

Achieving Carbon Neutrality: What to Expect in the Near Future

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South East Asia Iron and Steel Institute

Singapore ▪ Malaysia ▪ Indonesia ▪ Myanmar ▪ Philippines ▪ Thailand ▪ Vietnam | South Korea ▪ Taiwan

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About the South East Asia Iron & Steel Institute (SEAISI)

for the Steel Industry, by the Steel Industry, in ASEAN

Since

1971 

Represents
the Steel
Industry
in the

7

Largest
ASEAN
Economies



Supporting
Members

2

SEAISI EVENTS

May/June
November

e-SERVICERS



>750 Members 

25 
Countries

>400k 
Members' Employees

PUBLICATIONS

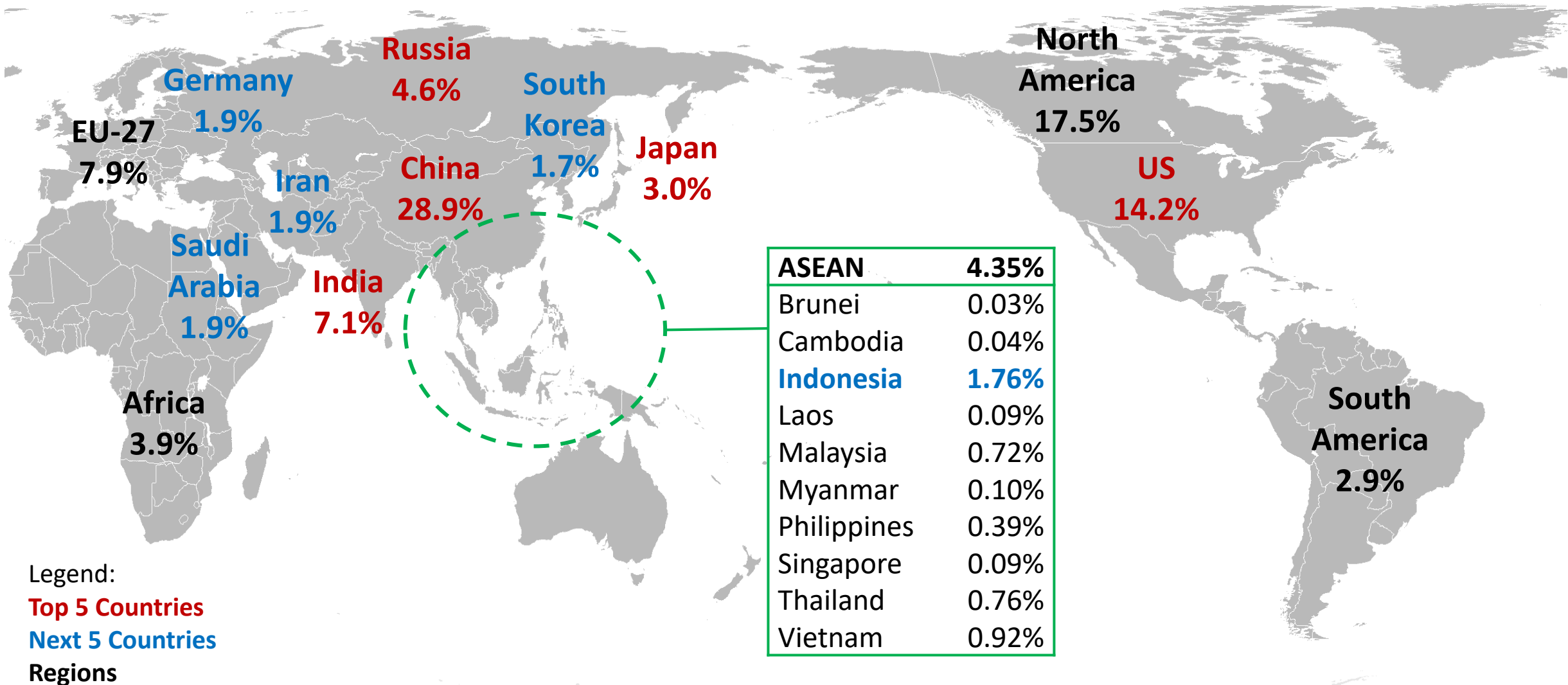
RESEARCH & ANALYSIS

OUTLINE:

- ASEAN Net Zero
- Wither are the Technology?
- Carbon Pricing
- CBAM
- Taxonomy
- What's Next?

CLIMATE CHANGE - EMITTERS

While most ASEAN countries are not significant generators of CO2 ...



ASEAN NET ZERO TARGETS

ASEAN commitment towards decarbonization is intensifying, with Vietnam and Indonesia committing to more aggressive emission reduction by 2030; Policies will continue to roll out ...

