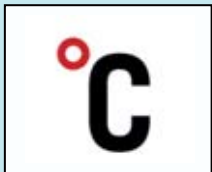


Leader's Guide

International Emissions Trading and Carbon Markets



GtripleC & Carbon Partnership

Version 1

2008



The ⁰Climate Group

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The views expressed in this document are those of the authors and do not necessarily reflect the position or views of the Breaking the Climate Deadlock Project, The ⁰Climate Group, or the Office of Tony Blair.

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Preface

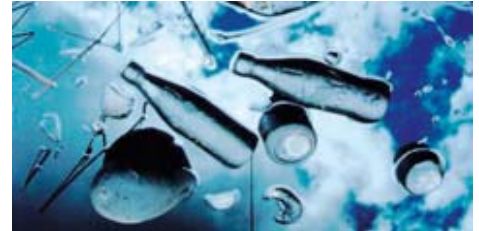
This ‘full version’ booklet is designed as an international emissions trading primer to assist leaders, policy makers, and businesses in their decisions relating to the climate change negotiations where emissions trading and carbon markets are relevant. Key features of international emissions trading and carbon markets are summarized and explained.

A companion EXECUTIVE VERSION: 6 KEY MESSAGES draws from this booklet and highlights a few key points.

This guide starts from the Kyoto basis of international GHG emission trading, however recognizing that its concepts at the domestic level would also be applicable for countries not covered by the Kyoto ‘cap’.

This guide is also designed to assist leaders and policy makers involved in domestic climate change policy where emissions trading and carbon markets may play a role in domestic climate change mitigation policy.

This booklet is a ‘living document’. It will be added to and updated as emissions trading schemes and carbon markets evolve, and as readers suggest additional topics they would like better explained in this style.



WHAT IS EMISSIONS TRADING?

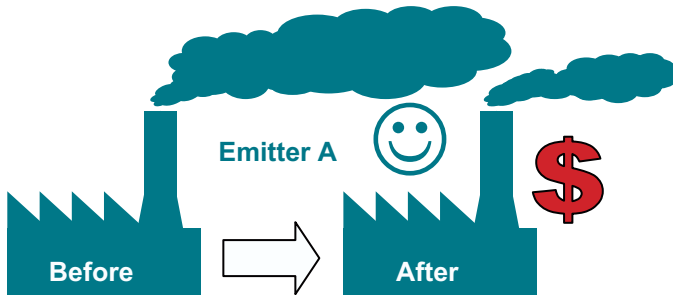
Emissions Trading is an economic framework to control and reduce emissions among a community of emitters. These emitters might be countries or firms who are collectively required to reduce their greenhouse gas emissions.

Unlike taxes, Emissions Trading controls the quantity of emissions and allows prices to be determined by the market.

It is considered well suited for greenhouse gas emissions and climate change policy because it does not matter where the emissions are happening, or where the emissions reductions are occurring because the atmosphere is a global commons.

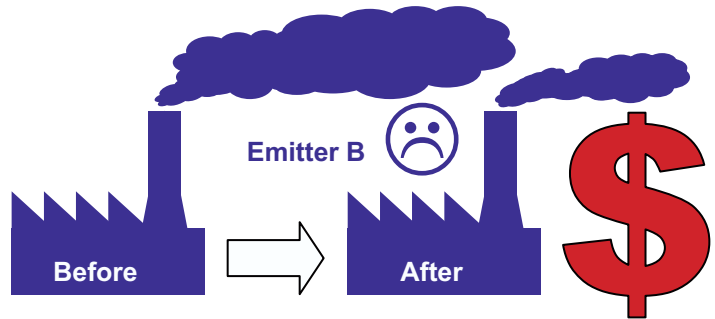
WITHOUT EMISSIONS TRADING

Emitter A and Emitter B (countries or firms) both have binding emission reduction targets



Emitter A can reduce emissions relatively cheaply.

Without emissions trading, Emitter A reduces emissions to its binding target at relatively low cost.



Emissions reduction is expensive for Emitter B.

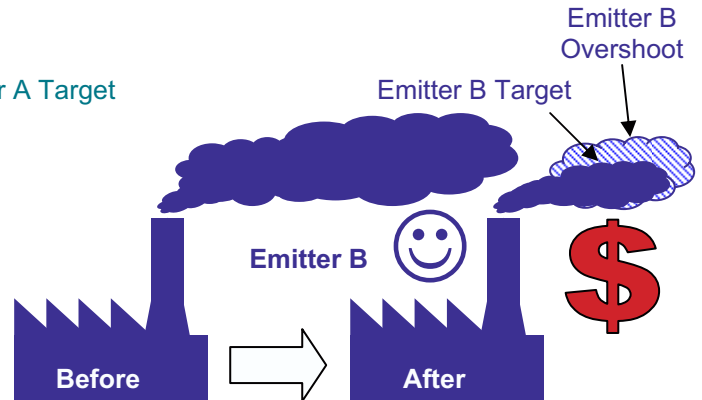
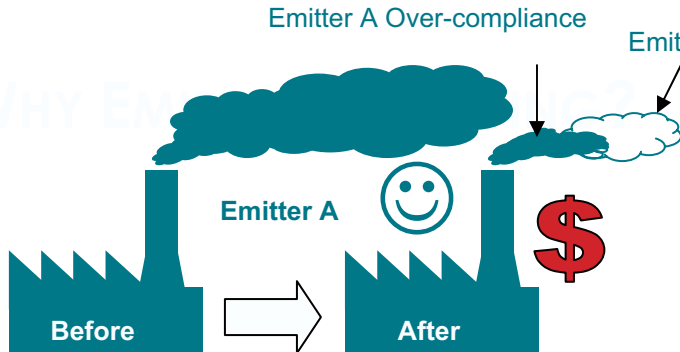
Without emissions trading, Emitter B reduces emissions to its binding target at relatively high cost.

WHY EMISSIONS TRADING?

WITH EMISSIONS TRADING

With emissions trading, there is an incentive for Emitter A to over-comply with its target because it can profit from selling surplus emission units to Emitter B.

With emissions trading, Emitter B can reduce emissions where this can be done at low cost, and then buys emission units from Emitter A.

