

Lesson 4
Carbon market

Why we need carbon market?

- Market failure

Carbon market

- Carbon market aims to reduce GHGs emissions by *setting limits on emissions and enabling the trading* of emission units (UNDP, 2016)
- Carbon market is the tool favored by economists for **reducing global-warming emissions** — charges those who emit CO₂ for their emissions
- Role of carbon market: target emission reduction, transition to a decarbonized economy, increase government revenue, increase financial resource (carbon finance)

Approaches to carbon market

<p>Allowance-based system</p> <ul style="list-style-type: none"> • Regulatory • regulated under a cap that determines how many carbon allowances is allowed to emit 	<p>Project-based system</p> <ul style="list-style-type: none"> • Mainly voluntary carbon market • GHG emission reduction or sequestration projects are developed, receiving carbon credits for what would have occurred under "business as usual"
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Carbon Market Components

Market	Transaction Type	Credit type	Regime
Regulatory	Allowance-based	AAU (Assigned Amount Units)	International Emissions Trading
		EUA (EU Allowance)	EU-Emissions Trading Scheme
	Project-based	ERU (Emission Reduction Unit)	Joint Implementation
		CER (Certified Emission Reduction)	Clean Development Mechanism
Voluntary	Mainly project-based	VER (Verified Emission Reduction)	Voluntary projects

Paris Agreement

Article 6

1. Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.
2. Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.
3. The use of internationally transferred mitigation outcomes to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties.
4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement, and shall aim:
 - to contribute to the mitigation of greenhouse gas emissions and support sustainable development;
 - to ensure environmental integrity and transparency, including in governance, and the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement;
 - to promote sustainable development and environmental integrity.


Key Market's Drivers

- For **Buyers** (Annex I countries)
 - Compliance targets
 - Sustainable development
- For **Sellers** (Non-Annex I Countries)
 - Contribute to sustainable development
 - Facilitate technology transfer
 - Improve financial returns

Who involved in the carbon market?

Private sector, e.g.	Public sector, e.g.
<ul style="list-style-type: none"> • Companies with binding emission reduction obligations • Companies with voluntary commitments • Emission-reduction project developers • Banks • Investment firms • Brokerages • Law firms • Accounting firms • Technology developers • Consultants 	<ul style="list-style-type: none"> • Multilateral development banks, such as the World Bank • Government agencies • United Nations agencies • Non-governmental organizations

Who involved in the carbon market?



How to define a WIN-WIN solution for all?

Polluter pays principle (PPP)

- Application of PPP to GHGs emission
 - Using PPP through carbon tax and ETS
- force emitters need to pay for GHGs emission

Carbon pricing

Carbon pricing refers to initiatives that **put a price** on GHG emissions expressed in a monetary unit per tCO₂e.

Emission trading

Emissions trading (also known as **cap and trade**) is a **market-based approach** to control pollution *by providing economic incentives* for achieving emission reductions

Carbon tax

A carbon tax is a **fee** imposed on the fossil fuel usage. A carbon tax directly sets a price on carbon by defining an explicit tax rate on GHG emissions or on the carbon content of fossil fuels

Other carbon pricing mechanisms (outside of UNFCCC-mainly voluntary)

- Carbon pricing offset mechanisms
- Results-based climate finance (RBCF)
- Internal carbon prices set by organizations.
- Policy instruments: the removal of fossil fuel subsidies, energy taxation, support for renewable energy, and energy efficiency certificate trading
- Energy-related mechanism: On-bill financing, green pricing program, green bonds, special investment tool, etc.

**What do you support for:
Trading vs Tax?
Why?**

ETS		Carbon tax	
Positive	Negative	Positive	Negative

Which encourages both investors, traders, and consumers to choose lower-carbon paths?
Which brings to a real reduction of GHG emission?

Discussion points

- How to define the price of a permit unit?
- How to define the rate of carbon tax?
- How to define the amount of carbon (equivalent) emission (ppm)?

