

Efforts on Developing Carbon Credit Trading

What is it?

Elevating Knowledge

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Efforts on Developing Carbon Credit Trading

Carbon Trading

What is it?

Carbon Trading

Carbon trading is a mechanism that allows companies or countries to trade carbon credit, which represents the right to emit a certain amount of Greenhouse Gas (GHG)

Carbon trading is based on the concept of emission trading, which aims to create economic incentives for companies to reduce their GHG emissions.

Carbon trading is considered the most cost-effective way on reducing GHG emissions.

Voluntary Carbon Offset

Voluntary Carbon Offset is a mechanism which allows individuals, companies, or organizations to offset their carbon emissions by financing projects that can reduce or eliminate carbon emissions.

A voluntary carbon offset projects can included activities such as reforestation, renewable energy projects, or energy efficiency improvements in developing countries.

Source: Kadv Research and discussions with a few party

3 Emission Scopes

Scope

Impact

1

Includes all GHG emissions directly



Direct

2

Includes GHG emissions from electricity, heat, and steam



Indirect

3

GHG emissions from the production and extraction associated with the purchase of raw materials and fuels, related to activities such as transportation, other electricity use that are not covered in scope 2, outsourcing activities, wastes disposal, etc.



Indirect

Source: Carboncredit.com

Why does it happen?

Net Zero

The most significant global agreement to achieve net zero emissions is **The Paris Agreement** that was adopted in 2015 by the United Nations Framework Convention on Climate Change (UNFCCC)

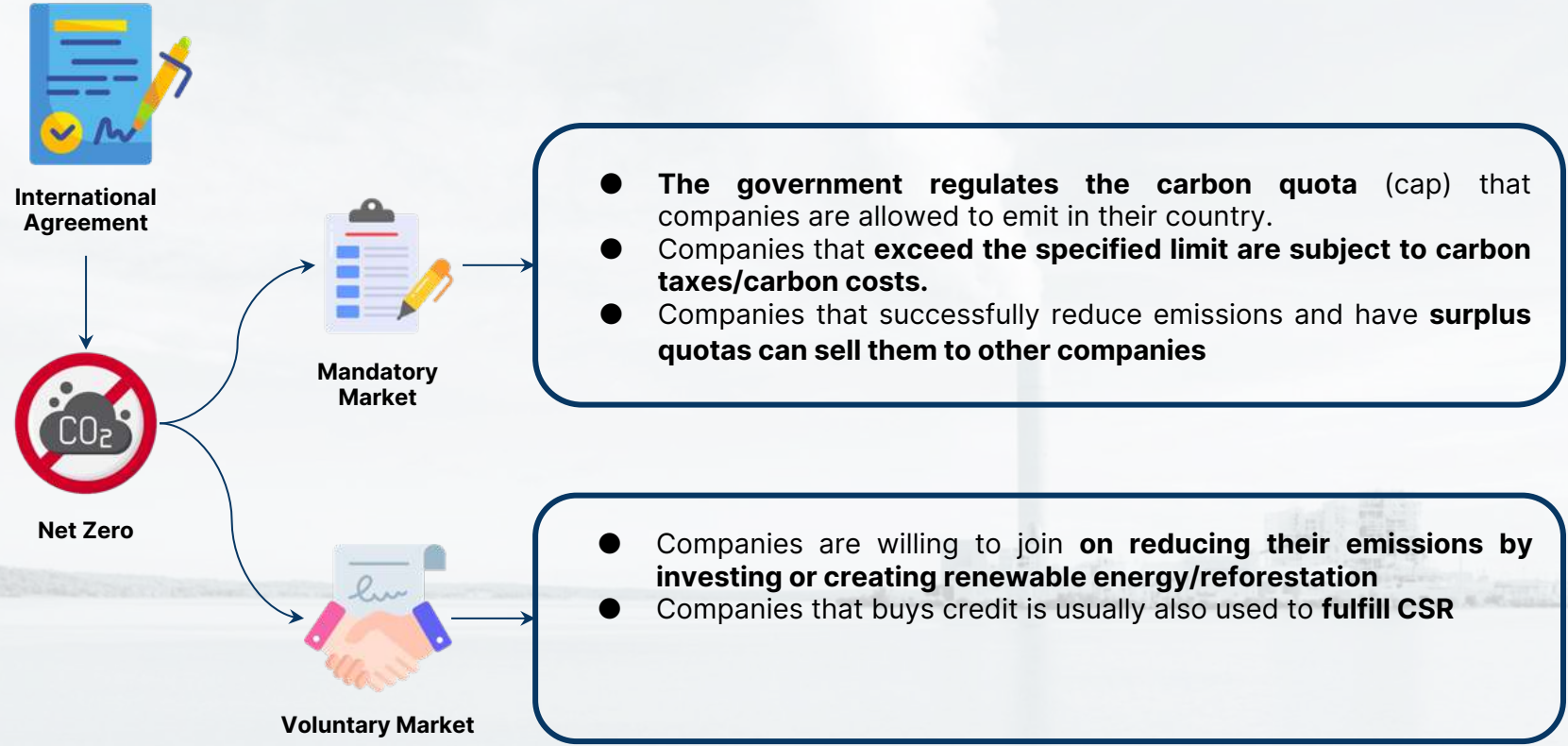
CO² turns into the main GHG and is generated from the combustion of fossil fuels.