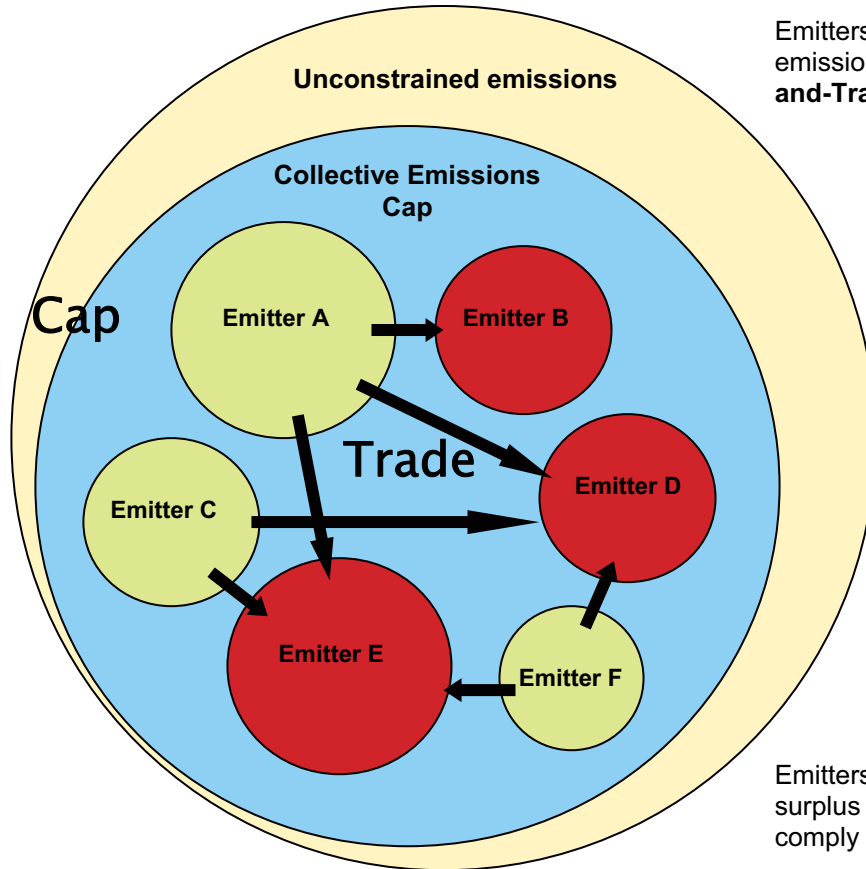


As a result, Emitter A reduces more emissions than without emissions trading.

As a result, Emitter B complies with its target but does so at lower cost than without emissions trading.

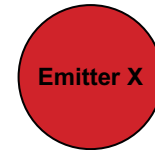
With emissions trading both Emitter A and Emitter B comply with a collective binding target (lower than business as usual) AND Emitter A makes a profit selling surplus units, while Emitter B makes a saving from buying units for those emissions reductions that are more costly than the price of buying carbon units.

HOW EMISSIONS TRADING?

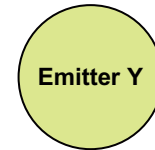


Emitters in this diagram are those that have binding emission reduction obligations (targets) under a **Cap-and-Trade** emissions trading scheme.

The emissions **Cap** is the sum of all the targets of the emitters in the scheme, measured in tonnes of 'allowed emissions.'



Emitter X Emitter that overshoots their binding target



Emitter Y Emitter that over-complies with their binding target

Flow of Units



Emitters that overshoot their binding target buy surplus emissions units from emitters that over-comply with their binding target.

ORGANISATION OF THIS BOOKLET

To understand contemporary emissions trading and carbon markets it is helpful to differentiate between the different emissions trading contexts. At a global level there are three main emissions trading contexts:

KP Intergovernmental

Intergovernmental compliance trading by countries under the **Kyoto Protocol**

KP-Related Domestic

Domestic emissions trading as a compliance activity for domestic entities in countries that ratified the Kyoto Protocol

Voluntary Non-KP Market

Emissions trading for jurisdictions (countries or states) and/or sectors not related to the Kyoto Protocol

This provides a framework for understanding how these emissions trading contexts relate to, and interact with, each other.

Part I focuses on the basic architecture of intergovernmental emissions trading. This is necessary for understanding how domestic emissions trading works within and along side the Kyoto Protocol framework (**Part II**).

Part III deals with emissions trading in the non-Kyoto Protocol space. This includes compliance trading in jurisdictions not covered by the Kyoto Protocol (i.e. countries that did not ratify – principally the USA) where ‘compliance’ refers to compliance with binding obligations imposed by a state or collection of states. This also includes voluntary emissions trading outside the context of binding obligations under the Kyoto Protocol, including in sectors not covered by the Kyoto Protocol (e.g. international aviation, international marine transport, and avoided deforestation in developing countries).

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Glossary

Term	Definition
AAUs	Assigned Amount Units, the term used for the <i>emission units (allowances)</i> issued to industrialised countries with targets under the Kyoto Protocol.
Additionality	The requirement that projects under crediting mechanisms such as the CDM would not have just happened anyway – i.e. in the absence of the credits generated by the mechanism (or the existence of the mechanism).
Allowances, certificates	Terms sometimes used to describe <i>emission units</i> that are allocated in a <i>cap-and-trade</i> emissions trading scheme.
Annex B	Refers to 39 industrialised countries that adopted the Kyoto Protocol. Annex B countries all agreed to targets in the first commitment period, 2008-2012. (However the US subsequently did not ratify the KP.).
Annex I	Refers to 36 industrialised countries that, under the UNFCCC and similarly the Kyoto Protocol, would take on GHG emission reduction targets, over the period 2008-2012.
Auctioning	An allocation method where emission units are auctioned into an emissions trading scheme; i.e. not provided gratis.
Banking	The ability in an emissions trading scheme to carry over any surplus units to a following commitment period.
Baseline-and-Credit	A variation of the <i>cap-and-trade</i> model of emissions trading scheme usually applied where targets are set in <i>intensity</i> terms. <i>Allowances</i> are not issued, but instead <i>credits</i> are issued at the end of the management period for emitters with obligations under the scheme that ‘beat’ their baseline.
BTs	Binding targets of emitters that are ‘first order’ <i>points of obligation</i> in an emissions trading scheme.
Cancelling	The act of placing units in the cancellation account of a <i>Registry</i> – meaning such units can not be traded again and can not be used for compliance purposes by <i>POs</i> .

