WORKING PAPER

Evaluating the Philippine Nationally Determined Contribution (NDC) in 2021

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This working paper is a draft in progress that is posted online to stimulate discussion and critical comment. The purpose is to mine reader’s additional ideas and contributions for completion of a final document.

The views expressed herein are those of the authors and do not necessarily reflect the views of Ateneo de Manila University.

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Abstract

After ratifying the Paris Agreement in March 2017, the Philippine Government has been reviewing its Nationally Determined Contribution. This resulted in a revised NDC that was communicated to the United Nations Framework Convention on Climate Change (UNFCCC) on 15 April 2021. The country commits to a projected GHG emission reduction and avoidance of 75% referenced against a projected business as-usual (BAU) cumulative emission of 3,340.3 MtCO2e for the period 2020-2030. However, even if a significant part is conditional on financial assistance from multilateral agencies, the commitment is unrealistic given past trends of GHG emissions and projections under the Clean Energy Scenario of the Department of Energy. If the Philippine Government cannot adjust the NDC, it can improve prospects of compliance by considering a) the post-pandemic trend in GHG emissions, i.e. modify the BAU scenario; b) an expanded policy space that covers all sources of GHG emissions particularly the agriculture sector; and c) a more aggressive Clean Energy Scenario. Nevertheless, the Philippine Government should have been guided by the saying: “It is better to under-promise and over-deliver than to over-promise and under-deliver.”

Keywords: climate change, GHG emissions, nationally determined contributions

JEL Codes: Q01, Q54, Q58
I. Introduction

In October, 2015 the Philippine Government officially transmitted its Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC). The INDC is a declaration by a country of its planned reduction in greenhouse gas emissions (GHGs) over a period of time. A country's INDC is converted to a Nationally Determined Contribution (NDC) when it formally joins the Paris Agreement (PA) by submitting an instrument of ratification, acceptance, approval or accession.

The Philippine INDC committed the country “to undertake GHG (CO$_2$e) emissions reduction of about 70% by 2030 relative to its business as usual (BAU) scenario of 2000-2030.” In theory this should have been converted to an NDC when the Philippine Senate ratified the PA in March, 2017. However, at that time the Philippine government decided that the parameters of the INDC had to be “revisited” and the NDC be “reconstructed”. The Duterte administration argued that the BAU scenario was not quantified and there was therefore no basis to calculate the equivalent of 70%. Moreover, the latter target was considered too ambitious primarily because the contribution of the Philippines to the global carbon footprint is negligible.

Nevertheless, it is important for the Philippines to demonstrate its willingness to cooperate with other countries in bringing down GHG emissions. A total of 192 countries submitted NDCs comprising 96% of GHGs. This concerted action is aimed at holding the global average temperature increase to “well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels”. This is referred to as the 1.5°C Paris Agreement goal. However, as of September, 2020 a substantial gap remains between the levels of emissions in 2025 and 2030 projected in the NDCs submitted to the UNFCCC and the lower levels that would be consistent with the temperature limit of the Paris Agreement.

The benchmark emissions from a 1.5°C compatible pathway are 40 GtCO$_2$e in 2025 and 26 GtCO$_2$e in 2030. Comparing these with the emissions from the pledges and targets

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1 https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Philippines/1/Philippines%20-20Final%20INDC%20Submission.pdf
3 As reported by the Climate Action Tracker https://climateactiontracker.org/global/cat-emissions-gaps/.
submitted by September 2020, which results in total global emissions of 48–52 GtCO\textsubscript{2}e in 2025 and 49–53 GtCO\textsubscript{2}e in 2030, the Climate Action Tracker (CAT) calculates a gap of 9–12 GtCO\textsubscript{2}e in 2025 and 23–27 GtCO\textsubscript{2}e in 2030. The benchmark emissions from a 2°C compatible pathway are higher (46 GtCO\textsubscript{2}e in 2025 and 38 GtCO\textsubscript{2}e for 2030), and comparing these to the global emissions from the pledges and targets quoted above, the gap ranges between 2–6 GtCO\textsubscript{2}e for 2025 and 10–15 GtCO\textsubscript{2}e in 2030.

