

Thailand's Industrial Energy Mix and the EU-CBAM Landscape

The Strategic Pivot: From Cost-Based to Carbon-Aware Competitiveness

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THAILAND ECONOMIC RESILIENCE DIVERGES FROM ENERGY FRAGILITY

Structural Warning Signs: National Growth Facing Critical Decline in Energy Reserves

ECONOMIC DRIVE MECHANISM

ECONOMIC RESILIENCE
(Weight)

 **RANKED 2ND IN ASEAN**
(Regional Economic Power)

 **GDP Growth:**
Continuous Growth at
2.8% - 3.2%

ECONOMIC RESILIENCE
(Weight)

ENERGY FRAGILITY
(Counterweight)

**HIGH DEPENDENCY
ON ENERGY IMPORTS**



ENERGY FRAGILITY
(Counterweight)



ADDITIONAL CHALLENGE: AGING POPULATION

DOMESTIC RESERVE CRISIS

Crude Oil

Total Reserves (P1+P2): 214 Million Barrels

Available for Use: 4 - 7 Years



P1 Level (Proved) usable for only 4 years

Natural Gas

Total Reserves (P1+P2): 8.4 Trillion Cubic Feet (TCF)

Available for Use: 4 - 8 Years



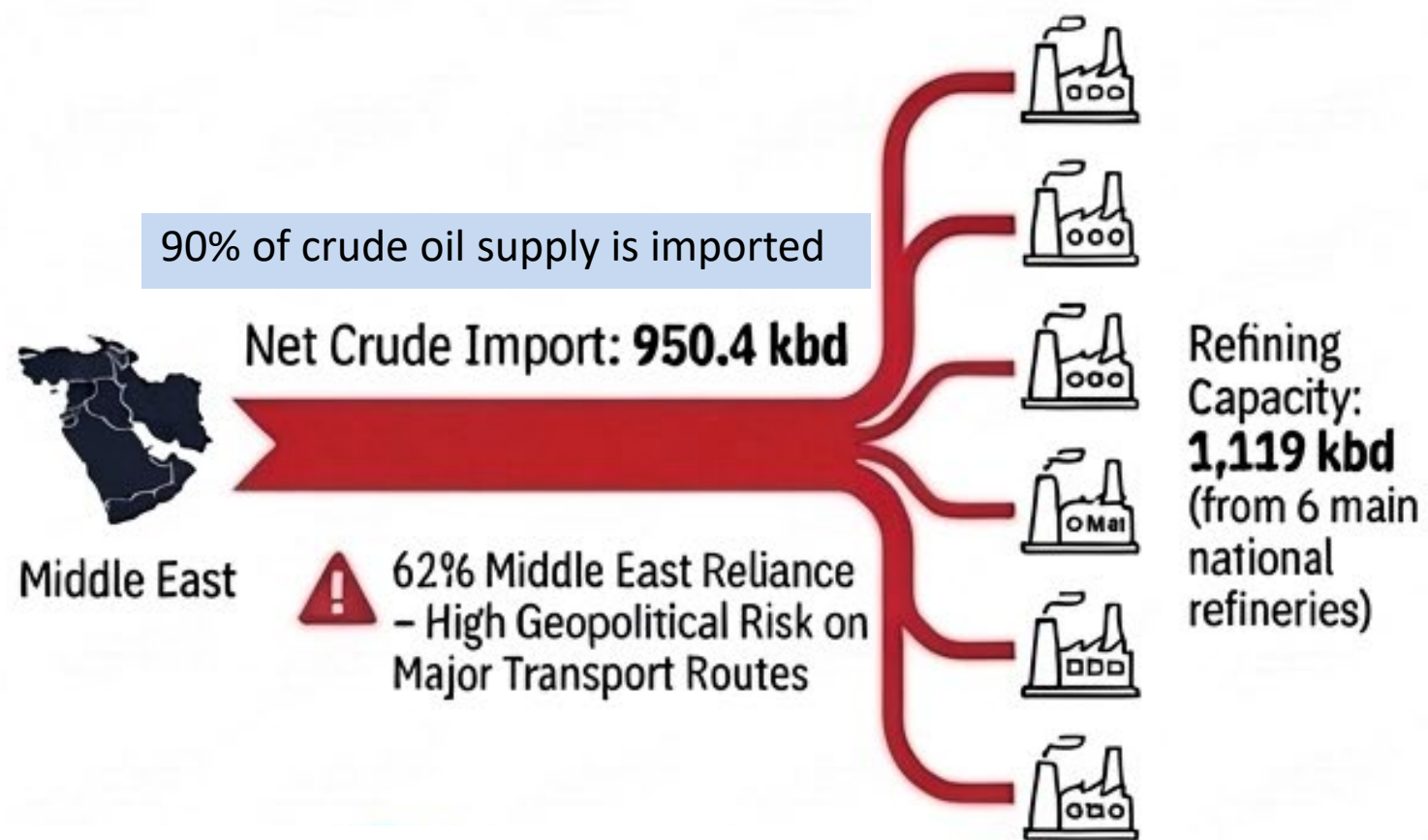
P1 Level (Proved) usable for only 4 years