Thailand

30% unconditional & 40% conditional reduction below BAU by 2030

Net 0 GHG: 2065

Malaysia

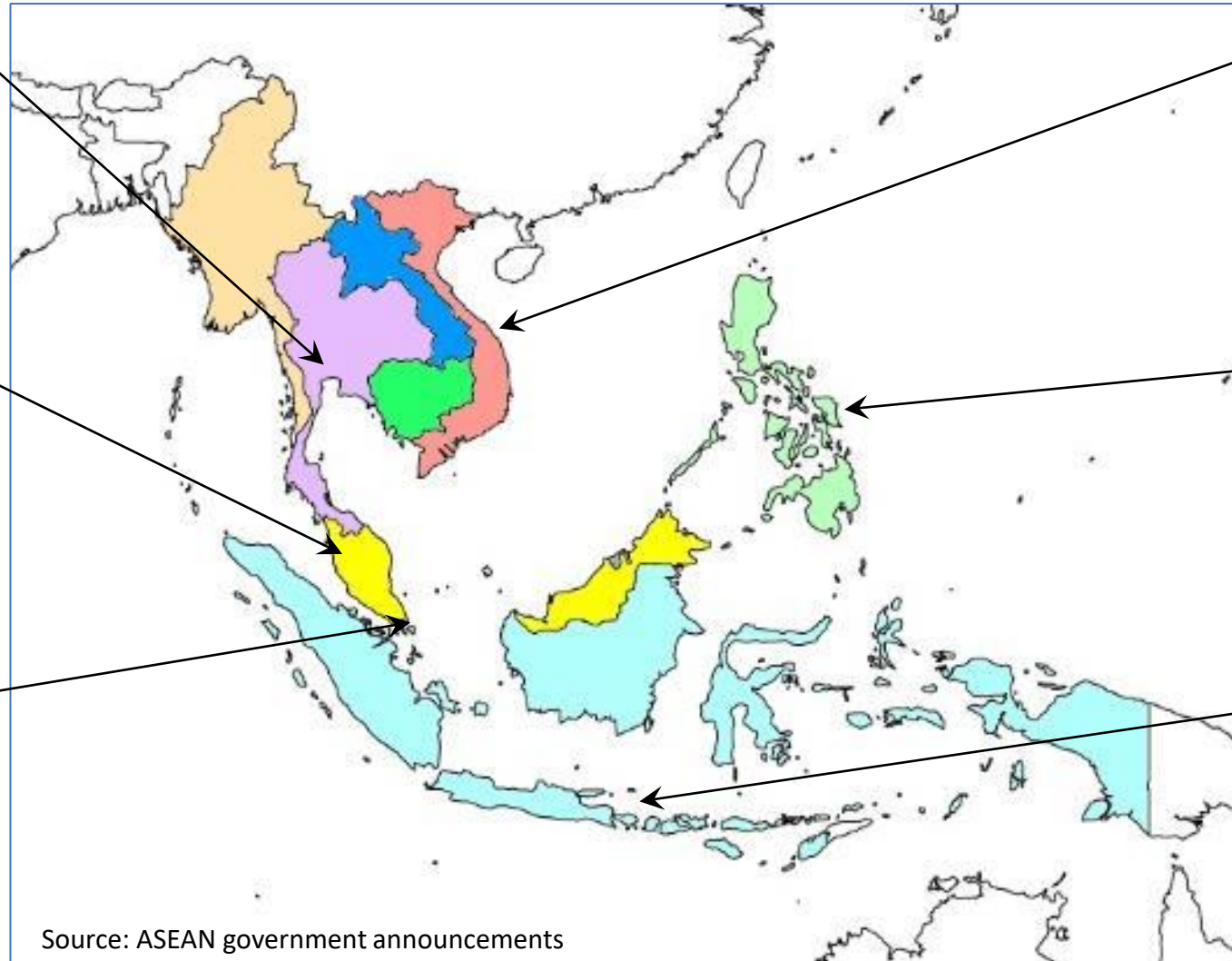
35% unconditional & 45% conditional reduction below 2005 levels by 2030

Net 0 GHG: 2050

Singapore

Peak emissions at 65MtCO₂e by around 2030

Net 0 GHG: 2050



Source: ASEAN government announcements

Vietnam

9% 15.8% unconditional & 27% 43.5% conditional reduction below BAU by 2030

Net 0 GHG: 2050

Philippines

2.7% unconditional & 72.3% conditional reduction below BAU by 2030

Net 0 GHG: -

Indonesia

29% 31.9% unconditional & 41% 43.4% conditional reduction below BAU by 2030

Net 0 GHG: 2060

OUTLINE:

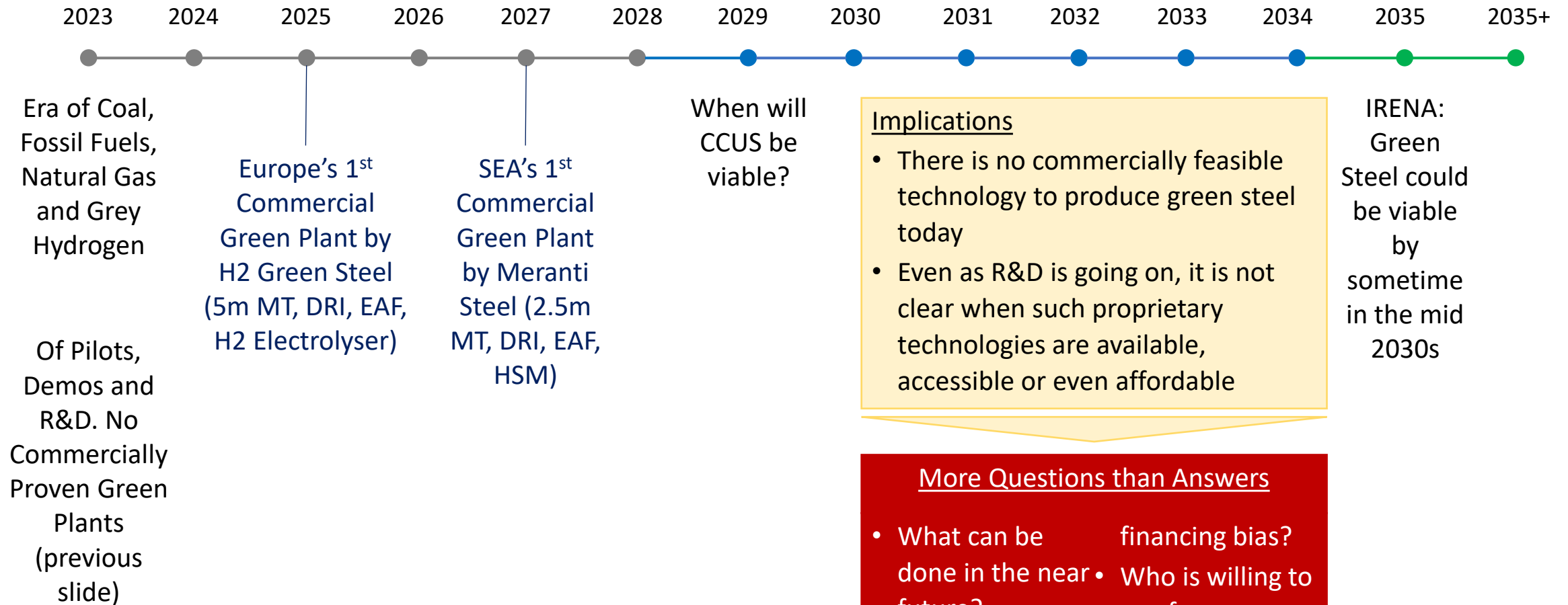
- ASEAN's Commitment
- Wither are the Technologies?
- Carbon Pricing
- CBAM
- Taxonomy
- What's Next?

WITHER IS THE TECH AND WHAT CAN WE DO?

As much as we hope for green technology, today most plants are demos, pilots or R&D

Technology	Scale	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2033	N/A	No Info	Total	Grnd Total	
CCS	Demo,Pilot,R&D					1													1	2	
	Full scale								1										1		
CCS & H2 prod	Demo,Pilot,R&D																		1	1	1
CCU	Full scale						1												1	1	1
DR --> H-DR	Demo,Pilot,R&D							1											1	2	2
	Full scale										1								1	1	1
BF/BOF → EAF	Full scale								1	1			3			1			6	6	6
EAF → H-DR	Full scale										1								1	1	1
H-DR	Demo,Pilot,R&D					3	1		1	1	2				1		2	1	12	23	23
	Full scale							1	1	1	2	1		1	1	1		2	11	11	11
H-DR & biomass	Demo,Pilot,R&D																		1	1	1
H-DR & EAF	Full scale									1									1	1	1
H2 production	Demo,Pilot,R&D			1		2			1	1									3	8	17
	Full scale								2	2	1	1			1				2	9	9
NG-DR → H-DR	Demo,Pilot,R&D						1												1	7	7
	Full scale								3	1	1								1	6	6
NG-DR → H-DR & EAF	Full scale												1		1				2	2	2
Other	Demo,Pilot,R&D	1			1		2	1	1									2	6	14	17
	Full scale		1			1				1									3	3	3
TOTAL		1	1	1	1	7	5	3	11	9	8	5	1	1	5	1	4	17	81	81	81
TOTAL BY SCALE	Demo,Pilot,R&D	1		1	1	6	4	2	3	2	2				1		4	12	39	39	39
	Full scale		1			1		1	8	7	6	5	1	1	4	1		5	42	42	42
GRAND TOTAL		1	1	1	1	7	4	3	11	9	8	5	1	1	5	1	4	17	81	81	81

WITHER IS THE TECH AND WHAT CAN WE DO?



Implications

- There is no commercially feasible technology to produce green steel today
- Even as R&D is going on, it is not clear when such proprietary technologies are available, accessible or even affordable

More Questions than Answers

- What can be done in the near future?
- Are the financial institutions going to fund?
- Is there a financing bias?
- Who is willing to pay for green products?
- Start looking for carbon credits & offsets

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CARBON PRICING

Many types of carbon pricing methods are available, but the Emissions Trading System (ETS) and Carbon Tax are the most widespread in application, though these are sometimes applied together

