

INTERNATIONAL INITIATIVES AND POLICIES THAT WILL IMPACT YOUR BUSINESS IN ASIA AND BEYOND



Lucas Grimes
Senior Manager, Policy
Center for Resource
Solutions



Owen Chen
CTO
Concord New Energy
Group Limited



Kate Roh
Head of Global Markets
CNerG



Chee Yong Lee
Chief Operating Officer
REDEX

Wednesday, 30 April 9:00-10:00 AM



CBAM and Its Impact: Global Initiatives Reshaping Renewable Markets

30 April 2025

What Is CBAM (Carbon Border Adjustment Mechanism)?

The EU's Carbon Border Adjustment Mechanism (CBAM) is a pricing mechanism designed to ...

01

Impose a fair price on carbon emissions associated with the production of imported goods into the EU

02

Prevent “carbon leakage”, where businesses move production outside the EU to countries with weaker environmental regulation

Important CBAM Timeline



What Is CBAM?

Product Scope

2027

Product scope includes: cement, iron and steel, aluminum, fertilizers, electricity, hydrogen.

2030

Starting from 2030, all products imported into the EU will be subject to the CBAM regulations.

Important CBAM Timeline

CBAM Regulation adopted

2023

2024

2025

2026

2027

2030

Transitional Period
(Oct 2023 ~ Dec 2025)

Full Execution

Definitive Period
(Feb 2027 ~)

Scope Extension (to all products)

Source Country	Type	CO ₂ Intensity (tCO ₂ e per tonne of steel)	Transportation CO ₂ e (to EU)	Total CO ₂ e per tonne
Germany	Internal	1.3	0.1	1.4
Thailand	External	2.2	0.5	2.7
China	External	2.7	0.6	3.3

Calculating the CBAM Cost



CBAM Calculation Example

Assume the company imports 1,000 tonnes of steel per year

Source Country	Total Emissions	CBAM Price	Total CBAM Cost
Germany	1.4 t x 1,000	€0 (internal EU)	€0
Thailand	2.7 t x 1,000	€85	€229,500
China	3.3 t x 1,000	€85	€280,500

CBAM Compliance: Exporter's Carbon Strategy

01

Assess and track the carbon emissions of your products

- ✓ Demonstrate the carbon intensity (i.e., emissions per unit of product) to comply with CBAM.
- ✓ Emissions at all stages of production, from raw materials sourcing to transportation, should be measured to be a competitive supplier to EU. consider carbon accounting software etc.

02

Explore carbon reduction strategies

The more you reduce emissions, the less you will be impacted by CBAM

The following methods may be adopted:

- ✓ Direct On-Site PPA
- ✓ Carbon Capture, Utilization, and Storage (CCUS)
(Needs to involve direct involvement of CO2 capturing)
- ✗ Market-based certificates (GO, REC, etc.,)
- ✗ Voluntary carbon credits

CBAM Compliance: Importer's Role

01

Report Embedded Emissions

- ✓ Declare embedded emissions and surrender the corresponding numbers of CBAM certificates.
- ✓ Work in collaboration with exporters to ensure compliance. Third-party verification can be considered to verify the emissions data to ensure credibility when submitting to the EU authorities.

02

Claim for Reduction

- ✓ Importers can claim the reduction in the number of the CBAM certificates proportionally to the carbon price paid in the country of origin.
- ✓ To maximize the reduction in certificates required: Declare the carbon price already effectively paid in the country of origin of production.

Calculating the CBAM Cost



CBAM Calculation Example

Assume the company imports 1,000 tonnes of steel per year

Source Country	Total Emissions	CBAM Price	Total CBAM Cost
Thailand	(2.7t - 2.5t) * 1000 Rooftop Solar PPA + CCUS	€85	€17,000
China	(3.3t - 0t) * 1000 Unbundled REC + voluntary carbon projects	€85	€229,500

Aligning With CBAM: Case Studies

Case Studies: China, Vietnam, and Thailand — introducing **Carbon Pricing** and advancing **Green Energy Procurement** in Response to CBAM



