sup> Warming beyond 1.5°C will cause irretrievable impacts on ecosystems with low resilience, such as arctic areas, mountains, and coastal ecosystems.<sup>52</sup> The findings of the IPCC report underscore two things: the urgency of GHG emission reduction and the high possibility of grave climate impacts beyond what we have already seen.<sup>53</sup> Needless to say, a single state's efforts cannot reduce these climate change processes, nor guard that state against adverse climate impacts.<sup>54</sup> Instead, global action and collaboration is required.<sup>55</sup>

However, neither scientific alarm nor the call for immediate high-level response from governments are new. Since 1992 after the adoption of UNFCCC, the dire reality and call for climate action have been persistently placed before global leaders.<sup>56</sup> Sadly, over the ensuing 30 years, the international community has not seen any bold preventive actions from the highest GHG emitting countries, rather only the gradual increase of acute adverse impacts, losses, and damages of climate change.<sup>57</sup> Even though seven years have passed since the Paris Agreement's adoption, 50 billion tons of CO<sub>2</sub> are emitted globally each year, 40% higher than emissions in 1990.<sup>58</sup> According to the IPCC Special Report on Global Warming of 1.5°C, increased GHG emissions have caused the planet's surface to warm 0.87°C (±0.12°C) above the pre-industrial era (1850–1900) between 2006 and 2015.<sup>59</sup> By 2017, global warming had reached about 1°C.<sup>60</sup> This report projects that if the current warming rate continues, global warming will reach 1.5°C by 2040.<sup>61</sup> Sadly, the IPCC's Sixth Assessment Report ("AR6") confirmed

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<sup>49</sup> The Intergovernmental Panel on Climate Change, an intergovernmental body of the United Nations responsible for advancing knowledge on human-induced climate change.

<sup>50</sup> Intergovernmental Panel on Climate Change, *Sixth Assessment Report*, [https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC\\_AR6\\_SYR\\_LongerReport.pdf](https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf) (last visited March 21, 2023).

<sup>51</sup> *Id.* See also DANIEL A. FARBER & CINNAMON P. CARLARNE, CLIMATE CHANGE LAW 29 (1st ed. 2017).

<sup>52</sup> Daniel A. Farber, *Future Shock* (Mar. 10, 2022), LEGAL PLANET, <http://legal-planet.org/2022/03/10/future-shock-climate-impacts-speeding-at-us/>.

<sup>53</sup> *Id.*

<sup>54</sup> Farber & Carlarne, *supra* note 51, at 3.

<sup>55</sup> *Id.*

<sup>56</sup> H.L. Treut et al., *Historical Overview of Climate Change Science*, IPCC (2007) <https://www.ipcc.ch/site/assets/uploads/2018/03/ar4-wg1-chapter1.pdf>, at 118.

<sup>57</sup> *Id.*

<sup>58</sup> Hannah Ritchie et al., *Greenhouse Gas Emissions*, OUR WORLD IN DATA, <https://ourworldindata.org/greenhouse-gas-emissions> (last visited March 21, 2023).

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

that global surface temperature will reach 1.2°C by the end of 2020.<sup>62</sup>

The current rate of global warming, the frequency and intensity of adverse impacts of climate change, high CO<sub>2</sub> emissions, and the passivity of global leadership all raise the same question: have we already missed the train to achieve temperature goals?

According to the AR6, if global communities adopt stringent emission reduction pathways, aligning with achieving net-zero CO<sub>2</sub> emissions by 2050, there is still a possibility of maintaining global warming below 1.5°C.<sup>63</sup> The statement is consistent with the scenario-based assessment provided in the IPCC Special Report on Global Warming of 1.5°C.<sup>64</sup> According to the AR6, to limit anthropogenic global warming, it is vital to reduce cumulative CO<sub>2</sub> emissions and other GHGs emissions.<sup>65</sup> The AR6 emphasizes that achieving at least net-zero CO<sub>2</sub> emissions globally, along with substantial reductions of other GHG emissions, is fundamental to stabilizing the rapid increase in global surface temperature.<sup>66</sup>

Robust, rapid, and sustained GHG emission reductions, along with strict net-zero CO<sub>2</sub> emission by 2050, would stabilize the global temperature increase and aid in reducing adverse climate effects.<sup>67</sup> Furthermore, achieving net-zero CO<sub>2</sub> emissions by 2050 will compensate for emissions of other GHGs, such as methane, the entire elimination of which is difficult and requires more time.<sup>68</sup> Therefore, the timing of 2050 and balancing the removal of other greenhouse gases are scientifically linked to achieving long-term temperature goals. Furthermore, based on the best available science, a long-term decline in temperature can be achieved through the implementation of net-zero greenhouse gas emissions and pursuing a temperature limit of 1.5°C in case of temperature overshoot.<sup>69</sup> Such a temperature decline from peak 21st-century levels is important and much needed to minimize the long-term adverse impacts of climate

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<sup>62</sup> Valerie Masson-Delmotte et al., *IPCC Sixth Assessment Report*, Climate Change 2021: The Physical Science Bases (2021), [https://report.ipcc.ch/ar6/wg1/IPCC\\_AR6\\_WGI\\_FullReport.pdf](https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf).

<sup>63</sup> *Id.* at 15.

<sup>64</sup> *Is the 1.5°C Limit Still in Reach?*, CLIMATE ANALYTICS, <https://climateanalytics.org/briefings/is-the-15c-limit-still-in-reach-faqs/> (last visited March 21, 2023).

<sup>65</sup> Valerie Masson-Delmotte et al., *supra* note 62, at 27.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> CLIMATE ANALYTICS, *supra* note 64. Reducing CO<sub>2</sub> emissions is difficult, but reducing other greenhouse gases (GHGs) can be even more challenging due to their stronger warming effect per molecule, embedded sources in our economy and daily lives, and shorter lifetimes in the atmosphere. Addressing other GHGs is essential for mitigating climate change and requires significant changes in technology and behavior. Some GHGs have a more immediate impact on reducing warming, but emissions reductions must be sustained to maintain benefits over time.

<sup>69</sup> CLIMATE ANALYTICS, *supra* note 64; Furthermore, based on the best available science, a long-term decline in temperature can be achieved through the implementation of net-zero greenhouse gas emissions and pursuing a temperature limit of 1.5°C in case of temperature overshoot.

change, such as ocean acidification and sea-level rise.<sup>70</sup>

However, it is worth noting that the temperature goals of the Paris Agreement target the increase in average global surface temperature.<sup>71</sup> Regional warming may be higher than the global average temperature and will likely exceed 1.5°C, even though the average global temperature may not.<sup>72</sup> This will surely be the case for the Arctic regions.<sup>73</sup>

So, according to the AR6 report, limiting warming to 1.5°C entails strictly adhering to global net-zero CO<sub>2</sub> emissions by 2050, and achieving net-zero for all other GHG emissions shortly after that. The situation is well set out in Article 4.1, by recommending states aim to reach global peaking as soon as possible so that long-term temperature goals can be achieved in a balanced, equitable, and sustainable manner.<sup>74</sup> However, this leads to another critical question: Why do scientific reports place more emphasis on setting pathways for achieving net-zero emissions by 2050 in this decade (until 2030)? Is it a mere exaggeration or a critical issue that cannot be ignored?

## 2. Rush to Net-Zero by 2050: The New Normal?

Net-zero carbon emissions by 2050 is an aspirational goal of the Paris Agreement which indicates that by 2050 no new anthropogenic emissions will be added to the atmosphere.<sup>75</sup> The IPCC Special Report on Global Warming of 1.5°C characterized the “1.5°C consistent pathway” as a rapid phase-out of CO<sub>2</sub> emissions and sharp emissions reductions for other GHGs by 2050.<sup>76</sup> According to the report, to achieve net-zero CO<sub>2</sub> emissions by 2050, the global community needs to reduce 45% of CO<sub>2</sub> emissions from 2010 levels by 2030.<sup>77</sup> So, limiting global warming to 1.5°C by 2100 relies strongly on the amount of GHG emissions reduced over this decade (before 2030).<sup>78</sup> Reduced GHG emissions by 2030 will also lead to a higher likelihood of keeping peak warming to 1.5°C by 2100.<sup>79</sup> Similarly, if the required emission reductions do not take place by 2030, the

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<sup>70</sup> CLIMATE ANALYTICS, *supra* note 64.

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

<sup>73</sup> *Id.*

<sup>74</sup> Paris Agreement, *supra* note 5, art. 4.1.

<sup>75</sup> Joeri Rogelj et al., *Chapter 2: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development*, IPCC, [https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15\\_Chapter\\_2\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Chapter_2_LR.pdf).

<sup>76</sup> *Id.*

<sup>77</sup> Intergovernmental Panel on Climate Change, *Special Report: Global Warming of 1.5°C: Summary for Policymakers*, IPCC, (2018), <https://www.ipcc.ch/sr15/chapter/spm/> (last visited March 21, 2023).

<sup>78</sup> Joeri Rogelj et al., *supra* note 75.

<sup>79</sup> *Id.*

opportunity to limit warming to 1.5°C will be compromised.<sup>80</sup> Achieving significant emissions reductions by 2030 on a global scale will pave the way for achieving the goal of “net-zero” emissions by 2050 and help to achieve related temperature targets.<sup>81</sup>

Needless to say, the “1.5°C consistent pathway” and net-zero by 2050 goal require broad policy-based strategic preparation, especially in a world where energy sources are heavily dependent on fossil fuels. To pursue rigorous emissions reductions consistent with the 1.5°C pathway, a “rapid and far-reaching” transformation of energy sources is required in the energy, transport, buildings, industry, cities, forestry, agriculture, and other land-use sectors.<sup>82</sup> The 1.5°C Special Report also stressed that to achieve the 2050 net-zero target, global CO<sub>2</sub> emissions reduction needs to start well before 2030.<sup>83</sup> In fact, according to the report, increased emission reduction actions need to succeed in less than 15 years from 2018 to be aligned with the 2050 net-zero emissions target.<sup>84</sup> To supplement this statement, the United Nations Environmental Program (“UNEP”) Emission Gap Report states that global emissions each year must fall by 7.6% from 2020 to 2030 if the world wants to achieve the Paris Agreement’s 1.5°C temperature goal.<sup>85</sup> Moreover, challenges related to transition, CO<sub>2</sub> removal, and overshoot can be significantly adjusted and reduced if the world were to take action starting at the very beginning of the decade.<sup>86</sup>

The necessity of rigorously pursuing 2050 net-zero emissions goals from the beginning of this decade is not only supported by science but also reinforced by policy concerns. Decision 1/CP.21 recognized and highlighted the significant gaps between the collective effects of GHG emissions reduction pledges submitted by the Parties and aggregated emission pathways consistent with 1.5°C or 2°C temperature goals.<sup>87,88</sup> Pledges submitted in the first NDCs were entirely inadequate, and even if implemented, would lead to global warming surpassing 1.5°C and rise between 2.7°C to 3.2°C temperature by 2100.<sup>89</sup> The first round of

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<sup>80</sup> *Id.*

<sup>81</sup> Intergovernmental Panel on Climate Change, *Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C Approved by Governments* (Mar. 2, 2018), <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>.

<sup>82</sup> Joeri Rogelj et al., *supra* note 75.

<sup>83</sup> Global Warming of 1.5°C: Summary for Policymakers, *supra* note 77.

<sup>84</sup> Joeri Rogelj et al., *supra* note 75.

<sup>85</sup> U.N. Environment Programme, *Emissions Gap Report 2019* (Nov. 26, 2019) <https://www.unep.org/resources/emissions-gap-report-2019>.

<sup>86</sup> Joeri Rogelj et al., *supra* note 75.

<sup>87</sup> Framework Convention on Climate Change, Report of the Conference of the Parties on its Twenty-First Session, Held in Paris from 30 November to December 2015, U.N. Doc. FCCC/CP/2015/10/Add.1 (2015).

<sup>88</sup> *Id.*

<sup>89</sup> Joeri Rogelj et al., *supra* note 75; U.N. Environment Programme, *supra* note 85.

NDCs made it evident that if emission reduction actions are not substantially ramped-up by strengthening 2030 emissions reduction targets and implementation, meeting the global 1.5°C or 2°C temperature goals shall become unfeasible.<sup>90</sup> Conversely, new and updated pledges compatible with 1.5°C and practical implementation can still keep the 1.5°C temperature goal alive.

Considering this, paragraphs 23 and 35 of Decision 1/CP.21 request parties to submit new NDCs by 2020 for a time frame up to 2030 so that the existing emission gap can be minimized to meet the temperature goals.<sup>91</sup> 2020 was the deadline for State Parties to review their NDCs and submit more substantial pledges so that emissions reduction actions could be ratcheted up. Therefore, in 2022, it is essential to investigate what the collective global community has done to close the gap. To date, to what extent are NDC pledges aligned with the 2050 net-zero target and temperature goals?

By the end of 2021, 151 countries submitted their revised or updated NDCs, and 11 countries submitted their second NDCs.<sup>92</sup> Over 140 states (including the USA, China, India, and the EU) have declared or considered net-zero emissions targets in their NDCs.<sup>93</sup> The aggregated net-zero targets cover 90% of global emissions.<sup>94</sup> More than half of global GHG emissions are produced by the USA, China, India, and the EU.<sup>95</sup> However, many of these states' declared net-zero targets are vaguely formed, with poor or incomplete information, especially in terms of scope, the architecture of targets, and transparency.<sup>96</sup> These vague net-zero targets raise concerns about implementation of true emissions reductions.<sup>97</sup> Because behind these vague aspirational net-zero claims, governments can hide their inconsistent implementation measures, ultimately making their emissions pledges meaningless.

According to the Climate Action Tracker, if only aggregated 2030 targets are considered, global temperature will exceed 1.5°C (with 95% probability) and may increase to 2.4°C by the end of the century.<sup>98</sup> On the other hand, if 140 countries' net-zero emissions targets (both those adopted and those under consideration) are considered collectively, global warming peaks at 1.8°C or below 2.0°C (with 90%

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<sup>90</sup> U.N. Environment Programme, *supra* note 85.

<sup>91</sup> Framework Convention on Climate Change, *supra* note 87, paras 23,35.

<sup>92</sup> *Id.*

<sup>93</sup> *The Urgent Need for Nuanced and Transparent Assessments of National Net Zero Targets*, CAT Net Zero Target Evaluations, CLIMATE ACTION TRACKER, <https://climateactiontracker.org/global/cat-net-zero-target-evaluations/> (last visited March 21, 2023).

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> *Id.* Examples of these countries are Japan, New Zealand, Australia, China, India, Indonesia, and Brazil.

<sup>97</sup> *Id.*

<sup>98</sup> The Climate Action Tracker is an independent scientific analysis that tracks government climate action; *The CAT Thermometer Explained*, The CAT Thermometer, CLIMATE ACTION TRACKER, <https://climateactiontracker.org/global/cat-thermometer/> (last visited March 21, 2023).

probability) by 2100.<sup>99</sup> Though NDC targets are still inadequate, this scenario is slightly better than that indicated by the first NDCs submitted. However, the substantial gap between these pledges and the total action undertaken by government parties to date is large, glaring, and alarming.