Net zero emissions means reducing GHG emissions to near-zero, with any remaining emissions being absorbed back to the atmosphere, oceans, and forests.

International Agreements

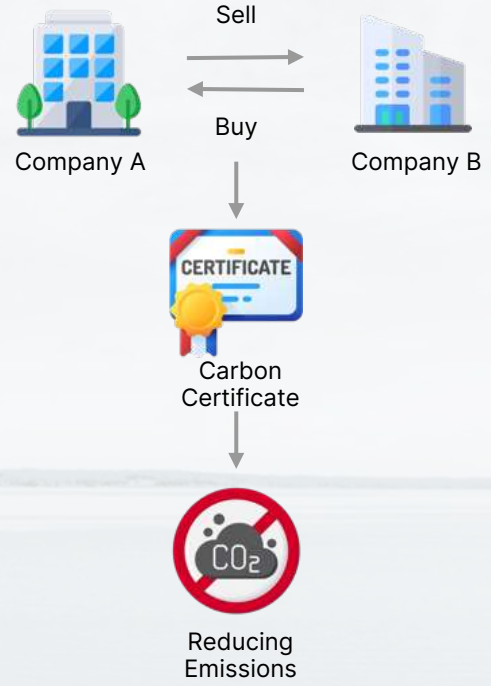
- **Kyoto Protocol (1997)**
This agreement established a mandatory rule for every country that signed the agreement to reduce their emissions.
- **Paris Climate Agreement/Paris Climate Accord (2015)**
This agreement was made among leaders from more than 180 countries to reduce GHG emissions and limit the increase in global temperature to below 2°C