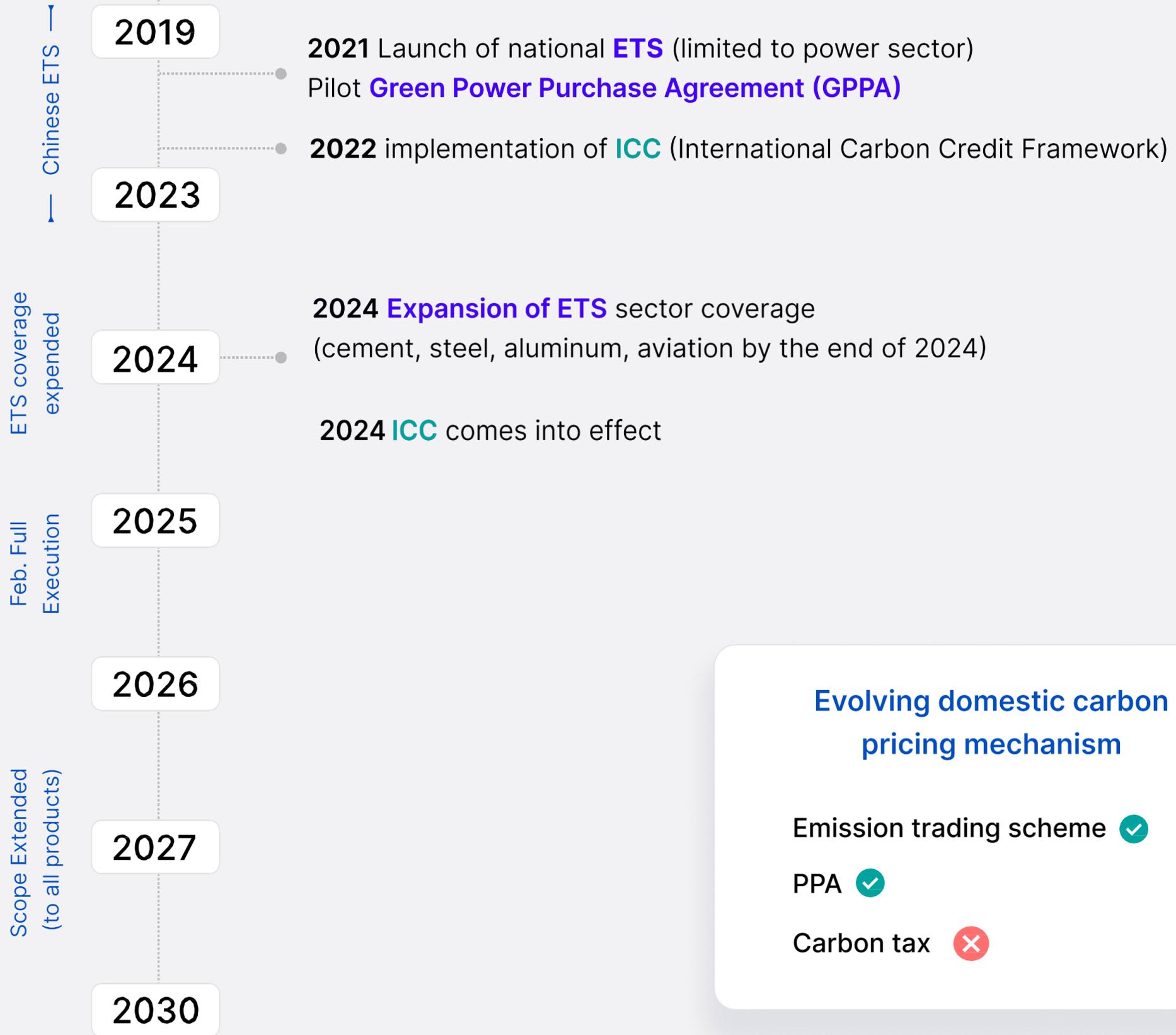
One of the largest exporter
to the EU



One of the top cement exporters
among ASEAN countries

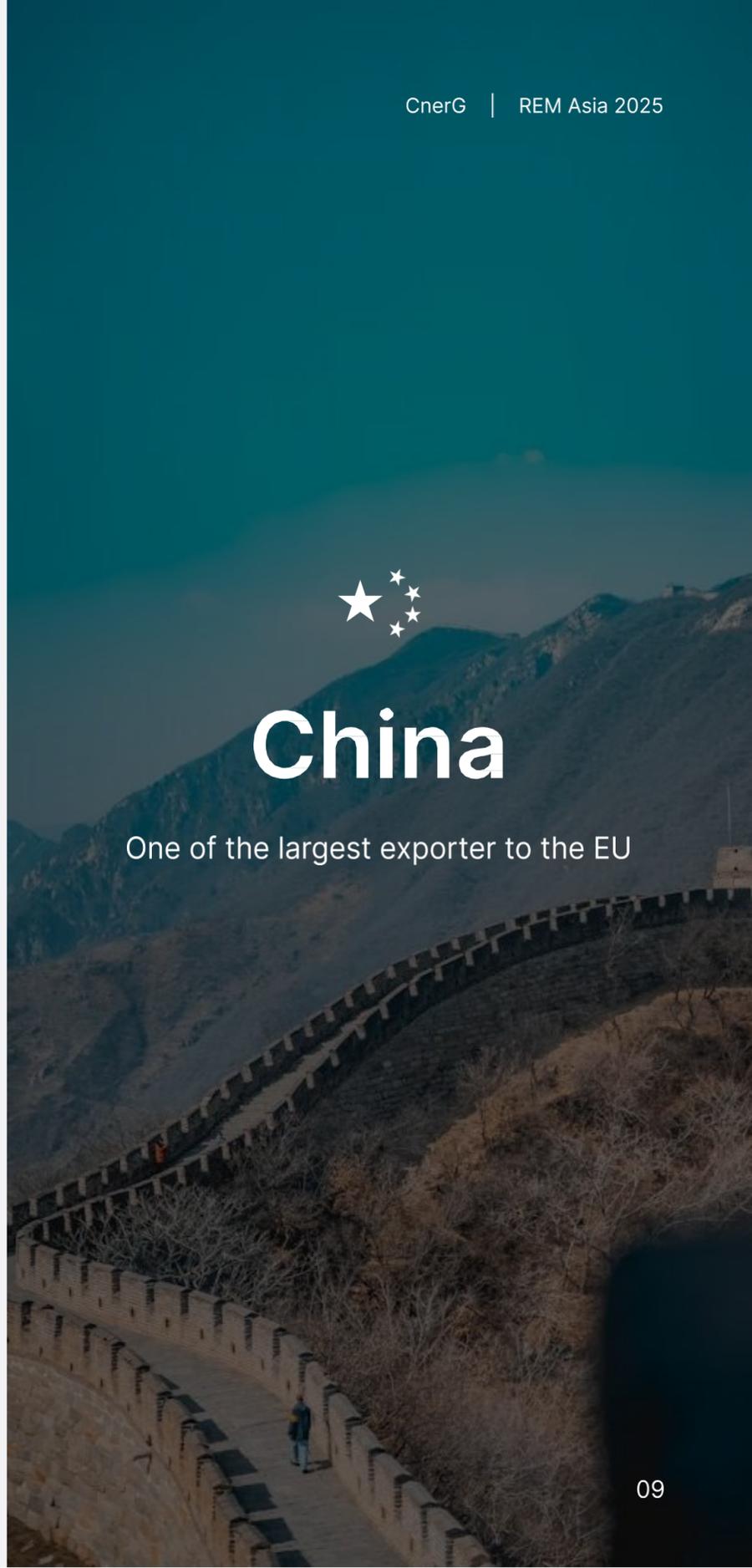


Recently expanded trade
partnership through a FTA
with the EU



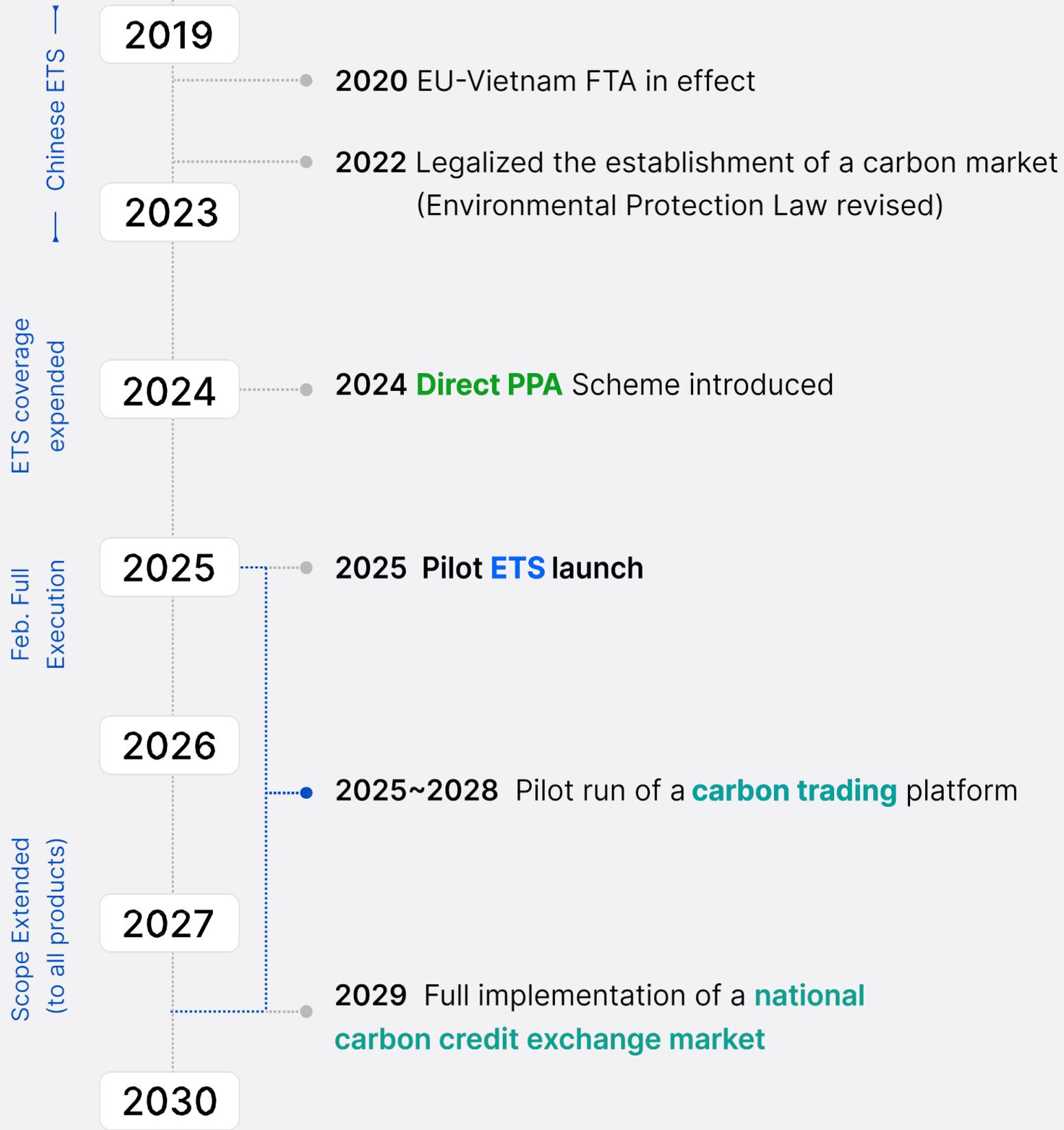
Evolving domestic carbon pricing mechanism