Cap	The aggregate amount of ‘allowed’ emissions in a cap-and-trade type emissions trading scheme. This is the set environmental outcome. It often is the sum of the targets for those emitters (countries or firms) covered by the scheme.
Cap-and-Trade	A type of emissions trading scheme where a cap on emissions is established over a group of emitters, emissions units (sometimes called <i>allowances</i> or <i>certificates</i>) are issued and allocated, and these units may be traded between emitters.
Carbon Footprint	A measurement of net greenhouse emissions within a defined boundary (e.g. by individuals, firms, organisations, governments) – usually done as part of a <i>carbon neutral</i> or <i>CSR</i> program.
Carbon Neutral	Where individuals, firms, organisations, governments (even countries) measure their <i>carbon footprints</i> (usually before and after taking measures to reduce emissions) and purchase offset credits to neutralise their residual emissions.
CCX	Chicago Climate Exchange.
CDM	Clean Development Mechanism; the mechanism provided by the Kyoto Protocol designed to assist developing countries in achieving sustainable development by permitting industrialized countries to finance projects for reducing greenhouse gas emission in developing countries and receive credits called <i>CERs</i> for doing so.
CERs	Certified Emissions Reductions, the credits provided through <i>CDM</i> projects.
CO ₂ e	Carbon dioxide equivalent. A means to compare greenhouse gases on an equivalent basis with carbon dioxide (CO ₂).
CP1	The first commitment period of the Kyoto Protocol (1 Jan 2008 - 31 Dec 2012)
CPT	Carbon Price Threshold. The price of carbon when emitters’ marginal abatement costs are equalised.
Credits	A generic terms for units that are the result of some mechanism that provides ‘credits’ when emission reduction actions result in the beating of a baseline.

CSR	Corporate Social Responsibility – a form of voluntary commitment and reporting by firms.
DETS	Domestic Emissions Trading Scheme(s).
Emission units	A generic term for units that are created and traded in an emissions trading scheme.
ERUs	Emission Reduction Units, the form of units provided through <i>JJ</i> projects.
ETS	Emissions Trading Scheme.
EU ETS (and other countries' ETS)	European Union Emissions Trading Scheme – also other countries, e.g. Australia, New Zealand Canada etc.
FBTs	See <i>BTs</i> . Fixed <i>BTs</i> are targets set in absolute emission terms as compared with <i>intensity targets</i>
Fungible	If different emission units have full equivalence as units in a trading system for the purpose of compliance, they are said to be fungible and would be expected to have the same value.
Grandparenting	A term generally meaning the provision of <i>allowances</i> in an emissions trading scheme at no cost – sometimes it has the extra meaning that this gratis allocation is based on some historical level of emissions; also sometimes called 'grandfathering'.
Intensity target	A form of target in an emission trading scheme which is set on a dynamic basis, e.g. tonnes CO ₂ per MWh electricity or tonnes CO ₂ per tonne cement produced – or, if on an economy wide basis, tonnes CO ₂ e per GDP.
ITL	International Transaction Log – an electronic system connected to countries' <i>Registries</i> that helps ensure trading rules are met.
JJ	Joint Implementation; the mechanism provided by the Kyoto Protocol where an <i>Annex I</i> country may acquire <i>ERUs</i> in exchange for financing projects that reduce net emissions in another <i>Annex I</i> country.

Kyoto cap	The sum of all the targets taken on by industrialised countries under the Kyoto Protocol, as measured in tonnes of 'allowed emissions of greenhouse gases.
Kyoto, KP	The Kyoto Protocol of the UN Framework Convention on Climate Change.
LULUCF	Land Use, Land Use Change and Forestry – a sector defined under the Kyoto Protocol.
MAC	Marginal Abatement Cost, the cost of the next (or last) tonne of abatement.
MRV	Monitoring, Reporting and Verification – of emissions during a commitment period.
Non-Annex I	Countries not included in <i>Annex I</i> ; developing countries.
Points of Obligation	Emitters that have legal obligations under a <i>cap-and-trade</i> emissions trading scheme to provide emission units equal to their emissions over a specific commitment period.
POs	See <i>Points of Obligation</i> .
Registry	An electronic system containing all the <i>emission units</i> held by a specific country (or system) in a specific trading scheme with various types of accounts allowing for the issuance, trading, <i>retiring</i> and <i>cancelling</i> of units.
Responsibility target	When emissions trading is allowed, a target is transformed into a responsibility target because emitters have the responsibility to either reduce their emission to meet their target or purchase emission units to cover any surplus emissions.
Retiring	The act of placing units in the retirement account of a <i>Registry</i> – which is required by <i>POs</i> to prove compliance with their obligations.
Revenue neutral	When governments recycle any <i>auctioning</i> revenues back into the economy in some way – i.e. the system is fiscally neutral.
RGGI	Regional Greenhouse Gas Initiative – a proposed <i>cap-and-trade</i> emissions trading scheme by a group of states in the northeast of the US.

RMUs	Removal Units, the form of units provided through <i>LULUCF</i> activities in industrialised countries under the Kyoto Protocol.
Sink removals	The removal of greenhouse gases from the atmosphere (e.g. the sequestration of CO ₂ by growing forests).
SNLT	Sector No-Lose Targets, a form of target being discussed for some sectors in some developing countries –normally <i>intensity</i> targets and where credits are provided at a sector level when countries beat the target, but there are no consequences if the target is not met (no-lose).
Track 1 JI, Track 2 JI	Two different versions of rules for <i>JI</i> depending on whether the developed country hosting the project has established their full national systems for emissions monitoring and accounting.
Upstream, Downstream	The placement of the <i>point of obligation</i> in an emissions trading scheme – ‘upstream’ meaning at or towards the top of the chain for a fossil fuel entering an economy (e.g. oil producers/importers); ‘downstream’ meaning further down the chain and often at the point of emissions.
VCS, VER+, Gold Standard	Different standards in the <i>voluntary carbon market</i> – VCS stands for Voluntary Carbon Standard.
VCUs, VERs	Voluntary Carbon Units, Verified Emission Reductions – different terms for units in the <i>voluntary carbon market</i> .
Voluntary Carbon Market	A general term for carbon markets that result from voluntary emissions trading programs, i.e. that are distinct from compliance schemes such as the Kyoto Protocol or the EU ETS.

