Carbon Pricing Instruments to Support Net Zero Ambitions

Towards Sustainable and Net Zero Future

ERM WEBINAR

28 June 2022, 1000-1100 hrs (GMT +8)

The business of sustainability

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Your Facilitators Today

Session 1:
Carbon Pricing - Global Trends and Landscape

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Principal Consultant, Corporate Sustainability & Climate Change Lead, Southeast Asia

Session 2:
Prospects and Opportunities for Malaysian Businesses

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Consulting Director,
Corporate Sustainability & Climate Change,
Malaysia and Brunei

Objectives of this Webinar

Introduce investment fund managers in Malaysia to existing global and domestic carbon pricing instruments.

High level overview of recent carbon pricing developments and opportunities globally and in Malaysia.

Understand the role of carbon pricing in supporting climate and Net Zero ambitions.

AGENDA

Session 1:
Carbon Pricing - Global Trends and Landscape

1. Introduction to Carbon Pricing and Key Concepts
2. How Carbon Pricing Can Help Achieve Climate Targets
3. Carbon Pricing Regulations in ASEAN
4. Internal Carbon Pricing (ICP): Introduction & Case Studies
5. Lessons Learnt and Recommendations

Session 2:
Carbon Pricing – Prospects and Opportunities for Malaysian Businesses

1. Historical Context: Malaysia’s Carbon Market Participation
2. Malaysia's Current Carbon Market & Future Outlook
3. Case Studies from Companies in Malaysia
4. Q&A

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the world's largest pure play environmental, health and safety, risk and sustainability consultancy

7,000+ professional staffs

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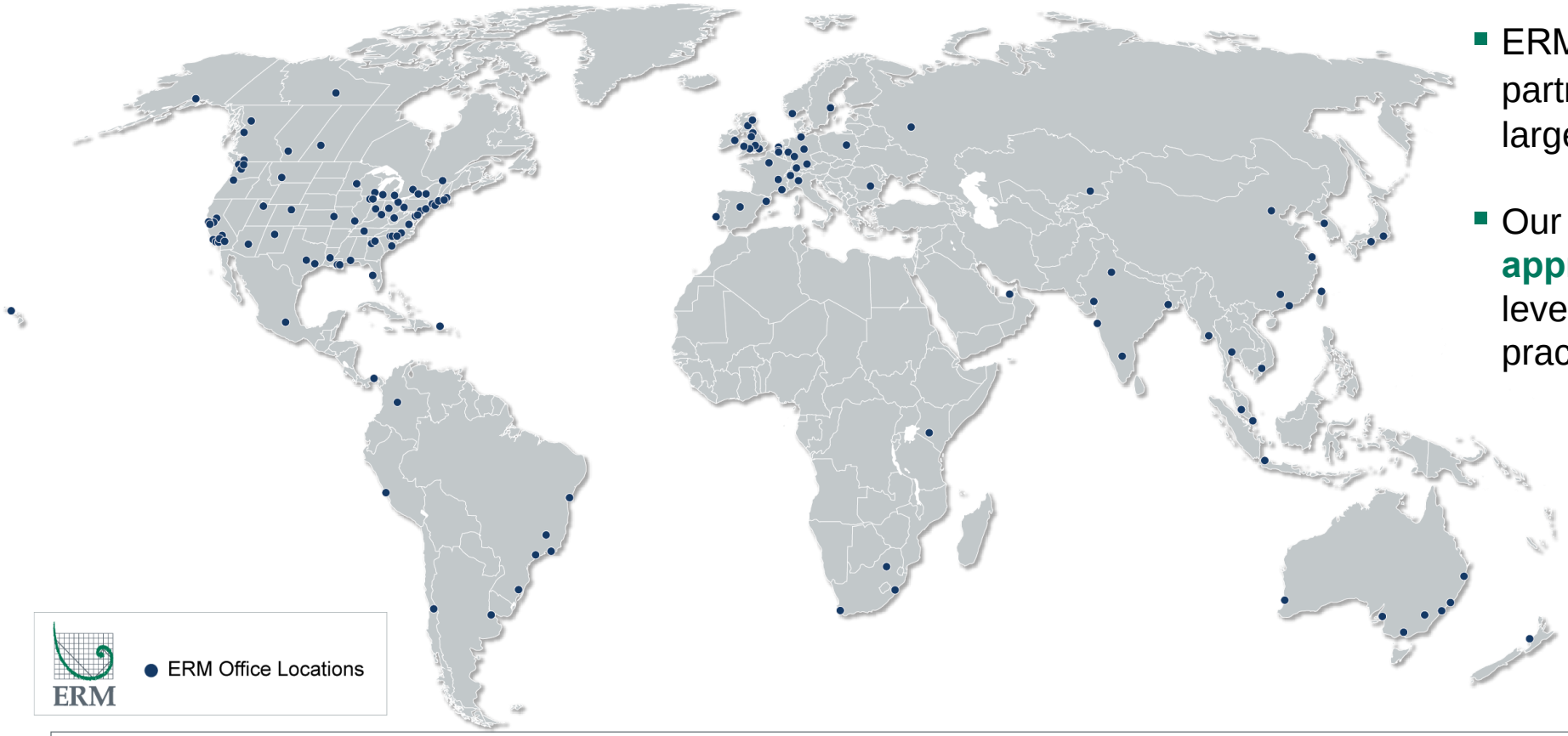
50+ countries & territories

50+ years of history



- ERM is owned by 550+ employees' partners and supported by **KKR**, a large institutional investor
- Our **"Boots to boardroom approach"**: strategic consulting leveraging technical expertise and practical experience

Session 1:
Carbon Pricing - Global Trends and Landscape

1. Introduction to Carbon Pricing

Defining Carbon Pricing

THE WORLD BANK
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> *Carbon Pricing is an instrument that **captures the external costs of greenhouse gas (GHG) emissions**… and ties them to their sources through a price, usually in the form of a price on the carbon dioxide (CO_2) emitted.*

Source: World Bank (2021)

Why Carbon Pricing?

Carbon Pricing is a mechanism that creates an **economic signal** helping to regulate and reduce greenhouse gas (GHG) emissions and at the same time providing a strong **financial incentive** for shifting investments away from a high-emission fossil-fuels based technology towards a cleaner technology.

Business Perspective

Businesses use internal carbon pricing to evaluate the impact of mandatory carbon prices on their operations and as a tool to identify **potential climate risks and seize opportunities.**

Government Perspective

Carbon pricing is one of the instruments of the **climate policy package** aimed to reduce GHG emissions using the '**polluter pays principle**'. It is also be a **source of revenue** for the budget to support climate projects that may be not commercially attractive yet.

Investor Perspective

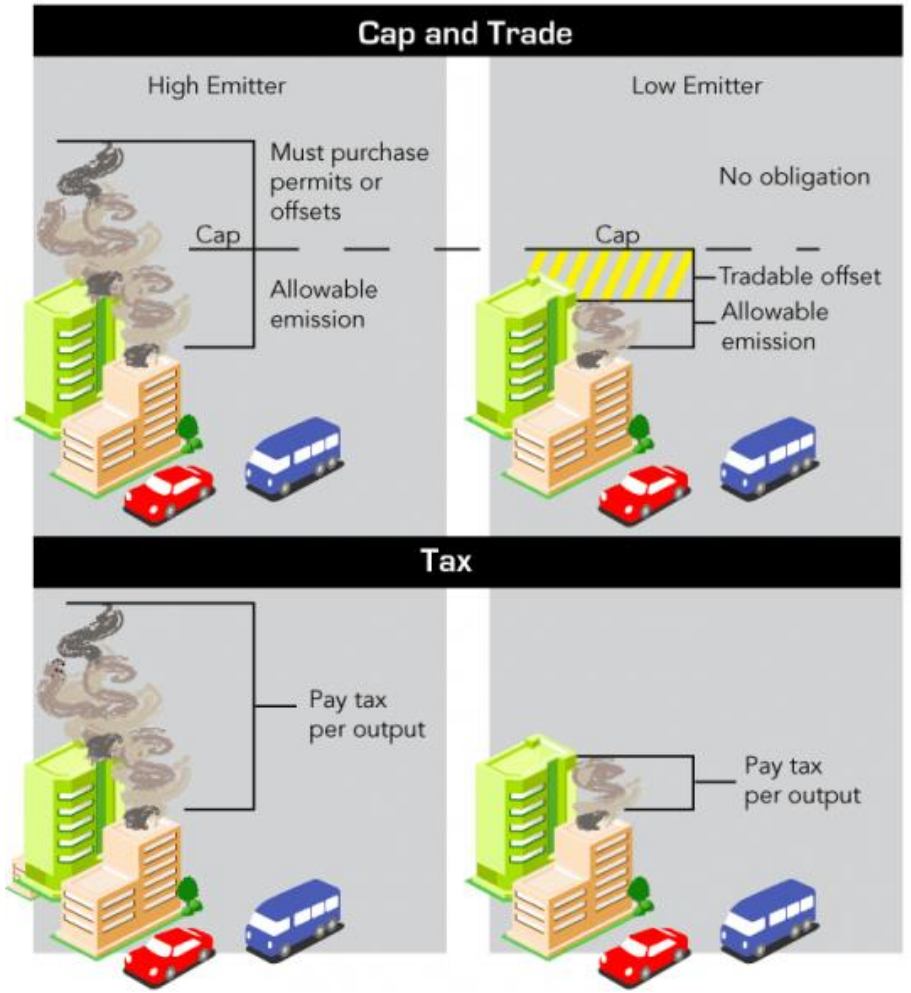
Investors use carbon pricing to analyze the potential impact of climate change policies on their investment portfolios, allowing them to **reassess investment strategies** and **reallocate capital** toward low-carbon activities.