- Emission trading scheme ✓
- PPA ✓
- Carbon tax ✗



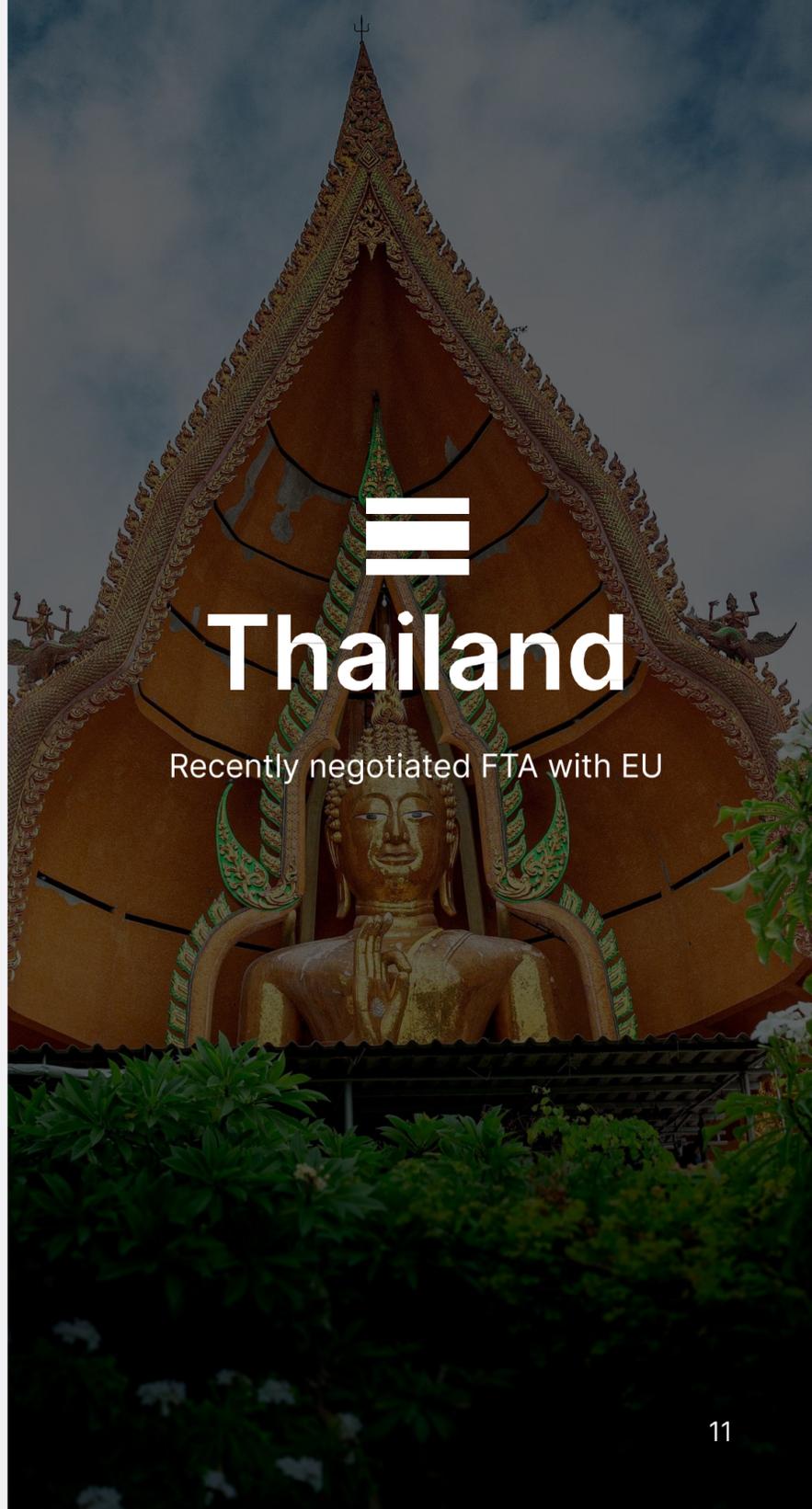
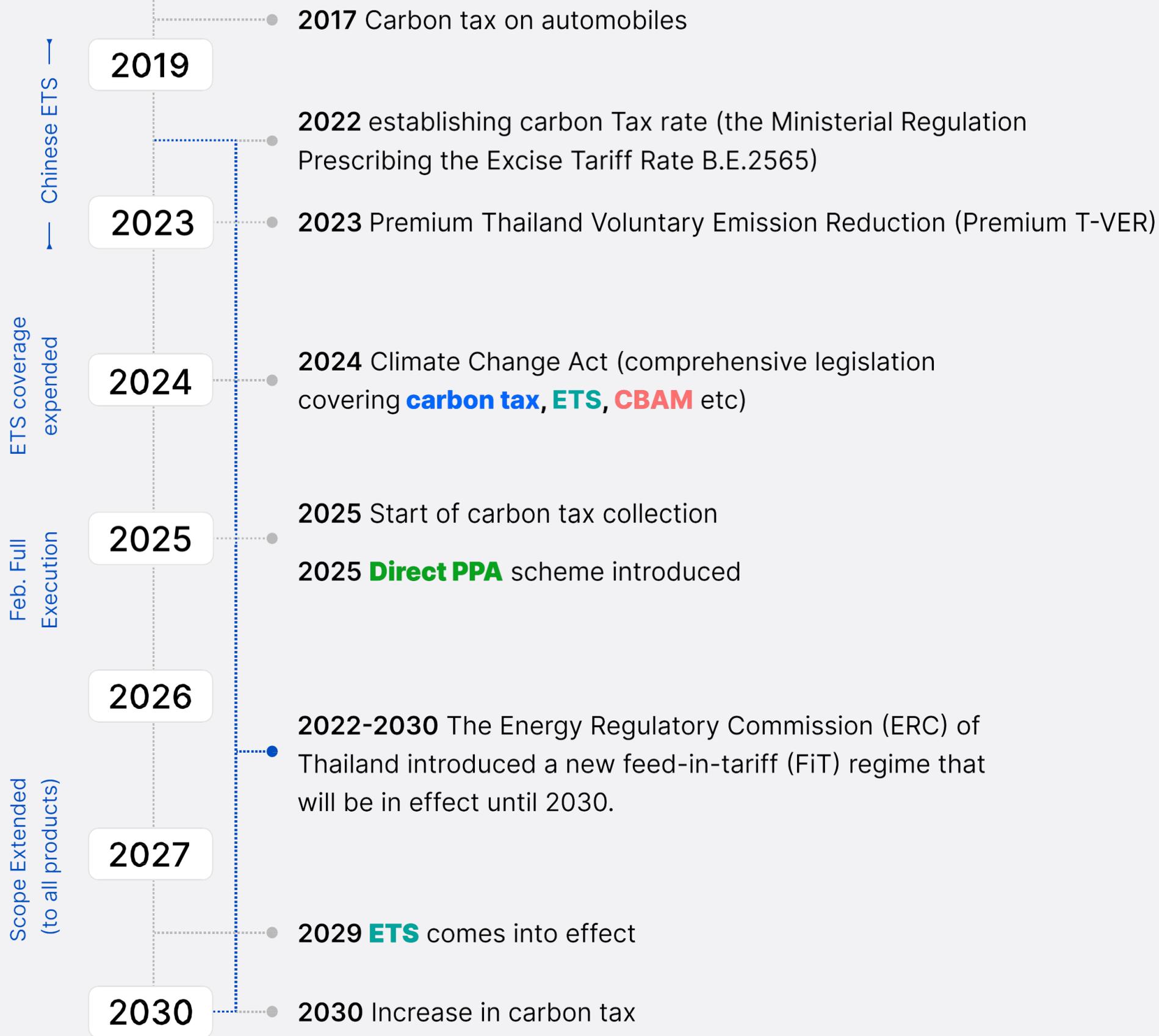
China