Source: Kadv Research and discussions with a few party, investopedia.com



Source: investopedia.com, Kadv Research

Carbon Trading

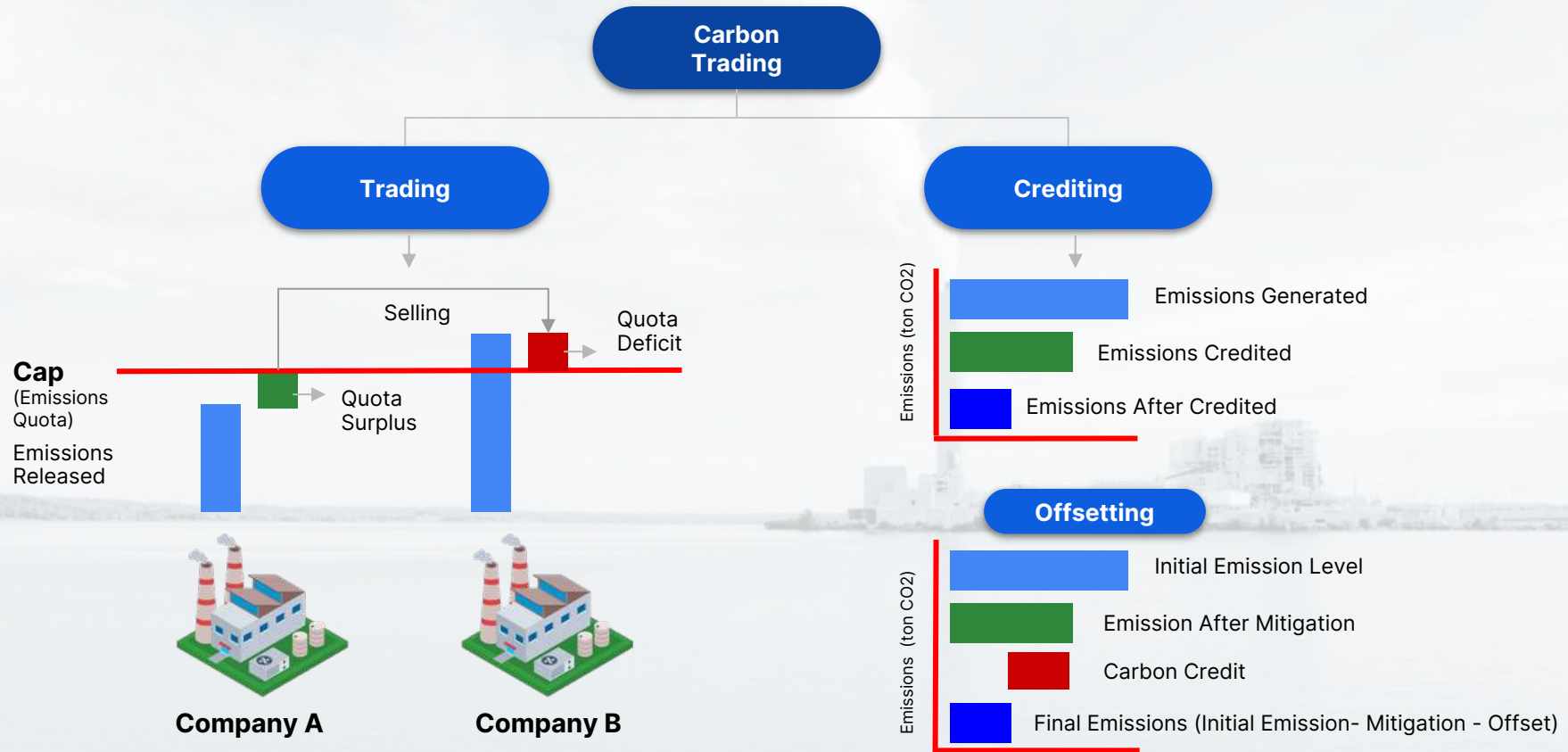


Principles in Carbon Trading

- 1. Additionality**
Creating carbon credits with implementing activities that reduce carbon emissions compared to the emissions that would occur if other activities were pursued that would increase carbon emissions within the designated area
- 2. Permanence**
Activities that are carried out with the principle of sustainability and continuity.
- 3. Leakage**
Avoiding occurrences that would increase carbon emissions within the area. Ex: illegal logging continues to occur within the area

Source: Kadv Research and discussion with a few parties

Types of Carbon Trading



Source: Dewan Nasional Perubahan Iklim (DNPI)

Types of Carbon Market

		Mandatory Market	Voluntary Market
1	Actors	<ul style="list-style-type: none"> ● Companies ● Governments 	<ul style="list-style-type: none"> ● Individual ● Companies ● Governments
2	Characterized	Mandatory	Voluntary
3	Reducing Emission	Bound by rules <ul style="list-style-type: none"> ● National ● Regional ● International 	Not bounded by rules but considering the applicable regulations on <ul style="list-style-type: none"> ● National ● Regional ● International

Source: Kadv Research

What is *Carbon Credit*?



Companies that produces emissions is given credits that allow them to pollute to a certain limit, but this limit will be gradually reduced