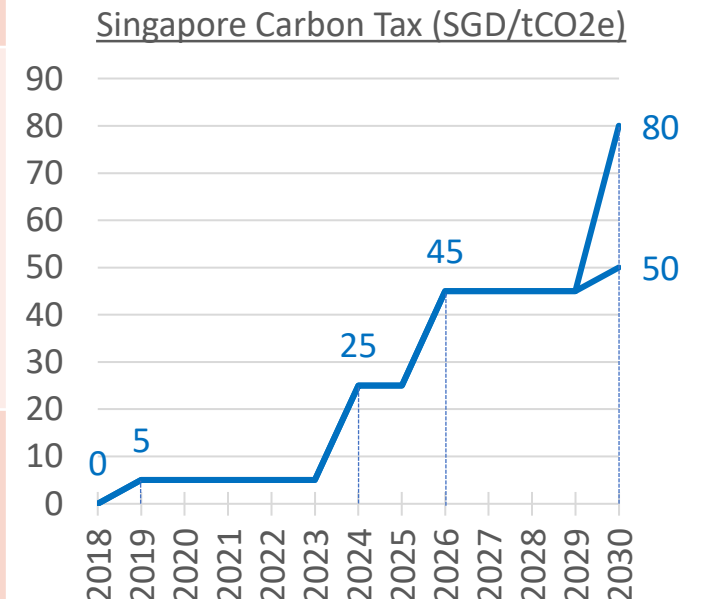
Carbon Tax	Emissions Trading System (ETS)	Crediting Mechanism	Results Based Climate Finance	Internal Pricing
<ul style="list-style-type: none"> • A flat tax rate applied on GHG emitted • Most expensive option. 	<ul style="list-style-type: none"> • Cap-and-trade system • Sets a “cap” (limit) on total GHG emissions from specific sectors and allows trading 	<ul style="list-style-type: none"> • Projects that results in emissions reductions are assigned carbon credits • Initiated by a business and/or government, or policy • Requires a third-party verifiers 	<ul style="list-style-type: none"> • Entities receive funds when they meet pre-defined climate-related goals, such as emissions reductions. • Requires independent verifiers 	<ul style="list-style-type: none"> • Governments, firms, and other entities assign their own internal price to carbon use and factor this into their investment decisions
<p style="text-align: center;"><u>Examples</u></p> <ul style="list-style-type: none"> • Singapore Carbon Tax • Indonesia Carbon Tax 	<p style="text-align: center;"><u>Examples</u></p> <ul style="list-style-type: none"> • European Union ETS 	<p style="text-align: center;"><u>Examples</u></p> <ul style="list-style-type: none"> • Joint Credit Mechanism (Japan) 	<p style="text-align: center;"><u>Examples</u></p> <ul style="list-style-type: none"> • Forest Carbon Partnership Facility Forest Investment Program (World Bank) 	<p style="text-align: center;"><u>Examples</u></p> <ul style="list-style-type: none"> • Volvo (USD 92/t) • Amgen (USD 1000/t) • British Airways (USD 11 – 140/t)

CARBON PRICING

Carbon Pricing is already applied in many forms in ASEAN, although only Singapore has IMPLEMENTED a carbon tax system and Thailand has various voluntary systems

Country	Carbon Pricing Mechanism	Reference
Indonesia	<ul style="list-style-type: none"> Environmental tax (tax on motor vehicle fuel) Establishing an ETS by 2024 (pilot - power sector) A domestic carbon offset mechanism is under discussion (Indonesia Certified Emission Reduction - ICERs) 	Budidjaja International Lawyers (2017), Direktorat Jenderal Pengendalian Perubahan Iklim (2019), Nikkei Asia (2021)
Philippines	<ul style="list-style-type: none"> Energy related taxes (energy sector) 	Bureau of Internal Revenue (2019)
Singapore	<ul style="list-style-type: none"> Carbon tax (applied uniformly to all sectors, without exemption) 	National Climate Change Secretariat (2020)
Thailand	<ul style="list-style-type: none"> Carbon Crediting: Thailand Voluntary Emission Reductions (T-VER) scheme (project based) Carbon Offset: Thailand Carbon Offsetting Programme (T-COP) (public and private organisations) Cap and Trade: Thailand Voluntary Emission Trading Scheme (Thailand V-ETS) (currently a pilot for economy-wide use except power sector) 	Partnership for Market Readiness (2019), IEA (2020)
Vietnam	<ul style="list-style-type: none"> Environmental protection tax (products and goods including gasoline, oil, petroleum and coal) Carbon Payment for Forest Environmental Services (C-PFES) pilot activity underway (forest sector) 	National Assembly (2010), Winlock International (2018)