Types of Carbon Pricing

There are two main types of carbon pricing: **Emissions Trading Systems (ETS)** and **Carbon Taxes.**

An **ETS** – sometimes referred to as a **cap-and-trade system** – caps the total level of greenhouse gas emissions and allows those industries with low emissions to sell their extra allowances to larger emitters.

A **carbon tax** directly sets a price on carbon by defining a tax rate on greenhouse gas emissions or – more commonly – on the carbon content of fossil fuels.



Source: World Bank (2020)

Global Landscapes: Carbon Pricing

The number of carbon pricing initiatives across the globe have continued to rise annually.

KEY STATISTICS ON REGIONAL, NATIONAL AND SUBNATIONAL CARBON PRICING INITIATIVE(S)

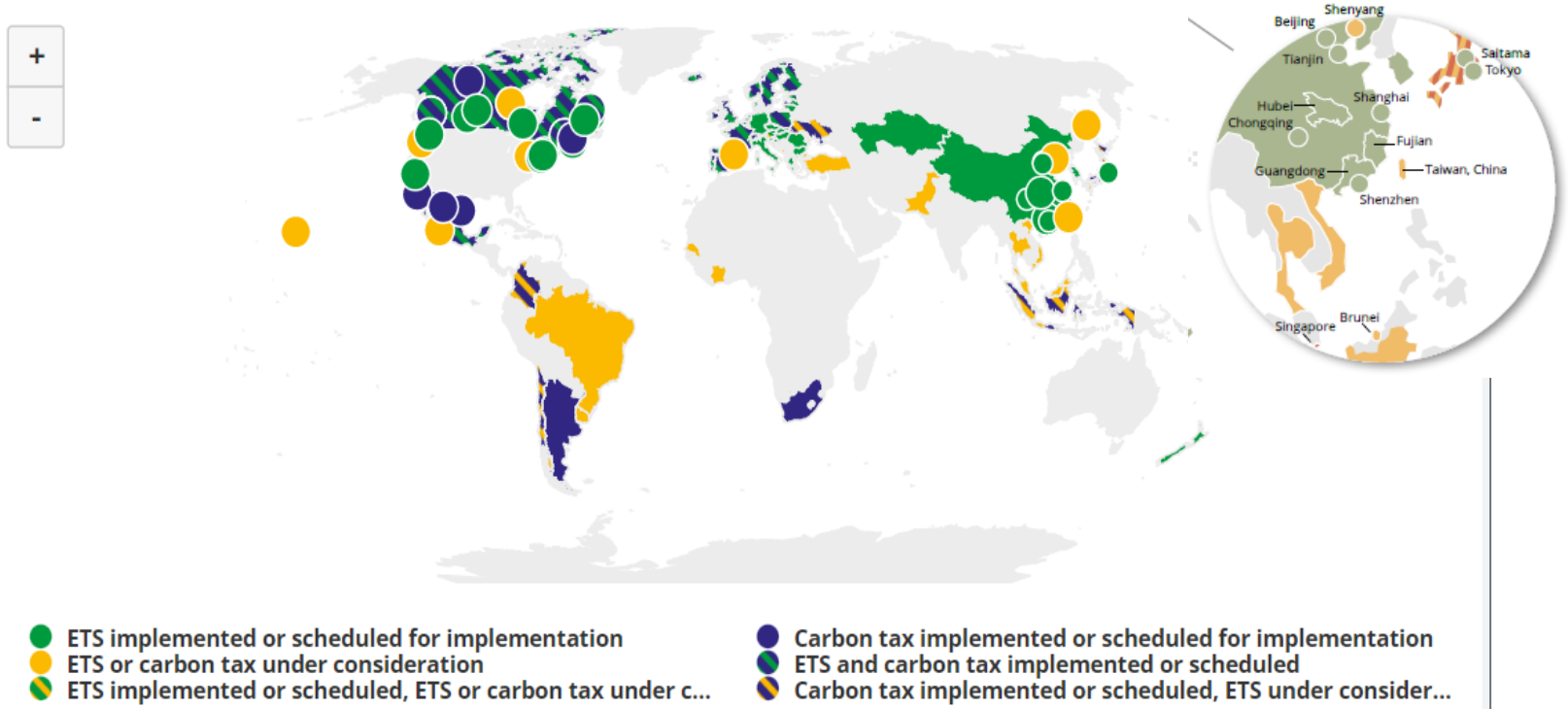
65 Carbon Pricing initiatives implemented

45 National Jurisdictions are covered by the initiatives selected

34 Subnational Jurisdictions are covered by the initiatives selected

In 2021, these initiatives would cover **11.65 $GtCO_2e$**, representing **21.5%** of global GHG emissions

Summary map of regional, national and subnational carbon pricing initiatives

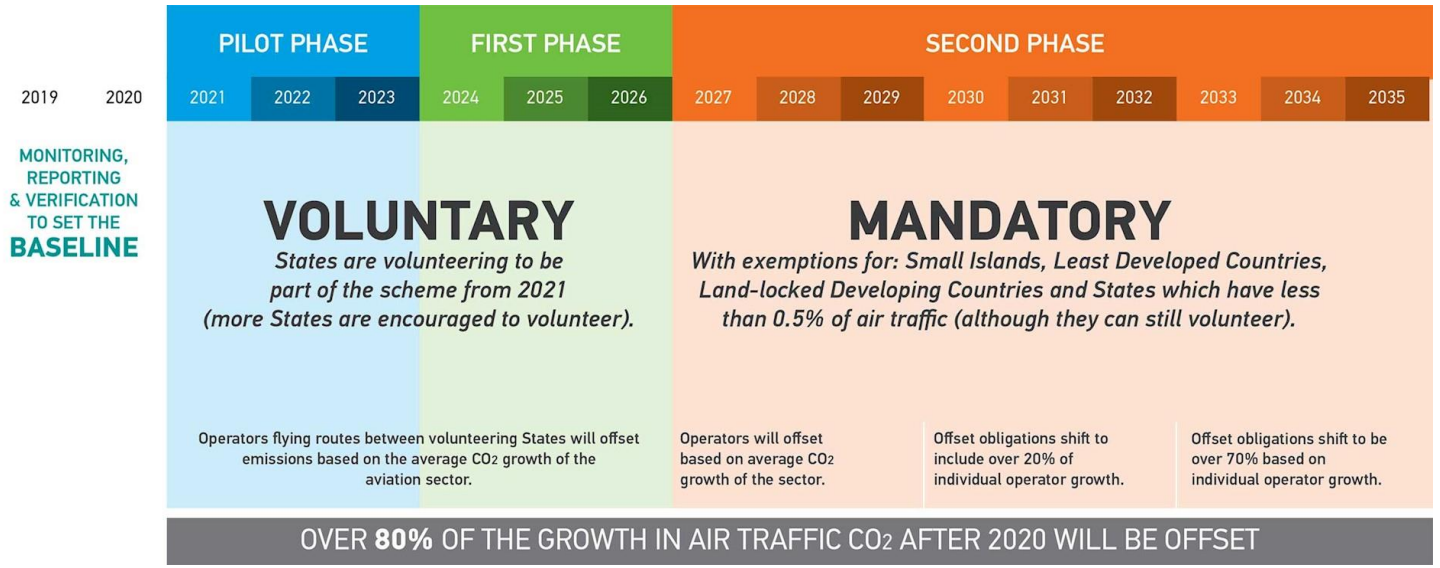


Source: World Bank Dashboard (2021)

Carbon Offsetting and Reduction Scheme for International Aviation

As aviation emissions from **international flights** are included in the international climate regime administered by the United Nations Framework Convention on Climate Change (UNFCCC), the **International Civil Aviation Organization (ICAO)** adopted a global market based measure for aviation emissions.

- CORSIA is a **global offsetting scheme**, whereby airlines and other aircraft operators will offset any growth in CO2 emissions above 2020 levels.
- The implementation of CORSIA has been divided into three phases – two initial, **voluntary phases (2021-2023 and 2024 – 2026)** and a **mandatory phase** that would take place from **2027.**
- It is anticipated that CORSIA will mitigate around **2.5 billion tonnes of CO2** between 2021 and 2035, which is an annual average of **164 million tonnes of CO2.**



Source: Aviation Benefits Beyond Borders

2. How Carbon Pricing Can Help Achieve Companies' Climate Targets

Carbon Pricing & Targets Can Be Mandatory and Voluntary

Some compliance schemes, may also have voluntary phase to prepare market players.

Compliance market –
consisting of international and domestic emission trading and carbon tax schemes used and regulated by countries or international organizations (e.g., United Nations) to drive down emissions from certain sources or sectors.

Voluntary market –
voluntary actions by companies, organizations, cities, and individuals opting to buy carbon credits to offset their operational and value chain greenhouse gas (GHG) emissions with no intended use for compliance purposes.