One of the largest exporter to the EU



★ Vietnam

One of the top cement exporters to the EU among ASEAN countries



≡
Thailand

Recently negotiated FTA with EU

Regional Expertise: **Korea, Taiwan, Singapore**



Strong Supplier Infrastructure Network

Leveraging strong relationships with local generators and utilities, CnerG can provide renewable energy solutions even in some of the most challenging markets like Korea, Japan and Taiwan.

 **Korea**

Leveraging strong relationships with local generators and utilities in a closed market, CnerG facilitates access to unbundled RECs, VPPAs/PPAs, and direct solar rooftop installations.

 **Taiwan**

Provides RE100-compliant biomass and solar T-RECs redemption, with PPA/CPPA solutions ensuring a reliable supply at competitive prices.

 **Singapore**

Provides comprehensive solutions, offering I-RECs, TIGRs, and VPPAs to secure long-term energy supply agreements, ensuring stable sourcing.



Expertise on Local Regulations and Policies

Closed markets, scarce supply, local REC mechanisms, and low liquidity make renewable energy procurement difficult for global companies. CnerG offers a comprehensive solution by combining direct solar rooftop installation with PPA/VPPA and unbundled certificates.

Renewable Energy Business Environment Is Changing Fast

Domestic

- ✓ Transformation of RE support scheme (E.g., FiT to FiP (Japan))
- ✓ Increase in available procurement options in Asian countries (establishing legal framework for PPA, VPPA)

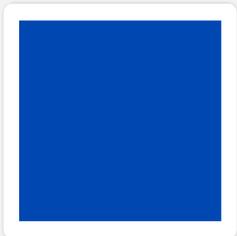
International

- ✓ China's global dominance in RE project/tech and supply chain
- ✓ New net zero initiatives, 24/7 CFE (different from RE100, requiring real time tracking and reporting)
- ✓ COP 29 consensus on the global carbon market
- ✓ US step back from environmental efforts (stopped disbursing IRA funds)



**CnerG, Making
Net Zero a Reality.**

Thanks!



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Updates on the Greenhouse Gas Protocol Scope 2 Process and Timelines

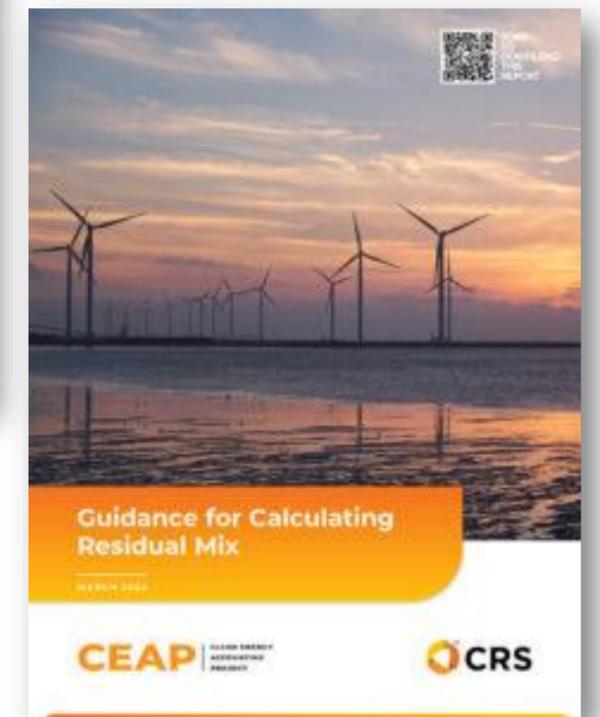
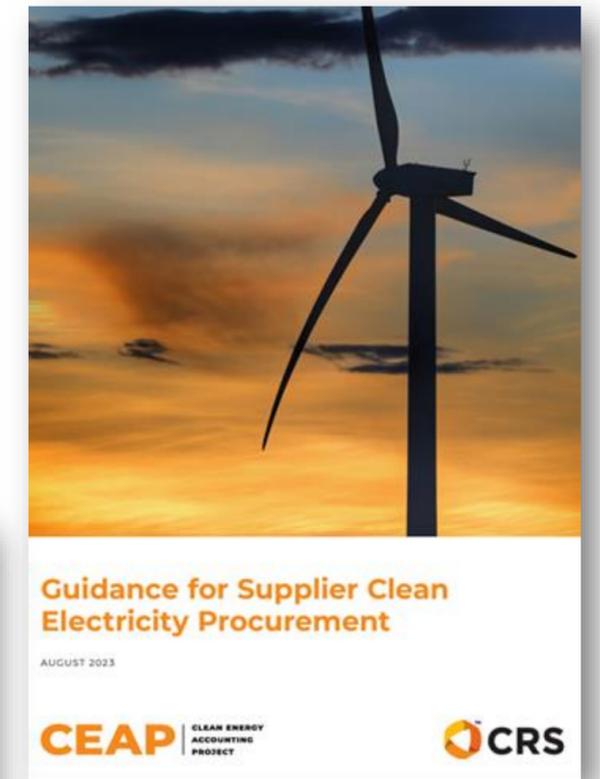
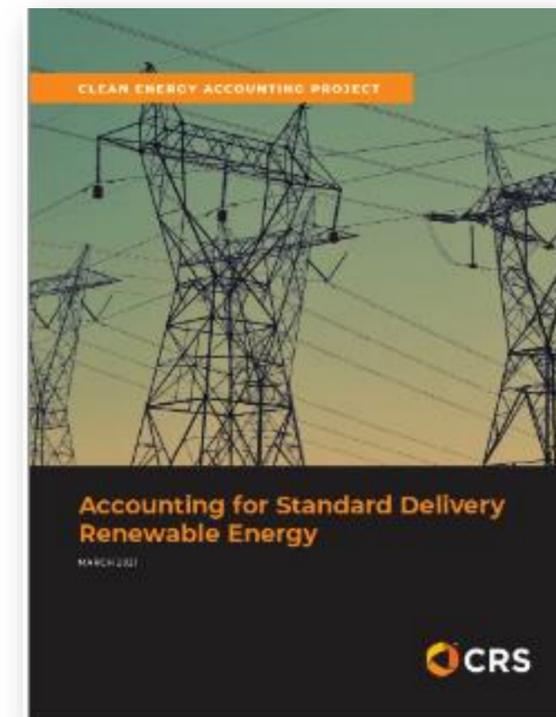
Lucas Grimes, Senior Policy Manager
Center for Resource Solutions (CRS)