Anticipating these gaps, countries agreed to review and update their NDCs at least every five years. On 15 April 2021, the Philippine government submitted a recalibrated NDC to the UNFCCC. This paper evaluates the original and current INDC/NDC. The next section provides the context in terms of three charts. Section III explains why the Philippines will have difficulty complying with an “ambitious” NDC. Section IV proposes a way to recast the NDC or at least improve the prospects of complying with the commitments.

II. The Philippine Context: A Tale of Three Charts

A number of international organizations initiated reviews and assessments of INDCs leading up to and following the 21\textsuperscript{st} Conference of the Parties to the UNFCCC. A brief inventory conducted under the auspices of the Asian Development Bank can be found in Amponin and Evans (2016). Since there has been no formal NDC from the Philippines, the evaluations for the country have been based on the INDC.

Among the studies reviewed by ADB is a portal that reports factsheets for 195 countries prepared by the Australian–German Climate and Energy College of the University of Melbourne (UoM) in cooperation with the PRIMAP (Potsdam Real-time Integrated Model for the probabilistic Assessment of emission Paths) group at the Potsdam Institute for Climate Impact Research. The October 21, 2017 factsheet for the Philippines is shown in Figure 1.\footnote{https://www.climatecollege.unimelb.edu.au/indc-factsheets/philippines}

Two different paths—each for the case when land use, land-use change and forestry (LULUCF) activities are taken into account and when they are excluded—are represented in the chart. The “low” scenario is the low emission case, or more precisely the case where there is a low reduction in emissions, which is taken as the lower end of the range of the
conditional INDC pledge. If there is no conditional pledge, the lower end of the range of the unconditional pledge is taken. On the other hand, the “high” scenario is the high emission-reduction case which is taken as the higher emission end of the range of the unconditional INDC pledge. Four paths are therefore depicted. There is a “low” and “high” case scenario excluding LULUCF and a “low” and “high” case scenario including LULUCF.

In the Philippine case, the high case scenario excluding LULUCF is a reduction from 206 MtCO$_2$e in 2015 to 143 MtCO$_2$e in 2030. The latter is 70% of the former. The low case scenario which is UoM’s interpretation of BAU is 231 MtCO$_2$e in 2030, which is 112% of the level in 2015. All figures are reduced by 105 MtCO$_2$e if LULUCF activities are included.\(^5\)

Meanwhile, the latest Climate Action Tracker for the Philippines is shown in Figure 2. The CAT is an independent scientific analysis that tracks government climate action and measures it against the globally agreed Paris Agreement. A collaboration of two organizations, Climate Analytics and New Climate Institute, the CAT has been providing this independent analysis to policymakers since 2009. CAT quantifies and evaluates climate change mitigation commitments, and assesses, whether countries are on track to meeting those. It then aggregates country action to the global level, determining likely temperature increase by the end of the century. Box 1 explains why LULUCF activities are excluded by CAT in its analysis.

**Box 1: Reasons Why LULUCF is Excluded by CAT*\(^\)**

There are several inter-related factors that lead to the approach in which CAT rates all governments’ NDCs against their fair share contribution towards reducing emissions from fossil fuel combustion, industry, agriculture and waste sources—in effect on their contribution towards long-term decarbonization—excluding LULUCF. In summary, the CAT assesses NDCs without emissions from LULUCF because of:

- The importance of the need to decrease CO$_2$ and other GHG emissions from fossil fuel combustion, industry, agriculture and waste sources in order to meet the 1.5° and

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\(^5\) The 105 MtCO$_2$e gain from LULUCF activities was obtained from the GHG inventory conducted in 2000. The last inventory was conducted in 2010. The gain from LULUCF activities was estimated at 37 MtCO$_2$e in 2010.
2°C limits.

- Large data uncertainty around LULUCF emissions data.
- The need to compare “like with like” between NDCs, and to disentangle diverse approaches to LULUCF accounting in order to understand trends in decarbonization.
- The need to increase transparency about the adequacy of targets
- Methodological constraints with fair share literature predominantly based on GHG emissions excluding LULUCF and with very different drivers and dynamics between fossil fuel and industrial GHG emissions and LULUCF.