CARBON TAX

EU ETS

CERTIFIED CARBON NEUTRAL Global Standard

a service of NATURAL CAPITAL PARTNERS A Climate Impact Partners company

RE 100

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

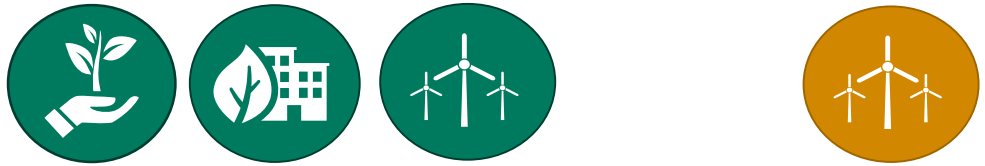
CORSIA

RACE TO ZERO

NET ZERO

Carbon Offsets and Renewable Energy Certificates (RECs)

Carbon offsets and **RECs** can be used by companies to meet their **mandatory targets (e.g. under domestic carbon pricing policy)** or **voluntary commitments** (e.g. SBTi, carbon neutrality, Net Zero claims) to lower GHG emissions where it is not feasible to lower an organization's direct or indirect emissions.



Basic Differences	Carbon Offsets	RECs
Unit of Measure	Metric tons of CO_2 or CO_2 Equivalent	Megawatt hours (MWh)
Source	Projects that avoid, reduce or remove greenhouse gas (GHG) emissions	Renewable electricity generators
Corporate GHG Inventories and Reporting	Reduce or "offset" an organization's **scope 1, 2 or 3** emissions, as a net adjustment	Can lower an organization's gross market-based **scope 2** emissions from purchased electricity
Consumer Environmental Claims	Can claim to have reduced or avoided GHG emissions outside their organization's operations	Can claim to use renewable electricity from a low or zero emissions source
Has permanent effect on company's GHG emissions?	No, emissions of company remain the same	Yes, reduces scope 2 emissions to zero
Applicability to Net Zero and Carbon Neutral	Can be used for Carbon Neutral Up to 5-10% final emission for SBTi's Net Zero	Can be used for Net Zero and Carbon Neutral for up to 100% of Scope 2 GHG emissions

Offsets Can Support Companies' Climate Targets

Five steps in Carbon Neutral/Net Zero

Step 1: Define
Understand what should be covered in your footprint

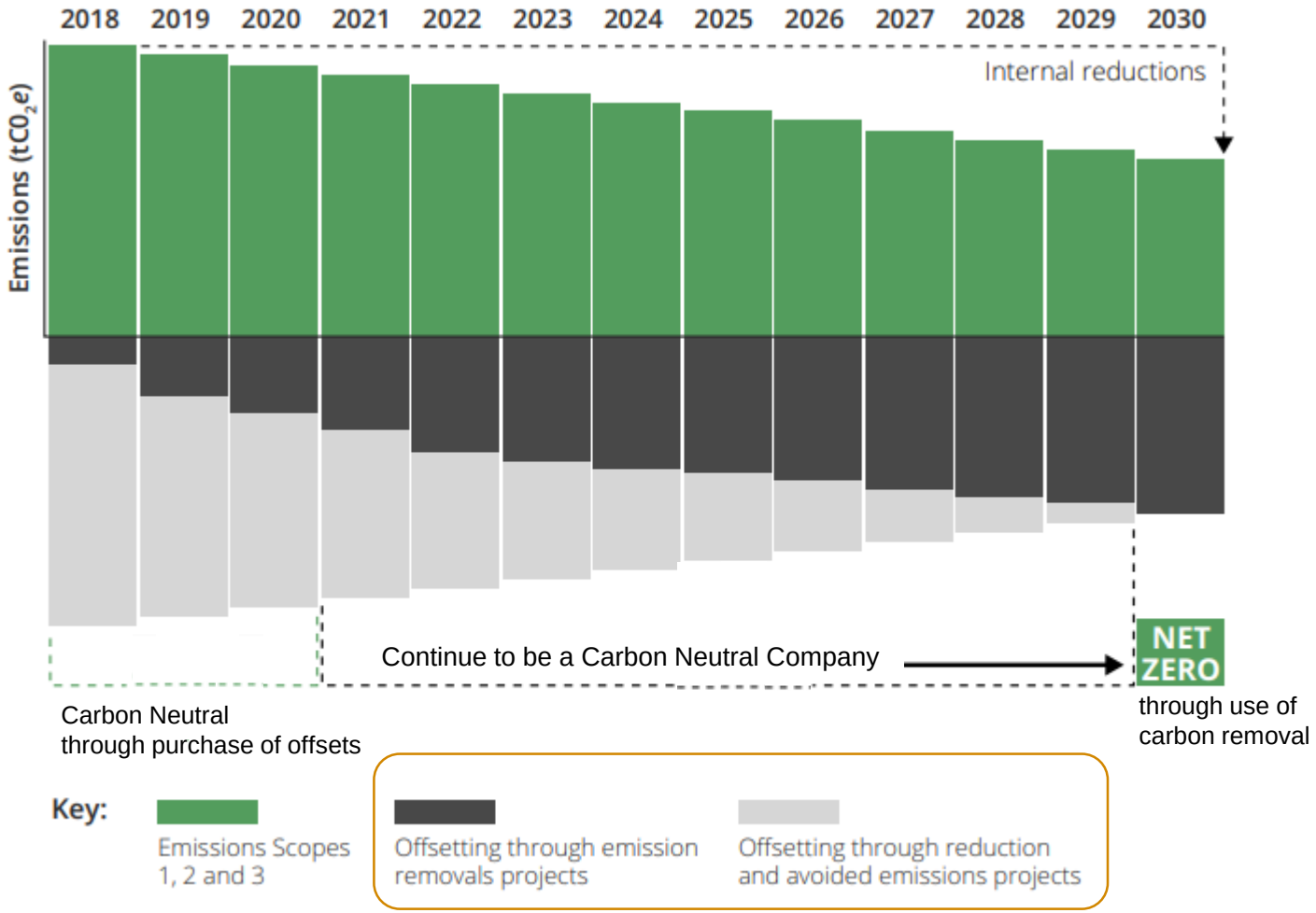
Step 2: Measure
Calculate it accurately and conservatively

Step 3: Target
Set goals to reduce the footprint defined

Step 4: Reduce
Internal reduction and offset all remaining emissions

Step 5: Communicate
Engage your team, customers, and stakeholders

Role of offsets as a supporting instrument in achieving climate targets



Source: The_CarbonNeutral_Protocol_Jan_2022.pdf

Role of Offsets in Carbon Neutral vs. Net Zero Targets

CARBON NEUTRAL

Different types of offsets can be used to claim carbon neutral

1 tonne of CO_2 emitted + **0.5** tonne of CO_2 **avoid elsewhere** = **0.5** tonne of CO_2 **emitted**

0.5 tonne of CO_2 **Removed**

→ Carbon Neutral (no timeframe required)

Types of Carbon Credits:

- Verified Carbon Standard/Verra
- Gold Standard

Carbon Credit Categories:

- Renewable energy
- Energy efficiency
- Waste management
- Nature-based solutions

Although emissions are not reduced, the company/entity/product may claim carbon neutrality through use of offsets. Carbon neutrality concept is becoming more common for products, e.g. carbon neutral oil or carbon neutral LNG.

NET ZERO

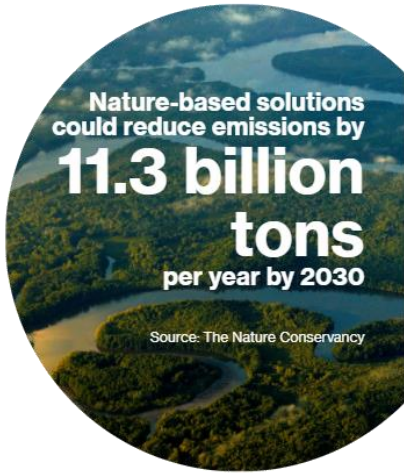
Mainly, only **carbon removal actions or offsets** to negate **up to 5-10%** of remaining emissions are suggested

1 tonne of CO_2 emitted + = **0** Net Zero CO_2 → Net Zero Emission

1 tonne of CO_2 **Removed**

Removal Examples

Self-Investment	• Afforestation	13-40	USD/tCO_2
	• Natural carbon sinks	50-80	USD/tCO_2
	• DAC	250-300	USD/tCO_2
Buy offsets	• Buy afforestation/ reforestation offsets	5-40	USD/tCO_2



Use of renewable energy certificates is possible to offset scope 2 emissions related to electricity purchases for both carbon neutrality and net zero.

