# CARBON TAX REGULATION IN INDONESIA: A COMPARATIVE REVIEW WITH SINGAPORE

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**Abstract**

Climate change presents an urgent global challenge, prompting countries to adopt emission reduction strategies in accordance with the Paris Agreement. One such strategy is the implementation of a carbon tax to reduce greenhouse gas emissions and promote sustainable development. Indonesia and Singapore, as signatories to the Paris Agreement, have both introduced carbon pricing policies with differing legal and institutional frameworks. This study analyzes and compares the carbon tax regulations in Indonesia and Singapore to evaluate their alignment with climate commitments and identify practical lessons for Indonesia. The objective of this research is to examine the carbon tax regulations in both countries and identify aspects of Singapore's carbon tax policy that could serve as a lesson for Indonesia in formulating a more effective policy. This study employs a normative juridical method with a comparative approach and a statutory approach. The findings indicate that Indonesia's carbon tax, introduced through Law Number 7 of 2021, represents an initial step toward achieving national climate targets. However, the policy is still limited in scope and lacks certainty in rate progression, coordination between institutions, and enforcement mechanisms. Conversely, Singapore's Carbon Pricing Act 2018 provides a more structured and transparent system. It includes specific emission thresholds, gradually increasing tax rates, centralized reporting, and strict enforcement backed by legal sanctions. Therefore, Indonesia can draw lessons from Singapore in terms of policy design, institutional framework. These include establishing a clear carbon tax roadmap, improving inter-agency coordination, developing a centralized monitoring and reporting platform, and implementing firm sanctions for non-compliance.

***Keywords***: Carbon tax, Comparative Review, Paris Agreement

## INTRODUCTION

Climate change refers to long-term changes in temperature, weather patterns and climate on Earth. While these changes can occur naturally, since the 19th century, human activity has been a major factor in climate change. (Rizky et al., 2022) The world's move to confront the threat of climate change began in 1972 with the United Nations Conference on the Human Environment in Stockholm. This conference became a milestone as the first forum to discuss environmental issues comprehensively. Two decades later, the United Nations Framework Convention on Climate Change (UNFCCC) was established, a global framework convention to address climate change. In 1997, the UNFCCC organized the 3rd Conference of Parties (COP) in Kyoto, Japan, which resulted in the Kyoto Protocol as an international legal instrument to address climate change. However, in its development, the Kyoto Protocol faced various obstacles in achieving its goals due to the low active participation and weak commitment of the countries involved.(Windyswara, 2018)

In response to the limitations of the Kyoto Protocol, the UNFCCC then formulated new steps in efforts to tackle climate change. In 2015, through the 21st COP held in Paris, France, the Paris Agreement was formulated. Article 2 of the Paris Agreement explains that this agreement focuses on three main pillars: reducing emissions to limit global temperature rise, increasing resilience to the impacts of climate change, and financial support for developing countries in the transition to a low-carbon economy. In order to achieve the set targets, the Paris Agreement in Article 3 states that each ratifying country is obliged to periodically review and update their commitments through Nationally Determined Contributions (NDC). This review is conducted every five years as a mechanism to evaluate achievements and to gradually increase ambition in climate change mitigation.

As a ratifying party, Indonesia plays a crucial role in achieving global climate targets. The country faces a high level of vulnerability to the impacts of climate change, such as rising sea levels, extreme weather events, and ecosystem degradation. Moreover, Indonesia is among the world's top emitters of greenhouse gases, primarily due to emissions from the energy and transportation sectors. According to the latest report from the Global Carbon Budget Report, Indonesia is now among the top ten largest carbon emitters in the world. In 2022, the country's carbon emissions surged by 18.3%—the highest increase compared to any other nation. This spike was mainly driven by the continued reliance on fossil fuels, particularly coal, along with large-scale land conversion and deforestation. The report ranks Indonesia sixth, just below China, the United States, India, Russia, and Japan. This situation underscores the urgent need for effective mitigation strategies.