The IPCC Special Report on Global Warming of 1.5°C made it evident that 1.5°C and 2°C temperature goals are still technically deliverable if there is a steep reduction in GHG emissions.<sup>100</sup> Such steep emissions reductions are feasible within the broader transition towards renewable and clean energy.<sup>101</sup> These reductions also must begin immediately. Slow emission reductions will significantly increase challenges posed by climate change's adverse impacts and adaptation costs from 2030–2050, according to the IPCC Special Report.<sup>102</sup> If steep emissions reductions are not initiated on an immediate basis these challenges and costs will increase as time passes to a point where it will become impossible to stop warming at or below 1.5°C or 2°C.<sup>103</sup> This statement is further endorsed by AR6 findings that confirmed adverse impacts of climate change at current temperatures are arriving faster and with more severity than expected.<sup>104</sup>

Thus, every second counts here. Undermining or ignoring emission reduction actions from the beginning of this era can be dangerous and expensive. Global communities urgently need to double down the CO<sub>2</sub> and other GHG emissions reductions.<sup>105</sup> Broad global transitions of energy sources are required across many sectors, especially power, transport, industry, buildings, cities, and land use. However, there are luckily many options and choices for the energy transition available in each of these sectors to pursue stringent emissions reductions.<sup>106</sup>

We cannot change the past, only the present. And in this present time, we can still achieve the Paris Agreement's temperature goals if the global community widely adopts energy transition and strict emission reductions in this decade. But, what is meant by the notion of "energy transition?" How are energy transition pathways integrated into the climate governing regime? What tools and norms exist in these regimes to make the energy transition process effective and real? The following sections of this paper aim to answer these questions.

## II. DECODING ENERGY TRANSITION CONCEPT AND IDENTIFYING NEXUS

The reports issued by the IPCC provide compelling evidence that the time available to achieve the temperature targets established by the Paris Agreement is

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<sup>99</sup> *Id.*

<sup>100</sup> Joeri Rogelj et al., *supra* note 75.

<sup>101</sup> *Id.*

<sup>102</sup> Global Warming of 1.5°C: Summary for Policymakers, *supra* note 77.

<sup>103</sup> *Id.*

<sup>104</sup> Farber & Carlame, *supra* note 51, at 3.

<sup>105</sup> *Id.*

<sup>106</sup> Joeri Rogelj et al., *supra* note 75.



gradually dwindling, and the prospects of attaining net-zero emissions by 2050, along with the associated benefits, are rapidly diminishing.<sup>107</sup> Time is limited, and the world needs a massive energy transformation. Today, the “energy transition” concept is primarily considered in the context of global warming and climate change.<sup>108</sup> However, in the early stages of discussions about transitioning to sustainable energy, the emphasis on shifting towards these sources was more about the moral obligation to address the dangers of climate change, rather than it being seen as a necessary requirement.<sup>109</sup> However, over time groundbreaking scientific reports made it evident that such transformation is the sine qua non. IPCC AR6 report strongly warns that transformational change in energy sources is no longer optional—it is imperative.<sup>110</sup> Global climate action, therefore, has now become energy action and vice versa.<sup>111</sup>

Therefore, this part of the paper seeks to achieve semantic clarity on the term “energy transition.” It examines what the term “energy transition” generally means and, most importantly, what it signifies under public international law. It also explores how the energy transition is coupled with the climate governance regime under the existing framework. What are the integrated governing norms and tools (if any) that exist for energy transition under the current climate regulatory regime?

#### A. Climate Governance Regime and Energy Transition

##### 1. Decoding The Energy Transition Concept

The meaning of the word “transition” is straightforward, it denotes a path from one condition to another. However, when the word “energy” is paired with “transition,” the general understanding of the phrase becomes more complicated.<sup>112</sup> According to Professor V. Smil, energy is a notoriously hard term to define and includes a whole universe of states and processes.<sup>113</sup> Therefore, it is important to define the term energy transition.<sup>114</sup> Professor V. Smil defines the

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<sup>107</sup> *World Energy Transitions Outlook: 1.5°C Pathway*, International Renewable Energy Agency, (June 2021), <https://www.irena.org/publications/2021/Jun/World-Energy-Transitions-Outlook>.

<sup>108</sup> Raphael J. Heffron et al., *A Treatise for Energy Law*, 11 *The J. of World Energy L. & Bus.* 34 (2018); *See also* Vaclav Smil, *Energy Transitions: Global and National Perspectives* 107 (Praeger, 2nd ed. 2017).

<sup>109</sup> Stuart Bruce, *EU Climate Diplomacy: Politics, Law and Negotiations 1* (Stephen Minas & Vassilis Ntousas eds., 2018); *See also* Heffron, *supra* note 108; Smil, *supra* note 108.

<sup>110</sup> IPCC Sixth Assessment Report Press Release, IPCC, Feb. 28, 2022, <https://www.ipcc.ch/report/ar6/wg2/resources/press/press-release/>.

<sup>111</sup> Volker Roeben & Gokce Mete, *What Do We Mean When We Talk About International Energy Law?*, Edinburgh Centre for International and Global Law Working Paper Series 4 (2019).

<sup>112</sup> Smil, *supra* note 108, at ix.

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

energy transition from a general perspective. According to him, the term “energy transition” denotes “The change in the composition (structure) of primary energy supply, the gradual shift from a specific pattern of energy provision to a new state of an energy system.”<sup>115</sup>

So, transition or shift of energy supply implies the gradual replacement of some primary energy sources (such as fossil fuels) and diffusion of a new source of energy.<sup>116</sup> Due to the formed consensus that energy transition is grounded in renewable sources, the definition of Professor Smil has been increasingly linked to a low-carbon and renewable energy production system.<sup>117</sup> According to the International Renewable Energy Agency (IRENA), energy transition signifies a shift of the global energy sector from fossil fuel-based energy sources to zero-carbon emission energy sources.<sup>118,119</sup> The critical requirement of this transformation is to reduce energy-related CO<sub>2</sub> emissions by replacing fossil fuel-based energy sources with clean energy sources such as renewable energies.<sup>120</sup> According to IRENA, the key aim of the transformation is to reduce CO<sub>2</sub> emissions to limit climate change.<sup>121</sup> So, both definitions refer to energy transition as the shift of the global energy sector’s production from and consumption of fossil fuels to clean energy sources like renewable energy.

However, the World Economic Forum (WEF) sets out a broader definition. According to the WEF, energy transition encompasses an inclusive process that aims to secure a sustainable and affordable energy system for all by addressing global energy-related challenges.<sup>122</sup> The WEF underlines that the transition process must create value for society and business sectors without compromising environmental sustainability, economic development, and energy security.<sup>123</sup> This definition does not mention climate change or CO<sub>2</sub> emissions reduction directly. It emphasizes sustainability, access to energy, and economic growth—major issues that are significantly linked with the energy transition process.

However, according to IRENA and Professor V. Smil, energy transition is more than just shifting energy sources. Transition to new energy sources is a paradigm shift that concerns the entire economic, social and governance system to limit

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<sup>115</sup> *Id.*

<sup>116</sup> *Id.*

<sup>117</sup> *Id.* at 107. *See also* World Energy Transitions Outlook: 1.5°C Pathway, *supra* note 107; Lucas Noura Guimares, The Regulation and Policy of Latin American Energy Transitions 320 (1st ed. 2020).

<sup>118</sup> The International Renewable Energy Agency (IRENA) is an intergovernmental organization that supports countries in their transition to a sustainable energy future.

<sup>119</sup> *Energy Transition Outlook*, International Renewable Energy Agency (June 2, 2022), [www.irena.org/energytransition](http://www.irena.org/energytransition).

<sup>120</sup> *Id.* *See also* World Energy Transitions Outlook: 1.5°C Pathway, *supra* note 107, at 4.8

<sup>121</sup> *Id.*

<sup>122</sup> Bart Valkhof, *Energy Transition 101: Getting Back to Basics For Transitioning to A Low-Carbon Economy - BRIEFING PAPER* (2020), [https://www3.weforum.org/docs/WEF\\_Energy\\_Transition\\_101\\_2020.pdf](https://www3.weforum.org/docs/WEF_Energy_Transition_101_2020.pdf).

<sup>123</sup> *Id.*

global warming, which implicates scientific advancement, innovative technology, capacity building, law and policy frameworks, organizational actions, and market mechanisms.<sup>124</sup> Many scholars prefer to stress law and policy frameworks over other tools which could be used to drive the energy transition.<sup>125</sup> Such a preference is due to the political difficulties and limitations in managing liberalized markets and consumer preferences for low-cost energy sources, i.e., fossil fuels.<sup>126</sup>

Considering this, it is critical to assess how the energy transition concept is articulated in public international law. International energy law is an integral part of public international law.<sup>127</sup> But, there is no self-contained sustainable energy regime.<sup>128</sup> In fact, a specific global treaty regulating renewable energy is yet to be adopted.<sup>129</sup> Consequently, the international law and policies related to sustainable energy are intricate, multilayered, and still under construction.<sup>130</sup> Sustainable energy-related international law involves an interplay between international environmental norms, non-binding international instruments (declarations, resolutions, and guidelines), and treaty obligations that directly or indirectly cover this subject matter.<sup>131</sup> Therefore, from a public global law perspective, articulating the concept of the energy transition is not an easy task.

The Johannesburg Plan of Implementation, a UN political declaration, sheds little light on the energy transition concept.<sup>132</sup> It highlights the relationships between climate change, sustainable development, and energy security, sets forth regulating force for untangling economic growth from environmental degradation, and encourages increasing global utilization of renewable energy on an urgent basis.<sup>133</sup> This concept is later re-emphasized in the Sustainable Energy for All (SE4All) initiative, a framework action plan from the UN.<sup>134</sup> The action plan pursues the transformation of the global energy sector by doubling the usage of renewable energy sources and increasing energy efficiency.<sup>135</sup> So, in these international policies, the energy transition process involves increasing renewable

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<sup>124</sup> Smil, *supra* note 108, at ix; *see* World Energy Transitions Outlook: 1.5°C Pathway, *supra* note 107, at 4.

<sup>125</sup> Jorge Blazquez et al., *A Road Map To Navigate The Energy Transition*, *The Oxford Institute for Energy Studies* (Oct. 2019), <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/10/A-road-map-to-navigate-the-energy-transition-Insight-59.pdf>.

<sup>126</sup> *Id.* at 2-3.

<sup>127</sup> Bruce, *supra* note 109, at 68.

<sup>128</sup> *Id.*

<sup>129</sup> *Id.* at 69.

<sup>130</sup> *Id.*

<sup>131</sup> *Id.*

<sup>132</sup> World Summit on Sustainable Development, *Johannesburg Summit*, U.N. Doc. A/CONF.199/20 (2002).

<sup>133</sup> *Id.*

<sup>134</sup> *A Framework For Action*, Sustainable Energy for All (2012), [https://www.seforall.org/sites/default/files/1/2013/09/SE\\_for\\_All\\_-\\_Framework\\_for\\_Action\\_FINAL.pdf](https://www.seforall.org/sites/default/files/1/2013/09/SE_for_All_-_Framework_for_Action_FINAL.pdf).

<sup>135</sup> *Id.* at 6.

energy usage so that environmental degradation can be prevented and sustainable development can be secured. But how do these policies articulate the concept of energy transition to leave a long-term impression? The 2030 Agenda for Sustainable Development addresses these conceptual definitions to form a more formalized outlook of the idea.<sup>136</sup>

As all UN member states adopted the 2030 Agenda for Sustainable Development, the concept received significant global endorsement.<sup>137</sup> Under this document, Sustainable Development Goals (SDGs) 7 and 13 foster and mandate a transition toward a low-carbon global economy to secure access to affordable and sustainable energy with due consideration to combating climate change.<sup>138</sup> Under goals 7 and 13, energy transition entails international low-carbon development with affordable and sustainable energy for all to address environmental and climate change-related problems.<sup>139</sup> It includes the complete process, from production through transmission, transportation, usage, and end-use.<sup>140</sup> By incorporating energy transition within its goals, this UN document also set forth a time-bound pathway with a 2030 deadline for the future legal solidification of the energy transition.<sup>141</sup> This is indeed substantial progress.

So, the reference to energy transition in those afore-mentioned non-binding international instruments makes it evident that under public international law, energy transition concepts implicate increased usage of renewable energy, global low-carbon development, access to energy, and prevention of environmental degradation and global warming.

## 2. Decoding Concept and Identifying Nexus under the International Climate Regime

To stabilize anthropogenic GHG emissions and to facilitate sustainable economic development through a shift toward cleaner energy, the international climate governing regime set forth mechanisms through its constitutive framework treaty (United Nation Framework Convention on Climate Change, “UNFCCC”) and Protocols (Kyoto Protocol and Paris Agreement).<sup>142</sup> It is remarkable that these above-mentioned international treaties did not mention the term ‘energy transition’; however, it does provide a clear idea about what this energy transition process should involve and how it can be implemented. In doing

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<sup>136</sup> Transforming Our World: The 2030 Agenda for Sustainable Development, U.N. Doc. A/RES/70/1 (Sept. 25, 2015).

<sup>137</sup> United Nations Department of Economic and Social Affairs Sustainable Development, The 17 Goals, <https://sdgs.un.org/goals> (last visited March 21, 2023).

<sup>138</sup> *Id.*

<sup>139</sup> Transforming Our World: The 2030 Agenda for Sustainable Development, *supra* note 136.

<sup>140</sup> *Id.*

<sup>141</sup> *Id.*

<sup>142</sup> United Nations Framework Convention on Climate Change, May 9, 1992, art. 2.

so, the regime eventually establishes a substantial nexus between the concept of energy transition and climate governing regime. The UNFCCC is the central international climate change instrument and within its texts it does not explicitly refer to the term energy transition.<sup>143</sup> However, it does set paths for the sustainable energy transition, which will be discussed in turn.

The key objective of the UNFCCC is to stabilize anthropogenic GHG emissions and to secure sustainable economic development.<sup>144</sup> To do so, the treaty established a series of commitments for developed countries; formed a set of principles, rules, and norms; created implementation and compliance tools; and established financing mechanisms.<sup>145</sup> Under Article 4(2)(a), industrialized country parties are obliged (albeit a non-binding, non-punitive obligation) to reduce GHG emissions.<sup>146</sup> The objective and this obligation of the UNFCCC create the primary nexus between the international climate regime and energy transformation; because to stabilize the anthropogenic GHG emissions, countries need to consider alternative, cleaner energy. But how will developed countries do this? To comply with the obligation, parties must elevate the development and transfer of technologies which reduce, prevent, and control GHG emissions in sectors like energy, industry, transport, agriculture, forest, and waste.<sup>147</sup>

The framework treaty further adds that such an emissions reduction process would be guided by principles as contained in the UNFCCC such as common concern of humankind; the principle of intergenerational equity; common but differentiated responsibilities; sustainable development (stressing social and economic growth); and the precautionary principle.<sup>148</sup> So, energy transition under the UNFCCC indicates the reduction of GHGs emissions in energy, industry, transport, agriculture, forest, and waste sectors by utilizing renewable energy along with the guidance of the abovementioned principles.<sup>149</sup>

But is the Framework Convention clear and detailed enough about how modes of implementation will operate at the ground level? Furthermore, is it facilitative enough to instigate developed country parties to truly pursue energy transition? The answer to both of these questions is no.<sup>150</sup> To achieve real, on-the-ground implementation and true energy transition by developed country parties, refining the energy transition concept further under the Kyoto Protocol, a legally binding treaty with time-sensitive rigid emission reduction targets for 37 industrialized

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<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> Farber & Carlame, *supra* note 51, at 58.

