Realizing Potential of Emission Trading Schemes for Energy Projects in South Asian Region

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Presentation Overview

1. Importance and benefits of Emission Trading Schemes
2. Potential of ETS in South Asian energy projects
3. Methodologies, strategies and procedures for implementing ETS
4. Market mechanisms with EU ETS case study
5. Regional cooperation pathways for South Asia
6. EU Carbon Border Adjustment Mechanism (CBAM)

PART 1

Importance and Benefits of Emission Trading Schemes

Why Markets for Climate Action?

Can Markets Save the Planet? The Economic Engine for Climate Action

- Inextricable linkages between Economic growth and environmental cost to the society with the goal to limit the unsustainable practices
- Integrating social cost of pollution in full through policies and regulations
- Internalizing the environmental externalities leading to policies such as:
    - *Quantity Regulations*
    - *Carbon Pricing mechanisms*
- Carbon Taxes, Cap and Trade Mechanisms

What is an Emissions Trading Scheme?

A market-based approach to controlling pollution by providing economic incentives for emission reductions

Core Principle: Cap and Trade

- Government sets a cap on total emissions
- Allowances are allocated or auctioned to companies
- Companies can trade allowances in the market
- Cap decreases over time to meet climate targets

Why ETS Works

- Market finds lowest-cost emission reductions
- Creates financial incentive for clean technology
- Provides flexibility for companies
- Guarantees environmental outcome through cap

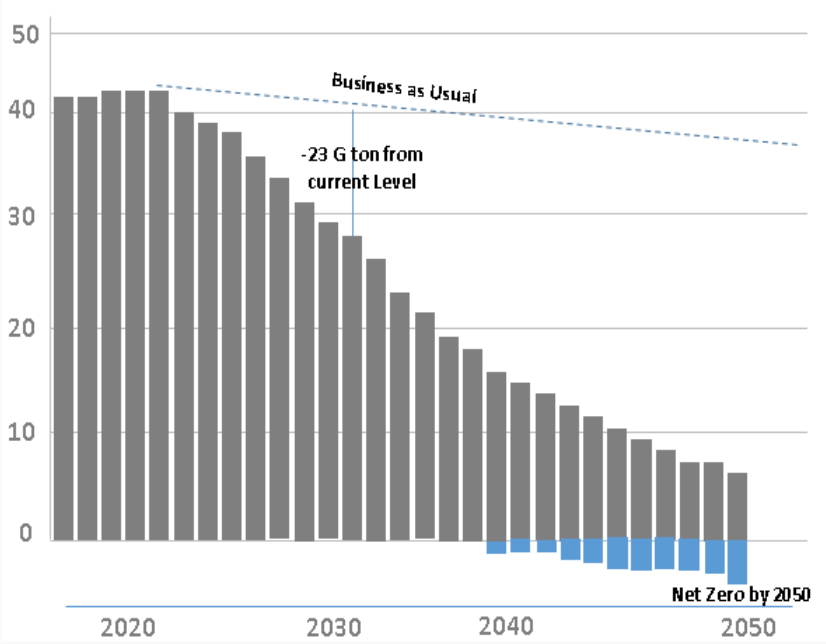
Also known as cap-and-trade system

Decarburization Target & Carbon Markets

We need to unleash Private Finance for Net-Zero

Mitigation Targets

- Drastic emissions reductions required for keeping the global average temp in 1.5ºC range (570 Gtons of GHG global budget)
- GHG emissions to be cut by 50% from 2030 and reach to net-zero by 2050
- Financing gaps to fund the required emissions reductions amounts to trillions - Not possible to be financed from public and/or concessional funding sources



Key Benefits of Adopting ETS

Environmental

- Guaranteed emission reductions through cap
- Drives innovation in clean technology
- Cost-effective path to climate goals

Economic

- Revenue generation through auctioning
- Incentivizes energy efficiency investments
- Creates green job opportunities

Policy

- Flexibility for companies to comply
- Transparent market-based mechanism
- Compatible with international cooperation

ETS combines environmental effectiveness with economic efficiency

PART 2

ETS Potential in South Asian Energy Projects

South Asia Energy Context

ETS can accelerate clean energy transition while supporting economic growth

Current Situation

- Heavy reliance on coal for power generation
- Rapidly growing energy demand
- India: 70% electricity from fossil fuels
- Pakistan: Natural gas, oil and coal dominant
- Bangladesh: Gas-based economy transitioning

Opportunities

- Massive renewable energy potential (solar, wind, hydro)
- Growing renewable installations
- Energy efficiency improvement needs
- Industrial emission reduction opportunities
- Methane capture in agriculture and waste

ETS Applications in Energy Sector

Power Generation

ETS creates incentive to switch from coal to renewables, invest in efficiency upgrades, and retire old plants. Carbon price makes clean energy competitive.