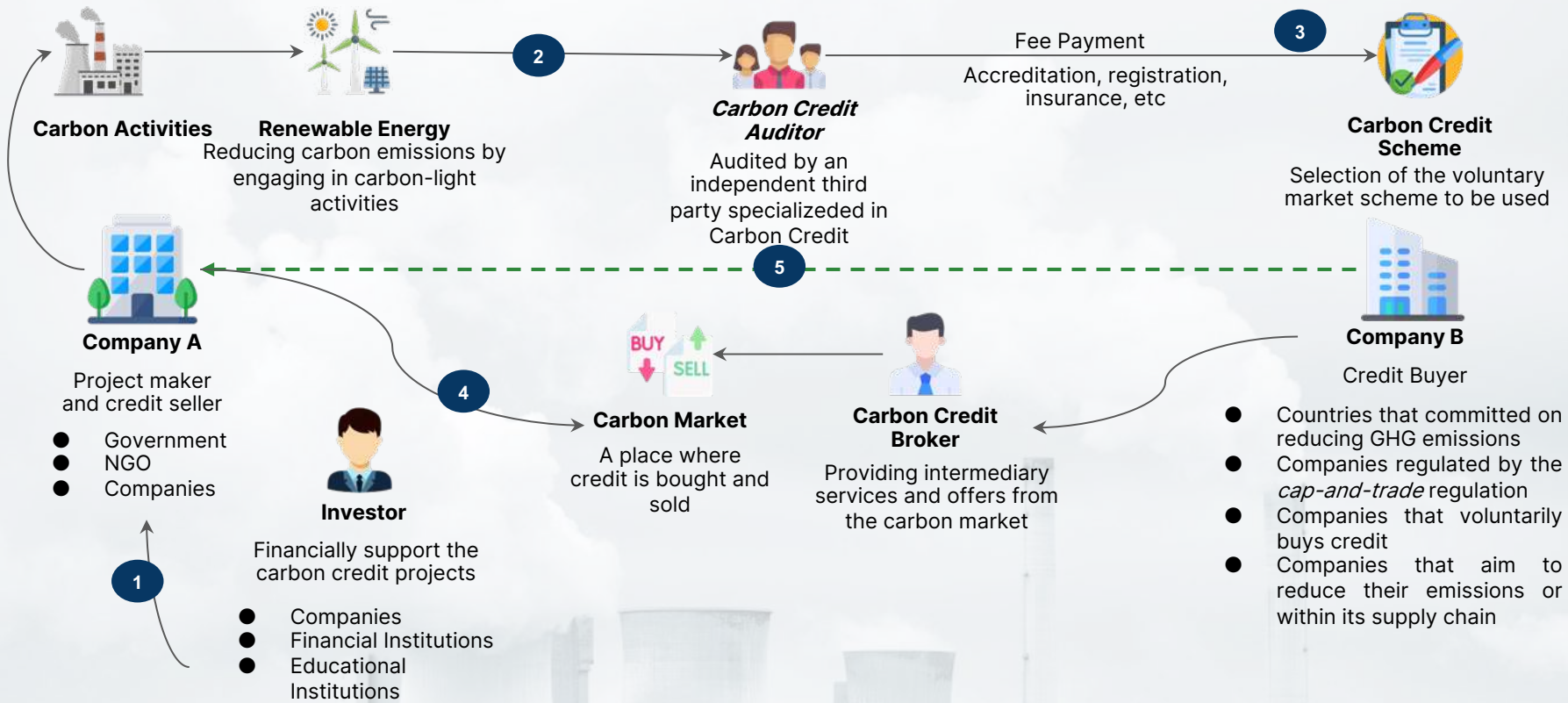
1 Credit = 1 tCO₂ (Ton Carbon Dioxide)

Main Purpose of *carbon credit* is to reduce GHG emissions and carbon dioxide emissions which derive from industrial activities.

Most of the carbon credit market system is **Voluntary Market**

Source: Dewan Nasional Perubahan Iklim (DNPI), Kadv Research

Carbon Credit Ecosystem



Source: International Organization Securities Commission (OICV-IOSCO), CLP Carbon Credit

How is the Carbon Credit Market Scheme?



- Scheme in developing countries
- Verification body: DOE (*Designated Operational Entity*)
- Appointed by CDM *Executive Board*
- Credit certification: CER (*Certified Emission Reduction*)
- Each credit in the CER certificate = reduction of 1 metric ton CO₂ emissions
- Each CER credit will be counted as an achievement of the respective country in reducing carbon emissions

- Scheme in developed/industrialized countries
- Verification body: JISC (*Joint Implementation Supervisory Committee*)
- Credit certification: ERU (*Emission Reduction Unit*)
- Each ERU unit = reduction of 1 metric ton of CO₂ emissions
- This scheme can be implemented through investment or exchange of the latest environmentally friendly technologies in their industries

Note: mandatory market credit instruments must be tradable in the voluntary market, but voluntary market credit instruments may not necessarily be tradable in the mandatory market

Source: STANDAR: Better Standard Better Living – Vol. 1 No.3, Mei 2022 (Rossi Margareth Tampubolon)

Voluntary Market

Gold Standard (GS)

Verra/Verified Carbon Standard (VCS)

Plan Vivo

- This scheme serves as an addition to other carbon credit schemes such as CDM and VCS
- Established by: *World Wildlife Fund (WWF)* in 2003
- Projects focus on reducing emissions from renewable energy, energy efficiency, waste management, land use, and forestry
- These projects must involve local communities, conserve the environment, preserve biodiversity, and promote sustainability

- Second alternative scheme after CDM, especially when CDM prices decline
- Simpler than CDM
- Prices are not dependent on the market
- Buyers are free to choose carbon credits that suit their purposes
- In Indonesia, this scheme has been developed and has produced up to 2.9 million VCUs

- Scheme for the forestry sector
- Developed by Plan Vivo Foundation
- Credit certification: PVC (*Plan Vivo Certificates*)
- Projects must be community-based and support sustainable rural development
- PVC can be issued prior to verification when the provided annual monitoring has been conducted

