

Indonesian Economic Value of Carbon (Nilai Ekonomi Karbon) Trading Scheme

General Information

ETS Description

Indonesia's Economic Value of Carbon, or Nilai Ekonomi Karbon (NEK), Trading Scheme is a mandatory, intensity-based ETS for the power sector launched in early 2023. In its first phase spanning from 2023 to 2024, it exclusively targets coal-fired power plants connected to the Perusahaan Listrik Negara (PLN) grid with a capacity of 25 MW or more. For 2023, the ETS covered 99 coal-fired power plants, estimated to represent around 81.4 % of the country's power generation capacity. The Indonesian government establishes intensity targets, known as "Technical Emissions Ceiling Approvals", or Persetujuan Teknis Batas Atas Emisi (PTBAE). These targets determine the number of allowances that installations receive for each MWh of electricity generated. Covered entities are required to surrender allowances corresponding to all their covered emissions, with allocation based on PTBAE, emission intensity, and emission average. Additionally, entities have the option to purchase allowances via auctions.

The majority of the plants covered by the ETS are owned by the state-owned electricity company PLN. The government anticipates a reduction of approximately 500,000 tonnes of CO₂ in the sector through the ETS in its first year.

Eventually, the ETS is expected to function as a hybrid "cap-tax-and-trade" system, operating concurrently with a carbon tax projected to be introduced around 2025. Facilities failing to meet their obligations under the ETS will be subject to this tax, whose rate will be aligned with the domestic carbon market's price.

ETS Status

in force

Jurisdictions

Indonesia

Year in Review

The Ministry of Energy and Mineral Resources (MEMR) launched the Indonesian ETS for the power sector in February 2023.

This launch was the culmination of several years of preparation. In October 2022, the Ministry of Environment and Forestry (MoEF) issued Regulation 21/2022 titled "Guidelines for Carbon Economic Value Implementation". This regulation provided the legal basis for the implementation of a cross-sectoral ETS in Indonesia, encompassing details on offset credits, sector-specific carbon trade roadmaps, MRV procedures, and institutional arrangements. Following this, in December 2022, MEMR's Regulation 16/2022 "Guidelines for Carbon Economic Value Implementation for the Power Generation Sub-sector" was released, laying the legal foundation for implementing the ETS in the power subsector.

The Indonesian Carbon Exchange (IDXCarbon) was officially launched in September 2023, under the supervision of the Financial Services Authority of Indonesia (Otoritas Jasa Keuangan, OJK).

Sectoral coverage

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO₂e)

891.02 MtCO₂e (2021)

GHG reduction targets

By 2030: 31.9% below BAU including LULUCF (unconditional, updated NDC); up to 43.2% below BAU including LULUCF (conditional on international support, updated NDC)

By 2060: Climate neutrality (Long-Term Strategy for Low Carbon and Climate Resilience, July 2021)

Size & Phases

GHGs covered

CO₂, CH₄ and N₂O

Phases

PHASE ONE: Two years (2023 and 2024)

PHASE TWO: Three years (2025 to 2027)

PHASE THREE: Three years (2028 to 2030)

Note: These phases apply exclusively to the power sector

Cap or total emissions limit

The total emissions limit under the Indonesian ETS is the sum of the bottom-up output-based level for all individual covered entities.

The Ministry of Energy and Mineral Resources (MEMR) establishes the PTBAE, or the cap, for the power sector. This is based on: (i) actual emissions, which must be below the emissions reduction target set for the sector, and (ii) the carbon trading roadmap for the power sector.

PHASE ONE:

The ETS is applicable only to coal-fired power plants connected to PLN's grid. The absolute emission cap is approximately 238.2 MtCO₂e.

The cap for the power subsector has been established for Phase 1 as follows:

- Coal-fired power plants with a capacity of 25 MW) to ≤ 100 MW: 1.3 tCO₂e/MWh
- Mine Mouth Coal-fired power plants with a capacity of ≥ 100 MW: 1.1 tCO₂e/MWh
- Non-Mine Mouth Coal-fired power plants with a capacity of 100 MW to ≤ 400 MW: 1.0 tCO₂e/MWh
- Non-Mine Mouth Coal-fired power plants with a capacity of > 400 MW: 0.9 tCO₂e/MWh

PHASE TWO and

PHASE THREE:

The cap for phase two and three has not yet been determined, but it is expected to be more stringent than phase one.

Sectors and thresholds

PHASE ONE: Coverage is limited to coal-fired power generators connected to PLN's grid only. Details on thresholds are provided below.