Industrial Energy Use

Covers cement, steel, chemicals, textiles. Drives process optimization, fuel switching, waste heat recovery, and cogeneration investments.

Renewable Energy Development

Carbon pricing improves economics of solar, wind, hydro projects. Can generate offset credits that provide additional revenue streams.

Energy Efficiency Programs

Building retrofits, efficient appliances, industrial process improvements become financially attractive under carbon pricing.

ETS makes low-carbon energy economically competitive

PART 3

ETS Methodologies, Strategies and Procedures

Key Steps in Designing an ETS

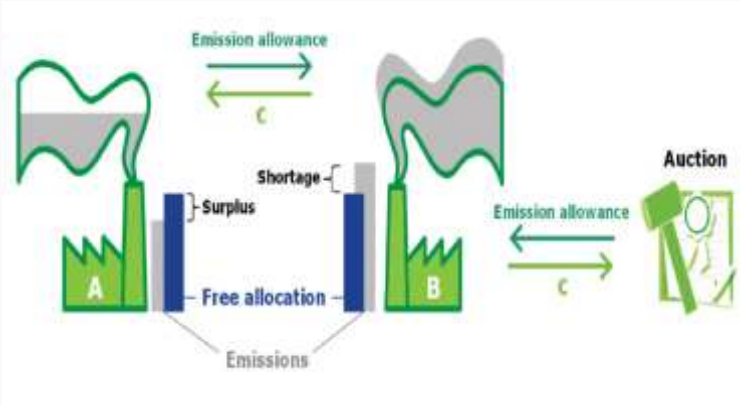
1. **Set Emission Cap**
   Determine total allowable emissions based on climate targets and reduction trajectory

2. **Define Scope and Coverage**
   Identify sectors, gases, and facilities to be included. Start with large emitters like power and industry.

3. **Allocation Method**
   Choose between free allocation (grandfathering or benchmarking) and auctioning of allowances

4. **Monitoring, Reporting, Verification**
   Establish robust MRV system to ensure accurate emission tracking and compliance

5. **Compliance and Enforcement**
   Set penalties for non-compliance and establish trading platform and registry



Careful design is critical for ETS effectiveness

Allowance Allocation Methods

Free Allocation

Grandfathering

Based on historical emissions.

Benchmarking

Based on best-available technology. Rewards efficiency.

Used For

Preventing carbon leakage, phase-in periods, trade-exposed sectors.

Auctioning

How It Works

Companies bid to purchase allowances. Highest bidders win.

Advantages

- Generates government revenue
- Polluter pays principle
- Transparent price discovery

Most systems use hybrid approach: gradual shift from free to auctioning

Monitoring, Reporting and Verification (MRV)

MRV is the backbone of any ETS - ensures credibility and compliance

Monitoring

- Continuous emission tracking
- Direct measurement or calculation methods
- Standardized protocols
- Quality assurance procedures

Reporting

- Annual emission reports
- Standardized formats
- Transparent documentation
- Electronic registry submission

Verification

- Independent third-party audits
- Accredited verifiers
- Site visits and data checks
- Certification of reports

Strong MRV builds trust and prevents gaming of the system

PART 4

Market Mechanisms EU ETS Case Study

EU ETS: World's Largest Carbon Market

Key Facts

- Launched in 2005, now in Phase 4 (2021-2030)
- Covers 27 EU countries plus Iceland, Liechtenstein, Norway
- ~10,000 installations regulated
- Covers ~40% of EU greenhouse gas emissions
- Cap reduces 2.2% annually to meet climate targets

Coverage

- Power and heat generation
- Energy-intensive industries (cement, steel, refineries, chemicals)
- Commercial aviation within Europe
- Maritime shipping (being added)

Result: EU emissions down 35% since 2005 while economy grew 60%

Source: European Commission, 2024

How the EU ETS Market Works

1. **Cap Setting**
   EU sets total number of emission allowances available each year. One allowance equals one tonne of CO2.