Note: Instrumen kredit pasar wajib dapat ditransaksikan di pasar sukarela, namun instrumen kredit pasar sukarela belum tentu dapat ditransaksikan di pasar wajib

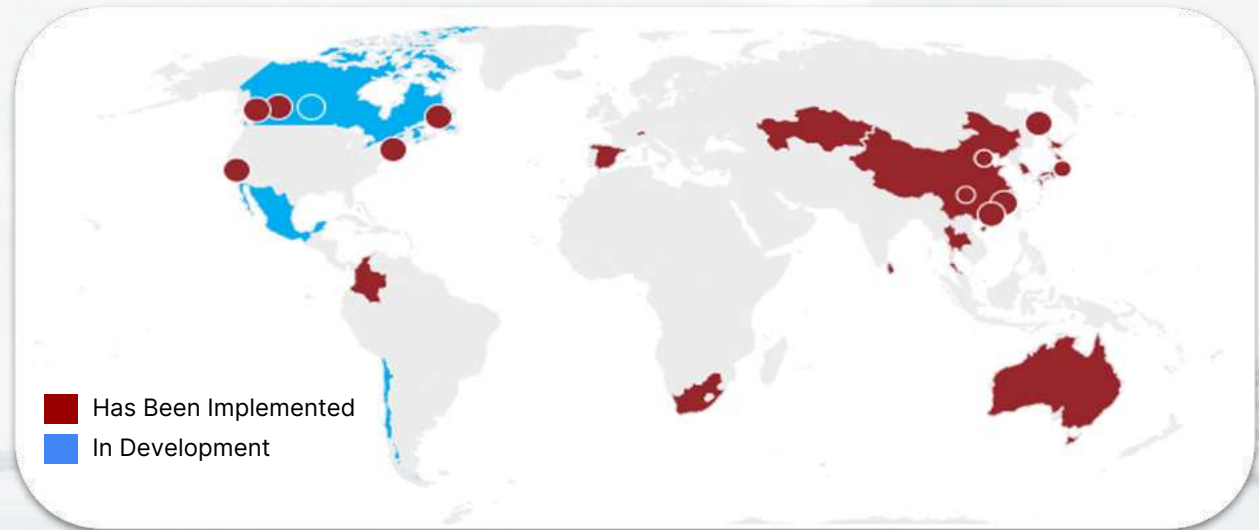
Source: Dewan Nasional Perubahan Iklim (DNPI)

Stages in Carbon Credit Market



Source: Dewan Nasional Perubahan Iklim (DNPI)