Given its significant contribution to global emissions and high vulnerability to climate impacts, Indonesia has both a moral and legal obligation—under the Paris Agreement—to accelerate the implementation of emission reduction instruments, including carbon pricing policies. One such strategy is the adoption of a carbon tax. Indonesia has outlined its carbon taxing plan through Law Number 7 of 2021 concerning Harmonization of Tax Regulations (hereinafter referred to as the HPP Law). However, the implementation of this policy has encountered various obstacles, causing delays that were originally targeted to take effect on April 1, 2022 to be pushed back to 2025. Despite these challenges, the carbon tax remains a key policy instrument in Indonesia's effort to meet its NDC targets and transition to a low-carbon economy.

Normatively, the timely enforcement of this policy is crucial to fulfill the country's binding commitments under the Paris Agreement and to uphold the principle of pacta sunt servanda, ensuring good faith compliance with international law. Furthermore, the carbon tax reflects the application of the principle of common but differentiated responsibilities (CBDR), acknowledging Indonesia's role in the collective effort to combat global climate change while considering its national circumstances.

To better understand how carbon tax functions and how it can be implemented effectively, it is essential to first understand the concept itself. A carbon tax is a type of Pigovian tax, first introduced by Arthur C. Pigou in 1920, which aims to internalize the negative externalities of pollution. By placing a price on carbon-emitting fuels, this tax creates an economic incentive for both industries and consumers to reduce emissions and switch to cleaner energy sources (Metcalf, 2021).

In exploring carbon tax policy further, it is helpful to look at countries that have already implemented this approach. One notable example is Singapore, which in 2019 became the first country in Southeast Asia to adopt a carbon tax through the Carbon Pricing Act 2018. This policy supports Singapore's climate goals by reducing emissions, stimulating green economic opportunities, and accelerating its transition to a low-carbon economy (Tseng, 2022). Singapore's policy has shown measurable success. The carbon tax, along with fuel excise policies, has contributed to the control of roughly 80–90% of national emissions (Herdona, 2022). According to the World Bank's State and Trends of Carbon Pricing Report, Singapore ranks 15th globally in terms of carbon tax revenue, highlighting its effectiveness not only in reducing emissions but also in generating substantial fiscal

resources. These achievements offer valuable lessons for other developing countries seeking to establish similar regulatory frameworks.

Given the geographical proximity, similar regional challenges, and shared commitment to the Paris Agreement, Singapore serves as a relevant comparative model for Indonesia. The differences between Singapore and Indonesia in implementing a carbon tax reflect structural and policy challenges that still need to be resolved in Indonesia. Therefore, a comparative study of Singapore's carbon tax implementation can serve as an important foundation in formulating a more effective strategy for Indonesia to ensure this policy can be optimized as part of its commitments under the Paris Agreement (Muzakki, 2025).

Based on the discussion above, this study aims to answer two main questions: (1) How is the carbon tax regulated in Indonesia and Singapore within the framework of the Paris Agreement? And (2) What are the aspects of carbon tax regulation in Singapore that can be a lesson learned for Indonesia in formulating more effective policies? This study aims to analyze carbon tax regulation in Indonesia and Singapore and identify aspects of carbon tax regulation in Singapore that can be a lesson learned for Indonesia in formulating more effective policies. This research is expected to provide benefits in the development of legal studies, especially related to carbon tax policy as a legal instrument to support carbon emission reduction. The urgency of this research is to support Indonesia and Singapore's commitment to fulfill the Paris Agreement through carbon tax instruments. Indonesia, which is still in the early stages of implementing a carbon tax through the HPP Law, needs to learn from Singapore, which has had a more mature system since 2019. This study is important to identify aspects of Singapore's policy that can be adopted to strengthen the regulatory framework in Indonesia.