Proven reserves (P1) remaining ready for use only **4 YEARS** under growing economy.
Accelerating new Exploration and Production is **THE HIGHEST URGENCY** for national security.

Trade Balance and Energy Infrastructure of Thailand

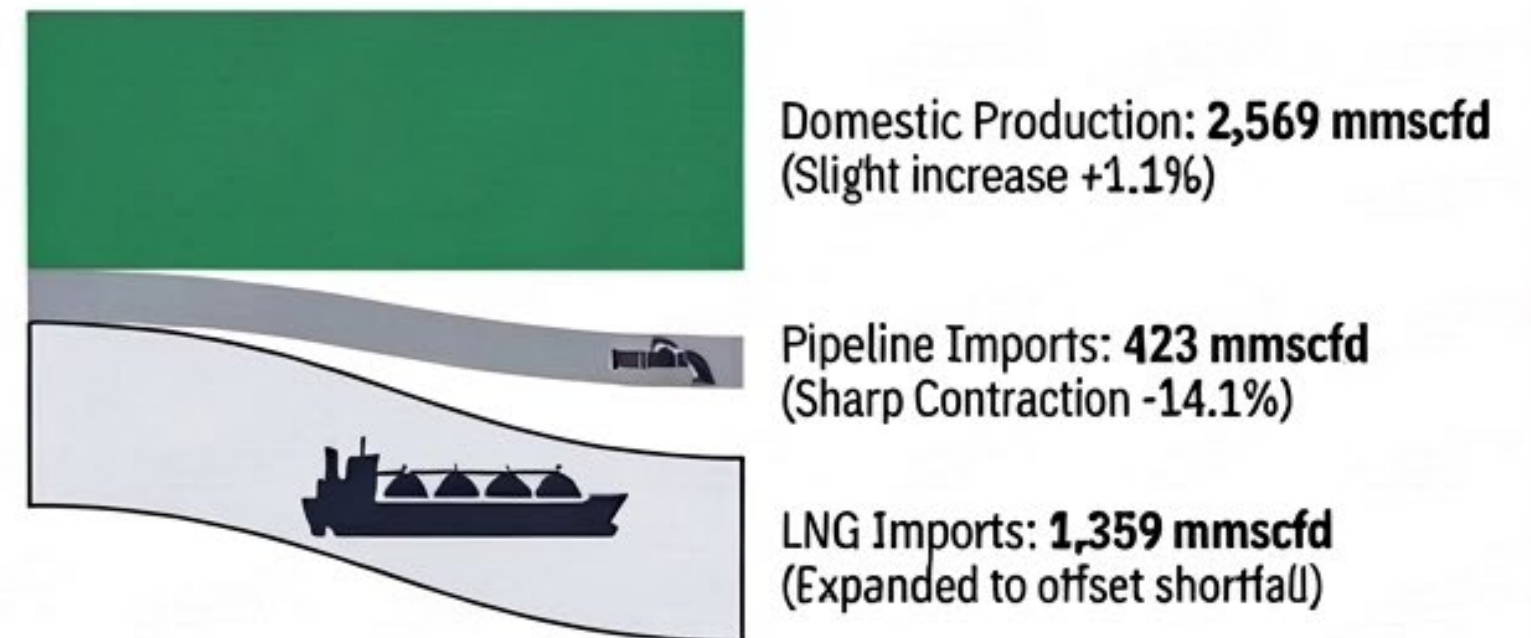
When energy security hangs on import routes and global markets.