DAC – direct air capture

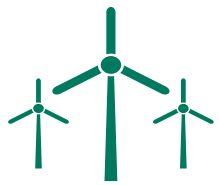
The Hierarchy of Offsets

As well as considering VALID, some project types are preferred

It is important to prioritise reducing your own emissions, scaling up removals, to minimise need to offset to achieve net zero. However, if offsets are required, the University of Oxford has set out some key principles for offsetting which includes a hierarchy of project types*:

Shift from **emission reductions** to **carbon removal** offsets

Avoided emissions or emission reduction without storage	Emissions reduction with short-lived storage	Emissions reduction with long-lived storage	Carbon removal with short-lived storage	Carbon removal with long-lived storage
Renewables, cookstoves, CH4 and N2O abatement	Avoided damage to ecosystems, changes to agri practices	CCS** on industrial and fossil fuel plants	Afforestation, reforestation, soil carbon enhancement	DAC, enhanced weathering



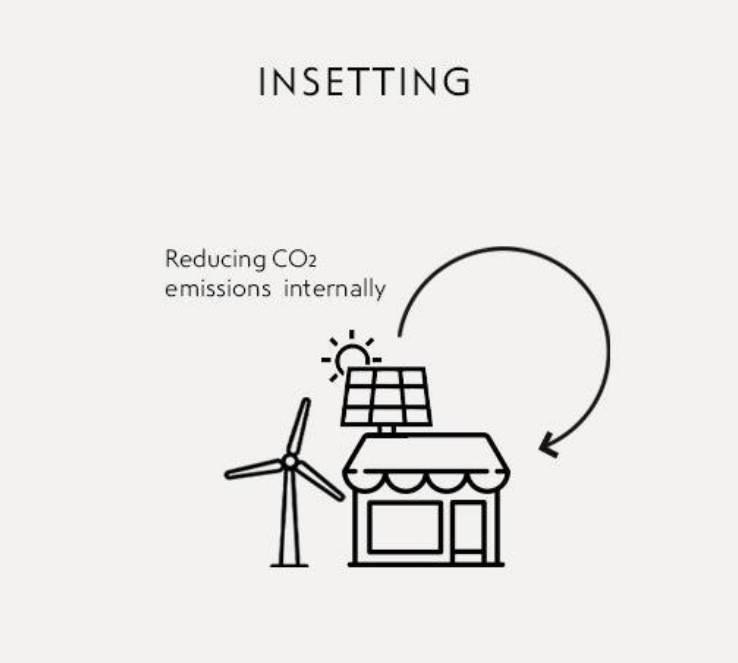


Increasing quality

Based on the above hierarchy, businesses should shift towards purchasing carbon credits from carbon removal projects. Renewable energy projects are shifting to the REC markets.

Carbon Offsetting vs Carbon Insetting

Market players can then determine which carbon reduction option is most suitable and financially viable.



Carbon offsetting is when a company calculates its carbon emissions and purchases the equivalent (tCO2e) in **carbon reduction credits** (external) to compensate for its own carbon emissions.

Carbon Insetting is when a company invests in sustainable initiatives and practices to reduce its carbon emissions within its **own value chain.**

Source: World Bank (2020)

Regional Environmental Attribute Certificate (EAC) Study

Fund Management Company and Solar Energy Developer (focus on Supply Side)

Client: Fund Management and Solar Energy Company (Confidential)

Location: South and Southeast Asia

Year(s): 2021

Situation: Our Clients were seeking a market analysis of carbon credit, renewable energy certificate (REC) and other environmental attribute (EA) opportunities that could be linked to their renewable energy projects in the South and Southeast Asian countries.

Approach*:* ERM conducted a renewable and solar energy policy and energy attribute certificate (EAC) market analysis in Thailand, Vietnam, India, Singapore, Malaysia and Indonesia by the following approaches:

- Analysis of national renewable and solar energy policies, carbon credit and REC markets.
- Identify the best available EAC scheme our clients to participate in each country and across the region.
- Break-even analysis of REC schemes to provide cost-benefit comparison of general cost estimates, REC prices and minimum capacity generation to meet break-even point.
- Break-down analysis REC projects to access the types and availability of solar projects, together with potential demand of carbon credits and REC options in each country.
- Key market players and peer performance analysis.

Finally, our Clients have recommendations for the most suitable carbon credit and REC options in each country and across the region, including benefits and potential drawbacks/risks of each option.

The Clients will have a set of strategic recommendations and calculation tool to assess, plan and decide on the most suitable EAC schemes to participate in South and Southeast Asia region.

Global Carbon Market Energy Attribute Certificate (EAC) Study

Global Automotive Company (focus on demand side)

Client: Automotive company *(Confidential Client)*

Location: Global (including operations in Malaysia)

Year(s): 2020-2021

Situation: Our Client aspires to a carbon-free society and seeks to achieve a carbon neutral status by 2050 through the reduction of their product life cycle greenhouse gas emissions, and **sourcing of renewable energy options across its regional operation bases**.

Approach*:* ERM is conducting a study of **global markets** and **trends** related to carbon and **energy attribute certificate (EAC)** to help our Client make well-informed decisions in participating in EAC trading schemes. The Client will be aware of the key requirements of EAC trading schemes in multiple regions including regulations, eligibility and acceptable low carbon project types.

The Client will be delivered with an overview of their peers' performances and benefits in the carbon market, an **evidence-based market study** to support their assessment and decisions in participation in EAC trading schemes, and **strategic recommendations for their most suitable EAC sourcing options.**

The Client will have a set of strategic recommendations to realize their ambition for carbon neutrality by 2050.

3. Carbon Pricing Regulations in ASEAN

Summary of Regional/ National Regulatory Updates on Carbon Pricing

	Carbon Tax		Carbon Trading (ETS)		Carbon Price Floor/ Ceiling (Hybrid Approach)	
	Current	**Projected**	**Current**	**Projected**	**Current**	**Projected**
 **EU**	N/A*	N/A	**EUR 24.84** (USD 27.81) (average 2019 price)	N/A	No explicit price	Prices may provide a limited incentive for companies to undertake longer term investments to reduce emissions.
 **China**	N/A	N/A	**CNY 78.60** (USD 11.37) (average 2019 price)	N/A	N/A	▪ Verified emissions data in a compliance year ▪ Direct price stabilization measures
 **Thailand**	N/A	N/A	N/A	T-VER T-VETS	N/A	N/A
 **Singapore**	$5 per tonne of GHG emissions (tCO2e) from 2019 to 2023	Plans to increase between $10 and $15 per tonne of GHG emissions by 2030	N/A	N/A	N/A	Focus shifting towards: ▪ Energy consumption ▪ Lower carbon emissions ▪ Market incentive for R&D in energy efficiency ▪ Stimulate growth in green industries
 **Indonesia**	IDR 30,000 per metric tonne CO2-e (approximately USD 2.1/t CO2-e)	N/A	Indonesia ran a voluntary ETS Pilor in the power sector from March to August 2021	N/A	N/A	N/A

**Note: No EU wide carbon tax although some member countries have their own carbon tax e.g. Finland, Norway, Sweden, Netherlands and Switzerland*

Source: https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y

Singapore Carbon Tax

THE STRAITS TIMES

Budget 2022: Singapore's carbon tax could increase to $80 per tonne of emissions by 2030

Carbon Pricing Act: The Singaporean government began the implementation of its carbon tax on **1st January 2019**.

- The carbon tax applies to all facilities with annual GHG emissions of **25,000 tCO2e** or more, with no exemptions.
- Singapore plans to **progressively raise** its carbon tax in order to achieve its our climate ambition of achieving net zero emissions by or around mid-century.
- Companies may utilise high quality **international carbon credits to offset up to 5%** of their taxable emissions from 2024.

Singapore's Carbon Tax Rates

- 2019 – 2023: **$5/ tCO2e**
- 2024 – 2025: **$25/ tCO2e**
- 2026– 2027: **$45/ tCO2e**
- 2030: **$50 – 80/ tCO2e**

Thailand TGO T-VER

โครงการลดก๊าซเรือนกระจกภาคสมัครใจตามมาตรฐานของประเทศไทย

(Thailand Voluntary Emission Reduction Program: T-VER)

The Thailand Voluntary Emission Reduction programme (TVER) was developed by **Thailand Greenhouse Gas Management Organization (TGO).**

The objective of the scheme is to encourage all stakeholders to participate in mitigation act and designed to serve as a pilot, **setting up the infrastructure to develop a national emission trading system** and identify gaps and opportunities.

Disclosure Requirements

- "TVER"s are sold under the **voluntary domestic market.**
- Methodology **adjusted from CDM** to ensure simpler calculation and monitoring.
- By 2020, it had **191 registered projects** that are due to reduce emissions by **5.28 Mt CO2-eq annually** (TGO, 2015).
- Eligible sectors include **Energy Efficiency, Alternative Energy, Renewable Energy, Transportation, Waste Management, Forestation and Green Area**, and **Agriculture**.

Indonesia Carbon Tax

Carbon Tax rollout has been postponed to July 2022

As part of **Law No. 7/2021 on Harmonization of Tax Regulation**, Indonesia introduced a carbon tax on coal-fired power plants in October 2021, with expansion plans towards other sectors based on a readiness assessment in 2025.

- The introduction of a carbon tax is part of Indonesia's broader **"Carbon Pricing Roadmap"**, which includes a longer-term plan for introducing an ETS and a carbon crediting mechanism.
- The carbon tax was set to commence in April 2022 at an initial rate of **IDR 30,000 per metric tonne CO2-e (approximately USD 2.1/t CO2-e).**
- However, implementation of the Carbon Tax has been **pushed back to July 2022** due to global economic turmoil and volatile energy prices.

Indonesia's Climate Targets

Under its NDC, Indonesia has set a target of reducing emissions by **29% with its own efforts** and **41% with international support by 2030**.

In addition, the government has also set a long-term strategy for **low carbon climate resilience in 2050** and **a net zero emission target in 2060 or sooner.**

4. Internal Carbon Pricing

Introduction and Case Studies

What is Internal Carbon Pricing (ICP)?