About Center for Resource Solutions

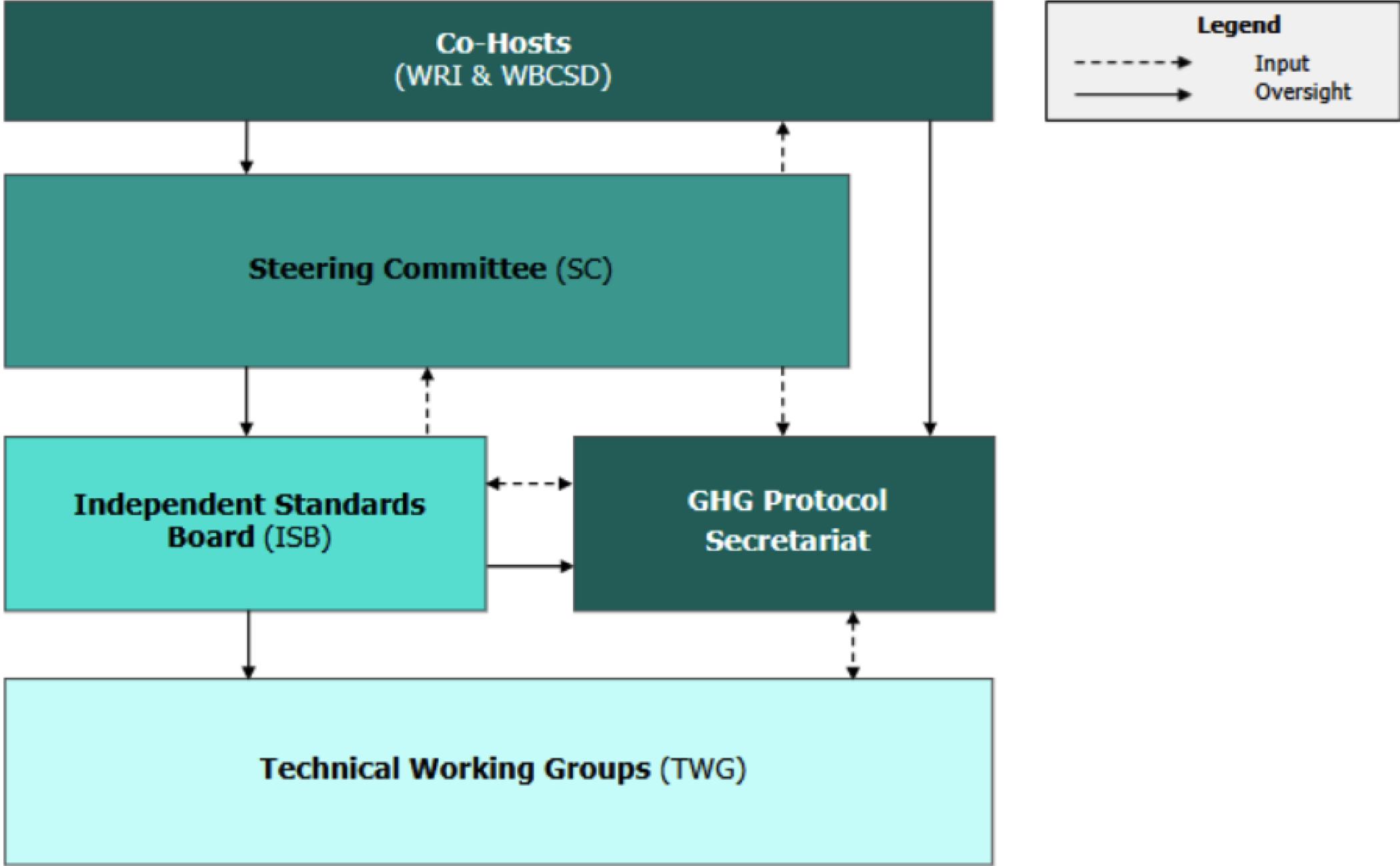
Nongovernmental Organization (NGO) creating policy and market solutions to advance sustainable energy since 1997.

- Renewable energy and climate policy
 - Clean Energy Accounting Project (CEAP)
- Renewable Energy Markets conferences
- Green-e® certification for suppliers and users of renewable electricity, carbon offsets and biomethane in the voluntary market
- Mission-driven advisory services



GHGP Scope 2 Updates: Structure

Governance Structure



GHGP Scope 2 Updates: Timeline

Objectives & Decision-making Process

Phase 1 Objectives

1. Clarify objectives and consider any changes to the accounting and reporting requirements of scope 2
2. Location-based method technical improvements
3. Market-based method technical improvements
4. Role of project-based accounting methodology relative to scope 2 accounting
5. Guidance for regional variation in energy markets
6. Interaction with policies and programs

Phase 2 Objectives

1. Interactions across scope 2 and scope 3, and accounting and reporting for corporate actions and market instruments
2. Guidance for purchased steam, heat, and cooling
3. Utility-specific guidance on T&D losses technical methodology guidelines for data providers
4. Technology specific guidance

Where we are now

- TWG building towards Phase 1 draft
- Significant stakeholder comment expected in public consultation period (Q4 2025)
- Evaluation of proposals or alternate suggestions must utilize the decision making criteria (organized in a hierarchy):