* [https://climateactiontracker.org/methodology/indc-ratings-and-lulucf#:~:text=Why%20the%20CAT%20ratings,includes%20LULUCF%20and%20other%20GHG%20emissions%20and%20land%20use%2C%202017%20level%20of%20GHG%20emissions%20of%20202%20MtCO₂e]{https://climateactiontracker.org/methodology/indc-ratings-and-lulucf#:~:text=Why%20the%20CAT%20ratings,includes%20LULUCF%20and%20other%20GHG%20emissions%20and%20land%20use%2C%202017%20level%20of%20GHG%20emissions%20of%20202%20MtCO₂e}

CAT’s main advantage over the UoM-PRIMAP factsheet is the consideration of the impact of the COVID-19 pandemic. Hence, the different scenarios (Figure 2), which start with a 2017 level of GHG emissions of 202 MtCO₂e, include:

- Pre COVID-19 trend using current policy projections which ends with a forecast of 271 MtCO₂e in 2030;
- Post COVID-19 trend using current policy projections which ends with a forecast ranging from 244 to 257 MtCO₂e in 2030;
- Post COVID-19 trend using planned policy projections which ends with a forecast ranging from 166-241 MtCO₂e in 2030.

Current policy projections are equivalent to a BAU scenario. The lower GHG emissions related to the post-COVID-19 forecasts is a result of a decline in economic activity due to the lockdown. Lower economic activity translates to lower demand for energy. Meanwhile, planned policy projections are described in Box 2 and include the impact of the recent moratorium on new coal-fired power plants.

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The BAU scenario of UoM has a higher intercept in the year 2015 (206 versus the 182 of CAT) but lower slope. It therefore ends with a lower BAU projection in 2030. The numbers are consistent, however, and paint the same picture. UoM and CAT data after 2010 are unofficial since the last official inventory of GHG emissions was conducted by the Philippine government in 2010. Detailed data for CAT are available at [https://climateactiontracker.org/countries/philippines/](https://climateactiontracker.org/countries/philippines/).
Box 2: CAT Planned Policy Projections for the Philippines

The Philippine government has focused on the post pandemic economic rescue, proposing few green recovery measures. The ARISE (Accelerated Recovery and Investments Stimulus for the Economy of the Philippines) stimulus package intends to accelerate the recovery by injecting Php 1.3 trillion (USD 26 billion) into the economy. The main measures target credit guarantees for small businesses, cash aid programs and other social protection measures. The CARE (Corporate Recovery and Tax Incentives for Enterprises) is one exception. It reduces the income taxes of renewable energy-related companies as an attempt to increase ‘green’ investments and jobs.

Other developments indicate that renewables may gain space in the electricity mix in the near future. In November 2020, the Department of Energy announced it will not endorse new coal plants and push “for the transition from fossil fuel-based technology utilization to cleaner energy sources to ensure more sustainable growth for the country.” Between 8 and 10 GW of the Philippines’ coal-fired power plant pipeline, which is now at 12 GW, could come under the moratorium.

Additionally, the draft ‘Philippine Energy Plan’ (PEP) forecasts a much higher uptake of solar energy, in comparison to the ‘National Energy Renewable Programme.’ A series of reforms are underway to create a more competitive electricity market that favors renewable energy. The establishment of new renewable market rules, under which renewable auctions will take place, and a carve-out clause allowing utilities to curtail coal-fired power generation, will level the national playing field.

However, recent developments in the energy sector remain contradictory. The draft PEP does not include the moratorium on new coal-fired power plants announced in October, and aims to introduce inflexible nuclear power to the power grid. These developments are not in line with President Duterte’s speech in July 2019 when he stated the need to “fast-track the development of renewable energy sources and to reduce dependence on traditional energy sources such as coal.” The review of the PEP, which covers the next two decades, is an important moment to outline a path for the energy sector compatible with the Paris
Agreement.

