

Kementerian Koordinator Bidang Kemaritiman dan Investasi Republik Indonesia

Carbon Trading: Economic Mechanisms and Market Dynamics

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Indonesia's Carbon Market Potential



Indonesia has significant potential in carbon market, holds one of the largest NBS potential globally

Distribution of world's Nature Based Solution (NBS) potential¹

Russia Sweden

Indonesia could play a **key role** in global carbon market ecosystem

~1 GtCO2 carbon credit potential from NBS; where ~140 MtCO2 is high-feasibility credit by 2030

Total world potential: 6.7 GtCO2e/year

1% Canada China 3% United States Myanmar (Burma) Central African Republic India Laos Mexico Venezuela Nigeria Thailand -Philippines Republic of Guinea 1% Cambodia 1% Vietnamese Guyana Congo Colombia Cameroon Malaysia Indonesian DRC Ecuador Gabon Suriname Mozambigue Peru Angola Bolivia 15% Madagascar Zambia (1%) Brazil Australia Argentina 1. Based on the potential of NBS with high and medium economic feasibility levels.



Source: Nature Analytics



Demand for carbon credits is expected to grow by ~30% by 2030 dominated by the voluntary market, after which demand from the compliance market grow significantly

Historical



Voluntary Compliance Jurisdictional Compliance:Net zero aviation industry

Use of carbon credits by segment, MtCO2/year





Voluntary demand from private sector decarbonization targets will drive demand through 2030



Compliance market (both jurisdictional and aviation industry) will play a significant role after 2035



To capture market opportunities, carbon market regulators must move quickly – before 2025

Indonesia can move quickly to seize opportunities from the carbon economy and become the global carbon market hub



The carbon economy can create cross-sectoral multiplier effects in Indonesia



Financial Sector

Development of environmental-based financial products



Investments

Acceleration of green and sustainable investments through foreign direct investment (FDI) in mitigation activities



International Market

Increasing Indonesia's competitive advantage in the global market as a manufacturing center and supply chain for lowcarbon products



Social Sector

Empowerment of local communities through employment in green industries



Technology Sector

The potential for accelerating the use of blockchain technology as the basis for a carbon credit registry



Energy Transition

Potential new sources of funding through carbon credits emission reduction from early retirement of coal-fired powerplants We need to create a conducive environment to optimize carbon market potential in Indonesia



Offset market transaction value in 2030¹ from the high feasibility carbon projects



Revenue from energy transition

USD 0.2-0.9 bn

VAT on carbon trading in the

domestic offset market³

ASEAN countries are racing to become Asia's carbon market hub



With assumption of 140 MtCO₂ of NBS is sold, with an estimated low range of 75% sold to the domestic market at USD 8/tCO₂; and an estimated high range of 75% sold in the international market at USD 15 /tCO₂.

Assuming early retirement of coal-fired power plants of 5-10 GW is accelerated to 10 years earlier with a 70% capacity factor based on the average EU-ETS reference price for 2021 of USD 53 /tCO₂ 2.

3. With 10% VAT assumption

Carbon market creates an investment ecosystem for mitigation activities to help Indonesia meets its NDC targets





Carbon Market Mechanism



Indonesia is pursuing multiple carbon pricing mechanisms to capture value from emissions reductions





ETS is used by governments to ensure sectoral emissions/NDC targets are achieved

ETS mechanism



Indonesia has launched ETS in the power sector in February 2023, after pilot phase in 2021



Regulatory framework

Minister of MEMR Regulation 16/2022 on Power Sector Carbon Economy Implementation Procedures



Launch of power sector ETS on 22^{nd} February 2022 in $\ensuremath{\mathsf{MEMR}}$

Indonesia needs to follow the best practices of international carbon market



Available 🛛 Not available

	Cross-sectoral trade				
Current carbon units	FOLU (Ministry of Environment & Forestry)	Waste (Ministry of Environment & Forestry)	Energy (Ministry of Energy & Mineral Resource)	(Ministry of Industry)	Agriculture (Ministry of Agriculture)
PTBAE-PU		\times		\mathbf{x}	\mathbf{x}
SPE-GRK		×		×	\mathbf{x}
<i>International best</i> practices					
PTBAE-PU	One price, one market, multiple sectors for PTBAE-PU				
SPE-GRK					

Offset markets allow entities to reduce their emissions by supporting emission reduction projects



Offset Carbon Market



Benefits

Spur investment in emission mitigation activities and low-carbon technology



Unlock opportunities from domestic and international entities seeking high quality carbon credits at a premium price



Promote Indonesia as a global carbon market hub



1. Carbon offsets can be sold on the voluntary market, compliance markets, or through the article 6.2 mechanism (Internationally Transferred Mitigation Outcomes, e.g. ITMOs) Source: World Bank (2021) State and Trends of Carbon Pricing 2021

International best practice for carbon credits issuance process and related institution



Process () Platform/actor



International best practice

Relevant stakeholders



Consultant

Accreditation body (KAN) |=C



- International & domestic validation and verification റ്ച body (VVB)
- International carbon standard (methodology and 0=: registry system)

Indonesia has launched its first carbon trading market on the Indonesia Stock Exchange





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There are **3 main directives** in realizing Indonesia's potential to become the axis of the global carbon market:

- 1. Cater for voluntary market
- 2. Establish targets and timeline for domestic and international markets
- 3. Build institutions and regulations according to international best practice and world-class standards, using state-of-the-art technology

OJK is responsible to regulate & supervise trading activities in carbon exchange



Primary Market Secondary Market International **Country X** OTORITAS Business BAE Related standard (e.g., JASA owner establishment KEUANGAN ministry¹ Verra, Gold (e.g., Standard) CFPP) Reporting PTBAE-PU **Mutual** recognition allocation Company Article 6 (international) (with CA) Project developer SPE-GRK Sistem Registri Nasional (e.g., (SRN-PPI) issuance reforestation) Data **DXCarbon** integration Company (domestic & Voluntary Financial international) (without CA) Institutions and Intermediaries Secondary registry and trading (e.g., brokers, traders)

1. The technical ministry (e.g., Ministry of Energy and Mineral Resources, Ministry of Environment and Forestry)

Enablers to Optimize the Carbon Market in Indonesia



The development of a carbon market needs technological enablers to ensure transparency and integrity





Blockchain

Improve the security and transparency of the recording of carbon unit data and carbon transactions to ensure high integrity carbon market.



Satellite dan remote-sensing

Ensure transparency and accuracy of the measurement, reporting and verification (MRV) process through data and images from satellites and remote-sensing with real-time monitoring



Data management systems and other digitalization

IETA¹ recommends guiding principles in digital innovation in carbon exchanges, including data standardization protocols, digitalization and other technological developments to support transparent carbon exchanges.

Indonesia can optimize its carbon market ecosystem and become the global carbon market hub by focusing on three pillars





Openness

Opening the Indonesian carbon market for carbon credits from projects in Indonesia and other countries and exploring the potential for cooperation for derivative products



Qualities of the institution, human capital, and carbon standards

Collaboration with internationally accredited carbon standards to ensure **mutual recognition** of various traded carbon credits and to build **quality of the institutions** and **human capital** that manage the Indonesian carbon market



Technology based

Using technology that can maintain the **integrity**, **security**, **and transparency** of carbon transactions, such as blockchain