Key Topics & Ideas

Phase 1 - Location-Based Proposals

1. Location-based emission factors
 - a. Temporal boundaries
 - b. Spatial boundaries
 - c. Consumption vs production based
2. Location-based hierarchy proposals
 1. Option 1: Consumption → Spatial → Temporal
 2. Option 2: Spatial → Temporal → Consumption/production
3. Estimated activity data

Phase 1 – Market-Based Proposals

1. **Temporal** and **geographic** market boundaries
2. Role of causality, incrementality, standard supply service
3. Estimated vs actual activity data
4. Treatment of residual mix
5. Dual reporting, goal setting and tracking, and additional metrics
6. Refinement of purposes, uses, and claims; clarification on reporting impacts

Key Themes to Date

1. Dual reporting
2. Physical deliverability
3. Thresholds for temporal granularity
4. Standard delivery of resource mix and clean energy
 - Renewable Portfolio Standards
5. Impact requirements

Temporal matching in the MB method

- Likely proposed as a requirement (shall statement) for companies to use hourly matching where supplier data is available
 - May be limited to companies or operations that meet a certain threshold
 - Threshold could be based on total load, or other options.
- Estimation of hourly load data would increase feasibility of matching load to hourly generation data.
 - **Can hourly estimates credibly support hourly use claims in the MB method?**

Physical Deliverability in the MB method

- Strong support (TWG & ISB) for defining geographic market boundaries based on the deliverability of power
 - Justifications:
 - credibility issue (integrity criteria)
 - means of driving generation closer to demand to transform (impact criteria)
- Deliverability does not yet have an accepted definition
 - Most in TWG seeking balance between perception of physical deliverability and market liquidity.
 - In US, all proposals would shrink the market available to customers. **What will be the impact on activity in the market as a whole?** (impact)
 - **What opportunities, if any, should be available for cross market procurement?** (impact)

Proposed Additional Restrictions on Voluntary

1. **Incrementality criteria** – Voluntary procurements can only be counted if they meet criteria that indicates the procurement contributes to incremental CFE generation (e.g., facility age, original off taker, subsidy limits).
2. **Grid-Based Limit** – Voluntary claims cannot exceed the share of clean energy on the grid at a given time.
3. **Bundled procurements** – Voluntary procurements can only be counted if a reporter procures contractual instruments associated (e.g., “bundled”) with generation in combination with electricity.
4. **Causality tests** – Voluntary procurements can only be counted if they meet criteria that indicates proof of causality (e.g., regulatory, financial, etc).
5. **Temporal and spatial granularity + Standard Supply Service allocation only**– Voluntary claims are required to meet temporal matching, deliverability, and other Quality Criteria, without further tests or restrictions.

Takeaways:

1. The market-based method and use of Energy Attribute Certificates will continue!
2. Temporal matching will likely be required for companies that meet a certain threshold of energy use.
3. Market boundaries will likely be limited by physical deliverability of energy.
4. Public comment draft expected later this year (fall), but you should keep up to date by reviewing the technical working group meeting materials on the GHGP page.

Feed-in Tariffs (FIT) & Renewable Portfolio Standards (RPS)

FIT/RPS and a Successful Voluntary Markets

1. Legal Basis for Claims And Attribute Transfer

2. Regulatory Surplus

**3. Attractive Product Options
(Price and/or Impact)**



Example: Feed-in Tariff (FIT) and Voluntary Renewable Energy Markets

1. Ratepayers fund the feed-in tariff for more renewable energy
2. A corporation builds a solar project and receives FIT funding
3. The solar project generates renewable electricity
4. The renewable benefits or environmental attributes belong to all the ratepayers

Example: Feed-in Tariff (FIT) and Voluntary Renewable Energy Markets

Typically, a project that receives a FIT premium can not also receive a REC or EAC and make a credible claim that they own the sole rights to the renewable electricity that is generated

Example: Renewable Portfolio Standards (RPS) and Voluntary Renewable Energy Markets

1. RECs are typically used as the instrument for RPS compliance
2. Best practice: **use the same REC tracking system** for both RPS markets and the voluntary market to avoid double counting
3. If all renewable energy generation in a region or country counts towards the RPS, the voluntary market will not exist

Takeaways:

1. Voluntary markets rely on unique claims that avoid double counting.
2. Voluntary procurement should be surplus to regulation.
 - a. Examples: FIT and RPS generation is not voluntary, but belongs to all ratepayers.

Contact.

Lucas Grimes

Senior Manager, Policy and Market Development

Lucas.Grimes@resource-solutions.org



www.resource-solutions.org

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**Renewable Energy
Markets™ Asia 2025**

*International Initiatives and Policies that
will impact your business in Asia and
beyond*



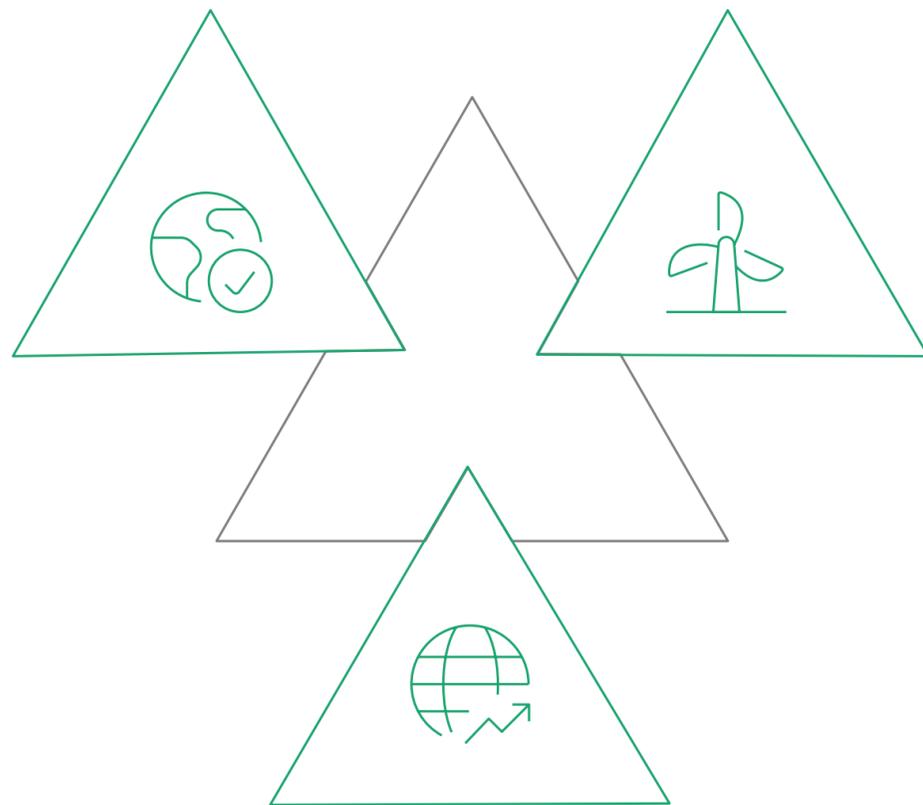
Trace, Trade, Trust
www.redex.eco

*Renewable Energy Certificates in Asia &
Market Innovations*

How International RECs Standards can help Asia REC Markets?