PART I: THE BASIC ARCHITECTURE OF INTERGOVERNMENTAL EMISSIONS TRADING

1.1 Where Does Emissions Trading Fit Into International Climate Policy?

A variety of overarching policy mechanisms were available for consideration in an international system to manage greenhouse gas emissions (as indeed they are for domestic policy). These include:

Emissions Trading

A **quantitative cap-and-trade mechanism** where you know the volume of emissions reductions but you cannot know the final cost.

Carbon Taxes

A **price-based mechanism** where you know the cost but you do not know the volume of emissions reductions you will achieve.

Project-based Schemes

A **crediting mechanism** where projects can be awarded credits for reductions (or sink removal enhancements) beyond a baseline that represents what would have happened anyway.

Other Policies and Measures (PAMS)

This can include incentive schemes, regulations and standards, voluntary programmes, subsidies, and penalties.

Under the Kyoto Protocol (KP) countries took on emission reduction obligations within an international policy framework. In the case of the Kyoto Protocol these obligations are fixed, **B**inding emission reduction **T**argets (**BT**s) for a management period called the First Commitment Period – the five year interval of 2008 to 2012 (inclusive). For the First Commitment Period (KP CP1) these binding targets have been taken on by developed countries (listed in KP Annex B).

1.1 Where Does Emissions Trading Fit Into International Climate Policy? ...continued

1.1.1 Emissions Trading And The Kyoto Protocol

The negotiating parties to the Kyoto Protocol agreed upon three flexible mechanisms to help countries deliver (at least cost) the first set of emissions reductions (during KP CP1: 2008-2012). Two are project-based mechanisms (Joint Implementation and the Clean Development Mechanism), and one is a cap-and-trade mechanism (Emissions Trading).

Joint Implementation (JI)

JI projects are undertaken between two industrialised countries that ratified the KP (Annex 1 countries).

Country A may undertake (e.g. fund) an emissions reduction (or sink removals enhancement) project in Country B.

Project-based units generated by a JI project are transferred from Country A to Country B

JI units are called Emissions Reduction Units (**ERUs**).

Clean Development Mechanism (CDM)

CDM projects are undertaken between industrialised countries (Annex 1) and developing countries (non-Annex 1).

Country A (Annex 1 country) may undertake (e.g. fund) an emissions reduction (or sink removals enhancement) project in Country C (non-Annex 1 country).

CDM units are transferred from the host developing country to the Annex 1 country.

CDM units are called Certified Emissions Reductions (**CERs**).

Emissions Trading

Emissions Trading establishes an international cap-and-trade system to allow Annex 1 countries to trade emission units between them within the total emissions cap.

This enables countries to meet their binding targets by reducing emissions, and also by purchasing units from other countries (more below).

Emissions Trading units are called Assigned Amount Units (**AAUs**).

1.2 Understanding The Components Of Intergovernmental Emissions Trading

1.2.1 Establishing A Cap-and-Trade System

To understand how an emissions cap-and-trade system works it is helpful to understand the components of that system and how those components interact with each other to deliver the overall goal of collective (global) emissions reductions.

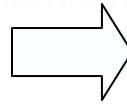
Key initial steps in establishing an emissions cap-and-trade system:

- Step 1.** Define a community of cap-and-trade participants (e.g. industrialised countries that ratified the KP).
- Step 2.** Define what sectors and sources are to be covered under the cap.
- Step 3.** Negotiate a total (collective) fixed, binding cap for the community of participants, using a common metric for the measurement of emissions (i.e. tonnes of carbon dioxide equivalent - tCO₂e). This is undertaken concurrently with the negotiation of individual fixed, binding targets (in tCO₂e) for each participant (these BTs should be lower than business-as-usual (BAU) emissions), and define robust penalties for non-compliance.
- Step 4.** Issue allowances of emission units (in tCO₂e) to each participant, where the total number of units is equal to the binding target for each participant, and collectively equal to the binding cap.
- Step 5.** Develop trading rules that enable participants to trade emission units between each other.

1.2 Understanding The Components Of Intergovernmental Emissions Trading ...continued

1.2.2 What Are Points of Obligation And What Are Their Responsibilities?

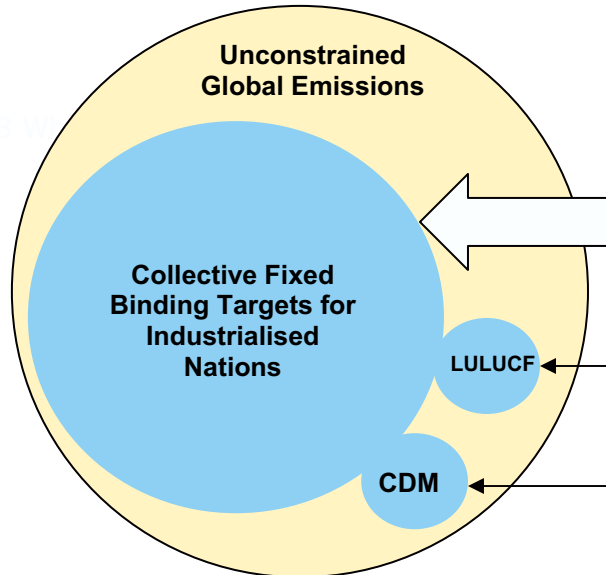
Points of Obligation (POs) are subject to **Binding emissions reduction Targets (BT)** for the first commitment period of the Kyoto Protocol (KP CP1: 2008-2012). This includes industrialised countries listed in Annex B of the Kyoto Protocol.