PHASE TWO: The government plans to expand the scheme to include coal-fired power plants with capacity below 25 MW, gas-fired power plants, combined cycled power plants and other coal-fired power plants not connected to PLN's grid.

PHASE THREE: The expansion will encompass all fossil fuel power plants, including diesel power plants with capacity of 2 MW or greater,

regardless of their connection to PLN's grid.

INCLUSION THRESHOLDS: Initially, coal-fired power generation facilities with a production capacity exceeding 100 MW are included. However, smaller coal and fossil fuel plants may be incorporated at a later point.

The Ministry of Environment and Forestry (MoEF) has indicated that the government plans to implement emission caps for four additional sectors in the future: forestry, industrial processes and product use, agriculture, and waste management.

Point of regulation

Point source

Type of entities

Installations

Number of entities

In 2023: 42 entities covering 99 installations

In 2024: 63 entities covering 146 installation

Note: The number of entities and installations is expected to continue increasing as new installations commence operations and additional categories are included, in line with the roadmap's expansions.

Allowance Allocation & Revenue

Allowance allocation

In Indonesia, allowances are referred to as *Persetujuan Teknis Batas Atas Emisi Pelaku Usaha* (PTBAE-PU).

PHASE ONE:

Auctioning: In the Indonesian ETS, auctioning is conducted through a system managed by IDXCarbon, where bid and offer instructions are matched based on a time and price priority scheme (refer to the 'Market Design' section).

- Auction share: 0% (2023)
- Auction volume: None

Note: To date, no auction has taken place. Details regarding auction shares and related requirements or provisions are yet to be determined.

Benchmarking: The Ministry of Energy and Mineral Resources (MEMR) sets intensity targets based on installations' average emissions of the previous year. These targets dictate the number of PTBAE-PU allowances allocated for every MWh of electricity generated. If the necessary data are unavailable, allocation is based on comparison with similar plants of equivalent installed capacity. It is anticipated that installations will receive either 75% or up to 85% of their allowances for free in 2024. The deduction percentage depends on the installations' compliance with the ETS.

Covered entities that receive allowances must participate in trading. If they do not, they receive a written warning and free allocation for the next compliance period is reduced to 75%.

Auctioning share

0%

Use of Revenues

Not defined.

Flexibility & Linking

Offset credits

The use of offset credits – known as carbon reduction units, or Sertifikat Pengurangan Emisi Gas Rumah Kaca (SPE-GRK) – is allowed. Credits equivalent to SPE-GRKs may also be used.

QUALITATIVE LIMITS: Offset credits must stem from mitigation activities from:

1. New and renewable energy power plants;
2. Transportation, construction, and industry including energy efficiency activities; or
3. Other activities in the energy sector.

They must also be issued on the national registry.

QUANTATIVE LIMITS: None.

In 2023, 8,715 tCO₂e in offset credits were surrendered, exclusively sourced from renewable energy projects. The distribution of these credits is detailed as follows: PT Pertamina Geothermal Energy contributed 87.4%, PT UPC Sidrap Bayu Energi accounted for 11.5%, and the remaining 1.1% came from PT PJB UP Muara Karang.

Banking and borrowing

Banking is allowed within phases, though PTBAE-PU are valid for a maximum of two years from the end of the previous compliance period. Banking is not allowed across phases.

Borrowing is not allowed.

Links with other Systems

The Economic Value of Carbon *NEK* Trading Scheme is not linked with any other system.

Compliance

Compliance mechanism

Covered entities must surrender one allowance per tCO₂e emitted for all their covered emissions.

Compliance Period

The compliance period for the Indonesian ETS is one year, with trading occurring from 1 January to 20 April of the following year. Surplus allowances at the end of the year may be traded in the following year, provided it is within the same phase.

Monitoring, Reporting, Verification (MRV)

MONITORING: An MRV system is currently in operation in the industrial sector and the power generation sub-sector. Pilot MRV programs are being conducted also in the cement and fertilizer sectors.

REPORTING: Reports are submitted to the MEMR through the Directorate General of Electricity via an online platform, the APPLE-GATRIK. These reports must be submitted by the end of January for the preceding year. Installations must report emissions of CO₂, CH₄, and N₂O expressed in units of CO₂e.

VERIFICATION: Emissions must be verified by a third-party verifier that is accredited by the *Komite Akreditasi Nasional* (KAN), Indonesia's national accreditation body. This verification should be completed by the end of March, following the January reporting deadline. Verifiers are required to adhere to the guidelines for GHG emission verification in the power subsector.