The moratorium on new coal could reduce emissions by 32-35% in 2030 in comparison to the current policy projections. The Philippines is the first among the coal-dominated South East Asian countries to implement such a moratorium. This measure could curb the Philippines’ emissions curve and bring the country much closer to its NDC target. There is a lot of uncertainty, as the full effect of the COVID-19 pandemic or the recovery measures on economic development are still unclear. However, the economic downturn in 2020 will influence emissions for many years. The CAT’s current policy projections show emissions 2-7% lower in 2030 compared to the previous estimate in December 2019.

*https://climateactiontracker.org/countries/philippines/

All 2030 CAT forecasts for Philippine GHG emissions fall in the yellow segment of the six color scheme (see Annex for an explanation). This implies that the 2015 INDC of the Philippines is rated “fair” by CAT and is within the “2°C compatible” range. It should be noted that by 2050 the Philippines will have a very narrow window to target for its level of emissions to be evaluated as “fair”.

The CAT planned policy projections are analogous to the “high” UoM scenarios. For the Philippines, the “high” UoM scenario is a level of GHG emissions of 143 MtCO₂e in 2030. The CAT forecast is 166-241 MtCO₂e in 2030 which is higher. This implies that there were no significant policies that were implemented between 2017—the year of the latest UoM figures—and November 2020—the date of the latest CAT report—that would justify maintaining the 2030 projection at 143 MtCO₂e.

The third chart (Figure 3) is obtained from Figure 44 of the Philippine Energy Plan for 2018-2040. Actual GHG emissions are clearly much lower than those shown in Figures 1 and 2 and this is because the PEP data are only for the energy and transport sectors. For example, in 2017 CAT reports the level of GHG emissions at 202 MtCO₂e while the PEP calculated it at 118.5 MtCO₂e. GHG emissions emanate from five sectors: energy (including transportation), agriculture, industrial process, waste and LULUCF activities. According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), the distribution
of GHG emissions in 2012 was as follows: energy sector (54%), followed by agriculture (33%), industrial processes (8%), and waste (7%). LULUCF was a net sink (-1%) absorbing more emissions than it released due primarily to activities in the forest land subsector which in 2012 removed 1.64 MtCO$_2$e.$^7$

The incompatibility of Figure 3 data with those in Figures 1 and 2, however, can be gleaned from the Clean Energy Scenario (CES). While lower than the reference scenario (REF), there is no inflection point that will bring GHG emissions to a level consistent with the original Philippine INDC. Granted that the INDC was never translated into an NDC, the Philippine commitment to the PA nevertheless has to be incorporated in the plans of the DOE. A roadmap has to be designed to bring GHG emissions to at least below 150 MtCO$_2$e excluding LULUCF by 2030. Figure 3 indicates that the forecast in 2030 even for CES is approximately 238 MtCO$_2$e and if 2012 shares have been maintained, this is only 54% of total GHG emissions. A more aggressive CES has to be crafted by DOE.

### III. Evaluation of the 2021 NDC

The 2021 Philippine NDC states: “The Philippines commits to a projected GHG emissions reduction and avoidance of 75%, of which 2.71% is unconditional and 72.29% is conditional, representing the country’s ambition for GHG mitigation for the period 2020 to 2030 for the sectors of agriculture, wastes, industry, transport, and energy. This commitment is referenced against a projected business-as-usual cumulative economy-wide emission of 3,340.3 MtCO$_2$e 12 for the same period.”$^8$

Based on the CAT numbers (Figure 2), the closest scenario to the cumulative emission of 3,340.3 MtCO$_2$e for 2020-2030 is the path labeled as “reference for NDC (CAT assessment)”. The cumulative emission for 2020-2030 using CAT data is 3,292 MtCO$_2$e, which is close to 3,340.3 MtCO$_2$e. The most optimistic CAT scenario reduces cumulative emissions by 41%, equal to a cumulative total of 1,937 MtCO$_2$e for the same period.