1st Order POs = Annex 1 Country with Fixed BTs

2nd Order PO

Entity within Annex B country with devolved BTs. 2nd Order POs are dealt with in Part II on Domestic Emissions Trading.



1.2.3 What Are Emissions Caps?

Cap: A Cap is the target total for a community of POs, denominated in tonnes of 'allowed emissions' (tonnes of CO₂ equivalent - tCO₂e).

The Land Use, Land Use Change & Forestry sector (LULUCF) deals with sink removals in industrialised nations, and adds to the collective cap for industrialised nations.

The **CDM** (Clean Development Mechanism) comprises emission reduction (or sink) projects in developing countries. CDM units add to the collective cap for industrialised nations.

1.2 Understanding The Components Of Intergovernmental Emissions Trading ...continued

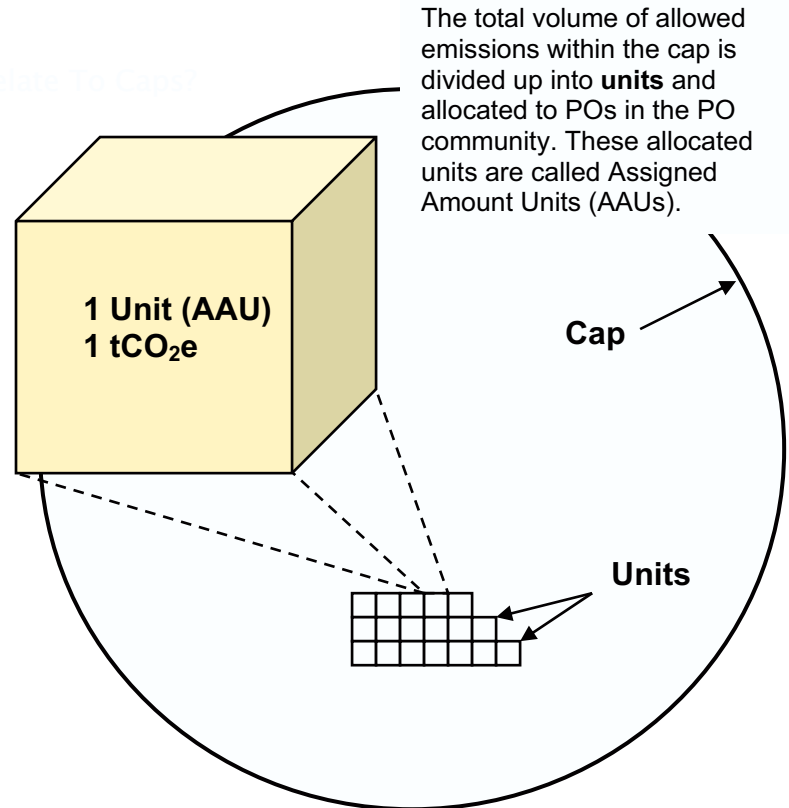
1.2.4 What Are Allowances And How Do They Relate To Caps?

An overall cap amounting to the total number of allowances is created as the total allowed emissions for the group of countries with BTs.

Allowances are “Allowed Emissions.” They comprise legal rights for POs to emit up to a certain volume of CO₂ equivalent.

Allowances are issued as emission **units** (sometimes called **certificates**), with each unit comprising 1 metric tonne of CO₂ equivalent (tCO₂e).

At the country level, all emission units are allocated free of charge. Free allocations (whether international or domestic) are often called **grandparented** allocations.

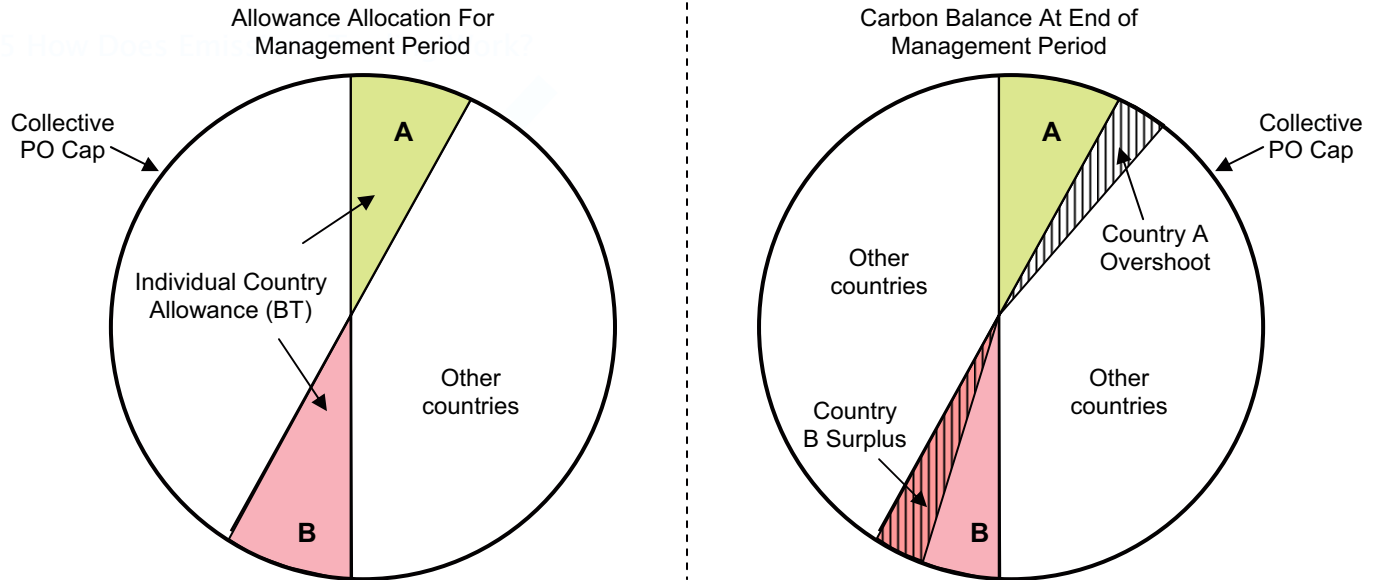


1.2 Understanding The Components Of Intergovernmental Emissions Trading ...continued

1.2.5 How Does Emissions Trading Work?

Emission units can be traded between Points of Obligation. This enables some POs to overshoot their BT with others over-complying.