<sup>146</sup> *Id.*; United Nations Framework Convention on Climate Change, *supra* note 142, at art. 4(2)(a).

<sup>147</sup> United Nations Framework Convention on Climate Change, *supra* note 142, at art. 4(1)(c).

<sup>148</sup> *Id.* art. 3, 4(1)(a) to 4(1)(b); Please refer to Chapter IV of this paper titled 'Paris Agreement Principles to Shape Energy Transition Pathways,' which provides a detailed explanation of each principle in the context of the climate governing regime and energy transition.

<sup>149</sup> Sixth Assessment Report IPCC, *supra* note 50, at 70.

<sup>150</sup> Farber & Carlame, *supra* note 51, at 59.

countries, was necessary.<sup>151</sup> The protocol operationalizes the aim and obligation of UNFCCC by imposing independent, legally binding emission reduction targets, and by setting forth groundbreaking market-based mitigation tools.<sup>152</sup> With respect to market mechanisms, the Protocol designed an emission reduction path that could pave the way for investments toward low-carbon energy technologies and other emission reduction forms.<sup>153</sup> Market mechanisms will ultimately lead to a transition from fossil fuel-based energy systems and the eventual achievement of mitigation targets.<sup>154</sup> To compel developed countries to realize the set targets and employ energy transformation, the Protocol includes sanctions for noncompliance, uncommon in other multilateral environmental Agreements.<sup>155</sup> However, the protocol was only effective until 2020.<sup>156</sup> So, in the UNFCCC and the Kyoto Protocol, the nexus between energy transition and governing regime is specifically established through the objective of the framework convention, mitigation obligations, principles, market mechanisms, and oversight measures.

As for post-2020 climate actions, we now have the Paris Agreement. As an international treaty, the Paris Agreement concretized Sustainable Development Goals (SDGs) related to the energy sector, as energy is responsible for more than 70% of global carbon emissions.<sup>157</sup> Considering the lessons learned from the Kyoto Protocol's top-down approach, the Paris Agreement adopted a flexible, bottom-up, pledge-and-review approach for its governance mechanisms, utilizing an intricate matrix of obligations and actions supported by deadlines and facilitative oversight mechanisms.<sup>158</sup> But how is the energy transition concept

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<sup>151</sup> *Id.*

<sup>152</sup> *Id.* at 60; Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 37 I.L.M. 22 (1998), art. 3 and Annex B; Clean Development Mechanism (art. 12), Joint Implementation (art. 11, and the Emissions Trading Scheme (art. 17); Farber & Carlarne, *supra* note 51, at 60.

<sup>153</sup> See Farber & Carlarne, *supra* note 51, at 59-60.

<sup>154</sup> See Climate Action Tracker, *supra* note 93, at 71; Farber & Carlarne, *supra* note 51, at 60.

<sup>155</sup> Kyoto Protocol 1997, *supra* note 152, art. 18; See also Jon Hovi et al., *Enforcing the Kyoto Protocol: Can Punitive Consequences Restore Compliance?*, 33 Rev. of Int'l Stud. 435, 435-49 (2007).

<sup>156</sup> See Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 37 I.L.M. 22 (1998), as amended by Doha Amendment to the Kyoto Protocol, Dec. 8, 2012, U.N. Doc FCCC/KP/CMP/2012/13/Add.1, 52 I.L.M. 237 (2013). The Kyoto Protocol's provisions and commitments aimed at reducing greenhouse gas emissions were intended to be effective only during its first commitment period, which was from 2008 to 2012. The Protocol did not contain any specific provisions extending its effectiveness beyond the first commitment period. However, the Doha Amendment to the Kyoto Protocol was adopted in 2012 following discussions during the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) meetings. The Doha Amendment extended the Protocol's commitments to reduce emissions beyond the first commitment period, covering the years 2013 to 2020.

<sup>157</sup> See generally The Paris Agreement, *supra* note 5, art. 2(1). Roeben & Mete, *supra* note 111, at 2.

<sup>158</sup> Zaman, *supra* note 6, at 101; Farber & Carlarne, *supra* note 51, at 67; Sharaban Tahura Zaman,

anchored in the Agreement? Interestingly, the Paris Agreement endorses the idea throughout the document without mentioning the term directly. The previous discussion in section II(1)(a) of this article made it evident that energy transition is implicitly embedded in the Paris Agreement temperature goals under Article 2(1).<sup>159</sup> <sup>160</sup> Other than anchoring it within the key temperature goals of the Agreement, Article 4, which deals with the NDCs, is the central provision where the transition to sustainable energy is housed with a legally binding obligation (though it is a non-punitive procedural nature obligation).<sup>161</sup>

As per the Agreement's bottom-up approach, parties must establish NDCs that undertake enhanced mitigation targets and commitments every five years with progression.<sup>162</sup> Besides mitigation targets and commitments, Parties must outline how to achieve the pledged targets and commitments in their NDCs.<sup>163</sup> States' NDCs need to spell out how the laws, policies, and action plans of that State will attain the NDC's targets.<sup>164</sup> The gradual transition toward sustainable energy, adopting cleaner alternatives, and reducing particular fossil-based energy sources will be central while reforming a state's legislative framework for attaining NDC-related commitments.<sup>165</sup> The Paris Rulebook, adopted in 2018 at Katowice, clarifies further that implementation plans for NDCs will primarily contain procedures for economy-wide emission reduction, which in other words signifies that transition towards sustainable energy will be indispensable.<sup>166</sup>

To facilitate the implementation of NDCs, Article 6 creates market mechanisms and non-market approaches to balance supply and demand of carbon credits.<sup>167</sup> Technology transfer and finance flow consistent with a pathway towards energy

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*The Bottom-Up Pledge and Review Approach of Nationally Determined Contributions (NDCs) in the Paris Agreement: A Historical Breakthrough or a Setback in New Climate Governance?*, 5 IALS Student L. Rev. 3 (2018); Bruce, *supra* note 109, at 71; Roeben & Mete, *supra* note 111, at 4.

<sup>159</sup> See discussion *infra* Part II(1)(a).

<sup>160</sup> *Id.*; The Paris Agreement, *supra* note 5, art. 2(1).

<sup>161</sup> Zaman, *supra* note 6, at 112.

<sup>162</sup> The Paris Agreement, *supra* note 5, art. 4(2)-(3).

<sup>163</sup> Decision 4/CMA.1, *Further guidance in relation to the mitigation section of Decision I/CP.21*, paragraph 4 and 5, UN Doc. FCCC/CMA/2016/3/Add.1 (Nov. 18, 2017). See also Meinhard Doelle, *The Heart of the Paris Rulebook: Communicating NDCs and Accounting for Their Implementation*, 9 *Climate L. 5, 6* (2019); Bruce, *supra* note 109, at 72.

<sup>164</sup> Roeben & Mete, *supra* note 111, at 78.

<sup>165</sup> Bruce, *supra* note 109, at 72.

<sup>166</sup> Decision 1/CP.24, *Adoption of the Paris Agreement*, UN Doc. FCCC/CP/2015/10/Add.1 (Jan. 29, 2016); Roeben & Mete, *supra* note 111, at 77.

<sup>167</sup> Article 6 of the Paris Agreement establishes three approaches for Parties to voluntarily cooperate in achieving their GHGs emission reduction targets (Market mechanisms). Under the Paris Agreement, the mechanisms are- internationally transferred mitigation outcomes (ITMOs) (Article 6.2), International Emissions Trading (Article 6.4), and the non-market approaches mechanism (it can be anything and everything, which is not market-based); It is worth noting that under non-market approaches, countries can work together to achieve mitigation targets and sustainable development; Roeben & Mete, *supra* note 111, at 78.

transition are secured here by requiring the developed country Parties to provide funds and technologies for low-carbon and climate-resilient development, and to support sustainable energy projects.<sup>168</sup> To ensure effective implementation, Parties' actions towards energy transition under their NDCs (which is partly driven and bottom-up in nature) will be cross-checked by the two tier top-down oversight mechanism named Transparency Framework (for the assessment of individual progress, Article 13 of the Paris Agreement) and the global stocktake (for the evaluation of global progress, Article 14 of the Paris Agreement).<sup>169</sup> The Agreement also describes several principles which shape the process to secure a balanced transition: common but differentiated responsibilities and respective capabilities, the precautionary approach principle, intergenerational equity, sustainable development, and just transition.<sup>170</sup>

The preceding discussion makes it evident that of the two operational protocols of the UNFCCC, the Paris Agreement established a robust and comprehensive link for the shift toward sustainable energy. Specifically, the mitigation actions under NDCs which are aligned with the temperature goals, supported by market-based tools and oversight mechanisms, and shaped by principles, are the critical legal basis which can drive the economy-wide energy transition under the Agreement. Moreover, the mitigation obligations under the Paris Agreement apply to all country parties irrespective of the consideration of historical emissions or the existing emissions levels.<sup>171</sup> Considering this, and recalling temperature goals, net-zero targets, and the significance of the 2030 decade for energy transition as discussed in Chapter 2, it is essential to assess the normative strength<sup>172</sup> of the integrated norms of the Paris Agreement to assess whether existing norms are well equipped to drive the energy transition. The next section of this paper delves into this discussion.

### III. PARIS AGREEMENT: WELL-EQUIPPED DRIVER?

It is important to recall that international laws possess no compelling executive power to govern policy directions and vigorous enforcement of laws.<sup>173</sup> There is no standing legislative body.<sup>174</sup> The governance process cannot hold the State

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<sup>168</sup> The Paris Agreement, *supra* note 5, art. 10 and 9.

<sup>169</sup> *Id.* art. 13 and 14.

<sup>170</sup> See discussion *infra* Part IV.

<sup>171</sup> The Paris Agreement, *supra* note 5, art. 3 and 4.

<sup>172</sup> The term "normative strength" denotes the legal nature, characteristics, and standard of NDCs as a norm to act as a tool for the energy transition.

<sup>173</sup> Charlotte Streck, Book Review, 4 *Carbon & Climate L. Rev.* 407 (2010) (reviewing Daniel Bodansky, *The Art and Craft of International Environmental Law* (2009)), available at JSTOR <https://www.jstor.org/stable/24324260>.

<sup>174</sup> *Id.*



Parties accountable to secure implementation.<sup>175</sup> Since strong institutions are missing, international laws rely on international agreements to cooperate.<sup>176</sup> Such cooperation furthermore depends on the nature and depth of each State's commitments, as resulting rules often end up based more upon political or pragmatic rather than legal considerations.<sup>177</sup> These rules are commonly non-adversarial and non-punitive.<sup>178</sup>

Considering the unique nature of international rules, the following section of this paper will examine two specific issues: first, a very brief look at the legal character of the Paris Agreement under international law; second, the normative strength of the integrated governing norms that exist for energy transition under the Paris Agreement. By examining these issues, this paper ultimately seeks to determine the capacity of the Paris Agreement to influence states to enact economy-wide energy transition.

*A. A Brief Look at The Legal Character of the Paris Agreement Under International Law*

1. Paris Agreement's Legal Character

In 2015, after intricate and lengthy negotiations, the global community adopted the Paris Agreement under the UNFCCC as a new successor agreement to the Kyoto Protocol.<sup>179</sup> However, before delving into a brief examination of the legal character of the Paris Agreement, it is important to assess whether we even need to consider the legal nature of the Paris Agreement. When adopting an international instrument, there is a general preference for “a legally binding agreement” because it is believed that a binding agreement can more readily affect state behavior and other actors than a non-binding agreement.<sup>180</sup> A legally binding international instrument also represents the utmost form of expression of political will, an expression to be bound, and most importantly a strong signal that others may rely on that intent.<sup>181</sup> Furthermore, a legally binding agreement sets forth institutions and procedures to secure transparency and accountability so that every

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<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> *Id.*

<sup>179</sup> Zaman, *supra* note 6, at 99. See also Lavanya Rajamani, *Ambition and Differentiation in the 2015 Paris Agreement: Interpretive Possibilities and Underlying Politics*, 5 *Int'l & Comp. L.Q.* 17 (2016); Farber & Carlane, *supra* note 51, at 67.

<sup>180</sup> Jacob Werksman, notes for the Third 2016 Environmental - the University of Edinburgh Law Brodies Lecture: International Legal Character of the Paris Agreement, 4 (2017), available at [https://www.biicl.org/documents/887\\_brodieslectureonthelegalcharacteroftheparisagreementfinalbicleedinburgh.pdf?showdocument=1](https://www.biicl.org/documents/887_brodieslectureonthelegalcharacteroftheparisagreementfinalbicleedinburgh.pdf?showdocument=1).

<sup>181</sup> *Id.* at 5.

country party can stay on equal footing when delivering their obligations.<sup>182</sup>

The preference for a legally binding agreement was notably reflected in negotiation processes from the Durban climate change conference (2011) to the Paris climate change conference (2015).<sup>183</sup> However, it is also worth mentioning that State Parties were not convinced to adopt a legally rigid instrument like the Kyoto Protocol, which contains strict sanctions and differentiated responsibilities based on historical emissions.<sup>184</sup> Considering these party preferences, negotiations of the Paris Agreement ended with what Professor Bodansky refers to as the “Goldilocks” solution.<sup>185</sup> This aptly-named resolution created a legally binding treaty as defined in the Vienna Convention on the Law of Treaties Article 2.1(a) and is recognized by almost all climate legal scholars.<sup>186</sup> Any country that wishes to join the Paris Agreement as a party must submit its consent to be bound (through ratification, acceptance, approval, or accession).<sup>187</sup> The Paris Agreement does not permit reservations and imposes full treaty obligations unless and until a party withdraws itself from the Agreement.<sup>188</sup>

However, the Paris Agreement simultaneously possesses a uniquely ambiguous legal character with a diverse range of provisions, some with greater legal force and authority (mandatory provisions with “shall”, e.g. Articles 4.2; 4.9; 4.12; and 4.12) than others (nonmandatory provision with discretion and flexibility, e.g. Articles 4.3; 4.4; 4.19; and 5).<sup>189</sup> Even the provisions with legal force and authority are neither too strong, like the Kyoto Protocol, nor too weak.<sup>190</sup> Being (in part) a legally binding international instrument, the Paris Agreement represents a strong political will, a significant signal of commitments, a broad assurance of compliance, and an openness under transparency and accountability frameworks to assess whether the actions of the respective state are adequate or not.