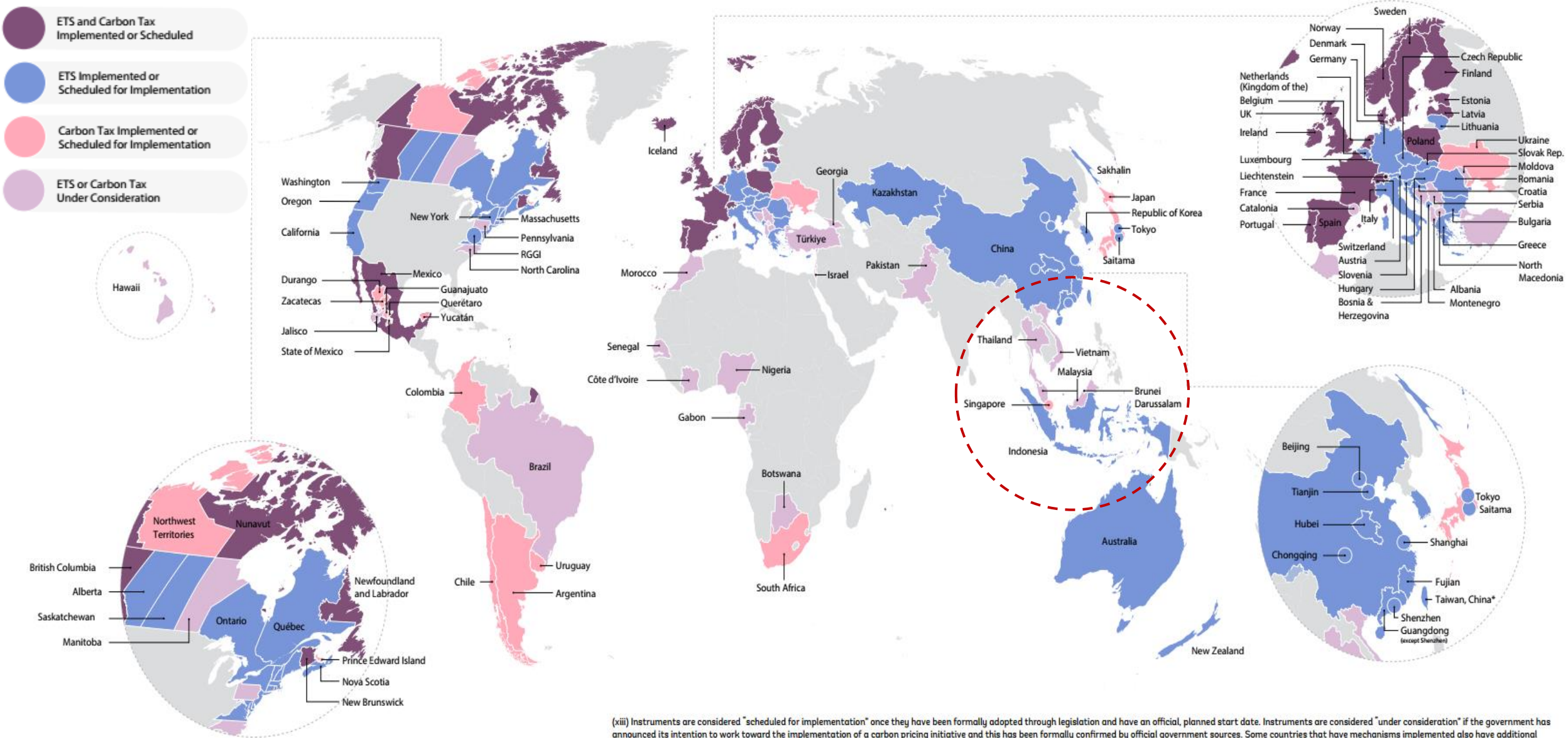
While carbon pricing already exists in many forms in ASEAN, it is less clear how these revenues are being plough back into the industry for decarbonization. Singapore, for example, only allows 5% of the carbon tax to be offset by credits.



GLOBAL CARBON PRICING EFFORTS

MAP OF CARBON TAXES AND ETSs^(xiii)

- ETS and Carbon Tax Implemented or Scheduled
- ETS Implemented or Scheduled for Implementation
- Carbon Tax Implemented or Scheduled for Implementation
- ETS or Carbon Tax Under Consideration



(xiii) Instruments are considered "scheduled for implementation" once they have been formally adopted through legislation and have an official, planned start date. Instruments are considered "under consideration" if the government has announced its intention to work toward the implementation of a carbon pricing initiative and this has been formally confirmed by official government sources. Some countries that have mechanisms implemented also have additional instruments under consideration. For subnational jurisdictions only the subnational instrument is reflected.

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EU'S CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

CBAM is in a transition phase and will come into effect on 1 January 2026, covering 6 main sectors

For the Iron & Steel industry, it includes CO2 only, excludes indirect emissions (electricity) in the initial phase

Reasons for CBAM

To address carbon leakage:

- Companies moving production to countries with lower emission standards to avoid carbon costs
- EU products get replaced by more carbon-intensive imports

Expectations

- Puts a fair price on carbon intensive imports into the EU
- Encourages cleaner production in non-EU countries
- Support the decarbonization of the EU Industry

30 Jun 2021

Climate Neutrality by 2050

10 May 2023

CBAM Legislation Passed

01 Jan 2026

Permanent System in Place

14 Jul 2021

55% GHG Reduction by 2030 vs 1990
Carbon Border Adjustment Mechanism

01 Oct 2023

Transitional Phase Starts
(Testing & Learning)

31 Dec 2034

Free Allocations Phased Out

Sectors Covered

- Aluminum (direct emissions)
- Iron & Steel (direct)
- Hydrogen (direct)
- Cement (direct, indirect)
- Fertilisers (direct / indirect)
- Electricity (direct / indirect)
- Precursors (agglomerated iron ores, ferro-chrome and ferronickel)
- Certain downstream products, such as screws and bolts and similar articles of iron or steel

Exclusions

- Precursors such as coke & ferro alloys
- Indirect emissions from electricity (Scope 2), to harmonise with the EU-ETS and align with WTO
- All GHG except CO2 (iron and steel)

CBAM IMPLEMENTATION

While the system is in place, CBAM Phase In and Free Allowances Phase Out (EU ETS) will provide time for the European industry to prepare for competition against high carbon emission imports