Country A buys surplus units from **Country B** to enable **Country A** to remain in compliance.

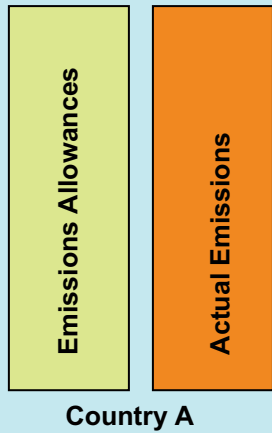


Emission units can be traded bilaterally (over the counter - OTC), through brokerages, or via a trading exchange.

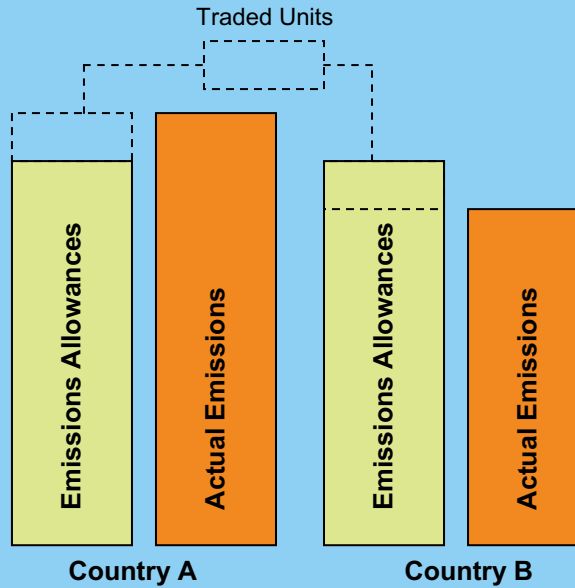
1.3 What Does International Compliance Mean In Practice?

1.3.1 Managing The Compliance Equation

Achieving compliance requires managing both sides of the **Compliance Equation** (allowances and emissions), so that a PO has enough allowance units to cover actual emissions.



Countries can remain in compliance if they overshoot their Binding Target (Country A) by trading with POs that over-comply (Country B).



Binding Targets (BTs) are 'responsibility targets' - responsibility of countries to meet an emission target or acquire emission units to cover any emissions over their target.

Emissions must be reported in accordance with emissions **Monitoring, Reporting and Verification (MRV)** rules – a trading scheme can not work without proper **MRV** rules.

If countries over-comply with their FBT and don't trade their surplus units to another country, they can carry over the units to the next commitment period (**banking**).

If countries are not in compliance they are subject to penalties: a 'make good' provision (meaning supplying the needed units out of the following period's allocation) and an extra penalty. Under the KP the total penalty was 1.3 units

1.3 What Does International Compliance Mean In Practice? ...continued

1.3.2 What Is Compliance Accounting?

Compliance with a Binding Target amounts to “settling the books” whereby total emissions are summed in a national emissions inventory at the end of KP CP1, and either:

A country over-complies with their BT and sells surplus emission units.

OR

A country under-complies with their BT and purchases emission units to make up the shortfall.

Under the Kyoto Protocol, emissions units can be purchased from seller nations within the group of countries that have BTs, or from ratifying countries without BTs (e.g. the Kyoto Protocol allows developing countries to generate emission units (credits) for sale to industrialised nations through the CDM).

Kyoto Management Period (KP CP1)

Country POs manage (reduce) emissions

Devolved POs (domestic PO entities) trade in devolved markets (e.g. see 2.1 domestic ETS)

Country POs can also participate in emissions trading prior to the final compliance trading. This enables countries to buy units (ahead of time) that they will need for compliance

During this period, countries calculate how they can make abatement and emissions trading decisions to meet their compliance obligations at least cost (see Lowest Cost Path)

Kyoto Compliance Period

Country POs undertake **MRV** accounting and **Compliance Trading** to “settle the books”. This is sometimes called the “true-up”.

2008

2009

2010

2011

2012

2013

2014

2015

1.4 How Do We Keep Track Of Emissions Trading Units?

1.4.1 Emission Unit Registries And Retiring Units To Comply

Registries hold all the emission units in **secure electronic systems**.

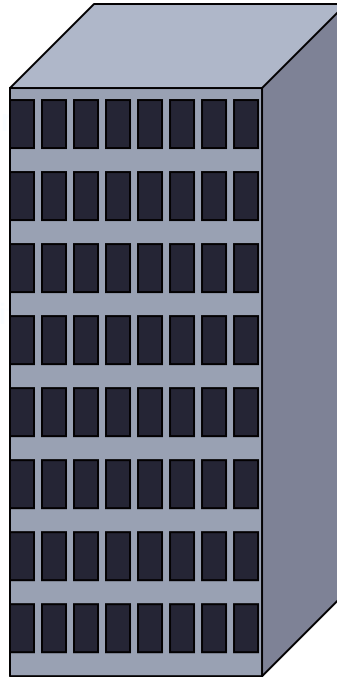
They track the original issuance and transfers and acquisitions of every unit between national registries.

Every unit has a unique serial number which allows them to be tracked.

Units are held in **holding accounts** (similar to bank accounts).

When a country settles its compliance obligation at the end of the management period, it transfers its emission units (together with any it had to buy) to a **retirement account**.

Retired units can never be used again



Registry systems are not market 'platforms' for the trading of units – this all happens externally.

When units are traded, registry administrators act on instructions to shift units between accounts, including between national registries in the case of international trades.

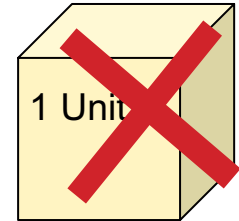
Registry systems have an 'electronic transaction rules keeper' (the **International Transaction Log - ITL**).

Instructions to issue units or transfer units between national registries are rejected by the **ITL** if the trading system rules are broken.