However, understanding the legal character of the Paris Agreement is not enough. To put the Paris Agreement into action there is the Paris Decision (“Decision 1/CP.21”), relevant decisions from the Conference of the Parties (“COP decisions”) or Conference of the Parties serving as the Meeting of the Parties to the Agreement (“CMA decisions”), and the recently adopted Paris

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<sup>182</sup> *Id.*

<sup>183</sup> Zaman, *supra* note 6, at 101.

<sup>184</sup> *Id.* at 101-102.

<sup>185</sup> Bodansky, *supra* note 38, at 110.

<sup>186</sup> Bodansky, *supra* note 19, at 142; See also Bodansky, *supra* note 38, at 110; Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331, 8 I.L.M. 679 (1969); Rajamani & Werksman, *supra* note 12, at 3; DANIEL BODANSKY ET AL., INTERNATIONAL CLIMATE CHANGE LAW 213 (1st ed. 2017).

<sup>187</sup> The Paris Agreement, *supra* note 5, art. 20.

<sup>188</sup> Werksman, *supra* note 180, at 8; See also Zaman, *supra* note 6, at 100.

<sup>189</sup> Rajamani & Werksman, *supra* note 12, at 3; See also Bodansky, *supra* note 19, at 143; Bodansky, *supra* note 186.

<sup>190</sup> Farber & Carlane, *supra* note 51, at 67. See also Bodansky, *supra* note 19, at 142.

Rulebook (2018).<sup>191</sup> Since there are provisions of all these documents which implement the legal commitments of the Paris Agreement, it is also fundamental to understand these documents' legal character.

## 2. The Legal Character of Decision 1/CP.21 and The Relevance of COP/CMA Decisions and Paris Rulebook 2018

The COP is not authorized by the UNFCCC to make legally binding decisions.<sup>192</sup> But there are some exceptions where the UNFCCC provisions do endow legal force onto COP decisions, making COP decisions which fall within these exceptions legally binding.<sup>193</sup> Thus, the legal status of a COP decision and whether it is binding entirely depends on its underlying treaty provisions. For example, Article 4.1(a) of the UNFCCC provides legal force to the COP in its decisions on inventory methodologies.<sup>194</sup> Therefore, COP decisions related to the inventory methodologies can be binding on the parties if they are articulated and phrased with mandatory terms, precision, and specification.<sup>195</sup>

Considering this, a careful evaluation of COP Decision 1/CP.21 reveals that other than two exceptions, this decision does not create any legally binding obligations for States.<sup>196</sup> These two exceptions are paragraph 25, which describes submission of NDCs to the UNFCCC secretariat, and paragraph 32, which describes compliance with the guidance while formulating second and subsequent NDCs.<sup>197</sup> Paragraph 25 is legally binding because Article 4.9 of the Paris Agreement states that parties “shall communicate an NDC every five years by decision 1/CP.21.”<sup>198</sup> The legal force of paragraph 25 is derived from Article 4.9. Similarly, paragraph 32 is binding on parties because Article 4.13 requires parties to “Parties shall account for their NDCs” by “guidance adopted” by the CMA.<sup>199</sup> Also, the way paragraphs 25 and 32 are articulated with mandatory terms “shall”, from the drafting context, it can legally bind the Parties to deliver the action.

Likewise, several provisions of the Paris Agreement authorize the CMA to

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<sup>191</sup> Adoption of the Paris Agreement, Decision 1/CP.21, *supra* note 87; See also Paris Rulebook, Decision 1/CP.24, *supra* note 166.

<sup>192</sup> Jutta Brunnée, COPing With Consent: Law-Making Under Multilateral Environmental Agreements, 15 *Leiden J. Int'l L.* 1, 3 (2002).

<sup>193</sup> Bodansky, *supra* note 19, at 148.

<sup>194</sup> *Id.*

<sup>195</sup> VOLKER ROEBEN ET AL., *THE GLOBAL ENERGY TRANSITION: LAW, POLICY AND ECONOMICS FOR ENERGY IN THE 21ST CENTURY* 131-133 (1st ed. 2020); Zaman, *supra* note 6, at 111.

<sup>196</sup> Zaman, *supra* note 6, at 148.

<sup>197</sup> Adoption of the Paris Agreement, Decision 1/CP.21, *supra* note 87, paragraph 25 and 32.

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*; CMA stands for Conference of the Parties serving as the Meeting of the Parties to the Agreement.

adopt legally binding decisions.<sup>200</sup> For example, Articles 4.8, 4.9, 4.11, 4.13, 7.3, 9.7, and 13.7 of the Paris Agreement authorize the CMA to adopt legally binding decisions.<sup>201</sup> However, as mentioned before, if CMA makes any decisions related to these cited Articles, it does not necessarily mean that those decisions will be legally binding per se. However, if the decisions are phrased in mandatory terms like “shall” and formulated in a way that can create legally binding obligations, that specific CMA decision will be considered legally binding.<sup>202</sup> So, the legal character of COP and CMA decisions based in the Paris Agreement depend on whether those decisions received legal force authorization from the underlying Paris Agreement provisions, and whether its binding character is precisely articulated with- mandatory terms.

The same legal mechanism applies to the Paris Rulebook, a composition of decisions and annexes adopted by the CMA at Katowice in 2018.<sup>203</sup> The Paris Rulebook is considered a “fleshing out” exercise to secure effective implementation of the Paris Agreement.<sup>204</sup> However, like other CMA decisions discussed above, the legal status of the Paris Rulebook varies depending on the Paris Agreement’s relevant provisions, legal force authorization, and articulations of the texts.<sup>205</sup>

In sum, it is undeniable that the Paris Agreement is a legally binding international instrument, while the legal status of Decision 1/CP.21, other COP and CMA Decisions, and the Paris Rulebook varies. Therefore, the next part of this paper will examine the strength of the integrated governing norms that exist for energy transition under the Paris Agreement, keeping in mind the general perception that a legally binding agreement may more likely and efficiently affect and change state behavior than a non-binding agreement.

### *B. Assessing Existing Norms of the Paris Agreement for Energy Transition*

The term “norm” has two different meanings: one prescriptive and the other descriptive.<sup>206</sup> Its descriptive definition refers to behavioral regularity, while its prescriptive definition refers to evaluative standards.<sup>207</sup> However, from an international environmental law perspective, the term “norm” usually (but not necessarily) denotes the prescriptive sense rather than its descriptive sense.<sup>208</sup> The rationale behind this preference is that international environmental law norms

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<sup>200</sup> Bodansky, *supra* note 19, at 148.

<sup>201</sup> *Id.*

<sup>202</sup> Bodansky, *supra* note 19, at 148. See also Roeben et al., *supra* note 195, at 132.

<sup>203</sup> Roeben et al., *supra* note 195, at 132.

<sup>204</sup> *Id.* at 131.

<sup>205</sup> *Id.*

<sup>206</sup> ROBERT C. ELLICKSON, ORDER WITHOUT LAW 125 (1st ed. 2009).

<sup>207</sup> Bodansky, *supra* note 18, at 87.

<sup>208</sup> *Id.*

provide community/public standards.<sup>209</sup> International norms seek to guide or influence the behavior of states, international institutions, and private actors.<sup>210</sup> By setting forth a standard of appropriate actions or non-actions, norms guide the behavior of these states, institutions, and private actors.<sup>211</sup>

Interestingly, while setting forth a model of appropriate action, these norms also provide reason for international entities to take the action in the first place.<sup>212</sup> For example, under Article 4.2 of the Paris Agreement, it is a binding obligation for State Parties to “prepare, communicate, and maintain” NDCs every five years.<sup>213</sup> Thus, Article 4.2, as a norm, sets forth the appropriate actions that parties must take, and further becomes a reason for states to take such action. Here the purpose of the action is to achieve long-term temperature goals and a net-zero target, as mentioned in Article 4.1.<sup>214</sup> However, though norms can provide reasons for action, state behavior is not necessarily always based on those norms.<sup>215</sup> According to Professor Bodansky, “it is an empirical question whether and to what degree actors are guided by those reasons, thereby making norms casually effective?”<sup>216</sup>

Taking this vital question into consideration, this part of the paper aims to unfold two key questions: first, how do existing norms provide normative and regulatory direction and guidance to drive energy transition, and second, what aspects of these norms give them the influence to trigger such economy-wide change? But what would be the pointers or indices one might use to assess the normative/regulatory directions of the Paris Agreement? Further, how might one evaluate the normative strength of the existing norms of the Paris Agreement, that will eventually help clarify how these norms influence state behavior to enact the economy-wide energy transition? This next section of the paper initiates a discussion to answer these questions, beginning with a brief study identifying how norms influence behavior. A discussion on normative strength will follow, where the discussion dives into a legal investigation to find the answers to two key legal questions related to the Paris Agreement’s norms and the energy transition.

It is worth noting that, given the depth of the discussion and length of this paper, this section focuses specifically on Article 4 and other NDCs-related provisions, as well as Article 6 and provisions related to market and non-market-based tools. The aim is to assess the normative/regulative directions and strength of the existing norms of the Paris Agreement for the energy transition, rather than

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<sup>209</sup> *Id.* at 87.

<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> Joseph Raz, *Practical Reason and Norms* 9 (1st ed. 1999).

<sup>213</sup> The Paris Agreement, *supra* note 5, art. 4.2

<sup>214</sup> *Id.* art. 4.1 and 4.2.

<sup>215</sup> Bodansky, *supra* note 18, at 89.

<sup>216</sup> *Id.*

attempting to assess all provisions of the agreement.

1. Understanding How Norm Influences Behavior and Identifying Indicators to Assess Normative Strength

When guiding behavior, norms operate as a form of a directive.<sup>217</sup> Norms can be framed very modestly by utilizing verbs like request, urge, recommend, advise, pray, entreat, and so on.<sup>218</sup> On the other hand, they can be framed more strictly by utilizing verbs such as require, direct, order, demand, prohibit, forbid, permit, warn.<sup>219</sup> Norms as a directive impose prohibitions and requirements, provide permissions, or sometimes create a new form of conduct/actions<sup>220</sup> as an attempt to guide or regulate state behavior.<sup>221</sup> But how do norms influence behavior? In the book *The Art and Craft of International Environmental Law* Professor Bodansky refers to the recognition by legal philosophers that there are two general possibilities which explain how norm influences behavior.<sup>222</sup> Professor Bodansky referred to them as the normative approach and the instrumental approach.<sup>223</sup>

a. Normative Approaches

According to the normative approach, a state might accept the norm and its given reasons for action as a standard of appropriate conduct to guide that state's actions or decisions.<sup>224</sup> But why would a state adopt a norm as a standard of conduct? A state might accept the norm from a diverse "internal point of view" based on the "logic of appropriateness." For example, a state might have faith in the values and idea that is embodied in the norms; a state might believe that the norm serves its interests (achieving immediate or short-term or long-term goals, receiving incentives); a state may feel that the norm is adopted from a legitimate source or pedigree; or it may accept the norm due to psychological or social factors (such as imitation or desire for appreciation).<sup>225</sup> However, this is not an exhaustive list. More than one point of view or logic of appropriateness can serve as the basis for accepting a norm.<sup>226</sup> Thus, irrespective of the underlying rationale (or reason for action) of the norm itself, a state can adopt that norm and act in

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<sup>217</sup> ALF ROSS, DIRECTIVES AND NORMS 82-92 (Alexander Grant ed., 1st ed. 2009).

<sup>218</sup> *Id.*

<sup>219</sup> *Id.*

<sup>220</sup> Bodansky, *supra* note 18, at 88.

<sup>221</sup> *Id.*

<sup>222</sup> *Id.* at 89.

<sup>223</sup> *Id.*

<sup>224</sup> H.L.A. HART ET AL., THE CONCEPT OF LAW (CLARENDON LAW SERIES) 56-57 (3<sup>rd</sup> ed. 2012); *See also* Bodansky, *supra* note 18, at 88.

<sup>225</sup> Bodansky, *supra* note 18, at 89-90; *See also* Martha Finnemore & Kathryn Sikkink, International Norm Dynamics and Political Change, 52 INT'L ORG. 887, 898 (2004).

<sup>226</sup> Bodansky, *supra* note 18, at 90.

accordance with it due to its own internal point of view and logic of appropriateness. According to Professor Bodansky, a “norm provides a reason for action in and of itself, separate from the reasons that justify the norm.”<sup>227</sup> However, it is worth mentioning that such points of view and reasons for action impact the acceptance of a nascent norm.<sup>228</sup> Once the norm is adopted with legal force, its status as a “law” represents an independent reason for action: acting in accordance with established law.<sup>229</sup> An adopted norm with legal force creates constraints or pressure on states to guide the state behavior or functioning of the state; at that time, that norm is referred to as obligation.<sup>230</sup>

So, when a state accepts a norm from their internal point of view or logic of appropriateness, that state’s behavior with respect to the norm can be described as a “normative view of behavior.”<sup>231</sup> Here norm influences state behavior by using state’s internal point of view, logic, notions or by triggering the sense of what is considered rational and correct.

b. Instrumental Approaches

Instrumental approach or instrumental view of behavior comes about when there is an absence of a distinct internal point of view on a norm, and a state does not consider that norm as a standard of appropriate behavior but still follows the norm.<sup>232</sup> Here the logic behind the norm arises from the consequences of following it. So, the basis of the instrumental approach is the logic of consequences rather than the logic of appropriateness, which supports the normative approach.<sup>233</sup> Behavior based on the logic of consequences may result from the desire to avoid sanctions, avoid reputational harm, or receive promised rewards.<sup>234</sup> According to legal scholars, this approach works like a pricing mechanism.<sup>235</sup> It imposes a high cost for non-compliance and reward for compliance.<sup>236</sup> This cost of non-compliance or compliance becomes the main motivating factor of states in shaping their behavior according to a norm.<sup>237</sup> So, in the instrumental approach of behavior, states respond only to consequences, whether the threat of sanctions or the promise of rewards.

However, the discussion above on how norms affect behavior raises another

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<sup>227</sup> *Id.*

<sup>228</sup> *Id.* at 91.

<sup>229</sup> *Id.* See also, Daniel Bodansky, International Law in Black and White, 34 GA. J. INTL & COMP. L. 9, 11 (2006).

<sup>230</sup> Bodansky, *supra* note 18, at 91.

<sup>231</sup> *Id.*

<sup>232</sup> *Id.* at 91-92.

<sup>233</sup> *Id.*

<sup>234</sup> *Id.*

<sup>235</sup> *Id.*

<sup>236</sup> *Id.* at 92.