Process for Transitional Phase and Permanent System

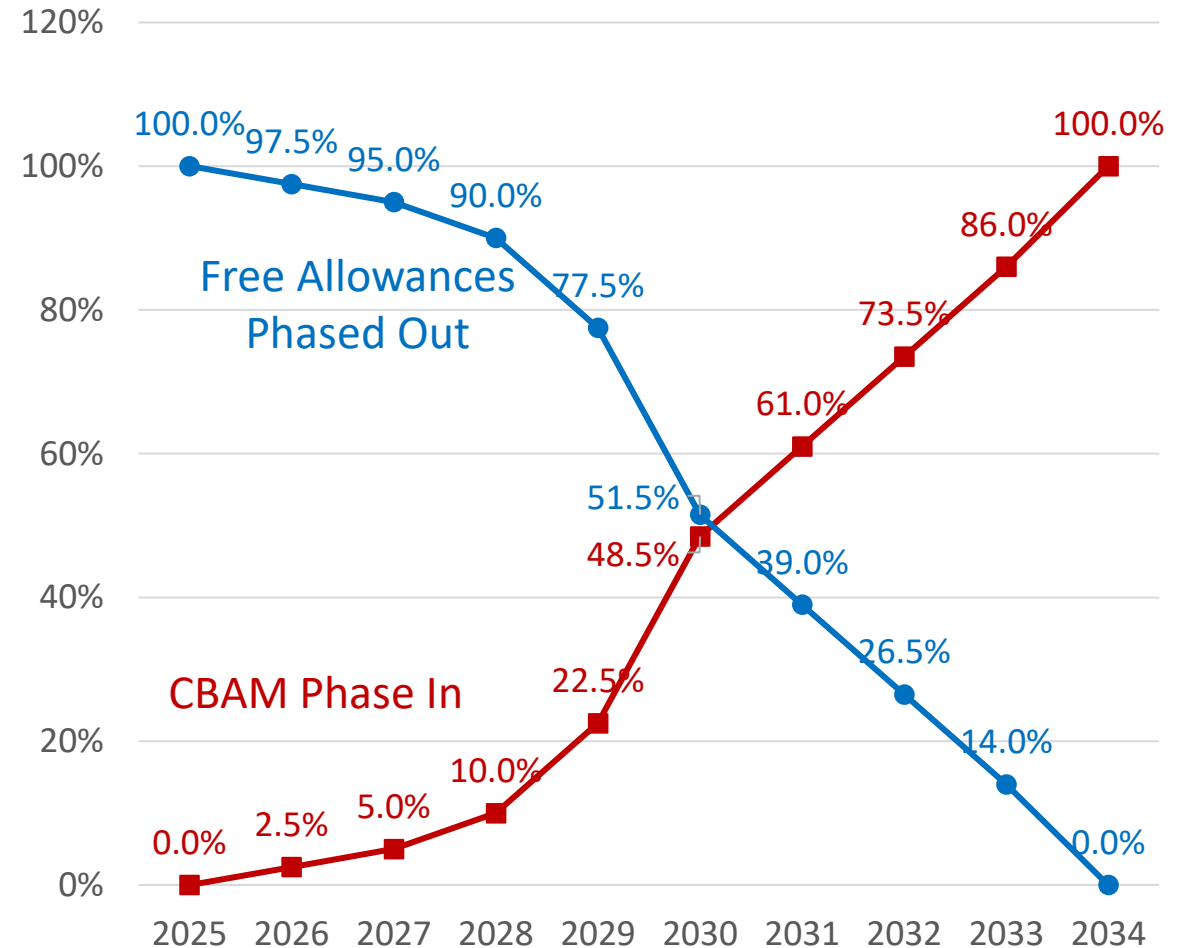
Transitional Phase (1 Oct 2023)

- Importers to report GHG emissions embedded in their imported goods
- No financial payments/adjustments
- Transition to serve as
 - As a pilot and learning period for all stakeholders
 - To collect information on embedded emissions to refine the methodology further

Permanent System (1 Jan 2026)

- Importers need to:
 - Submit annual declarations on import quantity and embedded GHG emissions
 - Surrender required CBAM certificates
 - Price of certificates based on the weekly average auction price of EU ETS allowances (€/tCO₂)
- Free allocations under the EU ETS will be phased out from 2026-2034

Free Allowances Phase Out and CBAM Phase In (%)



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ASEAN TAXONOMY V2 (1/2)

ASEAN has released the second version on ASEAN Taxonomy for Sustainable Finance, with commitment towards limiting global temperature to way below 2°C and being climate resilient

Tier 1: Foundation Framework (FF)

Environmental Objectives and Essential Criteria

Environmental Objectives (EO)

- E01: Climate Change Mitigation
- E02: Climate Change Adaptation
- E03: Protection of Healthy Ecosystem & Biodiversity
- E04: Promote Resource Resilience & Transition to Circular Economy

Essential Criteria (EC)

- EC1: Do No Significant Harm
- EC2: Remedial Efforts to Transition
- EC3: Social Aspects (*new*)

Qualitative Assessment for EO and EC

Classification System (sector agnostic)

Green – FF:

Meets one or more of the environmental objectives and does no significant harm

Amber – FF:

Meets one or more of the climate and environmental principles, but causing harm. Nevertheless, making efforts to remediate

Red – FF:

Causing harm and no efforts to remediate

Tier 2: Plus Standard (PS)

Technical Screening Criteria for 6 Focus Sectors and 3 Enabling Sectors & Activities (*new*)

Sectors & Activities Within

Focus Sectors:

1. Agriculture, forestry & fishing
2. Electricity, gas, steam and air conditioning supply
3. Manufacturing
4. Transportation & storage
5. Water supply, sewerage, waste mgmt.
6. Construction & real estate