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$^8$https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Philippines%20First/Philippines%20-%20NDC.pdf

Electronic copy available at: https://ssrn.com/abstract=3838446
Meanwhile, in order to achieve an NDC of 75%, cumulative GHG emissions for the period 2020-2030 have to be limited to approximately 1,000 MtCO2e. The CES reported in the PEP shows a cumulative emission of 2,113 MtCO2e—combining both energy and transport—for the same period. This is only 36% lower than the assumed BAU of 3,324.57 MtCO2e and way above the 1,000 MtCO2e threshold. This implies that even if the other sectors have zero GHG emissions during this period it would not be possible to achieve either an NDC of 70% or 75%.

An argument can be made that the targets are conditional on the provision of finance by multilateral organizations. However, it is doubtful that any level of financing can compensate for the loss of livelihood that would be associated with the reduction in GHG emissions necessary to achieve the NDC target.

IV. Recasting the NDC

The goal associated with the NDC can be redefined to take into account mitigating circumstances in order to make it more realistic. In addition, the policy space to achieve the stated goals can be expanded.

Impact of the Pandemic

Because of the imposition of partial lockdowns, economic activity declined after the onset of the COVID-19 pandemic. Figure 2 shows a post-COVID scenario which involves a cumulative emission of 2,721 MtCO2e, lower than the BAU of 3,340.3 MtCO2e assumed by the Philippine Government. Under the post-pandemic scenario, a 75% reduction entails an absolute amount of 2,041 MtCO2e compared with 2,505 MtCO2e under the BAU scenario of the 2021 NDC. The required amount of reduction in GHG emissions is lower if the impact of the pandemic is taken into account.

Nevertheless 2,401 MtCO2e remains to be a considerable amount. Even with an expanded policy space and a more aggressive CES, the government has to review the goal of a 75% reduction. As the saying goes: “It is better to under-promise and over-deliver than to over-promise and under-deliver.”
In 2012, the energy sector accounted for 54% of GHG emissions. Assuming that the share has been steady, it is not surprising that the bulk of policy prescriptions revolve around the energy sector. For example, the Climate Action Tracker reports progress in policies solely focused on the energy sector (Box 2). However, it would be prudent for the Government to explore policies beyond the energy sector. It is therefore encouraging that the National Framework Strategy on Climate Change 2010-2022 devotes an entire chapter on mitigation strategies that cover most of the sources of GHG emissions. This was the basis for the National Climate Change Action Plan for 2011-2028. Key Result Areas for Climate Mitigation in the NFSCC deal with the following priorities:  

- Energy Efficiency and Conservation  
- Renewable Energy  
- Environmentally Sustainable Transport  
- Sustainable Infrastructure  
- National REDD+ strategy (Reducing Emissions from Deforestation and forest Degradation)  
- Waste Management  

Among the prominent policy prescriptions found in the literature, several deal with contributors to GHG emissions other than the energy and transport sectors. Among these policies are:

- Reducing methane emissions from livestock through improved processing of manure.  
- Carbon storage in soil and vegetation through pilot programs for climate-friendly land use.  
- Incentives for climate-friendly food consumption and reducing food waste.  

Even if not discussed directly, these items can readily be incorporated in the NFSCC and NCCAP. For example, the topic of waste management has to be made more detailed and exhaustive.

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10 For example, see https://www.government.nl/topics/climate-change/national-measures.
Based on this discussion, however, it seems the Philippine Government has not dealt directly with GHG emissions from the agriculture sector. There is an entire literature on the topic of carbon farming which is not mentioned in either the NFSCC or the NCCAP. Carbon farming encompasses a variety of agricultural methods aimed at sequestering atmospheric carbon into the soil and in crop roots, wood and leaves. The Department of Agriculture can recommend policies along this line.

A More Aggressive Clean Energy Scenario

While there are references to energy efficiency, it is not at all clear whether the CES incorporates policies that respond to Republic Act (RA) 11285 or Energy Efficiency and Conservation (EE&C) Act. For example, the PEP reports an annual decline in energy intensity which depends on the successful implementation of energy efficiency programs. However, the PEP does not break down the deviation of the CES from the reference scenario (REF) into the effect of an increase in the share of renewable energy and the impact of EE&C.