Crude Oil Import Bottlenecks



Transitioning Natural Gas Infrastructure to the LNG Era

Total Consumption: 3,542 mmscfd



LNG accounts for over 31% of total gas volume.

31%

LNG market.

Significantly reduced pipeline gas imports inevitably force Thailand's energy security to rely on the prices and volatility of the global

EU's Carbon Border Adjustment Mechanism (CBAM) Represents a Structural Shift in Global Trade Dynamics

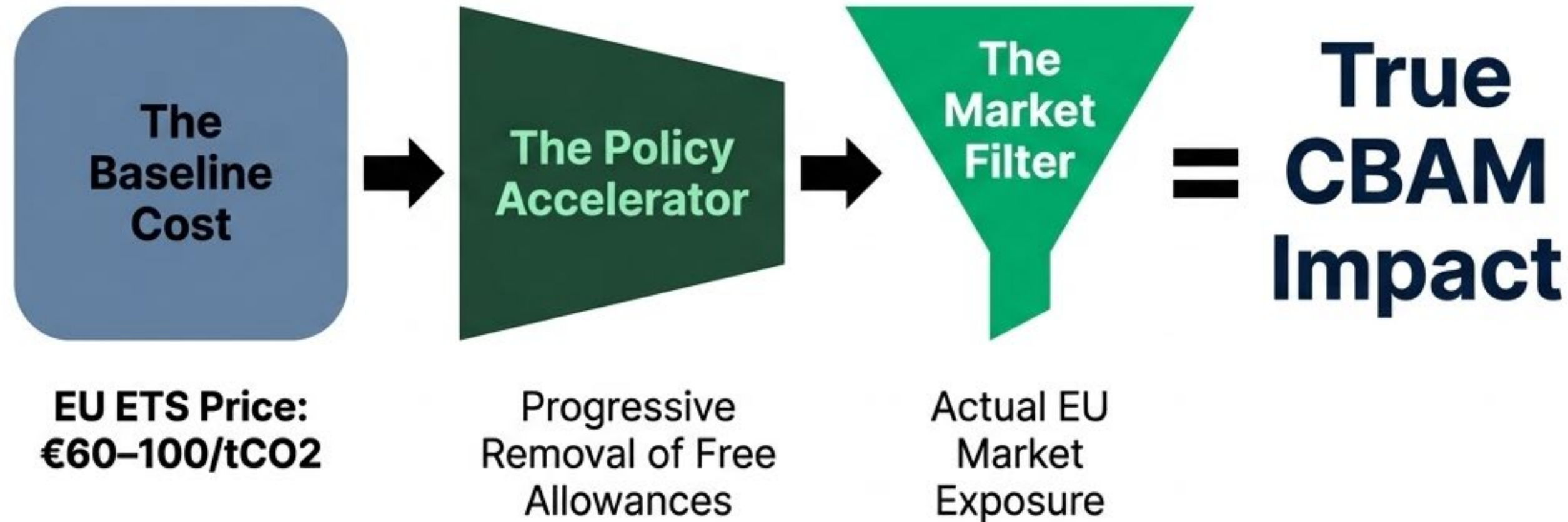
The Cost-Based Era	The Carbon-Aware Era
Core Metric: Financial efficiency and bottom-line pricing.	Carbon intensity emerges as one of vital competitiveness indicators.
Primary Driver: Optimization of cheap operational inputs.	Sustainable, low-emissions manufacturing operations.
Energy Viewpoint: Energy is viewed strictly as a static operational cost.	Energy structure emerges as a strategic economic variable.

CBAM signals a permanent, structural evolution toward carbon-informed trade, altering how global competitiveness is determined.

So far, CBAM is exclusive to the EU, not the USA, China, or Japan. It's also a non-tariff trade barrier.