There are several previous researchers who have previously conducted studies on similar issues such as research conducted by Ardhelia Putri Salsabila and Tundjung Herning Sitabuana titled “The Urgency of Carbon Tax Implementation Based on the Harmonization of Tax Regulations Act” in 2023. This research highlights the delay in the implementation of carbon tax in Indonesia due to the lack of implementing regulations, even though this policy is crucial to achieve the Net Zero Emission target in accordance with the Paris Agreement. The research found that a carbon tax should be implemented immediately to reduce emissions and improve the efficiency of national taxation. The government needs to finalize the implementing regulations and educate the public before the policy is implemented.

In addition, there is a study conducted by Hilwa Nurkamila Maghfirani, Namira Hanum, and Roidah Dzata Aman titled “Analysis of the Challenges of Carbon Tax Implementation in Indonesia” in 2022. This research analyzes the challenges of carbon tax implementation in Indonesia. Using a qualitative approach, the study found that the main obstacles in implementing this policy include aspects of timeliness, politics and governance, pressure from the business and economic sectors, and public resistance. Both previous studies have evaluated the urgency and challenges of carbon tax implementation in Indonesia after the passage of the HPP Law by addressing social factors, such as public opinion and politics. Meanwhile, this study updates it by further analyzing the challenges in the legal aspect by comparing it with the carbon tax implementation in Singapore, which has been successfully implemented and can be a lesson learned for Indonesia. By examining Singapore's regulation, this research offers a new perspective on how Indonesia's carbon tax regulation can be strengthened to be more effective and powerful in supporting climate change mitigation targets.

## RESEARCH METHOD

This research employs a normative juridical method, which, according to Bahder Johan Nasution, is a method that focuses on analyzing positive legal rules as written norms (Nasution, 2008). This type of research aims to examine the existing legal framework, specifically looking at laws, regulations, and legal principles related to the carbon tax policies in Indonesia and Singapore. This normative juridical research uses primary and secondary legal sources. Primary legal sources include official statutes and regulations such as Indonesia's Law Number 7 of 2021 on the Harmonization of Tax Regulations (HPP Law) and Singapore’s Law Number 23 of 2018 on the Carbon Pricing Act. These documents are critical in understanding the legislative foundations of carbon tax regulation in both countries. Secondary legal sources consist of books, scholarly articles, and legal journals that provide further context, analysis, and interpretation of the primary sources.

This research utilizes a comparative approach, which is particularly effective in understanding and contrasting the legal frameworks of different countries (Arief, 2014). By comparing the carbon tax regulations in Indonesia and Singapore, the study identifies best practices from Singapore's policy that could be adapted to improve Indonesia's regulatory framework. This comparative analysis will

enable a deeper understanding of the strengths and weaknesses of both systems and offer insights into how Indonesia might address challenges in its carbon tax implementation.

In addition to the comparative approach, a statute approach is employed to systematically study the relevant laws. This approach enables the researcher to investigate positive legal rules, legal principles, and doctrines within the context of the carbon tax, allowing for a comprehensive analysis of the legal mechanisms at play in both countries (Marzuki, 2005). By examining the statutes and their application in practice, this study aims to clarify how the carbon tax functions within the broader framework of environmental law.

The data will be analyzed qualitatively by synthesizing insights from the primary and secondary legal sources. The comparative analysis will identify key similarities and differences between the carbon tax systems in Indonesia and Singapore, highlighting how Singapore's experiences and practices could be applied to improve Indonesia's legal framework. This research aims to provide a robust analysis of the legal challenges and opportunities surrounding carbon taxation in both countries and offer practical recommendations for enhancing policy implementation in Indonesia.

## RESULTS AND DISCUSSION

### Carbon Tax Regulations in Indonesia and Singapore within the Framework of the Paris Agreement

Indonesia and Singapore have both regulated carbon tax as part of their commitment to the Paris Agreement, particularly in fulfilling Article 4 which mandates the pursuit of domestic mitigation measures aligned with their Nationally Determined Contributions (NDCs). Despite this shared objective, the structure and execution of their carbon tax policies differ significantly in terms of legal integration, institutional coherence, and implementation readiness.