Contributions to Climate Goals



- ▶ **Renewable Energy Projects**
Local initiatives harnessing sustainable energy sources
- ▶ **Global Market Access**
Connecting local projects to international markets
- ▶ **Climate Credibility**
Ensuring trust in individual country climate commitments



I-REC(E) /TIGR Standard Recognition

-  **Environmental Integrity**
-  **Traceability**
-  **Transparency**
-  **International Acceptance**
-  **Increased Market Volume**



Singapore Standard SS673

- ✓ Comprehensive code of practice for RECs established in 2021
- ✓ Guidelines for proper management and use of RECs
- ✓ Framework applies to domestic and imported energy
- ✓ Ensures access to trusted sources of renewable energy



Malaysia Green Attribute Tracking System

mGATS is Malaysia's national marketplace for trading and tracking Renewable Energy Certificates, launched in 2021.

- ✓ Centralized platform for REC issuance, trading, and retirement
- ✓ Malaysian-based national registry and marketplace
- ✓ Supports Green Electricity Tariff (GET) program



Cross-Border Initiatives



Malaysia-Singapore Collaboration

Joint study launched in January 2025 to establish a bilateral REC framework for cross-border electricity trading

ASEAN Power Grid Integration

Malaysia participates in ASEAN initiatives to develop regional frameworks for REC recognition and trading

Export Potential

Malaysia's abundant renewable resources position it as a potential major exporter of RECs to Singapore and other neighbors

Asia RECs Frameworks – China



Key Features of China's GEC System

Government-Led

Centralized system managed by National Energy Administration

World's Largest Market

Aligned with China's position as top renewable energy producer

Price Volatility

Significant price fluctuations reflecting supply and policy changes

RE100 Recognition

GECs increasingly accepted for corporate renewable energy goals

Market & Pricing Trends

Price Evolution

2017-2021: CNY 30-50/MWh

Early 2023: CNY 30-50/MWh

Mid 2024: CNY 1-10/MWh

Green Electricity Certificate (GEC) System

China's domestic energy attribute certificate mechanism for tracking renewable energy production and consumption, launched as a pilot program in 2017.

- Enables businesses and individuals to voluntarily purchase and claim renewable energy
- Each GEC represents 1 MWh of renewable electricity
- Endorsed by the National Energy Administration (NEA)
- Surging issuance amid clean energy capacity expansion

GEC System Evolution

- 2017**
Initial GEC pilot program launched for voluntary market
- 2021-2023**
Coexistence of GEC and I-REC systems in Chinese market
- December 2023**
First batch of new GECs issued under updated framework
- March 2025**
New guideline on high-quality development of GEC market
- Late 2024**
I-REC announced exit from Chinese market amid policy changes

GEC vs I-REC Transition

Domestic GEC System

Officially supported by Chinese government; preferred for domestic companies and state entities

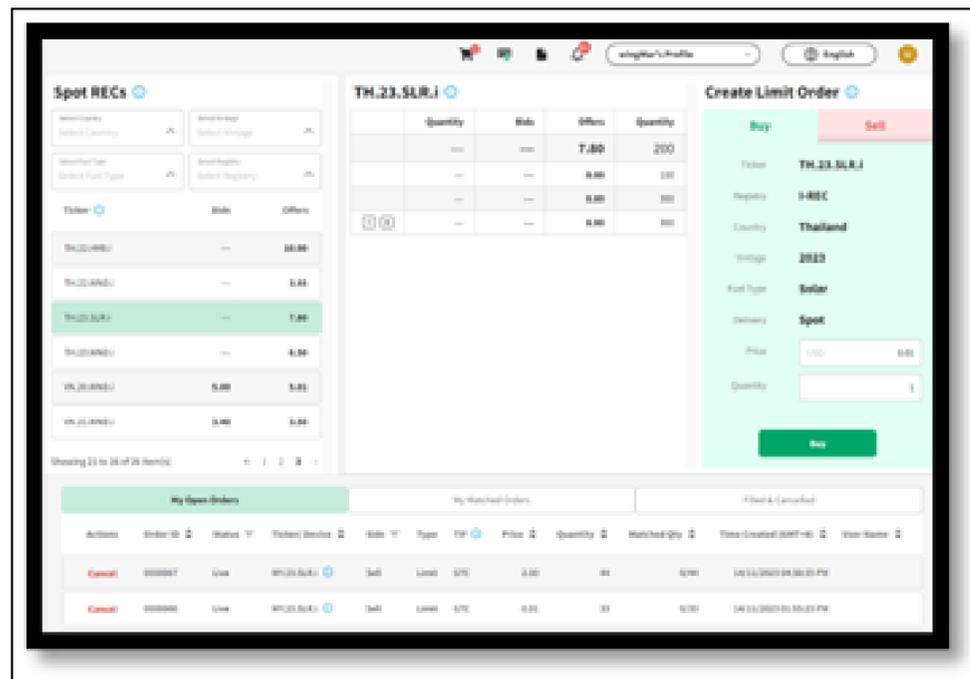
I-REC Exit

International standard exiting the Chinese market in favor of domestic system; previously popular with MNCs