Enabling Sectors

1. Information & communication
2. Professional, scientific & technical
3. Carbon capture, storage & utilisation

Technical Screening criteria for EO and EC

Classification System

Green Tier 1:

Benchmarked to the 1.5°C target

Amber Tier 2:

Harm Remediated within 3.5 years

Amber Tier 3:

Harm Remediated within 5 years

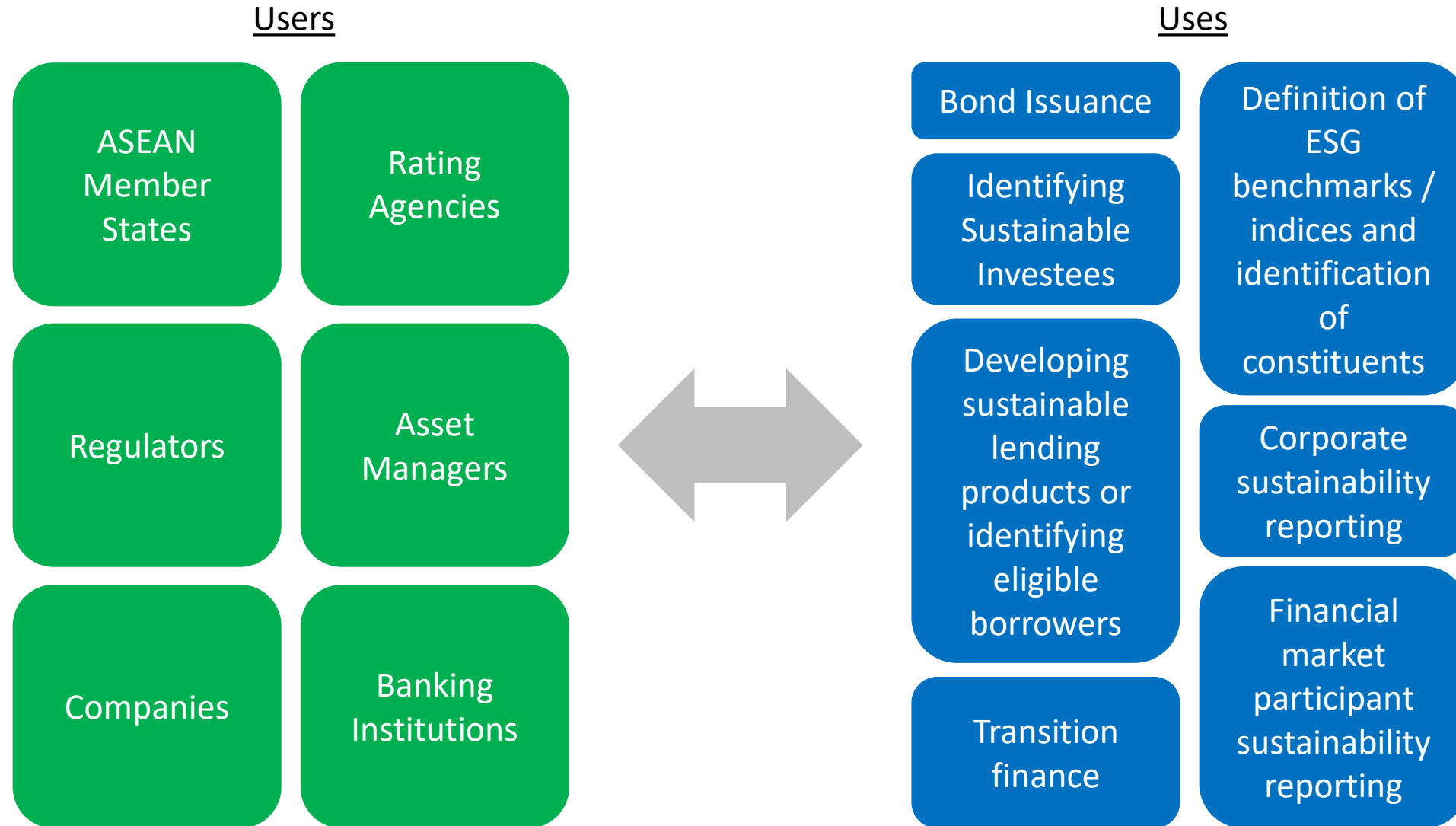
Red:

Fail to Remediate Harm within 5 years

ASEAN TAXONOMY V2 (2/2)

The Taxonomy is going to influence financing considerations as well as reporting requirements