In Indonesia, the carbon tax is regulated by the HPP Law, specifically in Chapter VI. According to Article 13 paragraph (1), the tax is applied to carbon emissions measured as carbon dioxide equivalent ($CO_2e$) because of their harmful effects on the environment. The law also states that the carbon tax applies to people or entities who buy products containing carbon or conduct carbon-emitting activities. This shows Indonesia's effort to reduce environmental harm through taxation. In simple terms, "carbon-emitting activities" means activities that cause the release of carbon gas into the atmosphere. These include fuel use in the energy sector, agricultural activities that produce greenhouse gases, industrial processes that produce air pollution, as well as waste management that releases carbon emissions. In addition, if a person or entity purchases goods whose production produces carbon emissions, whether domestically produced or imported, they will also be subject to a carbon tax. This means that the tax applies not only to those who directly cause emissions, but also to those who use products that contribute to environmental pollution.

The provisions in Article 13 paragraphs (2) to (4) of the HPP Law stipulate that the imposition of carbon tax must consider the carbon tax roadmap and/or carbon market roadmap. This roadmap serves as a strategic guideline that covers several key aspects, such as carbon emission reduction strategies, priority sector targets, alignment with new and renewable energy policies, and coordination with other relevant policies. In the explanation of paragraph (3), the government affirms its commitment to reduce greenhouse gas emissions by 29% with its own efforts and 41% with international support by 2030, and achieve Net Zero Emission (NZE) by 2060. Therefore, the carbon tax policy is directed at priority sectors such as energy, transportation, and forestry, which collectively account for 97% of the emission reduction target in Indonesia's NDC.

The phased implementation of the carbon tax in Indonesia, as outlined in the original roadmap of the HPP Law, began with the development of a carbon trading mechanism in 2021. Following this, the 2022-2024 period was designated for applying the carbon tax with a cap and tax system, initially focusing on limiting emissions from coal-based power plants, particularly Steam-Electric Power Plants (PLTU). The law originally planned for a full carbon trading system and expansion of the tax to additional sectors after 2025, based on the readiness of the economy and businesses. However, despite the delay in fully implementing the policy until 2025, no updated roadmap has been announced to replace the original plan set forth in the HPP Law.

The provisions in Article 13 paragraph (6) to paragraph (9) of the HPP Law regulate the mechanism for imposing carbon tax on the purchase of carbon-containing goods or activities that produce a certain amount of carbon emissions in a certain period. Carbon tax is payable under several conditions, namely at the time of purchase of carbon-containing goods or at the end of the calendar year period for activities that produce a certain amount of carbon emissions. This provision

ensures that the carbon tax is imposed at both the consumption and production stages, thus covering a wider range of carbon emission sources.

In addition, paragraph (8) stipulates that the carbon tax rate must be set at a level equal to or higher than the market price per kilogram of $CO_2e$. If the market price falls below IDR 30.00 per kilogram, a minimum rate of IDR 30,000 applies to ensure the carbon tax remains an effective emissions control tool. For example, a company emitting 15,000 tons of $CO_2e$ annually would pay IDR 450,000,000 in carbon tax at the standard rate of IDR 30,000 per ton. Despite this foundational legal framework, Indonesia's carbon tax remains in a transitional phase. Critical technical regulations—such as those governing calculation methods, payment mechanisms, reporting obligations, and incentives—are yet to be issued by the Ministry of Finance, thereby hindering implementation.