CBAM is linked to Carbon Pricing under EU-ETS

The EU Carbon Price Introduces a New Variable in Cost Complexity



Key Insights

- Carbon cost exposure significantly increases planning complexity for Thai exporters of key goods into EU market.
- While EU carbon pricing is highly influential, it is not universally dominant across all Thai exports. Impact depends strongly on actual EU market exposure.

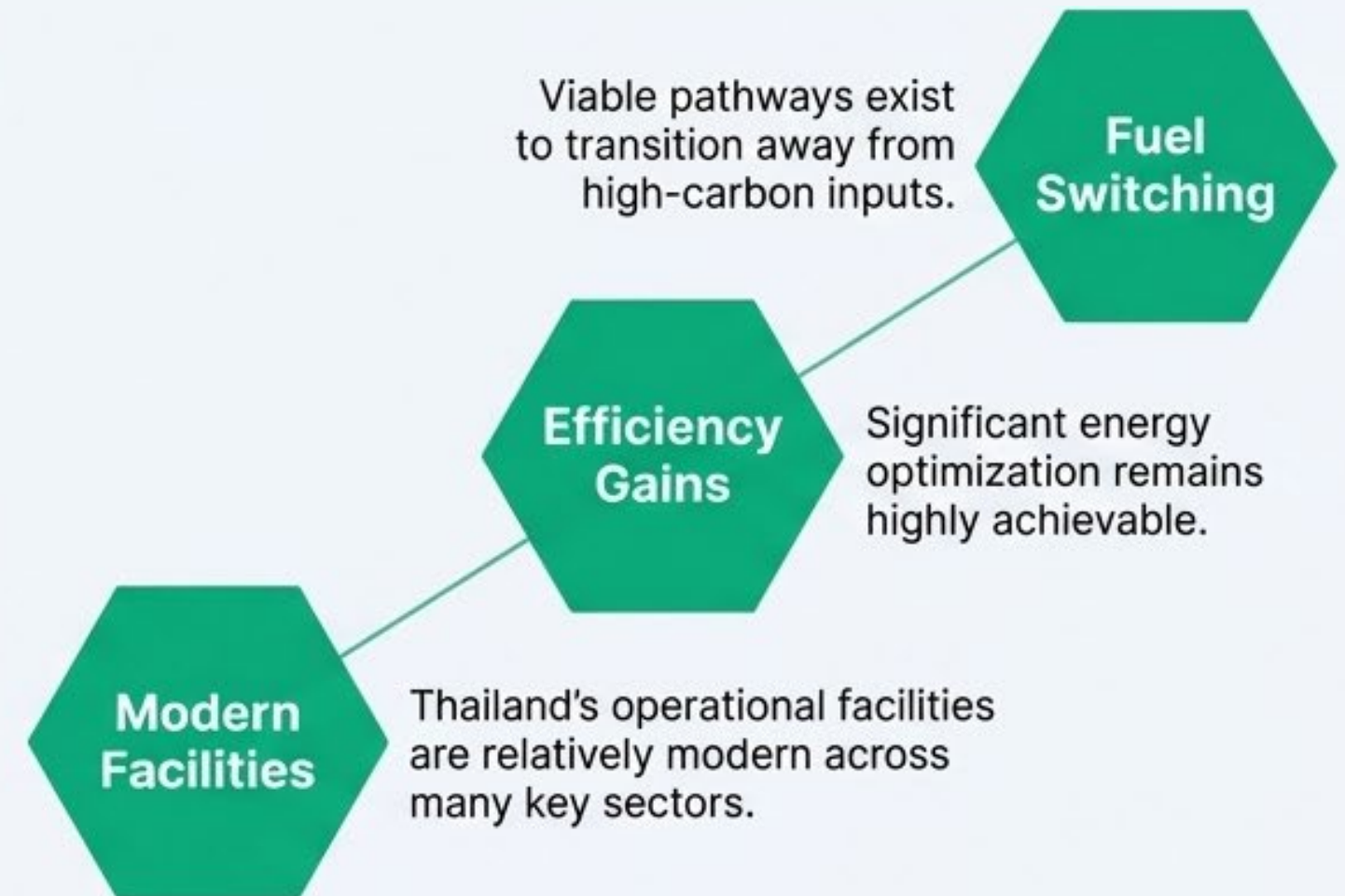
Thailand's Industrial Energy Mix Presents a Manageable Exposure

