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PERSPECTIVE

Why the Philippines Needs a Net Zero Emissions Commitment

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ABSTRACT

The Philippines remains in the minority of countries in the world that have yet to make a net zero emissions pledge. This policy gap leaves the country without a proper roadmap to keep pace with the global energy transition that will take place in the coming decades. In this perspective paper, we discuss the adverse implications of the failure to come to terms with deep decarbonization.

Keywords: carbon lock-in; decarbonization; net zero emissions; carbon intensity; climate justice; renewable energy

Abbreviations: CBAM, Carbon Border Adjustment Mechanism; CDR, Carbon Dioxide Removal; CFP, Carbon Footprint; GHG, Greenhouse Gas; GDP, Gross Domestic Product; PHP, Philippine Peso; PEP, Philippine Energy Plan; IPCC, Intergovernmental Panel on Climate Change.

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We recently argued that the over-emphasis on climate change adaptation in Philippine climate policy has led to weak decarbonization focus (Migo-Sumagang et al., 2024). We expound on this argument in this perspective, noting that the absence of an official net zero target puts the Philippines at risk of a protracted carbon-lock that threatens the country's future competitiveness in the carbon-constrained world economy. The risk for the Philippines is summarized succinctly by Smith (2021): "*Lock-in of emissions is clearly a far greater risk where there is no ambition.*"

Deep decarbonization leading to net zero greenhouse gas (GHG) emissions by mid-century will be needed in order to limit warming to "well below 2°C," which is generally considered to be the upper threshold for manageable climate change (Intergovernmental Panel on Climate Change, 2022). This global challenge requires the drastic reversal of a centuries-long historical GHG emissions trend within the span of one human generation. Net zero emissions can only be achieved through a concerted effort involving governments and industry. Many countries and corporations have thus made public pledges to achieve net zero emissions in the coming decades (Sanderson, 2023). The global energy transition has gained momentum since the start of the decade, driven by technology trends such as the drop in cost of renewable energy, the electrification of land transport, domestic and process heating, and the emergence of carbon dioxide removal (CDR) using engineered or nature-based techniques. There has been a marked long-term trend in the reduction of the carbon intensities (i.e., GHG emissions per unit of gross domestic product or GDP) in many countries and regions (Xu et al., 2024), including Asia (Asian Development Bank, 2023). On the other hand, the Philippines has drifted in the opposite direction, with the carbon intensity of the economy rising by 13% from 0.0062 kg CO_2/PHP in 2012 to 0.0070 kg CO_2/PHP in 2021 (Department of Energy, 2022). This insidious trend is mainly the result of increased dependence on coal-fired power plants to meet the growing demand for electricity (Department of Energy, 2022). The latest official documents do not indicate any signal for radical decarbonization, with the Philippine Energy Plan projecting that fossil fuel will continue to supply up to half of the country's electricity by 2050 (Department of Energy, 2023).

The policy focus on climate change adaptation rather than mitigation is often justified on the grounds of climate justice, i.e., developing countries with little historical contribution to the atmospheric carbon stock have less responsibility to reduce their current and future GHG emissions (Del Ponte et al., 2023). However, we argue that such an outlook is counterproductive given the urgency of the race to net zero, and furthermore can result in serious economic consequences for countries that lag in decarbonization efforts. Figure 1 shows the (direct) production- and consumption-based CO_2 emissions intensities of major sectors of the Philippine economy. The consumption-based emissions are the carbon footprints (CFPs) of these sectors. These results are computed from the low-resolution, 16-sector input-output tables from 2018 (Philippine Statistics Authority, 2021) and the corresponding sectoral CO_2 emissions from fossil fuel use in the same year (Department of Energy, 2022) using the standard environmentally-extended input-output model (Leontief, 1970). Most of the sectors are close to the economy's aggregate 2018 carbon intensity of 0.0069 kg CO_2/PHP, except for electricity generation and transportation; however, these figures will continue to drift upwards if recent trends persist. Note that CFP figures include indirect upstream emissions from the supply chains of the firms that make up each economic sector. For example, Figure 2 shows the breakdown of contributions to the 0.0061 kg CO_2/PHP CFP for the aggregated manufacturing sector; about 60% of the CFP is attributable to emissions from electricity generation. The steady upward trend in the carbon intensity of electricity generation in the Philippines will thus have a strong impact on the CFP of products manufactured in the country. As carbon-based trade restrictions like the European Union's Carbon Border Adjustment Mechanism (CBAM) proliferate, there will be increasing pressure on firms to dramatically reduce their CFPs to maintain access to lucrative export markets (Magacho et al., 2024). The Philippines cannot isolate itself from this global bandwagon. The decarbonization roadmap outlined in the most recent Philippine Energy Plan falls far short of net zero; even in the "Clean Energy Scenario," fossil fuels will still comprise approximately 30% of the power generation mix in 2050 (Department of Energy, 2023), to the detriment of the future carbon comparative advantage of Philippine exports. A similar threat looms over sectors whose activities are inherently transboundary (e.g., aviation and maritime transport), with future access

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to economically important destinations likely to be contingent on evidence of decarbonization progress.