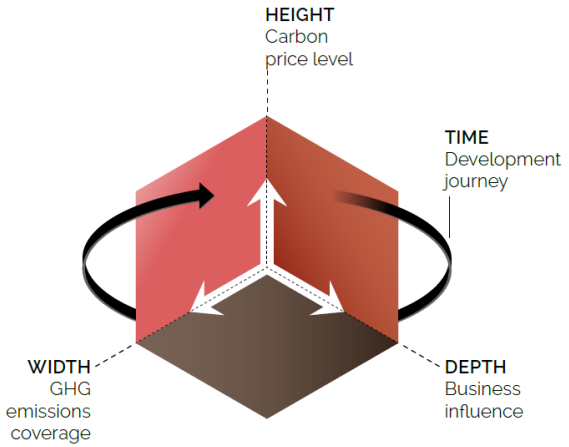
Internal Carbon Pricing (ICP) is a mechanism by which companies can put a value on their greenhouse gas (GHG) emissions in a way that drives positive change in their business.

When an internal carbon price is set, a cost is assigned to each ton of carbon used so this can be factored into business and investment decisions, incentivising efficiency and enabling low-carbon innovation.

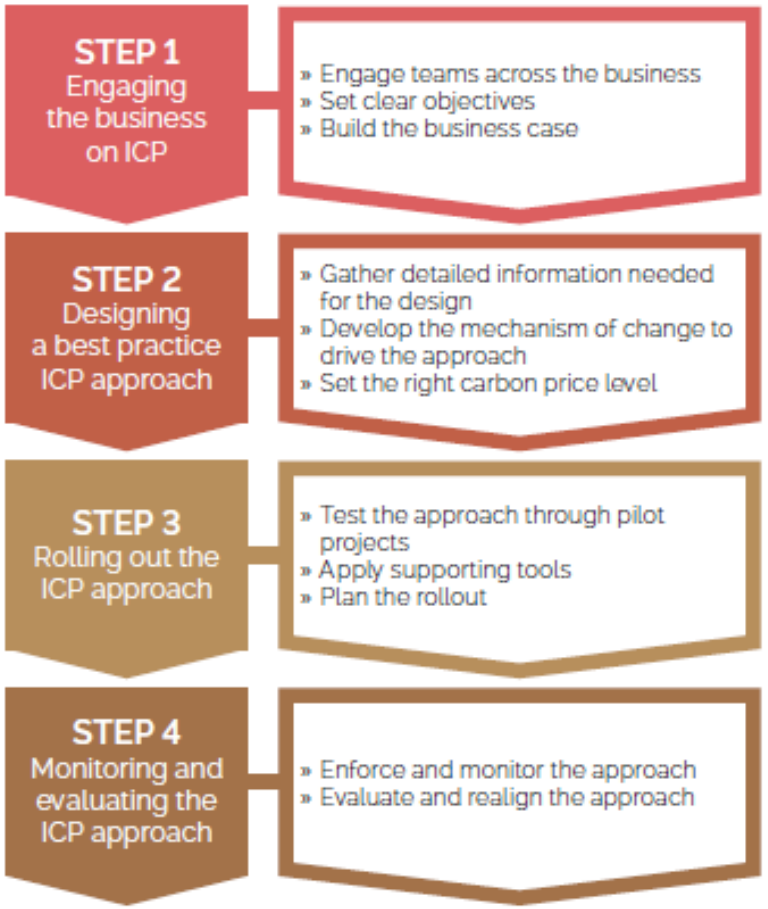
Figure from https://www.worldbank.org/en/news/feature/2016/06/29/a-look-at-carbon-pricing-and-competitiveness

Internal Carbon Pricing: CDP Insights

To support the implementation of best practice approaches to ICP, the CDP developed a **four-dimensional framework (4D framework).**



DIMENSION	ICP PARAMETER	BEST PRACTICE ICP APPROACH
Height	Price level per unit of GHG emitted (e.g. US$/$tCO_2$) that the company uses in business decisions	Rise to a carbon price capable of changing decisions in line with the ICP objectives
Width	The GHG emissions covered throughout the value chain by the ICP approach	Grow to cover all GHG emissions hotspots in the entire value chain that can be influenced
Depth	The level of influence the ICP approach has on the business decisions of a company and its value chain partners	Become increasingly influential to have a material impact on business decisions
Time	The development of the first three dimensions over time	Be evaluated regularly to bring the company's business strategy in line with a low-carbon economy

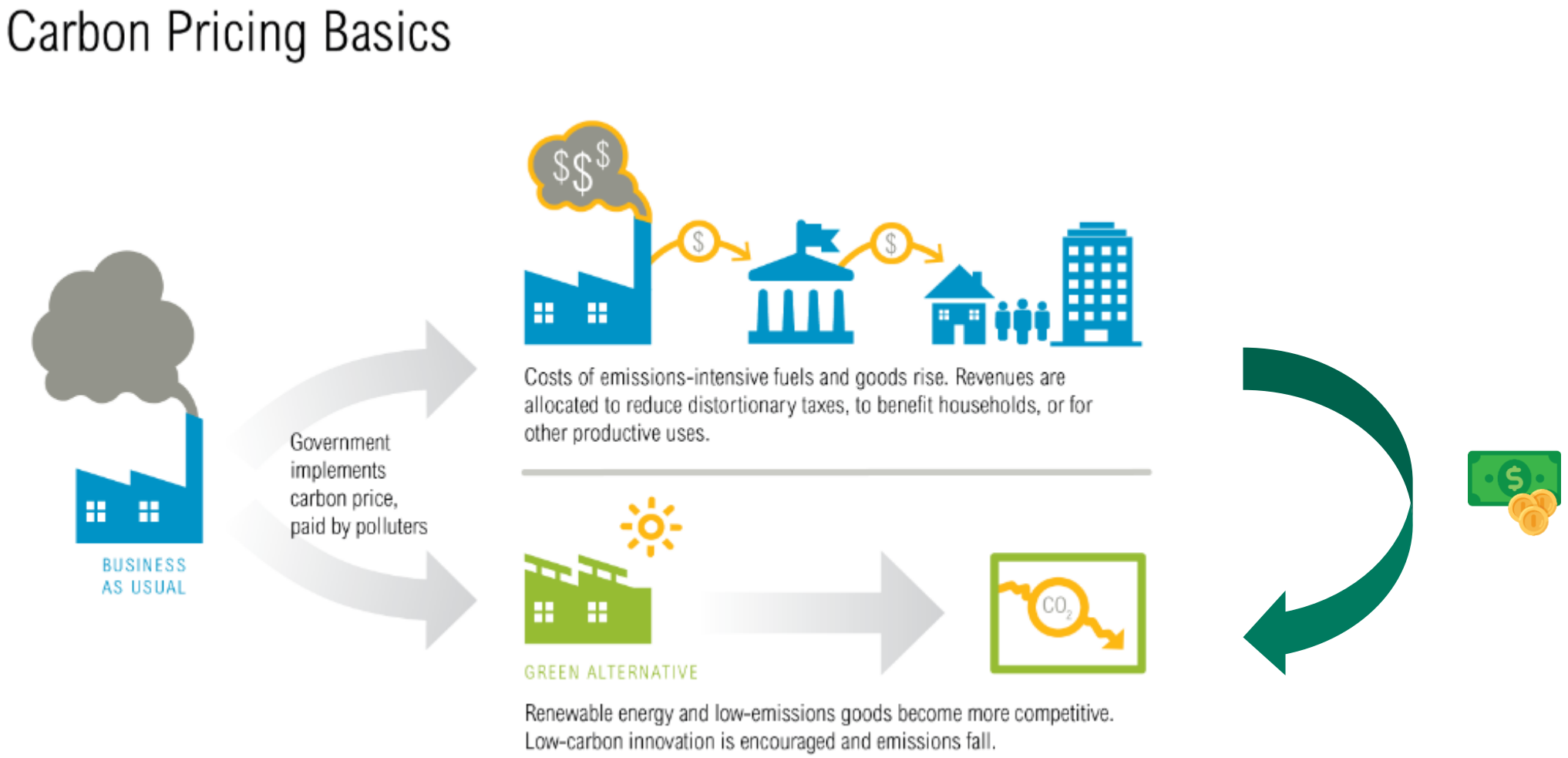


Source: How to Guide to Corporate Internal Carbon Pricing | CDP 2017

Benefits of setting an ICP

- Making carbon considerations more central to business operations and understanding
- De-risking against the future carbon price
- Understanding carbon and carbon risk in the business
- Future-proofing your business strategy
- Generating finance for sustainability initiatives
- Raising awareness internally and externally
- Answering to investors and consumers and responding to their concerns regarding the climate emergency
- Reducing carbon emissions

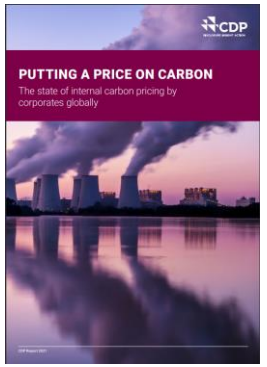
Why do companies use internal carbon pricing?