Current Structure (The Vulnerability)



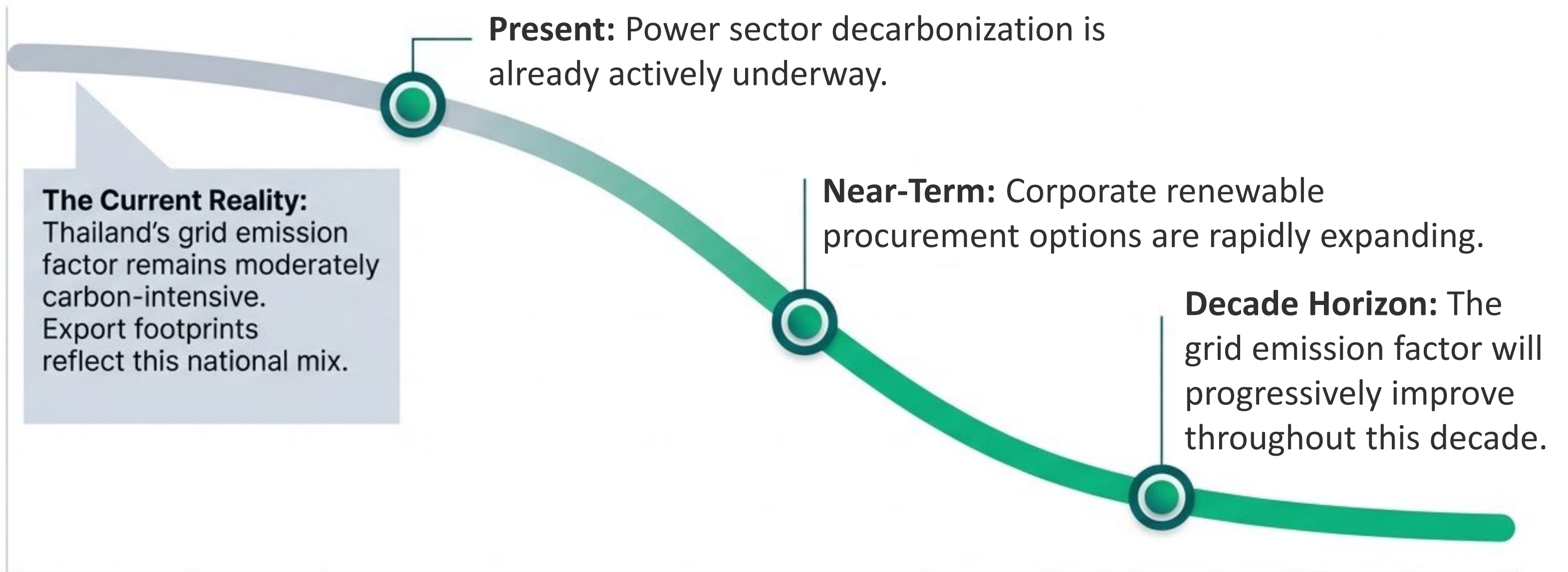
Over 70% of industrial energy relies on fossil fuels. Coal and natural gas remain key inputs for industrial heat and power.

Strategic Perspective (The Mitigation) Modern Facilities & Flexibility



Core Takeaway: Exposure definitively exists, but the inherent modernization of Thai facilities makes it structurally manageable.

The Grid Emission Factor is an Active Policy Lever: A Challenge, but Not a Static Constraint



Market Reality Check Reveals Limited Geographic Risk Concentration

**ASEAN & Asia Market
(China & Japan)**

U.S.A.

**EU Market
(Selective Sectors)**

Strategic Implications

CBAM impact is strictly sector-specific, not a looming economy-wide impact for Thailand.

Risk concentration is narrowly limited to certain product groups.