1.4 How Do We Keep Track Of Emissions Trading Units? ...continued

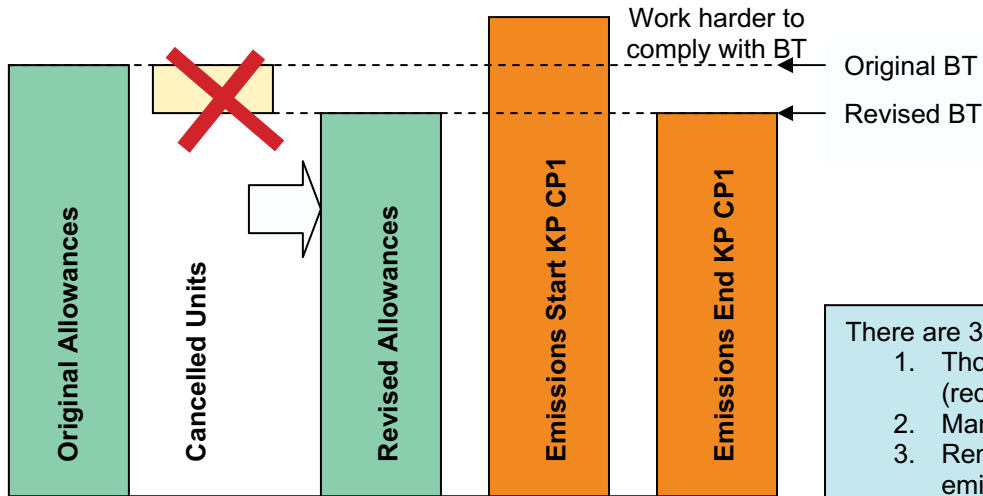
1.4.2 What Happens When Units Are Cancelled?

Units can also be **cancelled**, which means they are purchased and placed in a cancellation account where they cannot be used again, and also cannot be retired.



When units are cancelled the total pool of allowed emissions for all POs gets smaller by the volume of cancelled units.

Cancellation of units forces POs to work harder to drive emissions lower to meet a lower revised cap.



POs have to collectively increase the proportion of emission reductions 'in-house'.

AND/ OR

Buy in more units from outside the PO jurisdictions (from the CDM).

There are 3 reasons to cancel units:

1. Those who want to pull down the cap (reduce total allowed emissions)
2. Managing sink "debits"
3. Removal of Kyoto units to another emissions trading jurisdiction.

Each Column Denotes the Community of POs

1.5 Why Emissions Trading Lowers The Cost Of Compliance?

1.5.1 Basic Principles

First Principles

The overall environmental goal is a reduction in total emissions for the whole PO community.

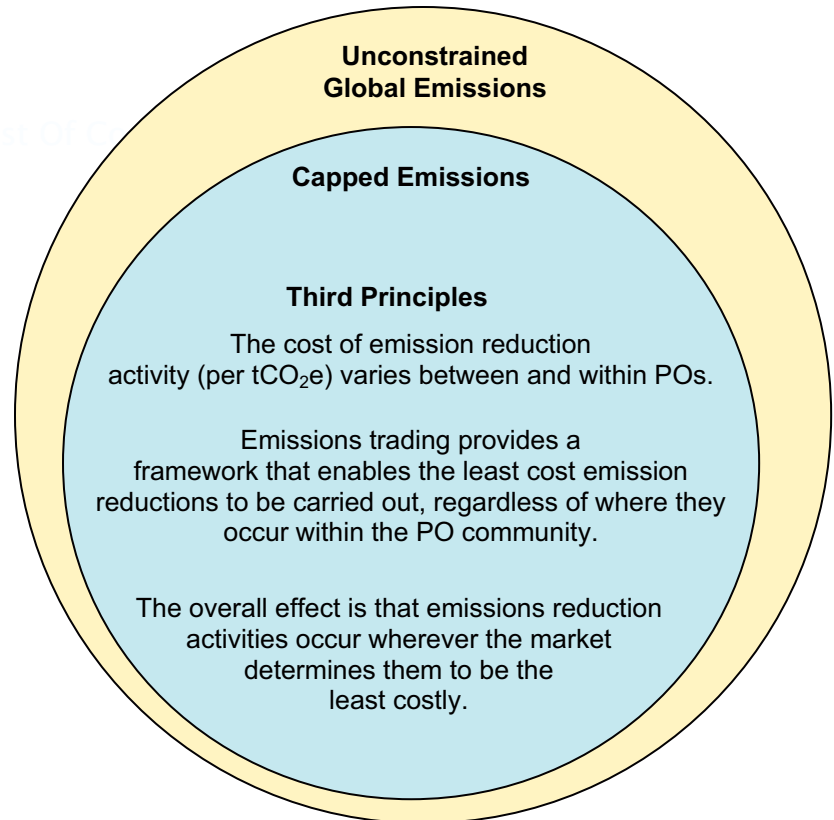
The overall economic goal is to gain the highest volume of emissions reductions per unit of investment for each PO and for the PO community.

Second Principles

Emissions trading is only environmentally meaningful in partnership with a binding emissions target.

Emissions trading is a means by which POs can collectively meet their binding target at least-cost.

Without a binding target, emissions trading simply shifts the location of emissions.



1.5 Why Emissions Trading Lowers The Cost Of Compliance? ...continued

1.5.2 What Are The Benefits To Buyers And Sellers?

Where emissions reduction is more costly (per tCO₂e), POs are able to meet their BT responsibilities:

A. Partly 'in-house' (via the most cost efficient in-house reductions available).

AND

B. Partly by purchasing units from other POs that didn't need them for their compliance and so were available for sale.

The key issue for economic planning is the difference between the marginal cost of abatement and the price of carbon in the carbon market (see below for more on marginal abatement costs).

Buyer

From a buyer point of view, "taking responsibility" for one's emissions can include buying emissions units if the price of those units (per tCO₂e) is cheaper than the cost of in-house emission reductions (abatement) for the same volume of carbon.

Seller

From a seller point of view, the value of surplus units (once sold), amount to funds that can be used to finance the activities, technologies, and innovations that generated the surplus emission reductions in the first place.

Co-Benefits

Many emissions reduction activities have economic co-benefits such as energy security, improved energy efficiency, more efficient waste management, as well as biodiversity protection, soil conservation, water security and water quality in the land use sector.