<sup>237</sup> *Id.*

critical question. Do norms influence behavior in only a particular way? The answer is no. According to an empirical study, instrumental and normative approaches are both significant in explaining a state's behavior toward norms.<sup>238</sup> According to Professor Bodansky, these two behavior accounts are not mutually exclusive but complementary.<sup>239</sup> The complementary relationship between instrumental and normative approaches is quite recognizable because when a norm is accepted under the "normative view of behavior" and later is adopted with legal force, it becomes law, and therefore compliance and non-compliance with that norm comes with consequences in the form of either rewards or sanctions.<sup>240</sup>

It is worth mentioning that the legal status of a norm can change state behavior.<sup>241</sup> However, it is undeniable that international law's enforcement and judicial application is sporadic.<sup>242</sup> Why does legal status matter if the enforcement is sporadic? Because relevant actors (states, international institutions, private actors) believe that legal status matters.<sup>243</sup> Relevant actors on the international plane take legal obligations more seriously than non-legal norms and occasionally breach the latter.<sup>244</sup> They generally view compliance from an obligatory context and non-compliance or breach from a more blameworthy context, which is not the case for non-legal norms.<sup>245</sup>

At this point of discussion, it is important to clarify another significant question and to pinpoint what value the assessment of this question will add. The previous analysis of the Paris Agreement's norms helped us to understand the legal status and binding character of these norms. The issue here is that broader clusters of facts beyond legally binding status give international instruments the power to shape the State's behavior.<sup>246</sup> The Paris Agreement needs to change State's behavior, and it is important to know whether it is well-equipped to do that. The reason this assessment matters is that there may be ways to influence state behavior outside of legally binding norms. For instance, if obligations of conduct were more specific and precise, even if they were not legally binding, that would provide a more normative character to shape State's behavior. Or, there could be some benefit or reward for achieving NDCs, such as qualifying for additional assistance that could influence the State to change the behavior according to the Agreement. So, other than identifying the legal status of the norms of the Paris Agreement, this assessment will attempt to explore and examine what added

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<sup>238</sup> DAN ARIELY ET AL., PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS 76-77 (1st ed. 2008).

<sup>239</sup> Bodansky, *supra* note 18, at 94.

<sup>240</sup> *Id.*

<sup>241</sup> *Id.* at 106.

<sup>242</sup> *Id.*

<sup>243</sup> *Id.*

<sup>244</sup> *Id.* at 107.

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*



features the Agreement and its norms could offer to drive the state's behavior to pursue energy transition.

c. Indicators to Assess Normative Strength

It is important to note that, from an enforceability context, a legal norm can be strong or weak regardless of its legally binding character.<sup>247</sup> Therefore, the nature and legal character of treaty norms may vary, which in turn may alter its effectiveness in influencing and guiding state behavior.<sup>248</sup> So, understanding the normative strength of the specific norm at hand is fundamental to assessing its effectiveness in influencing or guiding states' behavior.<sup>249</sup> But how does one determine normative strength? The extent to which a legal norm imposes a mandatory obligation (in a strong fashion), merely suggests or recommends a non-binding obligation (in a weaker fashion), or combines both types of obligation (strong and weak fashion), is entirely determined by the way the legal norm is expressed.<sup>250</sup> Therefore, to assess the strength of a treaty norm, it is essential to examine how the provisions of that specific treaty norm are tailored.<sup>251</sup> Generally, the normative strength of a treaty norm is assessed using three elements: (1) mandatory quality (shall versus should); (2) precision (precise or vague, rules or standard); and (3) implementation mechanisms (self-administered or delegation of implementation to others).<sup>252</sup> A treaty norm can be extremely precise or rather general, it can be an absolute mandatory provision or provide more flexibility, and it may or may not be subject to international review and implementation mechanisms—and all these characteristics and features of a treaty norms depend entirely on how the provision of the treaty that created the norm is crafted and tailored within the text.<sup>253</sup>

2. Assessment of the Existing Norms

Considering the discussion above, this next part of the paper assesses existing norms of the Paris Agreement which drive energy transitions. The Paris Agreement's existing norms which influence, direct, and guide state behavior will be examined from the context of both normative and instrumental approaches. In addition, pointers to assess the normative strength will be explored through mandatory quality, precision, and oversight mechanisms.

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<sup>247</sup> Zaman, *supra* note 6, at 105.

<sup>248</sup> Bodansky, *supra* note 18, at 102.

<sup>249</sup> Zaman, *supra* note 6, at 100, 106. See also Bodansky, *supra* note 18, at 102.

<sup>250</sup> Zaman, *supra* note 6, at 105. See also Bodansky, *supra* note 18, at 103-104.

<sup>251</sup> Zaman, *supra* note 6, at 105-106.

<sup>252</sup> Bodansky, *supra* note 18, at 102-107.

<sup>253</sup> *Id.*

a. Article 4

As discussed before, to achieve long-term temperature goals, the Paris Agreement's primary tool is submitting NDCs under Article 4.<sup>254</sup> Article 4 is considered the most substantial legal obligation of the Paris Agreement.<sup>255</sup> How do NDCs under Article 4 and its related provisions provide normative direction and guidance to drive energy transition? Let's filter the normative guidance of Article 4 to draw a better picture. It is interesting to note that Article 4 and related provisions dealing with NDCs (for example, Article 6.2) contain a combination of normative and instrumental approaches. The normative strength of NDCs is also very diverse, with a unique blend of stringency and flexibility.

i. Binding Obligations of NDCs and Their Normative Character

The Paris Agreement demonstrates a strong adherence to the instrumental approach, as it places clear and binding procedural obligations on its parties. This is achieved through the use of the word "shall", which imposes obligations on each party.<sup>256</sup> One of these obligations is to prepare, communicate, and maintain NDCs, which are plans outlining the country's efforts to reduce GHGs and adapt to the impacts of climate change.<sup>257</sup> Article 4.2 of the Paris Agreement requires countries to develop these NDCs and ensure they are updated every five years.<sup>258</sup> To ensure transparency and understanding of their NDCs, countries must also provide necessary information with their plans, as stated in Article 4.8.<sup>259</sup> This information should be clear, transparent, and easily understandable to all stakeholders involved.<sup>260</sup> Furthermore, in Article 4.9, the Paris Agreement requires that countries communicate their NDCs every five years.<sup>261</sup> This communication is crucial to allow other countries and stakeholders to understand the progress being made towards meeting the goals of the Paris Agreement.<sup>262</sup> In addition to preparing and communicating their NDCs, countries must also account for their NDCs, as required in Article 4.13.<sup>263</sup> This means that countries must track and report their progress towards achieving their NDC targets, ensuring that they

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<sup>254</sup> Farber & Carlame, *supra* note 51, at 67. See also Bodansky, *supra* note 186 at 231.

<sup>255</sup> Bodansky, *supra* note 186 at 231.

<sup>256</sup> Bodansky, *supra* note 19, at 146. See also LAVANYA RAJAMANI, INNOVATION AND EXPERIMENTATION IN THE INTERNATIONAL CLIMATE CHANGE REGIME 250-265 (1st ed. 2020).

<sup>257</sup> The Paris Agreement, *supra* note 5, art. 4.2.

<sup>258</sup> *Id.*

<sup>259</sup> *Id.* art. 4.8.

<sup>260</sup> *Id.*

<sup>261</sup> *Id.* art. 4.9.

<sup>262</sup> *Id.*

<sup>263</sup> *Id.* art. 4.13.

are on track to meet their goals.<sup>264</sup> Finally, Article 6.2 of the Paris Agreement requires countries to ensure robust accounting when engaging in emission trading.<sup>265</sup> This means that countries must ensure that any emissions trading they undertake is transparent and consistent with their NDCs and the goals of the Paris Agreement.<sup>266</sup>

Furthermore, there is a set of obligations for developed country parties that entails the following obligations: Under Article 9.5, developed countries must communicate biennially indicative quantitative and qualitative information relating to their obligation to provide financial resources to assist developing countries with mitigation and adaptation.<sup>267</sup> This information should be clear, transparent, and easily understandable to all stakeholders involved.<sup>268</sup> In addition to providing financial resources, developed countries must also provide biennially transparent and consistent information on support for developing countries provided and mobilized through public interventions, as outlined in Article 9.7.<sup>269</sup> This information should detail the type and amount of support provided, as well as the sources of financing and the channels through which the support was provided.<sup>270</sup>

These binding procedural obligations represent an obligation of conduct instead of the obligation of result.<sup>271</sup> Here parties must implement their procedural obligations but do not have a duty to achieve their objectives.<sup>272</sup> State Parties' endeavor towards the development that has been promised. Focusing solely on procedural actions rather than achieving or delivering the intended result is considered sufficient.<sup>273</sup>

Now, how do these provisions reflect the instrumental approach? The Paris Agreement links these provisions with its oversight mechanisms which are outlined in Articles 13 (transparency framework), Article 14 (global stocktake), and Article 15 (implementation and compliance mechanism). So, in these obligations, state behaviors may be motivated by the logic of consequences. However, in the oversight mechanisms of the Paris Agreement, the pricing mechanism is not designed to impose sanctions to address non-compliance.<sup>274</sup> In

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<sup>264</sup> *Id.*

<sup>265</sup> *Id.* art. 6.2.

<sup>266</sup> *Id.*

<sup>267</sup> *Id.* art. 9.5

<sup>268</sup> *Id.*

<sup>269</sup> *Id.* art. 9.7.

<sup>270</sup> *Id.*

<sup>271</sup> Zaman, *supra* note 6, at 107.

<sup>272</sup> *Id.*

<sup>273</sup> Benoit Mayer, International Law Obligations Arising in Relation to Nationally Determined Contributions, 7 *TRANSNAT'L ENVTL. L.* 8, 10-12 (2018).

<sup>274</sup> Rajamani, *supra* note 256, at 260.

fact, sanctions to address non-compliance are absent from the Paris Agreement.<sup>275</sup> All oversight mechanisms of the Paris Agreement are non-adversarial, non-punitive, and facilitative.<sup>276</sup> States follow the implementation-related procedural obligations in NDCs to avoid reputational harm or receive promised rewards. Diving into the Paris Agreement's oversight mechanisms can better support this proposition.

Out of the three oversight mechanisms of the Paris Agreement, the transparency framework under Article 13 is considered the most significant, as it not only provides guidance toward the implementation of NDCs but also sets forth mechanisms to provide clarity and track progress toward the achievement of NDCs.<sup>277</sup> Furthermore, Article 13 sets tools which facilitate sharing of best practices and building mutual trust and confidence to encourage more ambitious NDCs.<sup>278</sup> Legal scholars consider the transparency framework as the critical mechanism holding State Parties accountable for accomplishing what they say they will achieve in their NDCs.<sup>279</sup> Here, compliance according to a logic of the consequences would be motivated by negative consequences of noncompliance, like reputational harm and peer and public pressure. According to legal scholars, compliance motivated by the logic of consequences can be just as effective as legal obligations in influencing the behavior of states.<sup>280</sup> Under the transparency framework, the binding procedural commitments related to NDCs for each party are regularly submitting a national inventory report of greenhouse gas emissions and providing the information required to monitor the progress of implementing and achieving their NDCs.<sup>281</sup>

This obligation is further detailed by the Paris Rulebook 2018 with mandatory modalities, procedures, and guidelines.<sup>282</sup> To track progress in implementing and achieving State Parties' NDCs, the Paris Rulebook sets forth rules in detail on the information that Parties are required to provide.<sup>283</sup> The information includes: methodology, accounting approach, and indicators that parties choose to track progress.<sup>284</sup> To secure that the information provided is clear, accurate, complete, and consistent with the rules, the report is subject to "technical expert review."<sup>285</sup>

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<sup>275</sup> *Id.*; The Paris Agreement, *supra* note 5, art. 13 and 15.

<sup>276</sup> Zaman, *supra* note 6, at 122.

<sup>277</sup> Rajamani, *supra* note 256, at 260; The Paris Agreement, *supra* note 5, art. 13.5-13.6.

<sup>278</sup> The Paris Agreement, *supra* note 5, art. 13.1.

<sup>279</sup> Bodansky, *supra* note 186, at 242. See also Harro van Asselt et al., Assessment and Review Under a 2015 Climate Change Agreement, Assessment, and Review under a 2015 Climate Change Agreement: Lessons Learned and Ways Forward, Nordic Working Papers 5 (2015).

<sup>280</sup> Bodansky, *supra* note 186, at 242.

<sup>281</sup> The Paris Agreement, *supra* note 5, art. 13.7.b

<sup>282</sup> Paris Rulebook Transparency Decision 2018, Annex chapter VII, at 45.

<sup>283</sup> *Id.*

<sup>284</sup> *Id.*

<sup>285</sup> Decision 18/CMA.1, Modalities, Procedures and Guidelines for the Transparency Framework

The global stocktake complements the transparency framework.<sup>286</sup> Under Article 14, a global stocktake will occur every five years to assess the collective progress toward long-term goals.<sup>287</sup> Though the function of the global stocktake will be facilitative (Article 14.1), the ultimate task of the global stocktake is to globally showcase collective progress towards the temperature goals and inform State Parties about updating and enhancing their NDCs.<sup>288</sup> Undoubtedly the outcome of the global stocktake will create a political moment to catalyze greater ambition in mitigation. Regardless, the logic of consequences would dictate that the stocktake's purpose is to compel state action via global naming and shaming.<sup>289</sup> So, according to the logic of consequences, the pricing mechanism under the global stocktake is based on behavioral motivation via reputational cost (global naming and shaming) used to pressure State Parties to comply with NDC's related commitments.<sup>290</sup>

The third pillar of the Paris Agreement's oversight framework is the compliance mechanism in Article 15. This compliance mechanism of the Agreement is designed to function in a facilitative, transparent, non-adversarial, and non-punitive manner.<sup>291</sup> According to the Paris Rulebook, the compliance and implementation committee established under Article 15 has the authority to consider non-compliance in the communication or maintenance of NDCs.<sup>292</sup> In cases of non-compliance with these binding procedural obligations, the compliance and implementation committee can begin a consultative consideration to discern what is preventing noncompliant parties from implementing the obligations.<sup>293</sup> Although such a fact-finding process may not prevent non-compliance, it can still hold parties accountable for their non-compliance passively.<sup>294</sup> In addition, by using facilitative measures, the committee can help a non-compliant party to return to compliance, whether it involves submitting the report under Article 13.7 or communicating and maintaining their NDCs.<sup>295</sup>

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for Action and Support Referred to in Article 13 of the Paris Agreement, Annex chapter VII, at 46, para 151 (Nov. 27, 2018).

<sup>286</sup> Bodansky, *supra* note 186, at 244. See also, Zaman, *supra* note 6, at 120.

<sup>287</sup> Bodansky, *supra* note 186, at 244.

<sup>288</sup> The Paris Agreement, *supra* note 5, art. 14.3 and 14.9; See also Decision 19/CMA.1, *Matters Relating to Article 14 of the Paris Agreement and Paragraphs 99–101 of Decision 1/CP.21*, at 53, para 3(c) (Nov. 27, 2018).

<sup>289</sup> Zaman, *supra* note 6, at 16.

<sup>290</sup> *Id.*

<sup>291</sup> *Id.*; The Paris Agreement, *supra* note 5, art. 15.2.

<sup>292</sup> Decision 20/CMA.1, *Modalities and Procedures for the Effective Operation of the Committee to Facilitate Implementation and Promote Compliance Referred to in Article 15, Paragraph 2, of the Paris Agreement*, Annex Chapter III, at 62, para 22(a). (Nov. 27, 2018); See also Rajamani, *supra* note 256, at 263.

<sup>293</sup> *Id.* at Annex Chapter III, at 63, para 30(e).

<sup>294</sup> Rajamani, *supra* note 256, at 264.