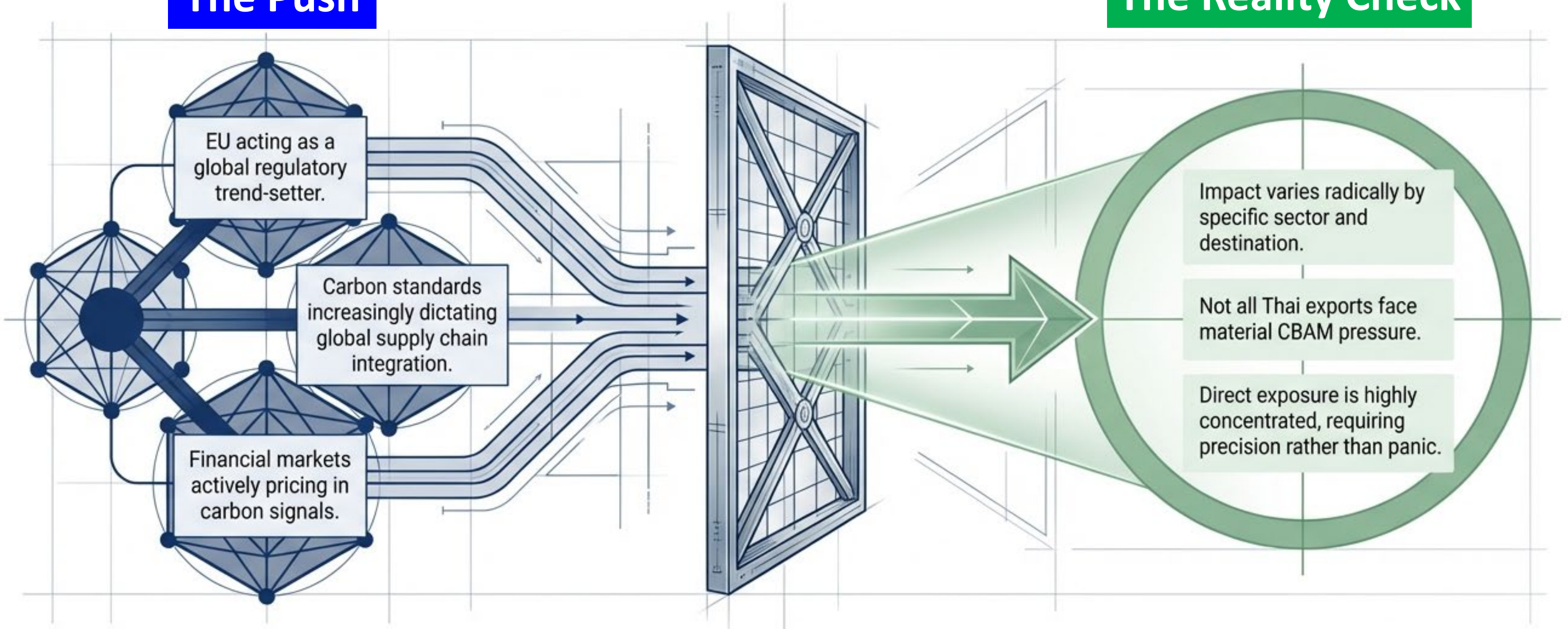
Thailand retains massive, insulated market diversification.

The vast majority of Thai exports go directly to U.S.A., ASEAN and Asia (China & Japan). Many Thai industries are deeply, regionally anchored.

Why CBAM Deserves Strategic Attention?

The Push

The Reality Check



Carbon footprints of Thai Goods and Services need to be examined and redesigned to penetrate EU market.

Case Study: Thailand's Petrochemicals & Basic Chemicals

EU Landscape

Structural cost pressures driving selective capacity closures, leading directly to increased dependence on imports.