Meanwhile, Box 2 states that the PEP did not take into consideration the moratorium imposed by the DOE on coal power plants. The CES is largely based on pronouncements made by DOE following the enactment of Renewable Energy (RE) Act of 2008. Hence, the share of RE is approximately 35% in 2040 (Figure 4), which follows the Renewable Portfolio Standard established by DOE. The difference in installed capacity of coal between REF and CES is negligible in 2030 and becomes manifest only in 2040 (Table 1). In order to adhere to the NDC, the DOE should exert effort to accelerate the timeframe and move the 2040 scenario to 2030. This can be accomplished by combining three elements (Yap and Lagac 2020). The first explicitly acknowledging the impact of the moratorium on new applications for greenfield coal power plants. By effectively narrowing the options for energy firms in terms of future expansion, resources will be diverted to other sectors like RE. This is industrial policy in its purest form.

For an effective, smooth, and just transition to a lower carbon emission scenario, the private sector and the government must cooperate in a constructive manner. The latter must work to reduce the economic uncertainty that will be generated by the moratorium. This can
be achieved by consolidating the various programs and policies and anchor them to the Competitive Renewable Energy Zones or CREZ (Lee et al. 2020), which is the second element of the simplified structure.

The last element of the simplified policy structure aimed at increasing the share of RE is revisiting the option of nuclear energy. While it is not classified as RE, nuclear energy has contributed significantly to the reduction in GHG emissions. This option will be useful if capacity factors of solar, wind, and hydro are not expected to improve significantly beyond 2040, e.g., the cost of battery storage will not decline to profitable levels in the foreseeable future. Estimates show that when there is collaboration between nuclear and renewables, the cost of reaching a carbon-free grid could fall by as much as 62\%.  

*The Issue of Including LULUCF Activities in the NDC*

In a letter dated February 9, 2021 and addressed to Secretary Carlos Dominguez of the Department of Finance, members of Philippine Civil Society questioned why the contribution of the forestry sector was not included in the proposed NDC. Including the forestry sector in the calculation of net GHG emissions would demonstrate its role as a “net sink”. This would then encourage investment in forest protection and conservation program.

In response, the Philippine Government through the Climate Change Commission cited the need to keep “the integrity of the accounting process, also known as ‘mitigation mathematics’”. This is directly related to the explanation provided in Box 1.

However, the importance of the forestry sector has always been recognized by the government. As evidence, one of the Key Result Areas for Climate Mitigation in the NFSCC is a National REDD+ strategy (Reducing Emissions from Deforestation and forest Degradation).

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The Philippine Government also identified opportunities for the forestry sector to obtain means of implementation (MOI) support independent from the NDC process. Examples are from the Green Climate Fund (GCF) and Adaptation Fund.
References


Electronic copy available at: https://ssrn.com/abstract=3838446
Annex: Explaining the Climate Action Tracker Color Scheme

The level of GHG emissions for each country falls in one of six colors. This is shown below

![Climate Action Tracker Color Scheme Diagram]

- **Critically Insufficient**: NDCs with this rating fall well outside of a country’s “fair share” range and are not at all consistent with holding warming to below 2°C let alone with the Paris Agreement’s stronger 1.5°C limit. If all government NDCs were in this range, warming would exceed 4°C.

- **Highly Insufficient**: NDCs with this rating fall outside of a country’s “fair share” range and are not at all consistent with holding warming to below 2°C let alone with the Paris Agreement’s stronger 1.5°C limit. If all government NDCs were in this range, warming would reach between 3°C and 4°C.

- **Insufficient**: NDCs with this rating are in the least stringent part of a country’s “fair share” range and not consistent with holding warming below 2°C let alone with the Paris Agreement’s stronger 1.5°C limit. If all government NDCs were in this range, warming would reach over 2°C and up to 3°C.

- **2°C Compatible**: NDCs with this rating are consistent with the 2009 Copenhagen 2°C goal and therefore fall within a country’s “fair share” range, but are not fully consistent with the Paris Agreement long term temperature goal. If all government NDCs were in this range, warming could be held below, but not well below, 2°C and still be too high to be consistent with the Paris Agreement 1.5°C limit.

- **1.5°C Paris Agreement Compatible**: This rating indicates that a government’s NDCs in the most stringent part of its “fair share” range: it is consistent with the Paris Agreement’s 1.5°C limit.