Enforcement

The plan was to concurrently implement carbon trading and a carbon tax, with the latter serving as a penalty mechanism. However, as discussions on carbon tax regulations continue and its implementation is postponed, an alternative enforcement approach for carbon trading in 2024 will be introduced:

1. Should verified emissions exceed the allocated PTBAE-PU by the end of the period, the PTBAE-PU will be reduced by up to 15%, based on the transaction details.
2. Entities failing to report their Greenhouse Gas (GHG) emissions or participate in carbon trading by the end of the period will see a 25% reduction in their PTBAE-PU.

Market Regulation

Market Stability Provisions

TRIGGERS: The MEMR evaluates on a regular basis the implementation of the ETS. If the evaluation reveals a shortage of allowances, the Minister and Director General may conduct additional auctions of PTBAE-PUs.

Market Design

MARKET PARTICIPATION:

Compliance entities, specifically those holding an “Electricity Supply Business License for Public Purpose” or “Electricity Supply Business License for Own-Use,” are eligible to engage in carbon trading.

MARKET TYPES

Primary:

In the primary market, allowances and offset credits are transacted through a mechanism that may be activated upon request by the relevant ministry. This platform facilitates offset selling, with a potential reserve price set as low as IDR 1 (less than USD 0.01), and bids commencing from this figure or higher. This auction mechanism is exclusively accessible to government ministries and project developers, expressly excluding resellers. As of now, there have been no auctions conducted under this system, and specific details about auction shares, along with associated requirements and provisions, remain to be defined.

Secondary:

Operated by IDXCarbon, launched at the Indonesia Stock Exchange (IDX) in September 2023 and licensed by the Financial Services Authority (OJK), the secondary market encompasses:

- Regular Market or ‘Continuous Auction’: Matching of bids and offers based on time and price priority, with minimum prices set at IDR 200 (USD 0.013) and governed by fraction price rules and an ‘auto rejection’ rule.
- Negotiated Market: Facilitates the settlement of pre-agreed trades through the exchange, requiring details of counterpart, carbon units, price, and volume.
- Marketplace: Enables project developers to list their projects and set prices.

IDXCarbon is integrated with the national registry, Sistem Registri Nasional Pengendalian Perubahan Iklim (SRN PPI), managed by MoEF, ensuring the seamless transfer of carbon credits and preventing double counting.

LEGAL STATUS OF ALLOWANCES: PTBAE-PUs and SPE-GRKs are classified as securities, allowing their transfer and trade in the capital market.

Other Information

Institutions involved

Coordinating Ministry for Maritime and Investment Affairs (CMMAI) and Coordinating Ministry for Economic Affairs (CMEA): Chair and Vice Chair of the National Steering Committee for Carbon Pricing Implementation; coordinates ministries/agencies in developing the national carbon pricing framework.

Ministry of Environment and Forestry (MoEF): National focal point for UNFCCC; leads NDC development and implementation, including national mitigation and adaptation and implementation of carbon pricing (including providing authorization for national and international emission trading, and overseeing offsetting; oversees MRV; operates the national registry, SRN PPI).

Ministry of Energy and Mineral Resources (MEMR): Coordinates ETS implementation in the power sector, including oversight of an integrated MRV system with the SRN; responsible for preparing and implementing the 2021 voluntary pilot carbon market.

Ministry of Industry: Coordinates implementation of CPIs on the Industrial Processes and Product Use (IPPU) sector, including an emissions reporting system to be integrated with the SRN.

Ministry of Finance: Leads the development and implementation of the carbon tax.

Indonesian Environment Fund: Handles climate funding; manages ETS revenues, including any international carbon credit trading.

Financial Services Authority (OJK): Oversees IDXCarbon, which is hosted on the Indonesia Stock Exchange.

Regulatory Framework

[Regulation 46/2017 on Environmental Economic Instruments](#)

[Law 7/2021 Concerning Harmonization of Tax Regulations](#)

[Presidential Regulation 98/2021 on the Instrument for the Economic Value of Carbon for Achievement of the NDC and Control of Carbon Emissions in Development](#)

[MoEF Regulation 21/2022 on Guidelines for Carbon Economic Value Implementation](#)

[MEMR Regulation 16/2022 on Guidelines for Carbon Economic Value Implementation for the Power Generation Sub-sector](#)

[OJK Regulation 14/2023 concerning Carbon Trading Through the Carbon Exchange](#)

Evaluation / ETS review

The Minister through the Director General of the MEMR evaluates the Indonesian ETS every six months. Results of this evaluation may lead to adjustments in the policy.

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