By contrast, Singapore's carbon pricing is built on a centralized and integrated structure under the Carbon Pricing Act (CPA) of 2018. Effective since January 1, 2019, the CPA imposes a carbon tax on business facilities that emit more than 25,000 tons of $CO_2e$ per year. Administration and enforcement are entrusted solely to the National Environment Agency (NEA), which oversees emission measurement, reporting, and verification. To ensure accuracy and reduce the risk of errors, the Singapore government uses an information technology-based emission measurement system integrated in the Emissions Data Monitoring and Analysis System (EDMA). In addition, emissions reporting must be conducted by a GHG (Greenhouse Gas) manager who is certified by the Institution of Engineers Singapore or has a minimum of three years' experience under ISO 14064/ISO 50001 standards. This level of technical and procedural rigor reflects Singapore's compliance with Article 13 of the Paris Agreement, which mandates robust transparency frameworks for emissions reporting.

Singapore's carbon tax adopts a cap-and-tax scheme, where a tax is imposed on entities that exceed a set emission limit. The CPA explains that there are two emission thresholds that apply. The first threshold is 2,000 tons of CO2e (tons of carbon dioxide equivalent), where entities whose emissions fall below this limit are not taxed. Meanwhile, the second threshold is 25,000 tons CO2e, where entities that exceed this limit are obliged to pay a carbon tax. The tax amount is calculated using the formula A x B, where A represents the amount of equivalent carbon dioxide emissions generated (rounded to the nearest metric ton), and B is the applicable carbon tax rate. The applicable carbon tax rates are set out in Schedule 3 of the Carbon Pricing Act, which states that the rate is $5/tCO2e for emissions in 2023 or any earlier year, $25/tCO2e for emissions in 2024 or 2025, and $45/tCO2e for emissions in 2026 or any later year.

Singapore's system also offers flexibility: companies may pay the tax using fixed-price carbon credits (FPCCs), and may offset emissions through eligible international carbon credits under a one-for-one mechanism, as allowed in Section 17(3A) of the CPA. Failure to pay the carbon tax on time results in financial penalties. According to Section 17(4), a 5% penalty is immediately applied to any unpaid tax. If the tax remains unpaid for 60 days following the imposition of this initial penalty, an additional 1% penalty is added for each completed month, up to a maximum of three times the unpaid tax. This strong enforcement framework is intended to deter non-compliance and ensure timely payment. Despite these strict measures, the law provides mechanisms for fairness and proportionality. Section 18 authorizes both the NEA and the Minister to grant relief or remission from the tax or financial penalties if such action is considered just and equitable.

Both Indonesia and Singapore have implemented carbon tax policies as part of their commitment to the Paris Agreement, particularly in efforts to reduce greenhouse gas (GHG) emissions and transition toward a low-carbon economy. These policies reflect alignment with key provisions of the Paris Agreement, especially Article 4 and Article 13. Article 4(1) of the Paris Agreement requires each Party to prepare, communicate, and maintain successive Nationally Determined Contributions (NDCs) and to pursue domestic mitigation measures to achieve those targets. In this context, Indonesia's carbon tax policy, regulated under the HPP Law, represents a concrete domestic measure to support its NDC target—reducing GHG emissions by 29% through its own efforts and up to 41% with international assistance by 2030. The policy's focus on priority sectors like energy and forestry, which contribute to 97% of the emission reduction target, shows direct implementation of Article 4.

Similarly, Singapore's Carbon Pricing Act demonstrates compliance with Article 4 by establishing a carbon pricing mechanism as a domestic mitigation strategy. The progressive tax rates—from S$5 to S$45 per ton $CO_2e$ by 2026—and the threshold of 25,000 tons $CO_2e$ for tax liability are aligned with the long-term low greenhouse gas emission development strategies encouraged under Article 4(19).

On transparency and accountability, Article 13 of the Paris Agreement establishes an Enhanced Transparency Framework (ETF), which requires countries to report emissions data,

mitigation efforts, and support received. Singapore complies with this requirement by mandating that emissions reporting be conducted by certified GHG managers and supported by its digital Emissions Data Monitoring and Analysis (EDMA) system, which ensures accuracy, consistency, and traceability. Indonesia, on the other hand, has not yet established a dedicated emissions monitoring system that is integrated with its carbon tax policy. As a result, Indonesia's implementation cannot yet be considered fully aligned with Article 13's transparency standards.