Carbon Credit Map of the World

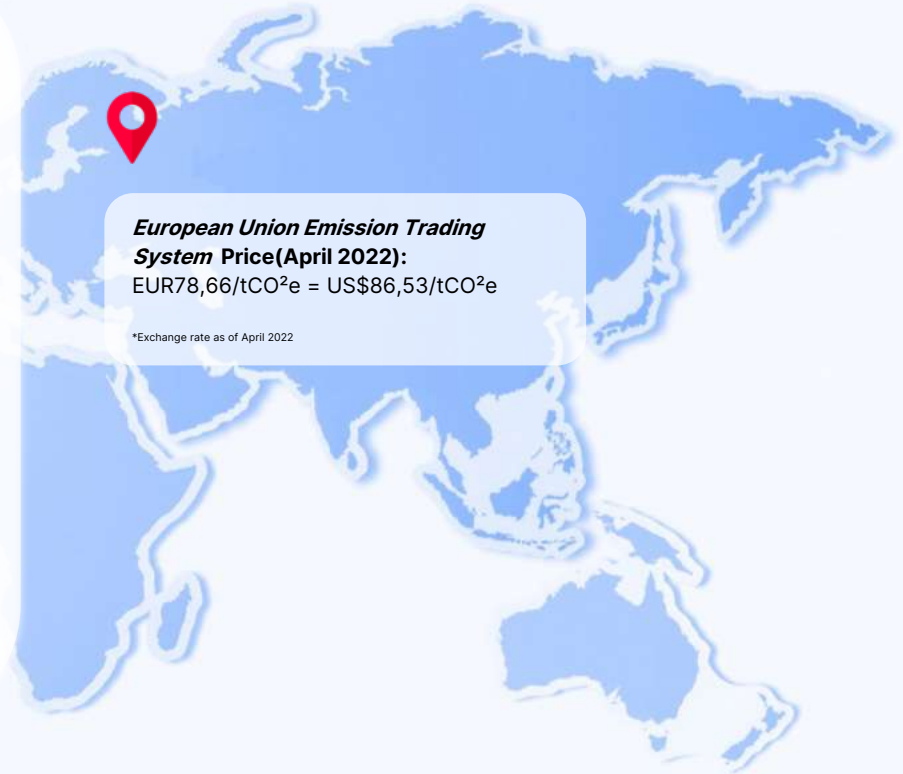


Source: World Bank, 2021

Major Carbon Markets in the World

Europe

- ❑ **Name:** *European Union Emission Trading System* (EU ETS)
- ❑ **Established:** 2005
- ❑ **Participating Countries:** 31 countries with over than 11.500 energy installation equivalent to 2 billion **tCO²/year**
- ❑ **Biggest carbon market in the world** (70% of the world carbon market)
- ❑ Allow international carbon credit from CDM and JI
- ❑ **Cap:** Every industry is subject to a cap imposed to them. This quota is initially given for free, but eventually part of it will be auctioned.



Source: Dewan Nasional Perubahan Iklim (DNPI), World Bank

New Zealand

- ❑ **Name:** *New Zealand Emission Trading Scheme (NZ ETS)*
- ❑ **Established:** 2002
- ❑ New Zealand's emissions source comes from the **agriculture sector**
- ❑ **Sectors covered:**
 - ❑ Forestry (starts from 1 January 2008)
 - ❑ Non-moving energy sources (starts from 1 July 2010)
 - ❑ Liquid fossil fuels (starts from 1 July 2010)
 - ❑ Industrial process (starts from 1 July 2010)
 - ❑ Wastes (starts from 1 January 2013)
 - ❑ Synthetic Greenhouse Gas (planned since 2013)
 - ❑ Agriculture (planned since 2015 but will be postponed)
- ❑ **Cap:** emission intensity
- ❑ NZ ETS contributes in :
 - ❑ **Adding new forest area of approximately 12.000 hectares**
 - ❑ **Increasing renewable energy products by 5x**



New Zealand Emission Trading Scheme Price (April 2022):
 NZ\$76tCo²e = US\$52,62/tCo²e

*Exchange rate as of April 2022

Source: Dewan Nasional Perubahan Iklim (DNPI), World Bank

Japan

- ❑ **Name:** *Japan Voluntary Emission Trading Scheme (J-VETS)*
- ❑ **Established:** 2005
- ❑ **J-VETS is applied domestically and is mandatory**
- ❑ 389 companies have already committed on reducing emissions
- ❑ In 2011, J-VETS successfully **reduced emissions as big as 70.811 tCo²**

Tokyo

- ❑ **Nama:** *Tokyo Metropolitan ETS (Tokyo ETS)*
- ❑ **Established:** 2010
- ❑ **The cap-and-trade scheme** is mandatory for all companies producing energy equivalent to 1500 kiloliters of crude oil
- ❑ **Covered sectors: offices and commercial** (becoming first in the world)
- ❑ Trading through Japan Climate Exchange at a price of **USD142/tCO₂**
- ❑ In 2012-2013, successfully done 6 transaction as big as **19.659 tCo²**



Tokyo Metropolitan Emission Trading Scheme Price (April 2022):
 JPY539/tCo²e = US\$4,42/tCo²e

*Exchange rate as of April 2022

Source: Dewan Nasional Perubahan Iklim (DNPI), World Bank

United States

- ❑ **Name:** *The Regional Greenhouse Gas Initiative* (RGGI)
- ❑ **Established:** 2008
- ❑ **The RGGI emission reduction program is the first in the US that is mandatory and implementing quota auctions by majority**
- ❑ In cooperation with: 9 states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island dan Vermont)
- ❑ **Covered sectors: electricity generation**
- ❑ **80% of the revenue from quota auctions** is used for **promoting renewable energy and energy efficiency** as well as addressing the potential impact of electricity price increases that may occur due to RGGI
- ❑ This program helps reduce emissions by **12 million tCo²**

Regional Greenhouse Gas Initiative

Price (April 2022):