<sup>295</sup> *Id.*

How does this compliance mechanism influence state behavior according to the logic of consequences? This is not an easy question to answer. The mechanism is non-adversarial, non-punitive, and, most importantly, facilitative, and it certainly does not threaten reputational harm nor does it reward states for “good” behavior. However, the compliance mechanism does perform a significant role in securing accountability and influencing state behavior for NDC implementation actions. The transparency arrangement does not cover non-compliance with Articles 4.2 and 13.7.<sup>296</sup> The compliance mechanism has a significant contribution since it is the only way to trigger identical procedural obligations under Articles 4.2 and 13.7.

ii. Binding Obligations of NDCs and Their Normative Strength

Now, from the approach of normative direction and guidance, if the focus is given to the normative strength of NDC’s binding procedural obligations, it can be observed that all these unambiguously binding procedural obligations of NDCs (Article 4.2; 4.8; 4.9; 4.13; 6.2) are drafted with the mandatory language “shall”; with clear identification of subject “each party”; and most importantly, with precision and concrete normative content.<sup>297</sup> With the support of the Paris Rulebook 2018, each of these provisions clearly articulated what parties are required to do.

However, it is worth noting that the drafting of Article 4.2 is a little different than that of other Articles. As drafting is a significant part of Article 4.2 and NDC-related provisions, it entails more discussion. By using the verb “shall,” the provision requires each state party to “prepare, communicate, and maintain successive NDCs” that the state intended to achieve.<sup>298</sup> Preparing, communicating, and maintaining successive NDCs is an individual mandatory obligation that parties must comply with. However, by using the term “intended to achieve,” in the first sentence of Article 4.2 the provision established a good faith expectation and stopped short of requiring compliance.<sup>299</sup> So under Article 4.2, though parties are obligated to “prepare, communicate, and maintain successive NDCs,” parties have no obligations to actually achieve their NDCs.<sup>300</sup> In addition to this procedural obligation, the same Article in its second sentence also mandates that “parties shall pursue domestic mitigation measures to achieve the objectives of such contributions.”<sup>301</sup> Though the mandatory term “shall” is used here with respect to the procedural requirements of NDCs, it does not create an individual obligation on each party to implement or achieve its NDCs; it

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<sup>296</sup> *Id.* at 263.

<sup>297</sup> *Id.* at 259.

<sup>298</sup> The Paris Agreement, *supra* note 5, art. 4.2.

<sup>299</sup> Bodansky, *supra* note 186, at 231.

<sup>300</sup> *Id.* 266.

<sup>301</sup> The Paris Agreement, *supra* note 5, art. 4.2

established a collective obligation of parties to pursue measures.<sup>302</sup> Like the first sentence, this sentence left a good faith expectation to achieve the “objectives” of the NDCs, whatever that might mean, rather than their specific content.<sup>303</sup> This provision also made it clear that NDCs are self-selected and in no way subject to international negotiation.<sup>304</sup> Furthermore, the use of generic terms (pursue domestic measures) means the obligation in the provision is less precise and less stringent.<sup>305</sup> It should be noted that under the transparency framework (Article 13.7.b), the Paris Rulebook has established a comprehensive set of information requirements and procedures to track the implementation and accomplishment of the NDCs in order to address the gap that parties are not obligated to achieve their NDCs.<sup>306</sup>

The discussion above has shown that the mandatory procedural obligations related to NDCs are strongly articulated, although they are obligations of conduct and not of result. Additionally, the key binding provision of NDCs, Article 4.2, strikes a balance between stringency and flexibility in implementing NDCs. While adopting and maintaining NDCs is mandatory, achieving their content is optional. The binding provisions of NDCs are well integrated with the oversight mechanisms of the Paris Agreement, but the oversight approach is mainly facilitative and imposes reputational costs rather than penalties.

The normative nature of the binding obligations of NDCs is based on their obligations of conduct. This approach relies on institutional mechanisms such as the enhanced transparency framework, global stocktake, and compliance mechanism to encourage state behavior through reputational harm and global naming and shaming. Additionally, the norms depend on the good faith expectation that parties will fulfill their obligations of result.<sup>307</sup>

### iii. Non-Binding Obligations of NDCs and Their Normative Character and Strength

The non-binding provisions of NDCs represent the normative approaches where the reason for action or the basis for the acceptance of norms is provided by the logic of appropriateness. These non-binding obligations represent the substantive provisions of NDCs and are articulated with the utmost flexibility and lack of precision, and are drafted in the form of recommendations or expectations rather than legal obligations.<sup>308</sup> For example, Article 4.1 established a global collective goal to reach worldwide peaking of GHGs and to achieve net-zero by

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<sup>302</sup> Bodansky, *supra* note 19, at 146.

<sup>303</sup> *Id.*

<sup>304</sup> *Id.* at 246.

<sup>305</sup> Zaman, *supra* note 6, at 112; Mayer, *supra* note 273, at 9.

<sup>306</sup> Decision 18/CMA.1, *supra* note 285, at Annex Chapter III, at 27-33.

<sup>307</sup> Rajamani, *supra* note 256, at 245.

<sup>308</sup> Bodansky, *supra* note 19, at 146.

2050.<sup>309</sup> Similarly, Article 4.3 stated expectations from parties to exhibit progression and the highest possible ambition in every successive NDCs; Article 4.4 sets a recommendation for the developed country party to undertake economy-wide absolute emission targets; Article 4.4 furthermore encouraged developing countries to continue mitigation efforts and eventually to move towards economy-wide targets; Article 4.19 recommends every country develops and communicates low GHGs emission strategies.<sup>310</sup> All these provisions also endorsed extraordinary flexibility and discretion on State Parties guided by the principle of “common but differentiated responsibility and respective capabilities, in the light of different national circumstances.”<sup>311</sup>

This flexibility is also visible in Article 4.11, as it allows parties to adjust their existing NDCs anytime.<sup>312</sup> This provision neither prohibits nor permits downgrading NDCs but leaves a good faith expectation that adjustments of NDCs will only enhance in ambition.<sup>313</sup> However, the existence of the argument that the provision permits “downgrading by implication” cannot be denied here, for which Professor Rajamani commented that NDCs need to be progressively explained to strengthen further.<sup>314</sup> Paris Rulebook 2018 could have clarified NDCs further. However, to keep the State Parties’ flexibility and discretionary power as it is, Paris Rulebook 2018 did not attempt to list the features of NDCs.<sup>315</sup> The Rulebook also remained silent in detailing the list of informational elements that must accompany NDCs.<sup>316</sup> While such a list represents procedural content rather than substantive content, it still has the potential to encourage states to go for ambitious NDCs. Furthermore, to keep the flexibility and discretionary power intact, neither the Agreement nor the Rulebook establish any mechanism or process to review the adequacy of each state’s NDCs.<sup>317</sup> The oversight mechanisms of the Paris Agreement have no authority to examine the substantive content of the NDCs.<sup>318</sup> Therefore, they cannot oblige parties to strengthen their NDCs.<sup>319</sup> The absence of a direct linkage between NDCs and the adequacy of their ambition with respect to the temperature goals is notable in this context.

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<sup>309</sup> The Paris Agreement, *supra* note 5, art 4.1.

<sup>310</sup> *Id.* art. 4.3, 4.4. 4.19.

<sup>311</sup> *Id.* art. 4.3.

<sup>312</sup> *Id.* art. 4.11.

<sup>313</sup> Rajamani, *supra* note 256, at 254.

<sup>314</sup> Center for Climate and Energy Solutions, *Legal Issues Related to the Paris Agreement*, C2ES, <https://www.c2es.org/document/legal-issues-related-to-the-paris-agreement/> (last visited Mar. 24, 2023) (discussing the legal status of the Paris Agreement under international law); Rajamani, *supra* note 256, at 258.

<sup>315</sup> Rajamani, *supra* note 256, at 249.

<sup>316</sup> *Id.*

<sup>317</sup> *Id.* at 245.

<sup>318</sup> *Id.*

<sup>319</sup> *Id.* at 246.



Furthermore, the provisions set out in Articles 4.5, 4.12, and 6.3 are phrased with the mandatory term “shall,” but as these provisions do not have a subject, they appear to be more generally institutional in nature, and cannot be considered legally binding obligations.<sup>320</sup> It is important to note that developing countries may be influenced to implement the substantive part of their NDCs by the promise of rewards, which triggers the logic of consequence. Article 4.5 declared that developing country parties should receive support for implementing Article 4.<sup>321</sup> Furthermore, Article 9.5 sets forth mandatory provisions requiring developed countries to communicate information related to their obligation under UNFCCC to provide financial resources to assist developing countries with mitigation issues.<sup>322</sup> Both provisions denote that if developing countries commit themselves to pursue nationwide GHG emission reductions, they will receive support as a reward unequivocally promised here.<sup>323</sup>

In sum, the non-binding substantive provisions of NDCs present a normative approach where state behavior relies on the logic of appropriateness (with states’ internal points of view considering the norm as a standard of appropriate conduct to guide their actions and decisions). However, the normative strength of these provisions is feeble with more flexibility and discretion, and a lack of mandatory terms, precision, with no interlinkages with the oversight mechanisms of the Agreement.

Considering the discussion above, now we turn to a fundamental question: how do NDCs under Article 4 and its related provisions provide normative direction and guidance to drive economy-wide energy transition? It is evident from the above discussion that to drive the economy-wide energy transition and to influence state behavior accordingly, NDCs, as a tool of the Paris Agreement, adopted a softer regulatory normative approach that heavily depends on the logic of appropriateness, good faith expectation, flexibility, discretion, consequences, and reward. State Parties are only recommended and encouraged to develop and communicate low GHG emission strategies and to undertake economy-wide absolute emission targets; parties have no obligations to achieve NDCs.<sup>324</sup> Even the substantive content of the NDCs cannot be reviewed to secure adequately ambitious targets which align with the temperature goals.

This unique normative character of NDCs triggers another critical question. Is this soft approach of the normative directives weak, as stringent substantive obligations and penalties are grossly lacking here? It is not, because as the paper mentioned before, international laws rely on international cooperation, and as such the nature of norms often turns out political and pragmatic instead of

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<sup>320</sup> Bodansky, *supra* note 19, at 146.

<sup>321</sup> The Paris Agreement, *supra* note 5, art. 4.5.

<sup>322</sup> *Id.* art. 9.5.

<sup>323</sup> *Id.* art. 4.5 and 9.5.

<sup>324</sup> Zaman, *supra* note 6, at 112.

legalistic. At the same time, it is undeniable that shaping the state behavior solely relying on the logic of appropriateness, good faith expectation, flexibility, discretion, consequences, and reward cannot be considered viable either. Considering this context, the next part of the paper explores another fundamental tool of the Paris Agreement to drive the energy transition, Article 6, to examine whether this tool can give us any hope.

b. Article 6

Like the Kyoto Protocol, the Paris Agreement encompasses the notion that market-based mitigation mechanisms, or “cooperative approaches” (as referred to in Article 6.2), are essential tools to drive a low-emission development pathway.<sup>325</sup> Moreover, more than half of the NDCs submitted by State Parties also envisaged the usage of international carbon markets.<sup>326</sup> Therefore, much like the last section analyzed and discussed Article 4, this part of the paper will examine how Article 6 and its related provisions provide normative direction and guidance to drive the energy transition.

Article 6 and its related provisions (for example, the outcome of COP26 under the Paris Rulebook 2018) are built upon flexibility mechanisms.<sup>327</sup> The provisions are articulated with a blend of normative and instrumental approaches, which in turn entail the logic of appropriateness and the logic of consequences. However, in Article 6, under the institutional approach, the logic of consequences does not stand on penalty or harm to reputation. Still, both State Parties can find reward through participation in this cooperative approach. The fundamental aim of this provision is to pursue voluntary cooperation (Article 6.1, which follows the logic of appropriateness) among parties to implement NDCs to reach climate targets (Article 6.3, which follows the logic of consequences in the form of reward).<sup>328</sup> The normative character of Article 6 is distinct as the provisions are formulated based on flexibility and discretion, but then procedural implications entail strict obligations with a supervisory mechanism.<sup>329</sup>

i. Normative Character and Strength of Article 6

It is interesting to note that Article 6 neither directly refers to “markets” nor explicitly recognizes the importance of the market approach.<sup>330</sup> Still, it explicitly

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<sup>325</sup> Farber & Carlane, *supra* note 51, at 87.

<sup>326</sup> Bodansky, *supra* note 186 at 236.

<sup>327</sup> Glasgow Climate Pact, Decision 1/CMA.3 (Nov. 13, 2021), available at [https://unfccc.int/sites/default/files/resource/Overarching\\_decision\\_1-CMA-3\\_1.pdf](https://unfccc.int/sites/default/files/resource/Overarching_decision_1-CMA-3_1.pdf); See also Farber & Carlane, *supra* note 51, at 87.

<sup>328</sup> The Paris Agreement, *supra* note 5, art. 6.3.

<sup>329</sup> Farber & Carlane, *supra* note 51, at 87.

<sup>330</sup> The Paris Agreement, *supra* note 5, art. 6.

acknowledges the non-market approach's significance in Article 6.8.<sup>331</sup> By paralleling the cooperative and inclusive approach as embodied in the NDC-related mitigation provisions, the Paris Agreement formulated this market-based "cooperative approach" to be completely open to all State Parties.<sup>332</sup> Article 6 of the Paris Agreement expands the potential for carbon markets and voluntary cooperation related to mitigation, creating a more open platform for State Parties to participate and collaborate using both market and non-market tools.<sup>333</sup> This increased scope is an important step towards effectively addressing climate change. Under Articles 6.2 and 6.4, the Agreement provides two market-based mechanisms, which will be discussed in turn.

To create a tradable unit and formulate a new mitigation mechanism, provision 6.2 permits State Parties to trade emission reductions and carbon removals with one other State Parties through bilateral or multilateral agreements.<sup>334</sup> The traded credits are referred to as Internationally Transferred Mitigation Outcomes ("ITMOs").<sup>335</sup> ITMOs can be measured in carbon dioxide equivalent (CO<sub>2</sub>e), or other metrics such as kilowatt-hours (KWh) of renewable energy.<sup>336</sup> By using the phrase "may," Article 6.2 allowed parties to engage in emission trading through a cooperative approach to achieve their NDCs.<sup>337</sup> By setting forth this provision, the Paris Agreement declared Article 6 a supportive tool for countries to achieve their NDCs, and established a direct link with countries' national climate policies.<sup>338</sup> To secure environmental integrity and avoid double counting related challenges, the mandatory phrase "shall" requires State Parties to adopt robust accounting rules.<sup>339</sup>

Another flexible mitigation mechanism is established under Article 6.4.<sup>340</sup> Like the Kyoto Protocol's Clean Development Mechanism (CDM), this mechanism will generate GHG emissions reduction offsets that other State Parties can use to achieve their NDCs.<sup>341</sup> However, as opposed to CDM, this new mechanism will not only be limited to project-based GHGs emission reductions but may involve GHGs emission reduction policies or programs.<sup>342</sup> Furthermore, this mechanism

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<sup>331</sup> Bodansky, *supra* note 186, at 236.