Overall, the carbon tax frameworks in both countries demonstrate how economic instruments can support the implementation of international climate commitments. Both countries remain aligned under the same international legal framework. Their efforts contribute meaningfully toward achieving the Paris Agreement's global goal of limiting the rise in average global temperature to well below 2°C, and preferably to 1.5°C, as stated in Article 2(1)(a).

**Lessons from Singapore's Carbon Tax Regulation for a More Effective Policy in Indonesia**

The effective implementation of a carbon tax policy requires not only a clear and progressive regulatory framework but also a well-integrated system. Singapore presents a strong model in carbon tax governance through its well-integrated institutional framework. At the center of its system is the National Environment Agency (NEA), which not only administers the carbon tax but also oversees emissions reporting, verification, and broader climate strategies. Although Singapore's tax authority—the Inland Revenue Authority of Singapore (IRAS)—is generally responsible for tax collection, carbon tax administration is delegated to NEA. This arrangement reflects Singapore's recognition that effective carbon pricing requires not just fiscal oversight, but also technical expertise in environmental monitoring and emissions regulation. Emissions data must be submitted by certified professionals, and the process is supported by the Emissions Data Monitoring and Analysis (EDMA) system—a technology-based platform that enables real-time tracking, sector-specific insights, and analytics. This integrated approach ensures that emissions data used for taxation is accurate, verifiable, and consistent across sectors.

Unlike Singapore, which has a single agency—the NEA—overseeing the entire carbon pricing system, Indonesia does not have a centralized body responsible for all aspects of carbon pricing. Instead, responsibilities are dispersed across multiple institutions. The Directorate General of Taxes (DJP) is responsible for the collection of carbon tax payments. Certain high-emission sectors, such as coal-fired power plants (PLTUs), are expected to report their emissions through a formal notification letter (Surat Pemberitahuan, SPT), which functions similarly to a tax return.

Meanwhile, Indonesia's emission monitoring system is currently managed by the Ministry of Environment through the Sistem Registri Nasional Pengendalian Perubahan Iklim (SRN-PPI), which functions as the national registry platform for greenhouse gas emissions. SRN-PPI plays a key role in Indonesia's carbon ecosystem, including its carbon trading mechanisms. According to Presidential Regulation No. 98 of 2021, SRN-PPI is mandated to support the achievement of NDC targets through accurate, consistent, transparent, and sustainable implementation of climate change mitigation, adaptation, and Net Zero Emissions (NZE) efforts. However, the platform has yet to be fully integrated with Indonesia's carbon tax system. This fragmentation hinders effective policy coordination, transparency, and the country's ability to credibly demonstrate progress toward its Nationally Determined Contributions (NDCs) under the Paris Agreement.

While a unified institutional arrangement like Singapore's—where NEA handles both technical and fiscal oversight—can enhance policy coherence, such integration may not be easily replicated in Indonesia due to the country's existing bureaucratic structure, where taxation responsibilities are firmly under DJP. However, at the very least, Indonesia could benefit from establishing a comprehensive legal framework—such as a dedicated Carbon Pricing Act—that consolidates and harmonizes all aspects of carbon pricing, including carbon tax, carbon market mechanisms, and emissions monitoring. Currently, the fragmented regulatory landscape, with multiple agencies issuing regulations, creates confusion and operational inefficiencies. A single law would not only streamline institutional roles but also ensure that carbon pricing serves a dual purpose: generating state revenue and achieving environmental goals aligned with Indonesia's commitments under the Paris Agreement. Integrating emissions monitoring systems like SRN-PPI with tax and market instruments would reinforce transparency and effectiveness, enabling carbon pricing to function as a credible and accountable climate policy tool.