- **Role Model**: This rating indicates that a government’s NDC is more ambitious than what is considered a “fair” contribution: it is more than consistent with the Paris Agreement’s 1.5°C limit.

Although there are no agreed guidelines on what would constitute a fair level of contribution to the global effort, beyond the general understanding of it to reflect the “highest possible ambition” and “common but differentiated responsibilities and respective capabilities, in the light of different national circumstances” (Paris Agreement, Article 4.3), governments are expected to provide some justification of their proposed efforts.

The Paris Agreement envisages an iterative approach to updating and progressing NDCs, in which individual government efforts are to be regularly revised, informed by a regular global stock-taking process.
The Climate Action Tracker (CAT) provides a transparent way of comparing NDCs with the many interpretations of what is “fair.” The CAT’s “fair share” range rating system is based on published scientific literature on what a country’s total contribution would need to be to make a fair contribution to implementing the Paris agreement. In order to make a fair contribution to meeting the Paris Agreement’s goals, developed countries need to make both domestic emission reductions and assist poorer countries reduce their emissions. This means that a country’s total NDC "fair share" action range is the total sum of domestic reductions plus emission reductions overseas (from climate finance, providing means or implementation or acquisition of emission units, if those are in turn discounted in the host country). Thus, in addition to domestic emissions reduction targets, the “fair share” NDC emissions reduction range as estimated by the CAT would almost always require a developed country to provide enough climate finance, or support via other means of implementation to bring the total emissions reduction contribution of that country down to the required “fair share” level.

Each section corresponds to the temperature outcomes that would result if all other governments were to put forward NDCs with the same relative ambition level.

For example, if all governments were to put forward “insufficient” NDCs at the least ambitious end of their Fair Share range (maximum fair emissions), warming would more likely than not exceed 2°C and be below 3°C by the end of the century.

An “insufficient” rating therefore means that although the NDC could be considered fair by some approaches, it is not sufficient to hold warming below 2°C, much less 1.5°C, unless others do substantially more.

If all governments were to put forward NDCs within the “2°C compatible” category, warming could be held below 2°C with a likely probability (66% or greater), but not “well below 2°C” or below 1.5°C.

If all governments put forward “1.5°C Paris Agreement compatible” NDCs at the most ambitious of their "Fair Share" range (minimum fair emissions), warming would be held well below 2°C and limited to 1.5°C.

Source: https://climateactiontracker.org/methodology/comparability-of-effort
Table 1: Comparing the Reference Scenario and Clean Energy Scenario

Table 15. REFERENCE vs. CLEAN ENERGY: TOTAL INSTALLED CAPACITIES AND TOTAL CAPACITY ADDITIONS by 2040, By Fuel (MW) for Milestone Years

<table>
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<th>Fuel Type</th>
<th>2018 Actual</th>
<th>2018 REF</th>
<th>2018 CES</th>
<th>2030 Actual</th>
<th>2030 REF</th>
<th>2030 CES</th>
<th>2040 Actual</th>
<th>2040 REF</th>
<th>2040 CES</th>
<th>Total Capacity Additions by 2040 REF</th>
<th>Total Capacity Additions by 2040 CES</th>
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<td>93,482</td>
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Figure 1: INDC Factsheet for the Philippines, October 21, 2017

Source: https://www.climatecollege.unimelb.edu.au/indc-factsheets/philippines
Figure 2: Climate Action Tracker for the Philippines

Source: https://climateactiontracker.org/countries/philippines/
Figure 3: GHG Emissions for Energy and Transport from the Philippine Energy Plan

Figure 44. TOTAL GHG EMISSION, 2000 – 2040 ACTUAL vs OUTLOOK, Clean Energy & Reference (MTCO₂e)


Electronic copy available at: https://ssrn.com/abstract=3838446
Figure 4: Comparing the Reference Scenario and Clean Energy Scenario

Figure 42. REFERENCE vs. CLEAN ENERGY SCENARIO, 2040 Power Generation Mix, By Fuel Shares


Electronic copy available at: https://ssrn.com/abstract=3838446