2. **Allocation and Auctioning**
   57% of allowances auctioned, 43% free allocation to prevent carbon leakage in trade-exposed industries.

3. **Trading**
   Companies trade allowances on exchanges. Those that reduce emissions can sell excess; high emitters must buy more.

4. **Compliance**
   Annual surrender of allowances matching verified emissions. Penalty of 100 euros per tonne for non-compliance.

5. **Price Discovery**
   Market determines carbon price. Currently around 60-90 euros per tonne. Market Stability Reserve prevents extreme volatility.

Trading volume: ~8 billion tonnes CO2 equivalent annually

Lessons from EU ETS Experience

Successes

- Proven emission reductions at scale
- Accelerated coal-to-gas switching and renewables
- Generated 175 billion euros in auction revenue
- Strong MRV system ensures compliance
- Created liquid carbon trading market
- Demonstrated political feasibility

Challenges and Adjustments

- Initial over-allocation led to low prices
- Market Stability Reserve added to manage surplus
- Free allocation created windfall profits
- Carbon leakage concerns require careful design
- Fraud incidents required better oversight
- Coordination across 30 countries complex

Key takeaway: Start conservatively, learn, and strengthen over time

PART 5

Regional Cooperation Pathways for South Asia

Why Regional

Larger Market, Better Price Discovery

Regional ETS creates deeper liquidity, more stable prices, and attracts international capital.

Prevent Carbon Leakage

Coordinated carbon pricing prevents industries from relocating to neighboring countries without carbon costs.

Shared Infrastructure and Expertise

Pooling resources for MRV systems, registry platforms, and capacity building reduces costs for all participants.

Enhanced International Standing

Regional approach strengthens negotiating position in climate finance and technology transfer discussions.

Enable Cross-Border Energy Trading

Harmonized carbon pricing facilitates regional electricity markets and renewable energy exchanges.

Cooperation multiplies benefits while sharing implementation costs

Pathways for South Asian Cooperation

Near-term (1-3 years)

- Knowledge sharing platform on ETS design
- Joint capacity building workshops
- Harmonize MRV standards and methodologies
- Pilot projects in specific sectors (e.g., power)
- SAARC working group on carbon markets

Medium-term (3-7 years)

- Bilateral linking agreements
- Shared registry and trading platform
- Mutual recognition of emission credits
- Joint approach to Paris Agreement Article 6
- Regional carbon price floor agreements

Long-term Vision: South Asian Carbon Market

Fully integrated regional ETS covering major emitters across South Asia, similar to EU model but adapted to regional context.

Build incrementally from knowledge sharing to full market integration

Current ETS Initiatives in South Asia

India

- Perform, Achieve and Trade (PAT) scheme for energy efficiency since 2012
- Renewable Energy Certificates (REC) market operational
- Considering national ETS for power and industry
- Gujarat piloted state-level ETS for particulate matter
- Strong MRV capabilities already developed

Pakistan

- Exploring ETS as part of climate policy framework
- Strong interest in carbon market mechanisms
- CPEC provides opportunity for regional linkages
- Building MRV capacity for NDC implementation
- Potential for sector-specific pilots (cement, power)

Bangladesh, Sri Lanka, Nepal: Developing baseline carbon accounting systems, interested in voluntary carbon markets, strong potential for renewable energy credits

Building blocks exist - coordination can accelerate progress

Role of International Organizations

World Bank Partnership for Market Readiness (PMR)

Technical assistance for ETS design, capacity building, and knowledge sharing. India, Pakistan participated in earlier phases.

UNEP Copenhagen Climate Centre

Expertise in carbon markets, MRV systems, and climate finance. Can facilitate regional coordination and capacity building.

International Carbon Action Partnership (ICAP)

Network of ETS jurisdictions sharing best practices. South Asian systems could join for peer learning.

Green Climate Fund and Climate Finance

Funding available for ETS infrastructure, MRV systems, and readiness activities. Regional proposals more attractive.

EU Technical Cooperation

EU willing to share ETS experience through twinning programs, staff exchanges, and technical advisory support.

International partners ready to support South Asian ETS development

SPECIAL FOCUS

EU Carbon Border Adjustment Mechanism (CBAM)

What is the EU CBAM?