RECs Market Mechanisms

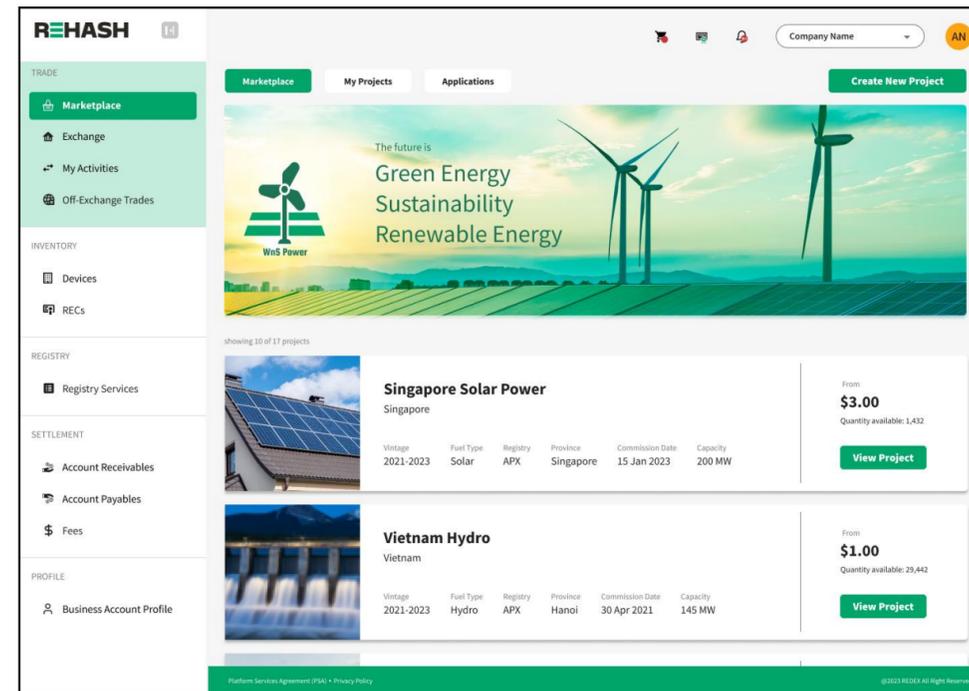


RECs Exchange



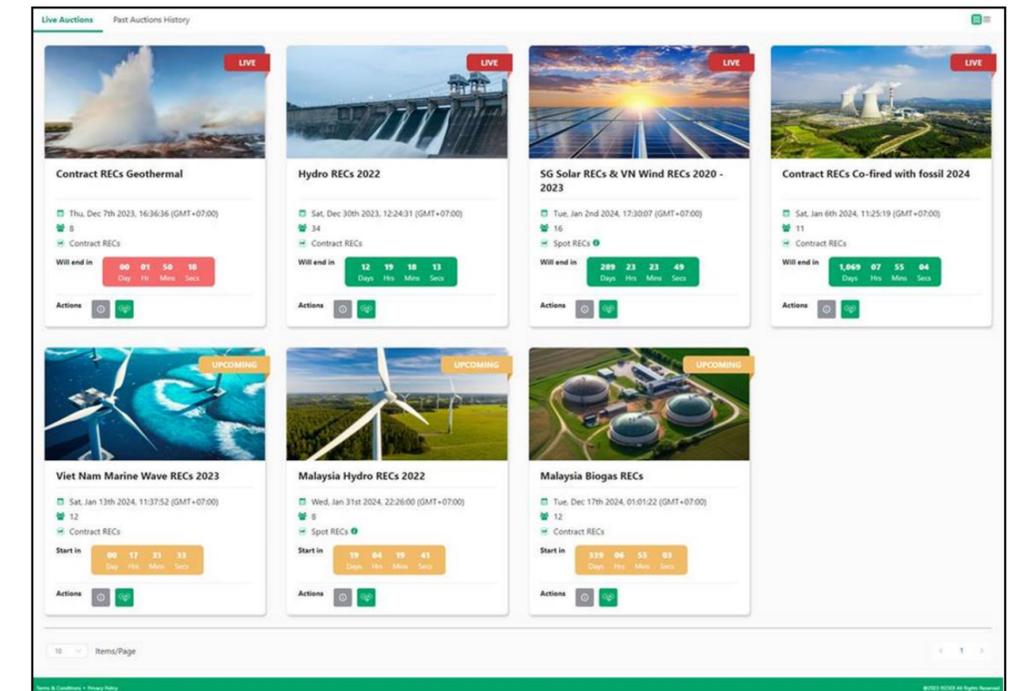
- Buyer and Seller set own prices
- Free Market mechanism to perform matching
- I-REC / TIGR / GEC Registry Support

Impact Marketplace



- Feature Projects with Social Economical Benefits

Auction (Forward and Reverse)



- Single seller with Market Control Places RECs in Auction
- Multiple buyers come in to bid
- Highest bidders win



Distributed Solar Rooftop Onboarding



Digital Asset Registration

< 250 kW • Instant Approval • Document-Free



Automated Verification

Duplicate Detection • Established Database



Automated REC Issuance

Monitoring Data Sync • API Channel

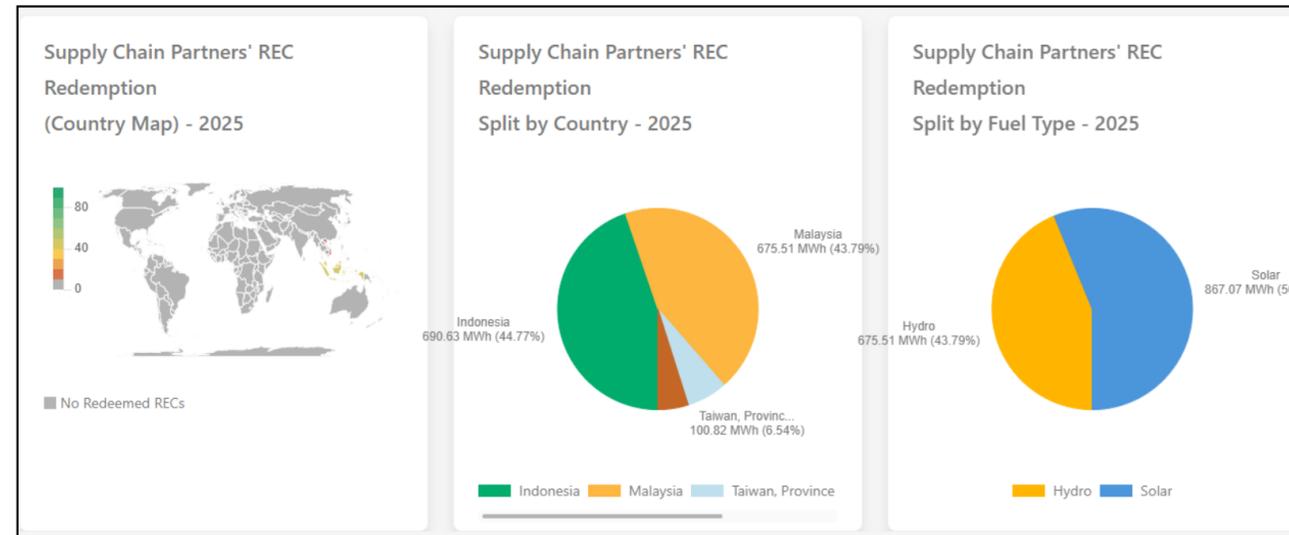
Supported Inverter Brands



- Add Value to complement country level solar program, for example:
- **Malaysia Corporate Renewable Energy Supply Scheme (CRESS)**
 - **Mexico Programa Sol del Norte**



Target Setting and Reduction Mechanism for Corporates



RECs Marketplace

Filtered display of available RECs by country, vintage, and fuel type. Includes shopping cart for managing purchases.

Sustainability Calculator

Helps determine exact number of RECs needed to meet sustainability goals and commitments.

Supply Chain Tracker

Provides visibility into REC transactions across entire supply chain for better coordination.

Dashboards

Customizable reports for compliance and sustainability tracking with detailed metrics.

Buy RECs *1 REC = 1MWh

Country: Select Country | Fuel Type: Select Fuel Type | Vintage: Select Vintage

Clear Filters

Price	MWh left	Location	Fuel Type	Year
\$5.00	19,900	Viet...	Hydro	2024
\$40.00	9,000	Mala...	Wind	2024
\$80.00	29,000	Singa...	Solar	2025

Calculator: 2025 Estimated Energy Usage (MWh): 5,000. Purchased: 600 (12%). To purchase: 4,400. RE Target %: 1.

Supply Chain Tracker: Upstream Partner: SingPost. RECs Committed: 1%. Others: 1%. Total: 2%.

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