Thailand's Advantage

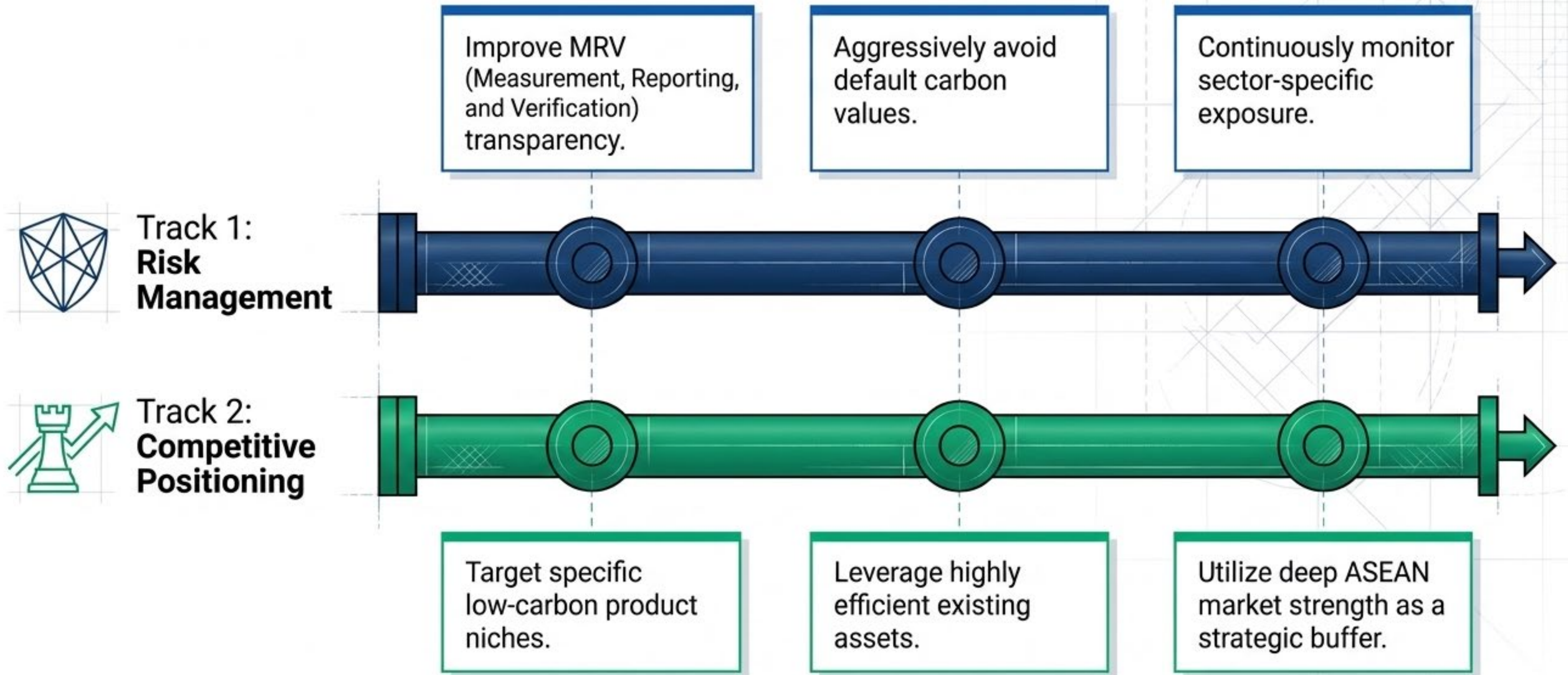
Status as a major regional producer equipped with modern plants, offering deep efficiency advantages.

Carbon performance improvement acts as the lever to strengthen market positioning.

The Vacuum Effect —

EU capacity closures create an immediate opening for Thailand's modern, efficient, and low-carbon assets to capture market share.

A Selective, Non-Defensive Response



Strategic Priority Roadmap for Thailand toward Decarbonization

Short Term (Now–2027)

Strengthen MRV systems across industries.

Map detailed sectoral CBAM exposure.

Support voluntary corporate decarbonization efforts.

Medium Term (2027–2035)

Expand industrial access to clean energy.

Enable and scale corporate PPAs.

Improve national grid carbon intensity.

Long Term (Post-2035)

Deploy CCUS infrastructure for hard-to-abate sectors.

Launch hydrogen pilots where commercially viable.

Foster regional carbon cooperation across ASEAN.