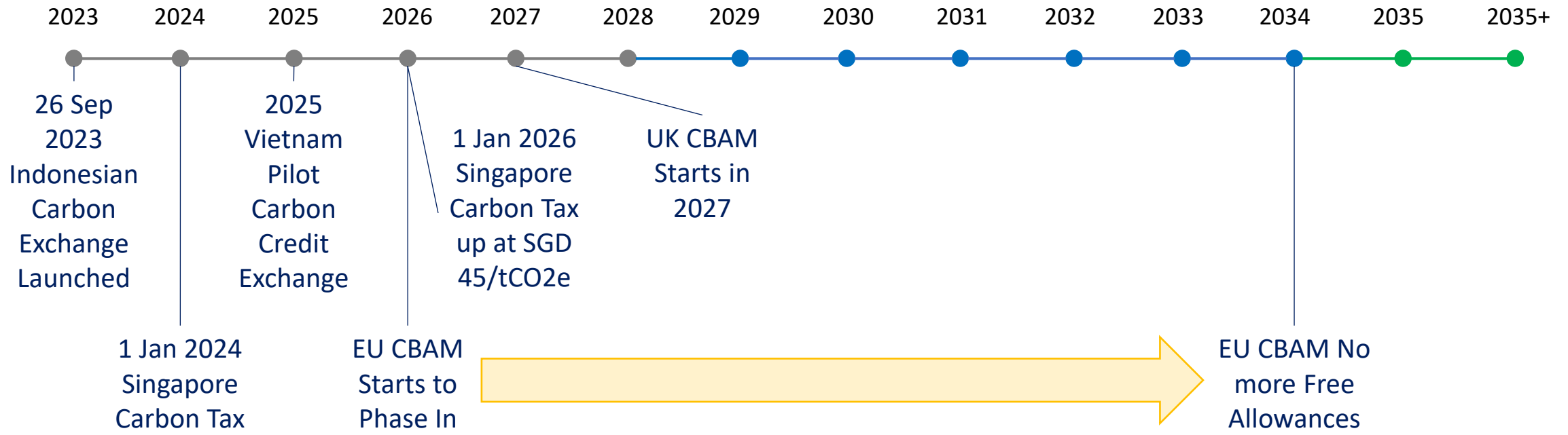
Financial Institutions today are already looking to use or are starting to use the ASEAN / National Taxonomy



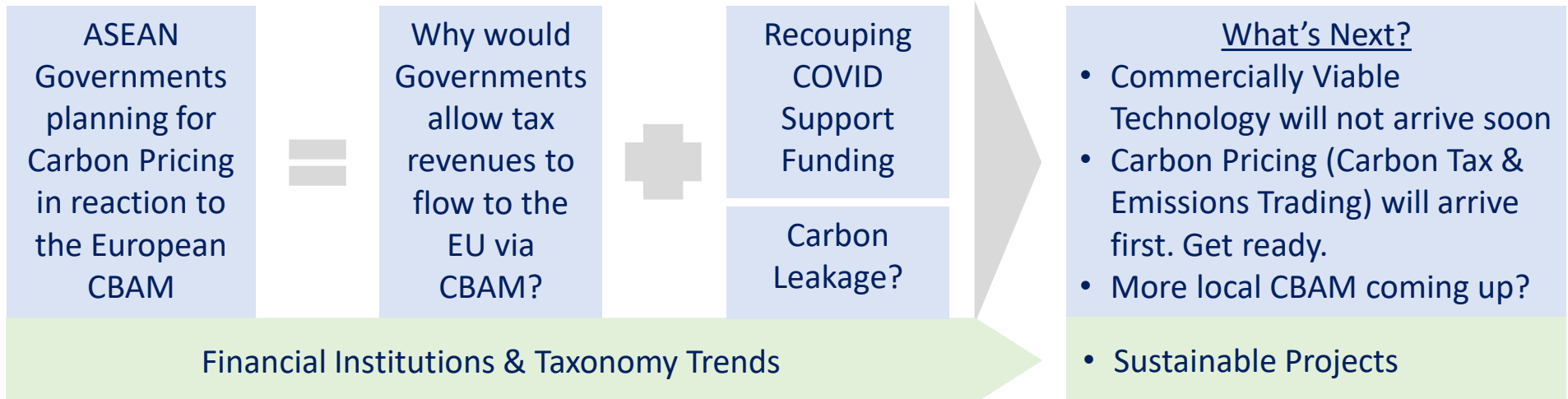
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WHAT IS COMING UP NEXT?



2024 Thailand is expected to introduce carbon tax



WAY FORWARD

Climate change efforts is a journey that require Industry Actions and Public Private Engagement towards a Sustainable Future, and a need for Industry and Customers to align and work towards a low carbon future

Industry

Public Private Sector Engagement

Short Term
(~6 months – 1 year)

Current Efforts:

1. Alternative Energy (Solar)
2. Raw Material Substitution
3. Energy Savings
4. Recycling

Medium Term
(1 – 2 years)

New Initiatives:

1. LT Climate Change Strategy
2. Preparation for MRV & EPDs
3. Carbon Credits (HQ, Projects)
4. Upgrading Old Facilities

Long Term
(beyond 2 years)

LT Considerations:

1. Investment (Green Tech)
2. Access to Transition Finance
3. Raw Material Security
4. Adaptable Technologies



Policies (Industry Side)

- a. Clear Direction
- b. Transition Carbon Pricing
- c. Carbon Funds Allocation
- d. MRV Systems & EPDs

Policies (Industry Side)

- a. Local “Green Deals/IRA”
- b. Access to Renewable Energy
- c. Access to Green Technology
- d. Access to Transition Finance

Policies (External Side)

- a. Incoming Investment Policies
 - Green technology, H2
- b. Raw Material Security
- c. Carbon Leakage & CBAM

Policies (External Side)

- a. Green Market Development
 - Green Construction
 - Green Procurement
- b. Subsidised Imports

The key towards a low carbon future lies in close public private sector engagement and alignment

There is a need for the Industry and Customers to align and work together towards a low carbon future

*Thank You
for
Your Kind Attention*



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