<sup>332</sup> Farber & Carlarne, *supra* note 51, at 87.

<sup>333</sup> *Id.*

<sup>334</sup> The Paris Agreement, *supra* note 5, art 6.2.

<sup>335</sup> *Id.* art. 6.2 and 6.3.

<sup>336</sup> Jonathan Crook & Gilles Dufrasne, *Deciphering Article 6 of the Paris Agreement*, CARBON MARKET WATCH, <https://carbonmarketwatch.org/2021/12/10/faq-deciphering-article-6-of-the-paris-agreement/#article-6-diff> (last visited March 24, 2023) (providing a detailed explanation of the different components of Article 6 of the Paris Agreement).

<sup>337</sup> The Paris Agreement, *supra* note 5, art. 6.2.

<sup>338</sup> Bodansky, *supra* note 186, at 236.

<sup>339</sup> *Id.*

<sup>340</sup> Farber & Carlarne, *supra* note 51, at 88.

<sup>341</sup> Bodansky, *supra* note 186, at 237.

<sup>342</sup> *Id.*

will also be able to generate offsets for emission reductions in developed as well as developing states.<sup>343</sup> According to Article 6.4, the fundamental objective of this mechanism is (1) to “promote the mitigation of GHGs emissions while fostering sustainable development;” (2) to incentivize and facilitate participation in the mitigation of GHGs by public and private entities; (3) to reduce emissions levels in the host party state while also allowing another state party to fulfill its NDCs; and (4) deliver an overall mitigation in global emissions.<sup>344</sup> The mechanism established under Article 6.4 will be subject to an oversight body currently named the “supervisory body.”<sup>345</sup> Both participating states must approve the project, and the generated credit needs to be recognized by the supervisory body.<sup>346</sup>

In 2021, COP26 outcomes under Decision 12b/CMA.3 provided detailed guidance, rules, modalities, and procedures for Article 6 to secure a robust, transparent, and accountable carbon market.<sup>347</sup> Using the mandatory phrase “shall,” the decision provided accounting guidance for ITMOs so that double-counting of emissions credits can be avoided both in the host and receiving country.<sup>348</sup> The decision established an integrity framework to support the development of carbon market mechanisms, which also opened a gate for private sector investment in GHG emission reduction.<sup>349</sup>

So, the normative character of Article 6 is structured based on broad scope, flexibility, cooperation, inclusiveness, opportunity to receive financial or technical support, transparency, and accountability. This unique combination of normative and institutional approaches makes Article 6 a promising provision in supporting NDCs and driving economy-wide emission reduction.

## ii. Normative Strength of Article 6

As identified in the previous section, Article 6 is built upon flexibility, voluntary participation, and cooperation. The mandatory language “shall” in Articles 6.1, 6.2, and 6.4 indicates that state participation in carbon markets is voluntary (in other words, states cannot be compelled to join the carbon markets). This means that states have absolute discretionary power to decide when, how,

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<sup>343</sup> *Id.*

<sup>344</sup> Farber & Carlarne, *supra* note 51, at 88; See also Bodansky, *supra* note 186 at 237; The Paris Agreement, *supra* note 5, art. 6.4.a-d.

<sup>345</sup> Glasgow Climate Pact, Decision 12b/CMA.3, para. III (Nov. 13, 2021), available at [https://unfccc.int/sites/default/files/resource/cma3\\_auv\\_12b\\_PA\\_6.4.pdf](https://unfccc.int/sites/default/files/resource/cma3_auv_12b_PA_6.4.pdf); See also Crook & Dufrasne, *supra* note 336.

<sup>346</sup> Crook & Dufrasne, *supra* note 336.

<sup>347</sup> Glasgow Climate Pact, Decision 12b/CMA.3, *supra* note 345.

<sup>348</sup> *Id.*; Sharaban Tahura Zaman, *COP26 Outcome on Carbon Markets: Takeaways for the Global South*, LEGAL PLANET, <https://legal-planet.org/2021/12/07/cop26-outcome-on-carbon-markets-takeaways-for-the-global-south/> (last visited March 24, 2023) (analyzing the implications of the COP26 outcome on carbon markets for developing countries).

<sup>349</sup> Glasgow Climate Pact, Decision 12b/CMA.3, *supra* note 345; Zaman, *supra* note 348.

and in what kind of market mechanisms they will participate, as well as how they will receive the returns, whether in the form of traded credit units or technical and financial support depending on the status of the host or receiving states. Article 6 and COP26 decisions related to Article 6 also include the mandatory phrase “shall,” but more from the procedural context.<sup>350</sup> For example, it is a mandatory requirement for the participating State Parties to undertake robust accounting (Article 6.2); avoid double counting (Article 6.5); application of the methodology developed under decision 12b/CMA3 para 32-39; and undertake participation responsibilities under decision 12b/CMA3 para 26-29.<sup>351</sup>

Article 6 and its related provisions are also not precise or conclusive, and as such Articles 6.2, 6.4, and 6.7 give authority to the CMA to develop further guidance, rules, modalities, and procedures for both mechanisms.<sup>352</sup> The decisions so far adopted through CMA meetings are also inconclusive and will need further clarification.<sup>353</sup> The oversight mechanisms established by the Paris Agreement do not have any authority or control over Article 6.<sup>354</sup> However, as mentioned before, the “supervisory body” is established for the market mechanism referred to under Article 6.4.<sup>355</sup> According to decision 12b/CMA3 para 4-24, the essential purpose of this body is to supervise and support the overall activities of the mechanism established under Article 6.4.<sup>356</sup> The supervisory body can approve and manage the host Party’s national arrangements for the accreditation of operational entities, develop mechanism methodologies, and apply baselines and other methodological requirements.<sup>357</sup> If the supervisory body doesn’t register the activities under Article 6.4 or approve the generated credit, it cannot be used by the participating states.<sup>358</sup> So, this supervisory body can be considered as an oversight mechanism for the carbon market mechanism established under Article 6.4. There is no overseen body for ITMOs as it will be regulated by the participating states’ unilateral position and degree of cooperation.<sup>359</sup>

Considering these analyses above, we turn to answer the fundamental question: how do Article 6 and its related provisions provide normative directions and guidance to drive economy-wide energy transition? According to Professor Farber and Professor Carlarne, mitigation commitments as designed under Article 4 and the formation of complementary cooperative mitigation strategies as established under Article 6 open up the involvement of all international actors, both public

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<sup>350</sup> Glasgow Climate Pact, Decision 12b/CMA.3, *supra* note 345, paragraph 26-29; 32-39.

<sup>351</sup> *Id.*; See also The Paris Agreement, *supra* note 5, art. 6.2, 6.5

<sup>352</sup> The Paris Agreement, *supra* note 5, art. 6.2, 6.4, and 6.7

<sup>353</sup> Zaman, *supra* note 348.

<sup>354</sup> *Id.*

<sup>355</sup> The Paris Agreement, *supra* note 5, art. 6.4.

<sup>356</sup> *Id.*

<sup>357</sup> Glasgow Climate Pact, Decision 12b/CMA.3, *supra* note 345, para 24.vii.

<sup>358</sup> *Id.*

<sup>359</sup> *Id.*; See also The Paris Agreement, *supra* note 5, art. 6.3.

and private.<sup>360</sup> This level of inclusivity is unprecedented and creates a hope that the market-based complementary cooperative mitigation strategies will facilitate a more effective shift towards sustainable, low-carbon energy.<sup>361</sup> Experience from the Kyoto regime's market mechanisms and NDCs submitted by State Parties interested in using international carbon markets also support Professor Farber and Professor Carlarne's position. Therefore, a market-based cooperative approach may be a workable solution to support the implementation of NDCs, reduce emissions, and drive economy-wide energy transformation.

However, there are challenges too. It should be noted that emission reductions will be limited through carbon markets if there are no aggressive reductions in the level of caps.<sup>362</sup> Moreover, the market-based cooperative approach can lead to conflict between developed and developing country parties.<sup>363</sup> This is because Article 6.2 leaves broader space for unilateralism, which can trigger complex situations over the legality of unilateral restrictions or prohibit the importation of ITMOs by certain states into their jurisdiction because of their origin or means of production.<sup>364</sup> Furthermore, cooperative approaches have political consequences, and it is well known that unilateral political preferences and international trade do not continually function well together.<sup>365</sup>

It is also important to note that besides these two tools in Articles 4 and 6, other principles incorporated in the Paris Agreement fundamentally impact energy transition pathways and influence states' behavior. Therefore, the next part of this paper delves into the discussion of how different principles of the Paris Agreement shape energy transition pathways.

#### IV. PARIS AGREEMENT PRINCIPLES TO SHAPE ENERGY TRANSITION PATHWAYS

The international climate governing regime is guided by general principles that originated from international environmental law.<sup>366</sup> These principles provide the normative backbone to the governing process, and place equity considerations at the heart of the evolving climate governing regime.<sup>367</sup> The fundamental principles which shape the overall Paris Agreement regime are: (1) the climate of the earth as a common concern to humankind; protecting the climate system for present and

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<sup>360</sup> Farber & Carlarne, *supra* note 51, at 89.

<sup>361</sup> *Id.*

<sup>362</sup> *Id.* at 107.

<sup>363</sup> Graud de Lassus St-Genis, *Might Cooperative Approaches Not Be So Cooperative? Exploring the Potential of Article 6.2 of the Paris Agreement to Generate Legal Disputes*, 11 CLIMATE L. 265 (2021).

<sup>364</sup> *Id.* at 268.

<sup>365</sup> *Id.* at 277-278.

<sup>366</sup> *Id.* at 72.

<sup>367</sup> *Id.*

future generations; common but differentiated responsibility and respective capabilities (CBDR-RC) in the light of different circumstances; the precautionary approach; the right to sustainable development; promotion of global economic system; and a just transition.<sup>368</sup> From the context of energy transition pathways, the fundamental guiding principles are: self-differentiation with CBDR-RC; precautionary approach; inter-generational equity; sustainable development concept; and just transition. How these principles provide normative directions to drive nationwide energy transition is discussed below.

#### A. *Self-differentiation with CBDR-RC*

There is a long-standing debate over the proper interpretation and implementation of CBDR-RC.<sup>369</sup> However, the Paris Agreement does not try to define or clarify the CBDR-RC concept nor does it attempt to shift its current understanding.<sup>370</sup> The mitigation section of the Paris Agreement operationalizes the CBDR-RC principle through the idea of self-differentiation (Article 4.3).<sup>371</sup> Mitigation and NDC-related provisions under Article 4 are founded on the concept of bounded self-differentiation.<sup>372</sup> Here, self-differentiation from the mitigation context means that parties, in submitting their NDCs, have the right to determine the mitigation targets unilaterally, including the level of commitments and the scope, form, and rigor of the contributions.<sup>373</sup> Moreover, each country's mitigation contributions will be guided and tailored by their national circumstances, capacities, and constraints.<sup>374</sup> With these features of flexibility, sovereign autonomy, and discretion, each country can respond to its unique circumstances and challenges.<sup>375</sup> To differentiate among states in the context of mitigation and NDCs, pragmatic self-differentiation serves as the starting point.<sup>376</sup> It is important to note that, in the Paris Agreement, the differentiation concept becomes progressively individualized with the unequivocal connections between CBDR-RC and the language "by different national circumstances."<sup>377</sup> How differently this will function in practice is yet to be discovered.

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<sup>368</sup> United Nations Framework Convention on Climate Change, *supra* note 142, preamble; The Paris Agreement, *supra* note 5, preamble, art. 2.1, 4.1, 4.3, 6.1, 6.2, 6.4, 6.4.a, 6.8, 6.9, 7.1, 8.1, 10.5; Farber & Carlarne, *supra* note 51, at 72.

<sup>369</sup> Farber & Carlarne, *supra* note 51, at 73.

<sup>370</sup> *Id.* at 75.

<sup>371</sup> Bodansky, *supra* note 186, at 225.

<sup>372</sup> Rajamani, *supra* note 256, at 221.

<sup>373</sup> *Id.*

<sup>374</sup> *Id.*

<sup>375</sup> Bodansky, *supra* note 186, at 223-224.

<sup>376</sup> Rajamani, *supra* note 256, at 221.

<sup>377</sup> Catherine Redgwell, *Principles and Emerging Norms in International Law: Intra- And Inter-Generational Equity*, 1 THE OXFORD HANDBOOK OF INTERNATIONAL CLIMATE CHANGE LAW 201 (Cinnamon P. Carlarne et al. eds., 2016).

It is also important to note that the differentiation concept is not specifically prescribed in Article 4.<sup>378</sup> When a country is self-differentiating, they must still meet certain expectations such as achieving their NDC objectives, making progress, and striving for greater ambition in their NDCs, as outlined in Article 4.2 and 4.3.<sup>379</sup> But in any case, when submitting NDCs, states will exercise these normative expectations based on self-assessment in the light of national circumstances.<sup>380</sup>

The self-differentiation concept operationalizes the CBDR-RC principle by setting some normative expectations on parties in their mitigation efforts, and these normative expectations function as a component to discipline the self-differentiation idea.<sup>381</sup> These normative expectations under the CBDR-RC principle outlined the types of actions that developed and developing country Parties should undertake.<sup>382</sup> For example, developed country Parties should lead in the matters of economy-wide emission reduction targets under Article 4.4, flexibility, support for developing countries for economy-wide emission reduction, and in taking higher mitigation actions.<sup>383</sup> However, the common normative expectation from all countries is to formulate and communicate long-term GHG emissions development strategies while keeping in mind the goals of Article 2.<sup>384</sup> So, while developing pathways toward energy transition, parties must consider these normative expectations under self-differentiation as it applies to CBDR-RC. However, just as with the UNFCCC and Kyoto Protocol, the question as to how the collective burden should be distributed still must be answered.<sup>385</sup>

### B. *The Principle of Intergenerational Equity*

The principle of intergenerational equity is embedded in the CBDR-RC code.<sup>386</sup> The UNFCCC prefaces the CBDR-RC principle by requiring parties to act with due equity considerations, and concern for present and future generations (UNFCCC, Article 3.1).<sup>387</sup> The intergenerational equity principle sets forth a right and obligation for future generations to utilize and enjoy natural resources.<sup>388</sup> Though it lacks firm legal status, this principle highlights the responsibility

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<sup>378</sup> Rajamani, *supra* note 256, at 221.

<sup>379</sup> *Id.* at 222; See also The Paris Agreement, *supra* note 5, art. 4.2 and 4.3.

<sup>380</sup> Redgwell, *supra* note 377, at 201.

<sup>381</sup> Bodansky, *supra* note 186, at 224; Rajamani, *supra* note 256, at 221.

<sup>382</sup> Rajamani, *supra* note 256, at 221.

<sup>383</sup> The Paris Agreement, *supra* note 5, art. 4.4, 4.5, and 4.6.

<sup>384</sup> *Id.* art. 4.19.

<sup>385</sup> Farber & Carlame, *supra* note 51, at 75.