Note:

MRV: Measurement, reporting and verification

PPAs: Power Purchase Agreements

CCUS: Carbon Capture, Utilization, and Storage

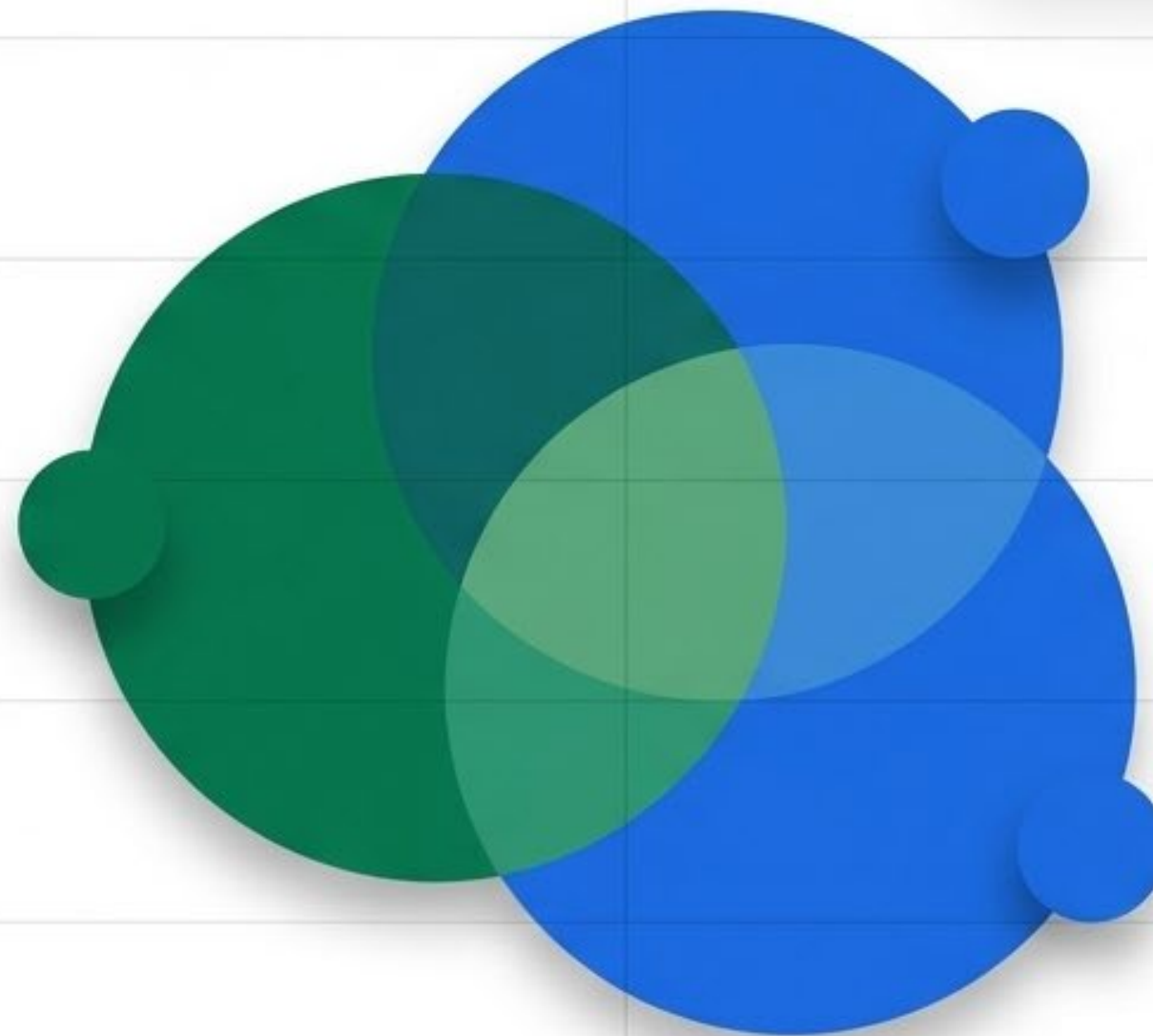
Regional Benchmarking: The Race to Decarbonize

Thailand competes directly with regional peers (Vietnam and Indonesia) for EU market share.

CBAM introduces a new layer in global trade, but not an insurmountable barrier.
Be prepared, not panic.

Decarbonization Pace

Decarbonization pace will dictate the direction of future investment flows.



ASEAN Demand Growth

ASEAN demand growth remains robust, offering alternative market off-take.

Investment Flows

Regional market depth provides a vital strategic cushion against EU volatility.



CBAM & Thailand

Preparedness, Not Complacent

Navigating the EU Carbon Border Adjustment Mechanism to enhance Thai export competitiveness.