Source: https://www.transition-europe.eu/en/publication/putting-price-carbon-handbook-us-policymakers

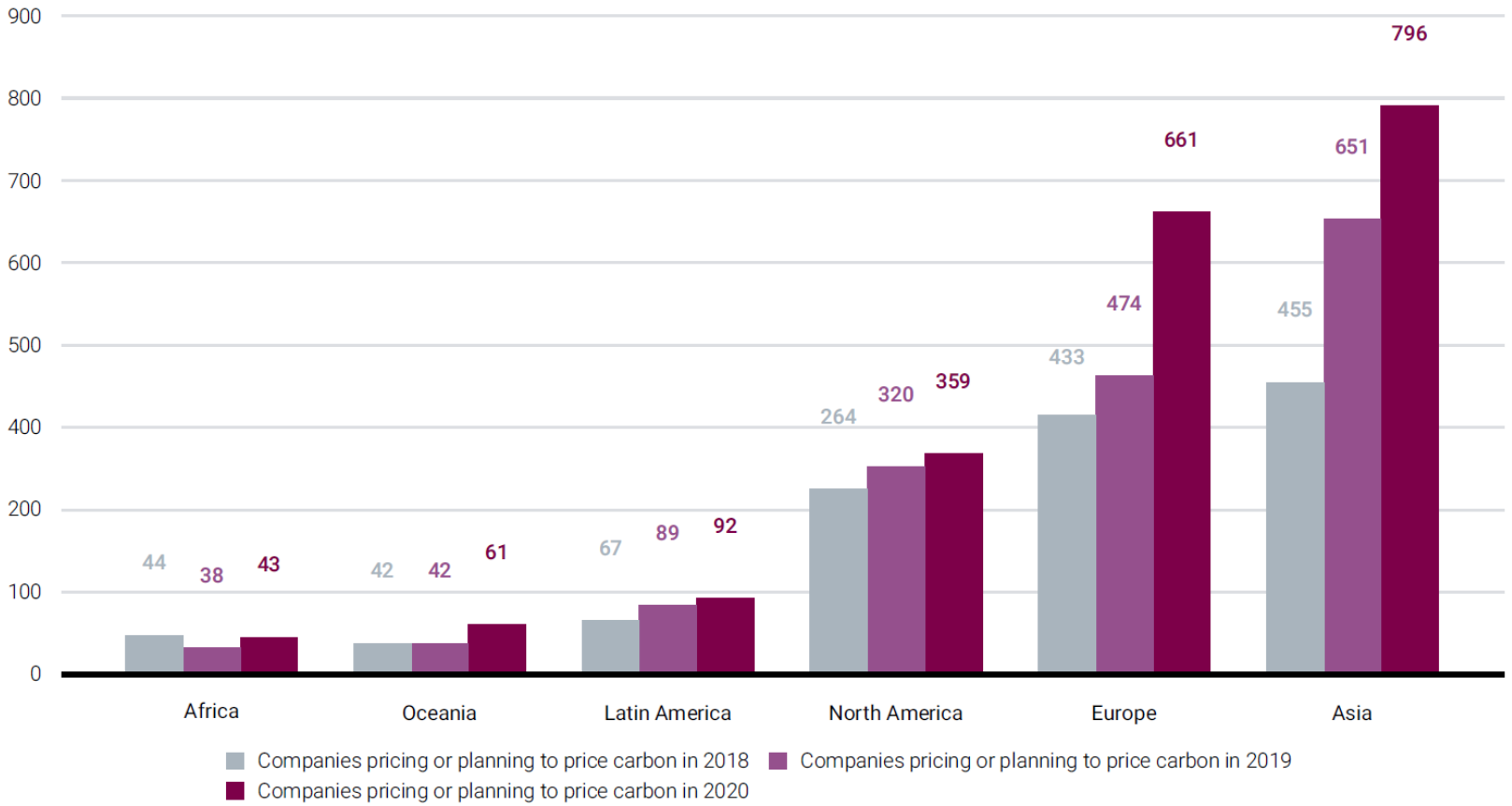
The Growth of ICP by Region

The most notable growth comes from Asia as the region ranked first among all regions with 796 companies using or planning an internal price on carbon in 2020.



Source: Putting a Price on Carbon 2021 | CDP

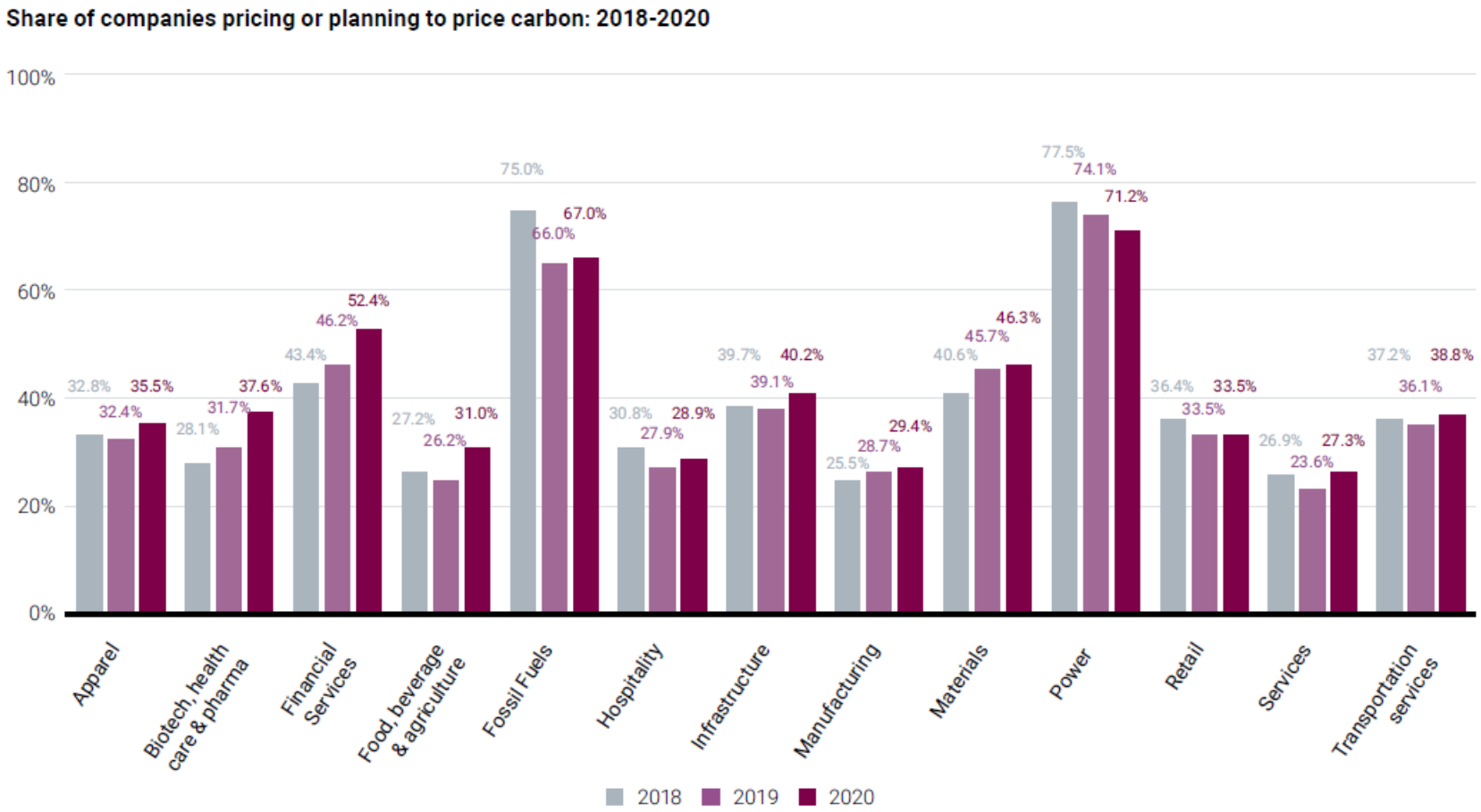
Growth of internal carbon pricing by region: 2018-2020



Internal Carbon Pricing across Industries

11 of the 13 industries included in the analysis experienced an increase in the share of companies using or planning internal carbon pricing between 2019 and 2020. This is a notable shift from 2018 to 2019 where only **4 of the 13** industries saw a percentage increase.

Source: Putting a Price on Carbon 2021 | CDP



Carbon Pricing Approaches

	Internal Tax/Fee/Cap	Shadow Price	Implicit Carbon Price
Definition	**A monetary value** attached to each metric ton of emissions charged to business units for their emissions.	**A theoretical internal cost** of carbon applied in project planning processes to test the feasibility of capital expenditure and R&D investment decisions.	**The value of past measures and initiatives** implemented to reduce a company's greenhouse gas emissions and/or comply with climate policies and regulations
Objectives	**To create a dedicated revenue or investment** stream that can fund projects to help meet a company's greenhouse gas reduction targets, and establish a common business "language" internally to address climate change.	**To screen potential business risks** of future carbon regulations, build a business case to shift investments to low-carbon options.	**Identify marginal abatement costs (MACC)** of mitigating greenhouse gas emissions and complying with climate policies and regulations.

Source:
https://www.c2es.org/site/assets/uploads/2017/09/business-pricing-carbon.pdf
https://www.unescap.org/sites/default/files/14_Session%206%20Mr.%20Chirag%20Gajjar_revised.pdf

Carbon Pricing Approaches

	Internal Tax/Fee/Cap	Shadow Price	Implicit Carbon Price
Price Range	$5–$20 per tCO2e	$0.3–$906 per tCO2e	No revealed prices or price ranges
Investment and Revenue Allocation	**Yes. Revenues used to fund sustainability projects**, realized as an actual monetary transaction between business unit(s) and the department collecting the fee.	**None. A theoretical price that is not collected**, but which guides future investments and research and development activities toward low-carbon alternatives.	**No. There is no reinvestment or revenue allocation** since the price is derived retroactively.
Benefits	Sends a clear signal to targeted audience.	Determine resilience of investments. Test investments' to better manage future risks.	Viewed as benchmark for introducing internal carbon pricing program.
Challenges	Internal buy-in becomes challenging since emission intensive activities or business units will bear the brunt.	A notional price may not trigger the investment shift.	Can be calculated retroactively. Not seen as influencer as other two approaches.