US\$13,89/tCo²e

Source: Dewan Nasional Perubahan Iklim (DNPI), World Bank

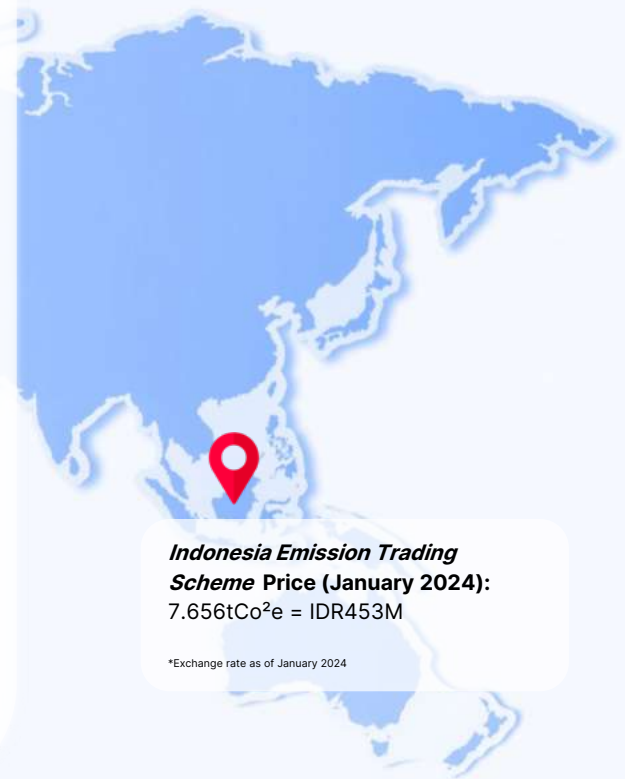
Indonesia

Presidential Regulation No.98 of 2021 regarding Implementation of Carbon Economic Value to Achieve Nationally Determined Contributions Targets and Greenhouse Gas Emissions Control in National Development.

It is Indonesia's commitment to the Nationally Determined Contributions (NDC) related to climate change issues. In the NDC, Indonesia commits to reduce carbon emissions, either by its own efforts, which could achieve 29%, or 41% with international support by 2030.

The regulation sets out **mechanisms for carbon trading** which includes:

- Trading between two businesses through a cap-and-trade scheme
- Emission balancing through offsetting schemes
- Performance-based payments (*result based payment*)
- Carbon levies
- A combination of existing schemes



Indonesia Emission Trading Scheme Price (January 2024):
7.656tCo₂e = IDR453M

*Exchange rate as of January 2024

Source: Presidential Regulation no. 98 of 2021

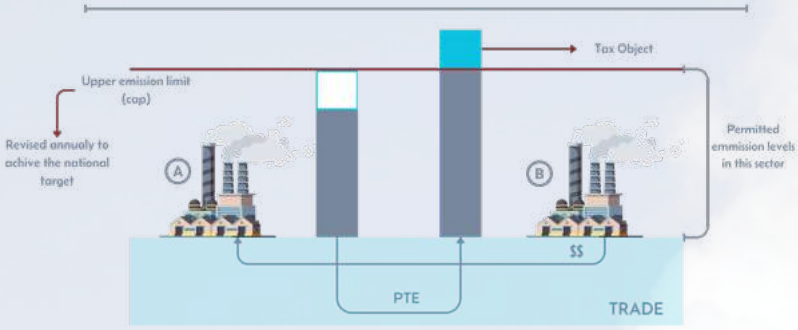


Source: IDXCarbon, 2024

Carbon trading mechanism in Indonesia is implemented through the **Indonesia Carbon Exchange** (IDXCarbon) in accordance with OJK Regulation (POJK) Number 144 of 2023 concerning Carbon Trading Through Carbon Exchange. This regulation was launched in September 2023. The carbon trading system through IDXCarbon has been integrated with the Ministry of Environment and Forestry's **“Sistem Registri Nasional Pengendalian Perubahan Iklim” (SRN-PPI)**/National Registry System for Climate Change Control

IDXCarbon was designed to develop transparent, orderly, and in accordance with the world practice so that it can unlock Indonesia's carbon trading potential.

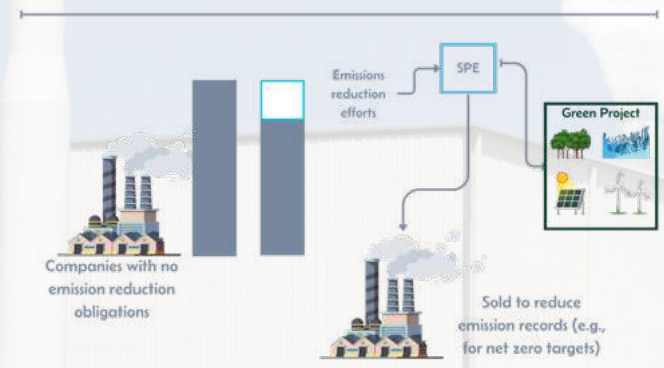
Allowance Market



IDXCarbon product is **Persetujuan Teknis Atas Batas Atas Emisi – Pelaku Usaha** (PTBAE-PU). The Allowance Market is a cap-and-trade mechanism that is commonly applied to the Compliance Carbon Market. Certain business entities determined by the Government get a “cap”, a form of emission quota allocation for a certain period. Business entities that exceed the cap may purchase carbon units from other business entities that have unused quotas