Carbon pricing as of 2015

PRICES IN THE INSTRUMENTS IMPLEMENTED

US\$ 1-130/tCO₂e

85% of emissions covered are priced at <US\$10/tCO₂e

ANNUAL VALUE OF THE INSTRUMENTS IMPLEMENTED IS

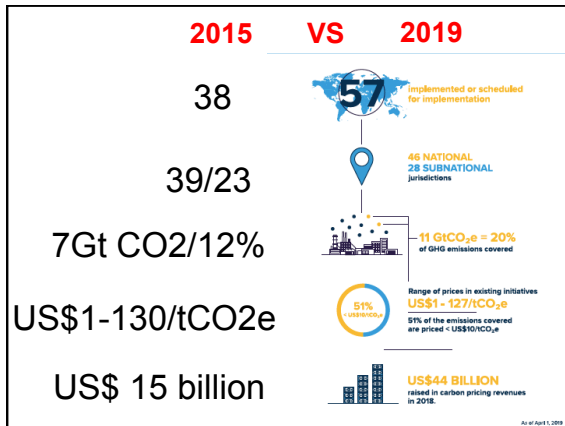
just under

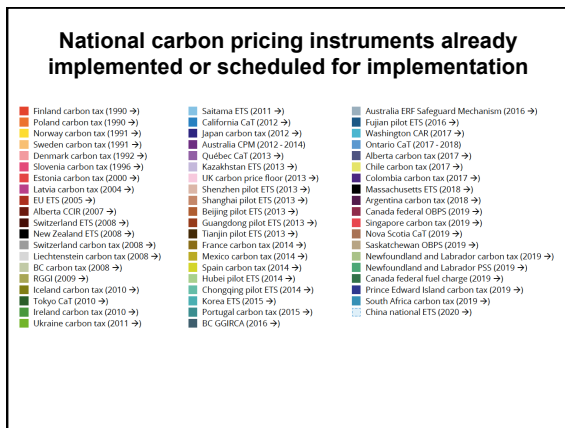
US\$ 50 billion¹²

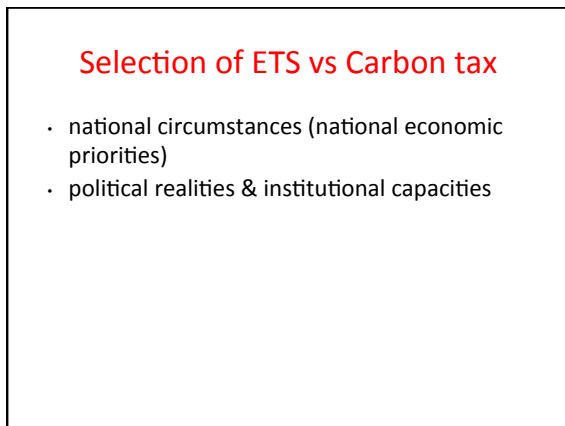
370
ETSs

470
CARBON
TAXES

3X1
INCREASE
over 2005-2015 in share
of global emissions covered

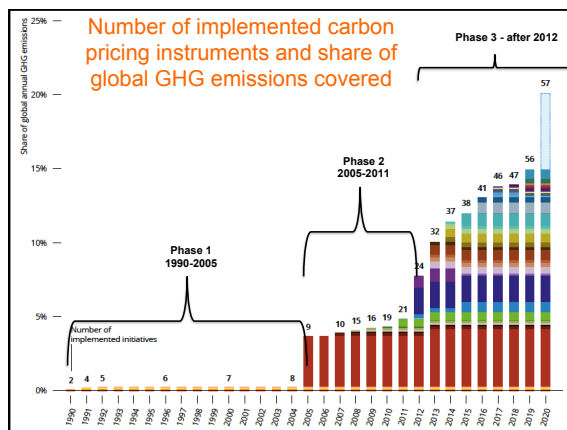






ETS exist at regional, national and sub-national levels

- **Regional ETS:** The European Union (EU) ETS encompasses all EU and three EEA-EFTA (Iceland, Liechtenstein and Norway) countries. **It is the largest ETS for GHGs, covering 2 GtCO₂e of emissions (as of 2015);**
- Apart from the EU, four countries have enacted **national-level GHG ETSs:** New Zealand; Switzerland (2008); Kazakhstan (2014) and the Republic of Korea (2015); ...
- A number of other countries have announced plans for a **national ETS:** Thailand, Turkey and Ukraine are exploring design options for an ETS; and 13 other countries are exploring carbon pricing mechanisms ;
- **Subnational ETSs** exist in Canada (e.g. Quebec), China (e.g. Guangdong) and the USA (e.g. California).



What do you support for: Trading vs Tax? Why?

ETS		Carbon tax	
Positive	Negative	Positive	Negative
- certainty about the environmental impact	- Price flexible	- Price stable/ price volatility	uncertain environmental outcome

**Which encourages both investors, traders, and consumers to choose lower-carbon paths?
Which brings to a real reduction of GHG emission?**

What do you support for: Trading vs Tax? Why?

ETS

- Uncertain carbon price
- Certain amount of emission reduction
- More complicated in allocation allowance and establishment of market

Carbon tax

- Certain carbon price
- Uncertain amount of emission reduction
- Easier to set and implement as built on current taxation system

What can we do to make the benefit out of the carbon market

ETS		Carbon tax	
To promote the positives	To limit the negatives	To promote positive	To limit the negatives
Enact clear and comprehensive regulations	- Caps needs to be tightened over time	- Provide mechanisms that smooth out price volatility, including banking and borrowing	- Invest in promoting transparency
MRV systems: robust and transparent			

Discussion points

- Do you think that carbon market really help with reduction of GHG emission?
(ethnics of carbon market, clarification of CBDR)
- Is coverage and price levels of carbon pricing initiatives sufficient?
(Global emission: rose 1.7% in 2017, recorded new historic level in 2018)
- What are key drivers for carbon price?
(micro and macro economic factors)
- If the carbon tax will be applied in Viet Nam, who will be the most impacted?

What are key drivers for carbon price?

<ul style="list-style-type: none">• Macro<ul style="list-style-type: none">– Political will– National developments– Economic (growth/recession)– Innovation	<ul style="list-style-type: none">• Micro<ul style="list-style-type: none">– Demand and Supply– Oil price– Coal price– Gas price– Weather/temperature– Interest rates– Other markets
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Let's draw messages of carbon market

- Market can play an important role in GHG emission
- Market has the potential to deliver significant benefits to all participants, both those who involved directly or indirectly or not involved
- A variety of policies can lead to reductions of GHG emissions; carbon markets are needed to implement cap-and-trade and can interconnect policy measures
- Countries will need to take decisions to establish long-term price signals and gain the full benefits of carbon markets
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- ...
- ...

Look forward

- ... still very far from where we need to be to meet the Paris Agreement objectives.
- New mechanism under UNFCCC: New Market-based Mechanism and the Framework for Various Approaches
- Piloting activities: International ITMO Purchase Program, The Pilot Activities of the Climate Cent Foundation (CCF), Multilateral Development Banks (MDBs), Article 6 Support Facility (by ADB), Integrated Carbon Programs (by European Bank for Reconstruction and Development (EBRD), The Climate Warehouse and The Carbon Initiative for Development and Transformative Carbon Asset Facility (TCAF) (Ci- Dev) (by World Bank Group (WBG))