Source:
https://www.c2es.org/site/assets/uploads/2017/09/business-pricing-carbon.pdf
https://www.unescap.org/sites/default/files/14_Session%206%20Mr.%20Chirag%20Gajjar_revised.pdf

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Company	Microsoft	Taiwan Mobile, GC, BT, Singtel, SCG, INDORAMA VENTURES	vodafone

Source:
https://www.c2es.org/site/assets/uploads/2017/09/business-pricing-carbon.pdf
https://www.unescap.org/sites/default/files/14_Session%206%20Mr.%20Chirag%20Gajjar_revised.pdf

Key Takeaways

Carbon pricing and opportunities for companies

In response to the increasing carbon pricing regulation across the globe, it is recommended for companies to start **integrating carbon pricing** in your decisions and **set GHG emission reduction targets**.

Internal GHG mitigation/carbon removal measures along the value chain should be prioritised to achieve GHG / climate targets, with **carbon offsetting being seen as an additional measure**.

Renewable energy certificates (**RECs**) can be purchased to offset Scope 2 emissions (which is applicable even under SBTi Net Zero standard) in a short-term, though a better long-term strategy would be to invest into more renewable energy sources.

Offsetting from **Nature-Based Solutions could contribute to 10% of Net Zero Target according to SBTi Net Zero**.

Certification of GHG emission reductions/removals generated by your projects as carbon credits would be needed only if you would like to trade them to other parties.

If the intention is to keep emission reductions **towards own Net Zero target**, **no certification** of emission reductions/removals under carbon standard is needed – they can be reported annually as part of the company's GHG inventory.

Over the past decade, **Internal Carbon Pricing** has rapidly grown across industries globally and is expected to continue its upward trajectory.

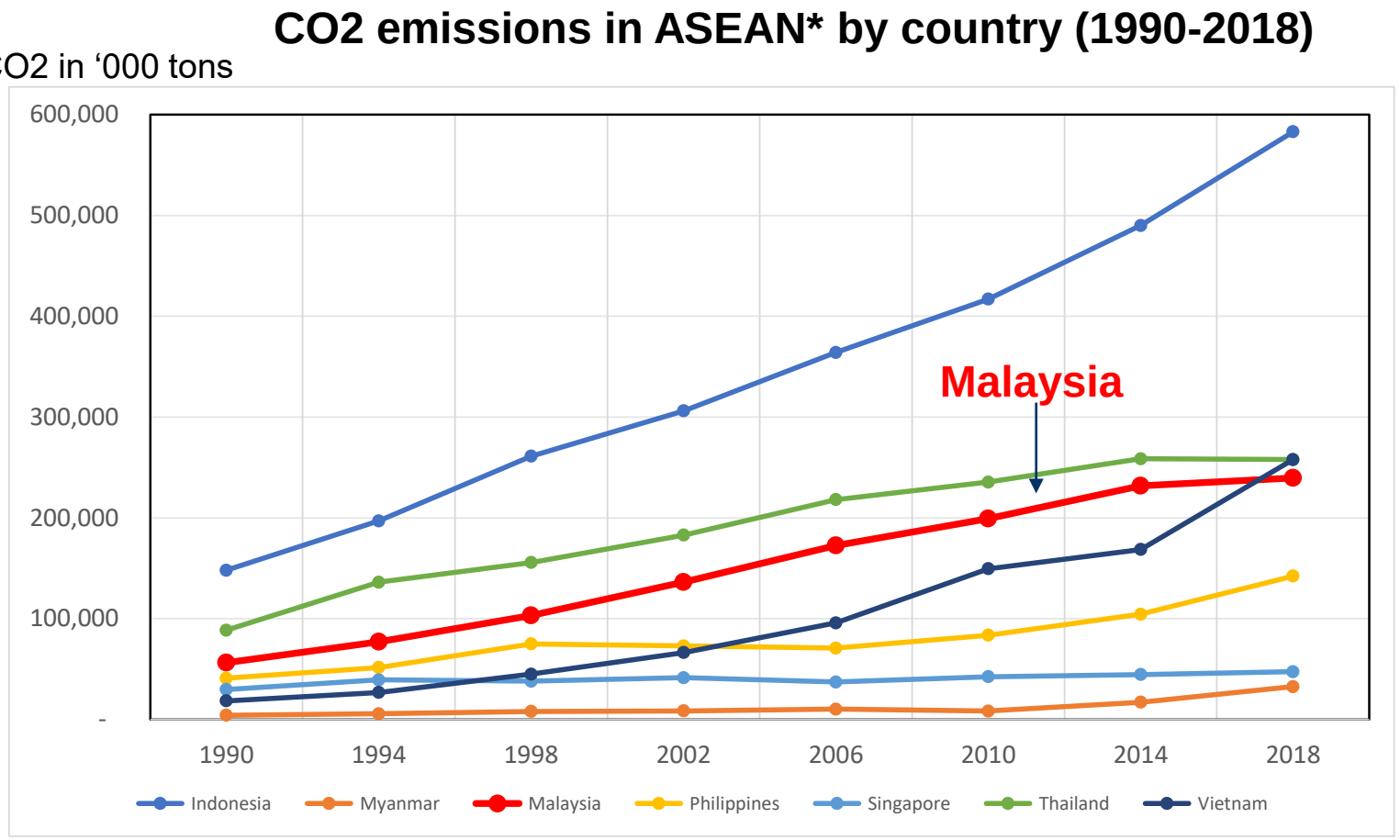
Companies can choose to adopt the most suitable and feasible carbon pricing approaches, which include **Internal Tax, Shadow Price,** and **Implicit Carbon Price.**

Session 2:
Carbon Pricing - Malaysia Context

1. Historical Context: Malaysia's Carbon Market

Malaysia is the 4th largest carbon dioxide (CO_2) emitter in ASEAN

~240 million tons of CO_2 released in 2018



Source: World Bank (latest data available up to 2018), ERM Analysis

* Largest 7 ASEAN countries by GDP excl. Cambodia, Brunei & Laos

- Malaysia has ratified Kyoto Protocol (1997) and Paris Agreements (2015)
- In its **Nationally Determined Contribution (NDC)** to the goals on the Paris Agreement, Malaysia is committed to **reducing its economy-wide carbon intensity (against GDP) by 45% in 2030 compared to the 2005 level.**
- Learning from other countries, Malaysia needs to implement a carbon pricing policy to help achieve its commitments.

2. Malaysia's Current Carbon Market & Future Outlook

On the 12th Malaysia Plan tabled in parliament (27/9/21), Prime Minister Sabri has pledged for Malaysia to “become a carbon neutral country by 2050 at the earliest”

Domestic Emissions Trading Scheme (DETS)

- Voluntary **domestic emissions trading scheme (DETS)** proposed by Ministry of Environment and Water (KASA) were endorsed.
- Development will be carried out jointly by Finance Ministry, Bursa Malaysia and other stakeholders in phases.
- Aim to develop a single transaction platform.

Objectives:

- To prepare economy actors for the implementation of carbon control mechanisms through international trade such as the **Carbon Border Adjustment Mechanism (CBAM) by the European Union in 2023**.
- To enhance the capabilities of industry players in producing products and services that are competitive at the international level.
- To **reduce GHG intensity of GDP by 45% in 2030 relative to 2005**
  - 35% - unconditional
  - 10% - conditional to financing and technology transfer by developed countries.

Carbon Tax

- Carbon tax **feasibility study** as part of the 12th Malaysia Plan
- Aim: to recommend the most suitable carbon taxation system to incentivise the right behavioural changes.
- No **formal carbon tax framework** has been announced yet.
- Little is known about the tax base, tax rate, tax administration and use of revenue.

Carbon Credit Availability

The presence of international voluntary carbon offsetting programs such as Verra and Gold Standard have continued to grow in Malaysia

Verified Carbon Standard (VCS) Program:

- Founded in 2007
- Under the VCS Program, projects are issued unique carbon credits known as **Verified Carbon Units (VCUs).**
- Over **1,806 certified VCS projects** have collectively reduced or removed more than **928 million tonnes** of carbon and other GHG emissions from the atmosphere.

Gold Standard Marketplace:

- Exchange of **Gold Standard carbon credits**
- **191 million carbon credits** from projects based in more than 98 different countries around the world.
- Created over **$28 Billion in shared value** for climate action + sustainable development - **$100 Billion targeted by 2030.**

Renewables Energy Certificates (REC) availability in Malaysia

THE INTERNATIONAL REC STANDARD (I-REC)

- Launched in 2018
- International market-based instrument - represents property rights of the environmental, social and other non-power attributes of renewable electricity generation.
- The Green Certificate Company (GCC) is the sole authorised I-REC issuer in Malaysia.

TIGRs℠

Tradable Instruments for Global Renewables

- APX created TIGR Registry as an online platform for tracking and transferring RECs
- In 2019, Malaysia's Sustainable Energy Development Authority (SEDA), signed a MoU with APX, forming a partnership to ensure corporate buyers can access RECs on a trusted international platform.