In summary, we believe that the Philippines needs an official net zero emissions pledge. Such a pledge will signal national ambition to decarbonize in lockstep with the rest of the world, which will in turn drive industry investment in the necessary technologies and practices. Committing to net zero emissions will provide the much-needed policy scaffolding for deep decarbonization which can then be implemented jointly by government and industry. It will pave the way for discussions on difficult tradeoffs needed to stimulate the penetration of low-carbon electricity (e.g., from renewables or from nuclear energy) into the Philippine power mix. A cleaner grid will also allow the Philippines to capitalize on the accelerating trend of motor vehicle electrification. As we previously pointed out (Migo-Sumagang et al., 2024), a net zero pledge can also provide basis for establishing a thriving "carbon economy" based on GHG offsets or on engineered and nature-based CDR. On the other hand, not making a net zero pledge can lead the Philippines to a protracted dependence on obsolescent technology, relegating future generations of Filipinos to the status of climate laggards. This threat can be averted through the model-based development of a deep decarbonization road map for the Philippines. Models that consider the presence of multiple agents, and in particular government-industry interplay, can be used to calibrate the policy instruments needed to drive a desirable energy transition (Aviso et al., 2024; de Zeeuw, 2024). The modelling studies should also be coupled with a concerted science-to-policy campaign to ensure translation of research findings into climate action.

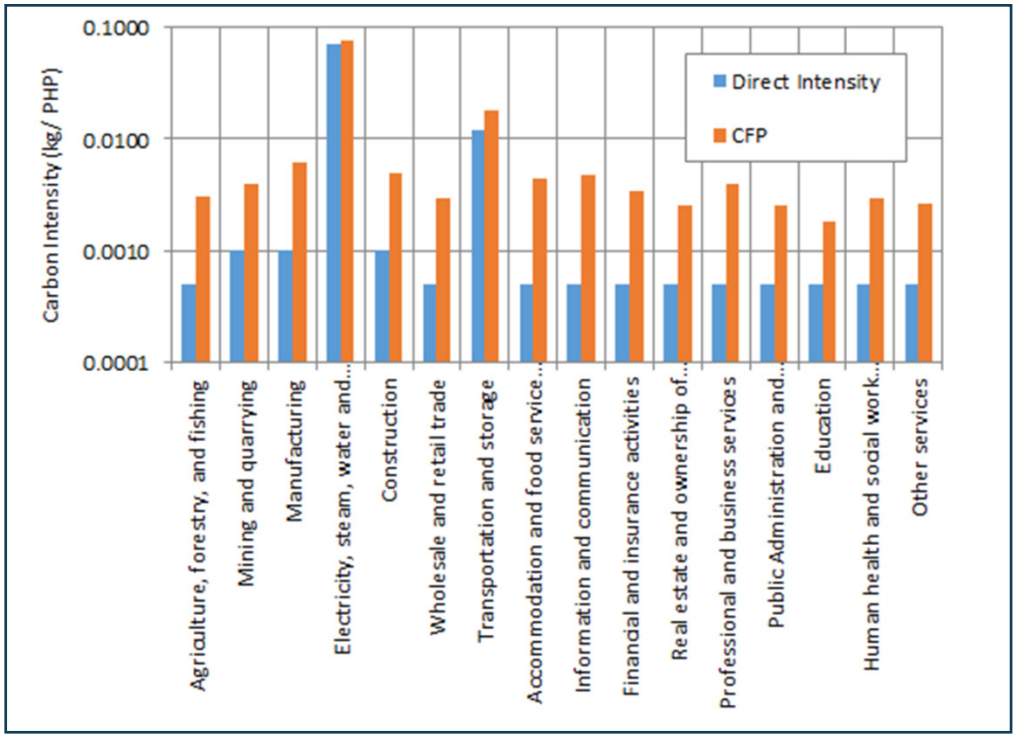

Figure 1. Estimated carbon intensities of Philippine economic sectors

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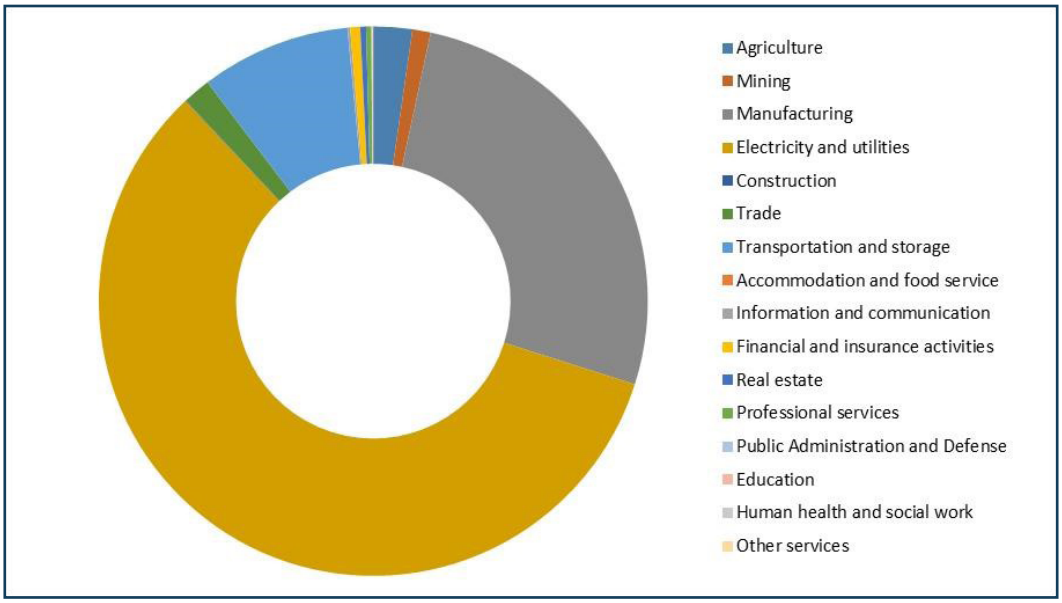

Figure 2. Contribution of major sectors of the Philippine economy to partial carbon footprint of manufacturing in 2018 based on domestic CO_2 emissions from fossil fuel combustion.

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