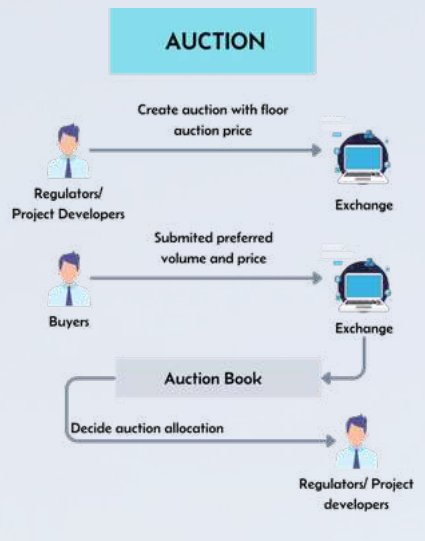
IDXCarbon is a market where Companies with excess emission permits and Companies that lack emission permits intersect.

Offset Market



IDXCarbon product is **Sertifikat Pengurangan Emisi - Gas Rumah Kaca** (SPE-GRK) commonly known as “**carbon offset**”. Offset Market is a scheme where business entities trade carbon units generated from GHG reduction or removal by certain businesses and/or other climate change mitigation actions. Business entities may purchase carbon units to achieve their emission reduction targets and to fulfil their commitment to carbon-neutral or net-zero.

Source: IDXCarbon, 2024



IDXCarbon trading mechanism, which are Auction, Regular Trading, Negotiated Trading, and Marketplace.

- **AUCTION:**
The Government or Emission Mitigation Project Owner can sell carbon units through an auction mechanism on the Carbon Exchange. Prospective carbon unit buyers submit purchase requests at the desired volume and price.
- **REGULAR TRADING:**
The trading is conducted by a continuous auction mechanism which all parties can submit their buy and sell offers in real time.
- **NEGOTIATED TRADING:**
Facilitate the completion of the previously agreed trades through the IDXCarbon system transparently and securely.
- **MARKETPLACE:**
Emission Mitigation Project Owners can sell their carbon units at a predetermined price.

Source: IDXCarbon, 2024

Treatment of Carbon Trading in Corporate Finance

Actors	Asset	Revenue	Costs
<p>1 Producer</p>	<ul style="list-style-type: none"> ● The carbon certificates sold and self-produced are accounted for as inventory and do not need to be amortized ● The development of technology and renewable energy adds to long-term investments 	<ul style="list-style-type: none"> ● The sale of carbon credits in financial revenue experiences an increase, thus it is recognized as revenue from the sale of carbon credits 	<ul style="list-style-type: none"> ● Inventory cost consist of all cost: purchases, conversion, and other costs incurred to bring inventory to its current condition ● Main costs incurred includes: research costs, development costs, documentation preparation, and registration
<p>2 Buyer</p>	<ul style="list-style-type: none"> ● Carbon certificates are categorized as intangible assets, and assets used for carbon investment are categorized as fixed assets, subject to depreciation ● When sold, the asset will decrease, but cash will increase ● If the carbon certificates originate from the government, they are categorized as government grants upon initial recognition 	<ul style="list-style-type: none"> ● When the carbon certificate owned are sold, other income will increase 	<ul style="list-style-type: none"> ● A company that cannot reduce carbon emissions or generate carbon credits itself needs to but them from others and them as emission reduction costs. From an accounting perspective, these costs can be recorded as COGS or operating expenses.

Source: Carboncredit.com, thetaxadvisor.com, Kadv Research

Pros and Cons of Carbon Trading

	Pro	Con
1 Trading Scheme	<ul style="list-style-type: none"> ● As an alternative to emission reduction ● Various schemes are implemented by each country ● Can be done domestically or internationally 	<ul style="list-style-type: none"> ● Still not applicable in few countries ● Entities or countries believe they can generate as much carbon as they want because they feel they can but unlimited credits
2 Finance	<ul style="list-style-type: none"> ● Increasing entity revenue ● Reducing carbon tax expenses ● Increasing entity assets in the form of sustainable investments 	<ul style="list-style-type: none"> ● Could trigger <i>double counting</i>
3 Country	<ul style="list-style-type: none"> ● Reduce the impact of global warming ● Improving the country's economy ● Increasing awareness of sustainable environmental concerns 	<ul style="list-style-type: none"> ● The need for government policies that regulate openly and transparently

Source: Kadv Research

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