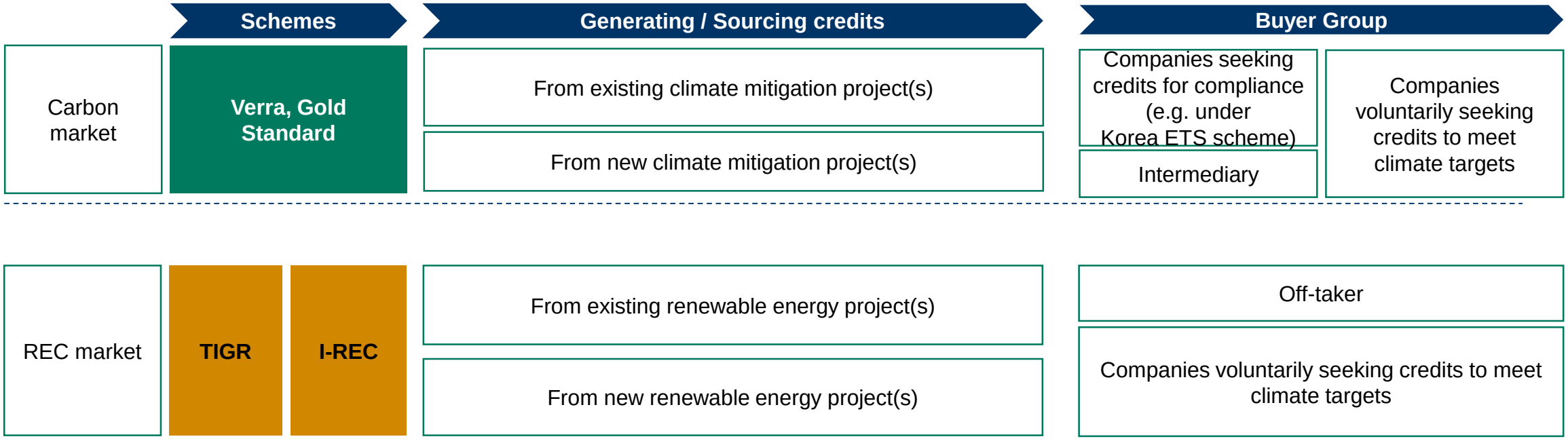
mGATS

Malaysia Green Attribute Tracking System

- mGATS is Malaysia's 'national marketplace' for RECs
- Established in 2019, mGATS currently accepts large-scale solar projects from TNB and UiTM Power Solar.
- mGATS plans to allow private power producers to participate in generating mRECs for local buyers.

	Issuer	Price of Credit (USD/Certificate or kW)	Total REC Registry	Total Capacity and Credits Issued (MW)
I-REC	GCC	1-2	30 (16 for solar)	540.07
TIGR	APX	1-2	3 (2 for solar)	36
Domestic scheme that will be available domestically in the future				
mGATS	TNBX Sdn Bhd	TBA	9 (all solar projects)	409

Pathway to Use Credits/RECs in Malaysia



4 Types of Key Market Players in Malaysia

Project Developer	EAC Issuers	Intermediaries/ Brokers	Credit Purchasers
CONSTANT ENERGY ENGIE Scatec SOLARVEST Turning Sunlight Into Investment	I-REC seda Sustainable Energy Development Authority MALAYSIA UNFCCC THE INTERNATIONAL REC STANDARD	ECO-IDEAL CONSULTING SDN BHD	cenergi YTL SVCarbon

*Acronyms: CDP - Carbon Disclosure Project, DJSI - Dow Jones Sustainability Index

Source for Carbon credit brokers: TGO, n.d.

Carbon Pricing is currently in the early stages of implementation in Malaysia. It is expected to grow in the next few years once carbon pricing mechanisms are formalized.

Growth of mGATs

- Primary objective: to register TNB's large-scale solar projects and sell RECs to Malaysian companies with **climate commitments**, e.g., RE100 companies.
- Indicates there is **local demand** for RECs

Carbon Pricing Rollout in Malaysia

- It is expected MY government may need ~ 2-3 years to implement the carbon tax / ETS policies
- Another 3-5 years to achieve the implementation objectives.

Low Carbon Economy Transition

- Target: 31% Renewable Energy Capacity Mix by 2025 (Peninsular Malaysia)
- Coal fired power plants will be gradually retired and replaced with renewable energy power plants.

Key Challenges

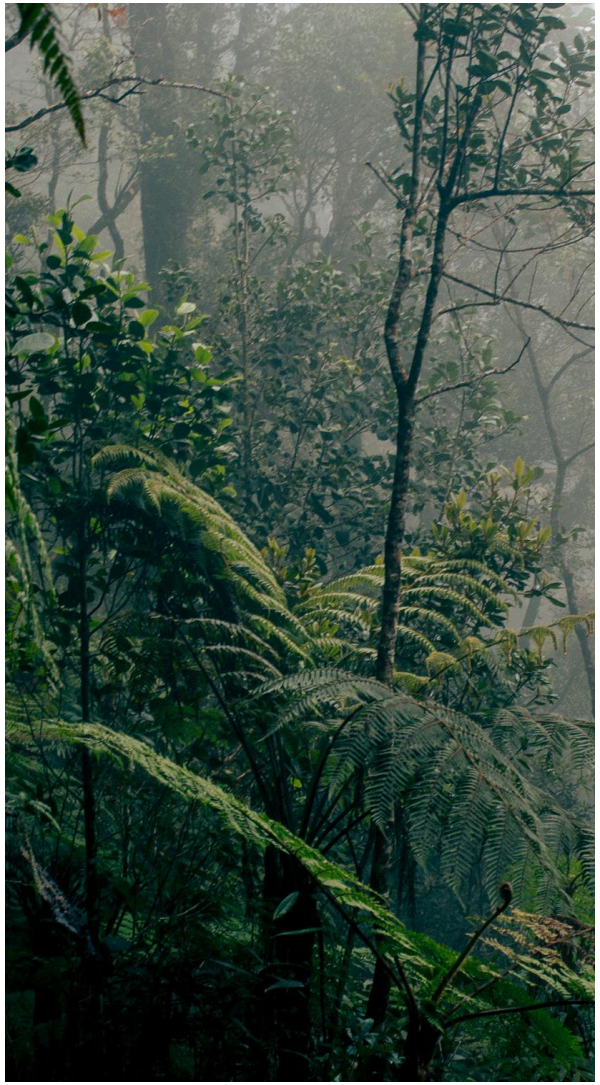
- Coordinate carbon tax and ETS policies to avoid 'carbon leakage', where carbon-intensive industries relocate to states that do not impose carbon prices.
- Clear strategies to assist affected businesses / public

ERM Webinar: Carbon Pricing Instruments to Support Net Zero Ambitions

4. Case Studies: Malaysia

Case Study: NCS Project in Malaysia

Project Title	Project Details
Carbon Sequestration Potential for Kota Damansara Community Forest Park (KDCFP) Malaysia	**Objective:** To provide a **tangible baseline carbon value on the Kota Damansara Community Forest Park (KDCFP)** in terms of climate change and to estimate results of the carbon sequestration and other potential environmentally and socially benefits with the continued preservation of the forest. **Description:** To assist the communities in convincing relevant stakeholders to preserve the forest as a green lung, the principle objective of this work is to understand the potential for storing (or sequestering) amounts of carbon within KDCFP based on the 2006 Community Forest Park Management Plan (CFPMP) for Sungai Buloh Forest Reserve. **Outcome:** The study estimated the amount of carbon sequestered by KDCFP based on aboveground biomass and belowground biomass, and its annual carbon stock change.



Source: CDM n.d.

South Pole: Borneo Forest Protection, Malaysia
Preserving Borneo's richly diverse tropical forests

Borneo's rich and unique rainforests are threatened by logging, land-clearing and the illegal wildlife trade. The Borneo Forestry Project in Malaysia protects and rehabilitates 25,000 hectares of degraded rainforest in the area of Sabah via tree planting and sustainable forest restoration activities.

PROJECT BENEFITS:

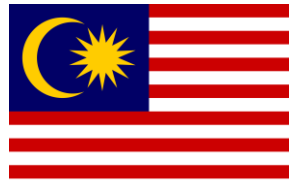
SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH	**20 jobs** created providing fair, permanent employment for local communities
13 CLIMATE ACTION	**134,000 tCO2e** mitigated on average annually by planting and protecting trees
15 LIFE ON LAND	**25,000 ha** of rainforest restores or protected, allowing endangered birds and mammals to return to the area
15 LIFE ON LAND	**2 million** trees planted, allowing rainforest biodiversity to flourish once again

Source: SCB, South Pole

Key Takeaways

Carbon pricing for companies in Malaysia



Through the **12th Malaysia Plan (12MP)**, Malaysia has pledged to "become a **carbon neutral country by 2050**", alongside other measures to accelerate green growth.

1

The Malaysia government has endorsed a proposal to develop a voluntary **domestic emissions trading scheme (DETS)**, with implementation plans for a **national carbon tax** in the near future.

2

The Malaysian government is planning to increase the renewable energy capacity to **31% (8,531 MW) by 2025** and **40% (10,944 MW) in 2035.**

Malaysia Green Attribute Tracking System (mGATS) is Malaysia's 'national marketplace' for RECs.

3

A domestic offsetting scheme is **not yet operational in Malaysia** and will likely be eligible for carbon credits generation for various GHG emissions reduction project types.

Until then, Malaysia companies could **register carbon credits under applicable international standards, e.g. Verra or Gold Standard.**

4

Malaysia has the potential to play a large role in **supplying carbon credits from carbon removal/ NCS projects** to domestic & global firms and compliance schemes.

However, any international carbon trading will be more regulated as this will have an impact on a country's NDCs.

Q&A

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Towards a sustainable and net-zero future

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