A policy tool to put a fair price on carbon emitted during production of carbon-intensive goods entering the EU

Purpose

- Prevent carbon leakage - companies moving production to countries with weaker climate policies
- Level playing field for EU producers subject to carbon costs
- Encourage cleaner production globally
- Support EU climate neutrality by 2050

Key Mechanism

- Importers must purchase CBAM certificates
- Certificate price reflects carbon price in EU ETS
- Based on embedded emissions in imported goods
- Credit given for carbon prices already paid abroad

First major border carbon adjustment mechanism in the world

CBAM Coverage and Timeline

Covered Sectors (Phase 1)

- Iron and Steel
- Cement
- Aluminum
- Fertilizers
- Electricity
- Hydrogen

Expansion to other sectors expected

Implementation Timeline

2023 — **Transitional phase begins:** Reporting only, no financial obligations

2026 — **Full implementation:** Financial obligations begin, importers must purchase certificates

2034 — **Phase-in complete:** Full CBAM obligation as EU free allocation ends

Currently in transitional reporting phase

Impact on South Asian Exports to EU

South Asia exports significant volumes of CBAM-covered products to EU

Most Affected Sectors

India

Major steel, aluminum, cement exporter. ~2.5 billion euros annual exports affected.

Pakistan

Steel, cement exports. Fertilizer industry particularly exposed.

Bangladesh

Growing steel sector, cement. Textile may face future expansion.

Key Challenges

- Higher carbon intensity increases cost burden
- Complex emission calculation and reporting
- MRV capacity gaps for verified data
- Compliance costs for SMEs challenging
- Competitive disadvantage vs. carbon pricing countries
- Limited time to adapt production

Urgent need for preparation and strategic response

Strategic Responses to CBAM

1. Establish Robust MRV Systems

Develop capacity to accurately measure, report, and verify emissions. Train auditors, establish verification bodies, align with EU methodologies.

2. Decarbonize Production Processes

Invest in energy efficiency, renewable energy, cleaner technologies. Lower emissions reduce CBAM costs and improve competitiveness.

3. Implement Domestic Carbon Pricing

National ETS or carbon tax allows credit against CBAM obligations. Keeps revenue domestic rather than paying EU.

4. Support Export Industries

Provide technical assistance, financing for green technology adoption, training programs for CBAM compliance.

5. Regional Coordination

Coordinate South Asian response, share MRV infrastructure, joint advocacy on implementation details, knowledge exchange.

Proactive response turns CBAM challenge into decarbonization opportunity

CBAM as Catalyst for South Asian ETS

CBAM creates strong economic incentive for domestic carbon pricing

The Revenue Argument

Without domestic carbon pricing:

Exporters pay CBAM to EU. Revenue goes to EU budget.

With domestic ETS/carbon tax:

Exporters get credit for domestic costs. Revenue stays national for green investments.

Additional Benefits

- Levels playing field between exporters and non-exporters
- Drives economy-wide decarbonization
- Creates carbon market expertise for CBAM compliance
- Positions country for CBAM expansion
- Attracts green finance
- MRV serves both domestic and CBAM needs

CBAM makes domestic ETS economically rational

EU ETS Carbon Prices and CBAM

CBAM certificate prices are linked to EU ETS allowance prices

Current EU ETS Price Levels

2024-2025: €60-90 per tonne CO_2

Current range with Market Stability Reserve

Historical: Rising Trend

€5-10 (2013) → €25 (2019) → €80+ (2021) → €60-90 (2024)

Projected: €90-120+ by 2030

Cap tightens 2.2% annually, free allocations phase out

Implications for South Asia

CBAM Cost Example:

1 tonne steel with 2 tonnes embedded CO_2

At €70/tonne: **€140 CBAM charge per tonne steel**

Key Takeaways:

- Higher EU prices = higher CBAM costs
- Domestic carbon pricing offsets charges
- Price differential incentivizes decarbonization
- Essential to monitor EU ETS for export planning

EU ETS price data: European Energy Exchange (EEX), 2024-2025

The Time for Action is Now

Emission Trading Schemes offer South Asia a proven pathway to reduce emissions while supporting economic growth and energy security.

Cost-Effective • Market-Driven • Regionally Coordinated

Thanks

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