<sup>386</sup> *Id.*

<sup>387</sup> *Id.*

<sup>388</sup> Redgwell, *supra* note 377, at 188.



current generations have for the future. It denotes that natural resources inherited by the present generation should be passed onto future generations in better condition than received.<sup>389</sup> In the conservation and utilization of environmental resources, the intergenerational equity principle, in combination with CBDR-RC, reflects distributive justice and fairness amongst generations.<sup>390</sup>

The 2°C temperature limit and the 2050 timeline of the Paris Agreement serve to implement the intergenerational equity principle.<sup>391</sup> As mentioned before, the roadmap to implementing the 2°C goal is undefined in the Agreement, and there are no defined pathways toward achieving comprehensive energy transition with the implementation of intergenerational equity.<sup>392</sup> However, in light of the 2°C temperature limit and 2050 timeline, this intergenerational equity principle certainly functions as a yardstick for parties while framing and designing their respective NDCs with respect to the Agreement's goals. However, to date there has been no general reinforcement of the intergenerational equity in the climate regime.<sup>393</sup>

### C. Sustainable Development

The sustainable development principle is at the heart of the climate governing regime. Article 3.4 of the UNFCCC clearly states that “parties have a right to and should promote sustainable development.”<sup>394</sup> In fact, the sustainable development principle can be considered an umbrella principle that includes intergenerational equity principles and CBDR-RC.<sup>395</sup> A strong sustainability approach requires consistency with intergenerational equity to strictly maintain the quality and quantity of common pool resources (for example, the atmosphere, biodiversity, and arctic regions) that cannot be restored by human-made capital.<sup>396</sup> The CBDR-RC principle within the sustainable development principle assists in distributing responsibilities among countries to promote and achieve development that secures sustainability.<sup>397</sup> However, it is worth noting that neither the sustainable development principle nor CBDR-RC trigger financial assistance conditions from developed countries to achieve sustainability.<sup>398</sup> During the negotiation and

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<sup>389</sup> Farber & Carlame, *supra* note 51, at 77; See also Redgwell, *supra* note 377, at 188 and 195.

<sup>390</sup> Farber & Carlame, *supra* note 51, at 78.

<sup>391</sup> *Id.*

<sup>392</sup> *Id.*

<sup>393</sup> Redgwell, *supra* note 377, at 200.

<sup>394</sup> United Nations Framework Convention on Climate Change, *supra* note 142, art. 3.4.

<sup>395</sup> Brundland Commission report on ‘Our Common Future’ defines sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’; Redgwell, *supra* note 377, at 189.

<sup>396</sup> World Commission on Environment and Development, *Our Common Future*, Oxford University Press (1987).

<sup>397</sup> *Id.*

<sup>398</sup> Bodansky, *supra* note 186, at 129.

drafting stage of Article 3.4 of the UNFCCC, the obligation associated with financial assistance-related concerns from developed countries was well reflected and later addressed by framing promotion of sustainable development as a “right” instead of a “duty.”<sup>399</sup>

The Paris Agreement adopted the sustainable development principle to drive some of its key objectives, including “low GHG emissions development” and “climate-resilient development.”<sup>400</sup> In fact, this is the fundamental driving principle for implementing long-term temperature goals, articulating and implementing NDCs so that goals can be achieved; and shaping both market and nonmarket-based mechanisms.<sup>401</sup> Therefore, the normative directives from the principle of sustainable development are to design and streamline comprehensive climate policies and strategies that will uphold and co-benefit low GHG emissions development and climate-resilient development.<sup>402</sup>

#### D. The Precautionary Approach Principle

This principle denotes that when there is a threat of serious or irreversible harm, scientific uncertainty should not be used as a reason to postpone precautionary actions to anticipate, prevent, or minimize the harm.<sup>403</sup> The global climate change problem best suits the precautionary approach principle, as the problem poses uncertainty but serious catastrophic risks with permanent damages. Waiting to act after the damage occurs is too late to address the cause.<sup>404</sup> Considering this, Article 3.3 of the UNFCCC states, “Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.”<sup>405</sup> The Article further stresses that “where there are threats of serious or irreversible damage, lack of complete scientific certainty should not be used as a reason for postponing such measures.”<sup>406</sup> However, like the CBDR-RC

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<sup>399</sup> *Id.*

<sup>400</sup> Priscilla Schwartz, *Climate Change, The Right To Development And The 2030 Agenda For Sustainable Development- Operationalizing the Right to Development in Implementing the Sustainable Development Goals*, 6 (Ohchr, Upeace and Unu-iigh eds., 2018), available at [https://www.ohchr.org/sites/default/files/Documents/Issues/Development/SR/AddisAbaba/ClimateChange\\_2030AgendaSustainable.pdf](https://www.ohchr.org/sites/default/files/Documents/Issues/Development/SR/AddisAbaba/ClimateChange_2030AgendaSustainable.pdf); The Paris Agreement, *supra* note 5, art 2.1b (“low GHG emissions development” & “climate-resilient development”).

<sup>401</sup> Priscilla Schwartz, *Climate Change, The Right To Development And The 2030 Agenda For Sustainable Development- Operationalizing the Right to Development in Implementing the Sustainable Development Goals*, 7 (Ohchr, Upeace and Unu-iigh eds., 2018), available at [https://www.ohchr.org/sites/default/files/Documents/Issues/Development/SR/AddisAbaba/ClimateChange\\_2030AgendaSustainable.pdf](https://www.ohchr.org/sites/default/files/Documents/Issues/Development/SR/AddisAbaba/ClimateChange_2030AgendaSustainable.pdf); The Paris Agreement, *supra* note 5, art. 6.1, 6.2, 6.4, 6.4.a, 6.8, 6.9.

<sup>402</sup> Redgwell, *supra* note 377, at 189.

<sup>403</sup> Bodansky, *supra* note 186, at 128.

<sup>404</sup> Carlarne et al., *supra* note 1, at 164.

<sup>405</sup> United Nations Framework Convention on Climate Change, *supra* note 142, art. 3.3.

<sup>406</sup> *Id.*

principle, there is wide disagreement about the definition and application of this principle in the climate change context.<sup>407</sup>

The 1.5°C and 2°C temperature goals of the Paris Agreement underscore the precautionary approach principle. According to expert reviews, in light of the complexities in forecasting the risks and adverse consequences of climate change, there is a high value in adopting the precautionary approach to limit global warming up to 1.5°C/2°C.<sup>408</sup> To limit warming to 1.5°C/2°C, we need a rapid and significant shift towards strict decarbonization, rather than just minor adjustments to reduce emissions like we are doing now.<sup>409</sup> A precautionary approach through radical energy transformation is the key solution to prevent future irreversible adverse impacts of climate change.

However, according to Professor Farber and Professor Carlarne, the world is already in the post-cautionary stage, where the global temperature has increased to a certain degree and has had adverse consequences.<sup>410</sup> In fact, to address these negative consequences, the Paris Agreement accommodated loss and damage in Article 8 as a post-cautionary policy to cope with the inevitable effect of climate change.<sup>411</sup> Now the global community is moving toward a damage control mitigation framework so that the global community does not cross a certain temperature threshold, which will have devastating consequences for humankind.<sup>412</sup> This post-cautionary damage control context is another significant normative direction the global community needs to consider in driving energy transition.

#### E. Just Transition

The Paris Agreement refers to the just transition in its preamble from the context of the workforce, decent work, and quality of employment.<sup>413</sup> The just transition principle generally denotes a fair and equitable process of moving toward a post-carbon society.<sup>414</sup> From the context of climate change and energy transition, the just transition principle connects environment, climate, and energy from distributive, procedural, and restorative justice.<sup>415</sup> It entails constructing and improving principles, tools, and agreements that guarantee a fair and equitable transition for all individuals and communities regardless of ethnicity, income, and

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<sup>407</sup> Farber & Carlarne, *supra* note 51, at 78.

<sup>408</sup> *Id.* 77.

<sup>409</sup> *Id.*

<sup>410</sup> *Id.* at 80.

<sup>411</sup> *Id.*

<sup>412</sup> *Id.*

<sup>413</sup> The Paris Agreement, *supra* note 5, preamble paragraph 10.

<sup>414</sup> Darren McCauley & Raphael Heffron, *Just Transition: Integrating Climate, Energy and Environmental Justice*, 1 ENERGY L. & POLY 2 (2018).

<sup>415</sup> *Id.* at 2.

gender within both developed and developing country contexts.<sup>416</sup> The critical underlying normative direction that comes from this principle is that a comprehensive approach should be adopted for energy transition which fosters not just environmental but human and societal prosperity.<sup>417</sup> It requires the energy transition process to establish a direct nexus between promoting clean technology and guaranteeing green jobs.<sup>418</sup>

V. MOVING DECARBONIZATION FORWARD: KEY FINDINGS, CONCLUDING REMARKS, AND MORE QUESTIONS

The undeniable truth is that energy drives the world.<sup>419</sup> Transformation toward clean energy will be prolonged, notably in the developed and fastest-growing major economy countries, where energy consumption is high and economic expansion relies on dirty fuels. To prevent the adverse impacts of climate change, accelerate the energy transformation, and quicken sustainable progress, the world needs highly effective intervention from international climate law.<sup>420</sup> The discussion above makes the following highlighted points clear and evident.

The substantial nexus between the temperature and emissions goals of the Paris Agreement and its mitigation tool (NDCs), market-based cooperative approach, and oversight mechanisms made it evident that the operational relevance of these goals is substantial. Though they cannot be considered rules, it can be validly stated that the temperature goals and net-zero by 2050 are the standards set forth by the Paris Agreement not only resolve the anthropogenic impact of climate change but also keep individual and global climate actions on track. Robust, rapid, and sustained GHG emissions reductions, along with strict net-zero CO<sub>2</sub> emissions by 2050, would stabilize the global temperature increase and aid in reducing warming effects.<sup>421</sup> The 1.5°C and 2°C temperature goals are still deliverable if the global community widely adopts energy transition in this decade for strict emission reductions.

However, a specific governing regime for renewable energy under public international law is yet to evolve. However, public international law does already have some concepts pertaining to energy transition, including: increased usage of renewable energy, global low-carbon development, access to energy, and prevention of environmental degradation and global warming. In the climate governing regime, among the two operational protocols of the UNFCCC, the Paris Agreement establishes a strong and comprehensive link for the shift towards

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<sup>416</sup> *Id.* at 3.

<sup>417</sup> *Id.* at 5.

<sup>418</sup> *Id.* at 1.

<sup>419</sup> DONALD N. ZILLMAN ET AL., BEYOND THE CARBON ECONOMY: ENERGY LAW IN TRANSITION 3 (1st ed. 2008).

<sup>420</sup> Smil, *supra* note 108, at 153.

<sup>421</sup> AR6 Climate Change 2021: The Physical Science Basis, *supra* note 62.

sustainable energy. Specifically, to drive an economy-wide energy transition, it is crucial to have legal support in the form of mitigation actions that align with temperature goals, backed by market-based tools and oversight mechanisms, and shaped by guiding principles.

To pursue energy transition, the normative characters of Articles 4 and 6 are uniquely important, with several distinct features. Both Articles and their related provisions are articulated in combination with normative (the logic of appropriateness) and instrumental (the logic of consequences) approaches. In order to drive the economy-wide energy transition and influence state behavior accordingly, Article 4 adopts a softer regulatory, normative approach with obligations that heavily depends on the logic of appropriateness, good faith expectation, flexibility, discretion, reputational harm, and reward. State Parties are only recommended and encouraged to develop and communicate low GHG emissions strategies and to undertake economy-wide absolute emission targets. Parties have no obligations to achieve NDCs. Even the substantive content of the NDCs cannot be reviewed to secure adequacy of ambition to align with the temperature goals. Thus, Article 4's approach is political and pragmatic instead of legalistic. However, shaping state behavior solely by relying on the logic of appropriateness, good faith expectation, flexibility, discretion, reputational harm, and reward cannot be entirely viable.

The normative character of Article 6 is structured based on wide scope, flexibility, discretion, cooperation, inclusiveness, opportunities for financial or technical support, transparency, and accountability. Complementary to this flexibility and discretion are procedural implications which entail strict obligations with the supervisory oversight mechanism. Article 6 opens the door for the involvement of all public and private state actors and creates a hope that the market-based complementary cooperative mitigation strategies will facilitate a more effective shift towards sustainable, low-carbon energy via the implementation of NDCs. However, there are challenges which may arise under this model which can lead to conflict between developed and developing country parties, as it is well known that unilateral political preferences and international trade do not continually fit well together.

To create and implement effective climate policies and strategies that promote low-carbon and climate-resilient development, it is important to incorporate the normative expectations outlined in the general principles of the Paris Agreement. The global community must also take into account the current need for post-cautionary damage control as another important normative direction.

Considering these key findings, and taking into account the general belief that “a binding norm more likely and efficiently can affect state behavior and other actors than any non-binding norm” we will now answer the very fundamental question: how well equipped is Paris Agreement to influence and catalyze a state's

behavior to pursue an economy-wide energy transition?<sup>422</sup> Despite creating a political, pragmatic mitigation tool widely preferred by State Parties and supported by the well-regarded market-based complementary cooperative mitigation approach, the Paris Agreement is sparse and poorly equipped to secure energy transition. As Wilder and Drake observe, “It does not provide an obvious choice or easily available mechanisms for promoting and governing energy transition.”<sup>423</sup> It also leaves some fundamental legal questions unanswered that must be addressed urgently to enact energy transition in reality.<sup>424</sup>

Among these crucial questions are the following: Do the NDCs submitted by the Parties manifest the party’s consent to be bound? Are unilateral declarations of NDCs truly capable of creating legal obligations for a state’s energy transition? How would the functioning of the market mechanism influence behavioral change toward implementing NDCs? How is such a standpoint or reasoning legally and theoretically justified?

Despite these issues and unanswered questions, the Paris Agreement (especially Articles 4 and 6), its temperature goals, and the 2050 timeline, do stress the urgency of action for energy transition and provide normative guidance. Therefore, considering the urgent need to minimize GHG emissions and underscoring the weakness of the existing tools, this paper proposes the need to explore further the scope, normative force, and legal pathways to design an adequate legal framework and governance mechanism within the climate governing regime for the advancement of a clean energy transition which would better meet mitigation commitments and to address this acute global climate crisis. There could be no better time to arrive at such results and ponder such reforms as the Paris Agreement took effect from 2020, and we are running out of time to fix the global climate change problem.<sup>425</sup>

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<sup>422</sup> Werksman, *supra* note 183, at 4.

<sup>423</sup> Martijn Wilder Am & Lauren Drake, *International Law and the Renewable Energy Sector*, in THE OXFORD HANDBOOK OF INTERNATIONAL CLIMATE CHANGE LAW (2016), at 387.

<sup>424</sup> Carlarne et al., *supra* note 1, at 387.

<sup>425</sup> Sharaban Tahura Zaman, *Establishing an International Green Court: A Solution to Secure Climate Justice?*, THE DAILY STAR (July 11, 2019), <https://www.thedailystar.net/opinion/law/news/international-green-court-solution-achieving-climate-justice-1769941> (last visited May 6, 2023).