Beyond institutional design, the long-term success of carbon taxation also depends on tariff certainty and predictability. Singapore introduced its carbon tax at S$5 per ton of $CO_2e$ and established a transparent roadmap to increase it to S$50–80 per ton by 2030. This provides a strong policy signal to industries to invest in cleaner technologies and adopt long-term decarbonization

strategies. In comparison, Indonesia's carbon tax is set at an initial rate of IDR 30.00 per kilogram of $CO_2e$, but the HPP Law does not provide a clear roadmap for future tariff increases. This regulatory uncertainty reduces the effectiveness of the tax as an incentive mechanism, as industries may delay investment in low-carbon alternatives. As emphasized by the OECD (2011) in Environmental Taxation: A Guide for Policy Makers, environmental taxes must be credible and predictable in order to influence behavior effectively. In this context, Indonesia could adopt a similar phased approach to Singapore's, where gradual increases in tax rates allow industries to adapt while maintaining the policy's long-term credibility.

Enforcement mechanisms also highlight the institutional gap between the two countries. In terms of sanctions, Singapore imposes strict penalties for non-compliance, including substantial fines and additional charges for continued delays in reporting or payment. These measures create strong legal and financial pressure to comply. Any business entity that fails to comply with reporting or tax payment requirements may face significant fines, including additional penalties for continued late payments. This creates sufficient pressure on industries to ensure compliance with the applicable regulations. Meanwhile, Indonesia's regulations still need to clarify sanction mechanisms to effectively promote compliance and prevent tax evasion. Clear enforcement mechanisms are also crucial to optimizing carbon tax revenue. Weak enforcement mechanisms increase the risk of revenue loss and weaken the state's ability to steer emissions reduction effectively. In addition, Singapore provides a level of flexibility through the use of verified carbon credits, which can offset part of a company's tax liability while maintaining rigorous oversight—an approach that Indonesia could consider adopting in future regulatory developments.

By examining the differences in carbon tax regulations between the two countries, Indonesia can learn from Singapore not only in establishing a clearer and more progressive tariff trajectory, but also in designing a more robust enforcement regime and developing a unified legal and institutional framework. Singapore's experience underscores the importance of having a centralized and technically competent authority to manage all elements of carbon pricing—from data verification to revenue collection. While Indonesia may face structural constraints in centralizing authority due to existing bureaucratic roles, it can still achieve coherence by enacting a unified legal framework that clearly defines institutional responsibilities and integrates emissions monitoring with both tax and carbon market instruments. Furthermore, adopting a transparent roadmap for carbon tax increases, as Singapore has done, would strengthen policy credibility and send a clear signal to industries to transition toward cleaner operations. Equally important is the establishment of clear, enforceable sanctions and the option to use verified carbon credits with proper oversight, which could provide regulated entities with flexibility while maintaining the integrity of the system. Ultimately, these lessons highlight the need for Indonesia to move beyond fragmented regulations and toward a robust, accountable, and environmentally effective carbon pricing regime that aligns with its Paris Agreement commitments.

## CONCLUSION

The comparative analysis of carbon tax regulations in Indonesia and Singapore reveals critical insights for improving the effectiveness of Indonesia's carbon pricing policy. While Indonesia has taken essential first steps through the HPP Law, the provisions remain basic and lack implementing regulations. Key technical rules—such as those governing calculation methods, payment mechanisms, reporting obligations, and incentives—have yet to be issued by the Ministry of Finance, thereby hindering enforcement and legal certainty.

Beyond the need for implementing regulations Indonesia could also draw lessons from Singapore's more mature carbon tax framework, which is backed by a more comprehensive legal foundation—clearly outlining tariff trajectories, compliance obligations, sanctions, and the integration of carbon pricing as part of climate mitigation actions—while also ensuring transparency through a centralized emissions monitoring system in line with the Enhanced Transparency Framework under Article 13 of the Paris Agreement. Singapore's structured and predictable approach sends a strong policy signal to industries, encouraging long-term investment in emissions reductions. By adopting a similarly comprehensive and phased regulatory model, Indonesia can enhance the credibility, functionality, and environmental effectiveness of its carbon tax policy.

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