1.5 Why Emissions Trading Lowers The Cost Of Compliance? ...continued

1.5.3 What Are 'Marginal Abatement Costs' And How Do They Relate To Emissions Trading?

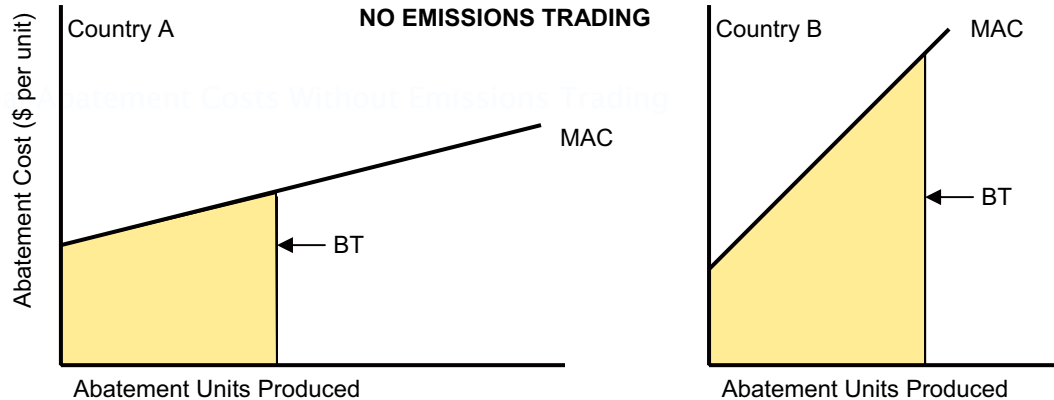
- 1 Marginal Abatement Costs: 'the cost of producing an additional abatement (in-house emissions reduction) unit.'
- 2 As a country undertakes abatement activity (in-house emissions reductions) it discovers that some abatement activities are relatively cheap (particularly at the beginning of the process).
- 3 Once the relatively cheap abatement has been undertaken, abatement can get progressively more expensive as the country approaches its binding target.
- 4 For example, whereas the average cost of producing the first 100 abatement units (per tCO₂e) might be \$5, the average cost of producing the second 100 units might be \$40. Therefore, as the marginal cost increases, the cost of compliance increases.
- 5 Without emissions trading, a country will have to bear these rising marginal abatement costs irrespective of how expensive they become, until they have reached their binding target.
- 6 With emissions trading, a country can undertake abatement until it gets too expensive (i.e. when the marginal abatement cost overshoots the international price of carbon units). Thereafter it can buy emission units at the international carbon price to make up the difference between total in-house abatement and the binding target.

1.5 Why Emissions Trading Lowers The Cost Of Compliance? ...continued

1.5.4 Marginal Abatement Costs Without Emissions Trading

The benefits of emissions trading can be depicted by comparing two countries with different marginal abatement costs.

Consider the following scenario: Country A and Country B both have BTs, but Country A is able to generate emissions reduction units more cheaply (per unit) than Country B which has a steeper marginal abatement cost curve (MAC).



Without Trading: Country A is able to meet its BT through in-house abatement activities with a lower marginal abatement cost (per emission reduction unit) than Country B. Country B can undertake a proportion of its abatement activities at a unit cost equivalent to that of Country A, but can only reach its BT in-house by means of progressively expensive emission reduction activities whose marginal cost is considerably higher.

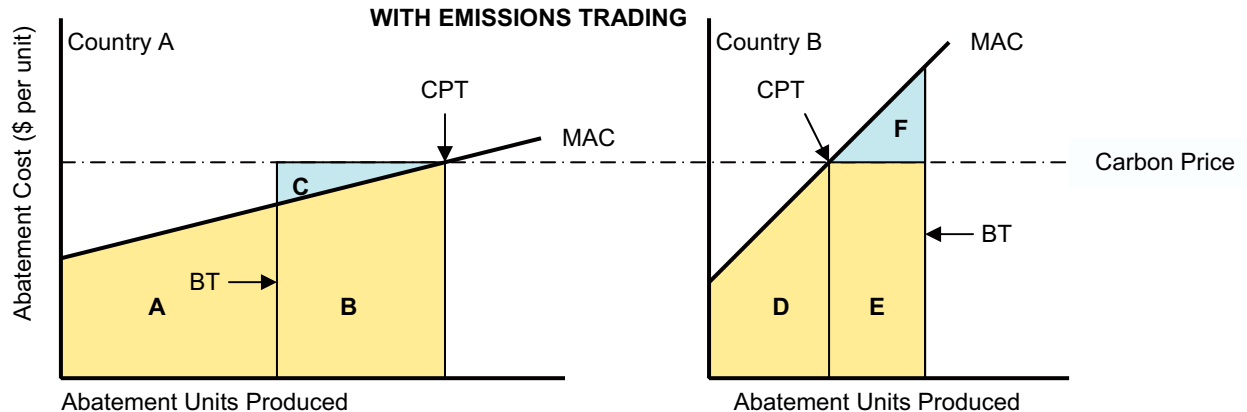
1.5 Why Emissions Trading Is The Lowers The Cost Of Compliance? ...continued

1.5.5 Marginal Abatement Costs With Emissions Trading

Country A is able to take advantage of their ability to (relatively) cheaply undertake abatement below (A), and above (B) their BT up to the carbon price threshold (CPT).

Country A can then sell their surplus units at the carbon price for a net profit (C) (B is the cost of producing those units).

Country B is able to meet a portion of its BT in-house at a cost below the carbon price (D), and buys units to make up the difference (E) at the carbon price and no higher.



Trading enables a saving for **Country B** and a profit for **Country A** (i.e. gains of trade = C + F). Emissions trading, therefore, enable countries to manage their in-house abatement and unit purchases toward an optimal condition.

1.6 Why Is Carbon Price Important?

1.6.1 What Is The Price Of Carbon?

There is no single price for carbon in a market based cap-and-trade system. Price is driven by supply and demand – and prior expectations of what this eventually will be at the compliance deadline.

1.6.2 How Does Compliance Trading Interact With Supply And Demand For Carbon?

POs must complete trading by the compliance deadline (the “true-up” following 2012).

But, POs can trade emissions units throughout the 2008-2012 period, and in the “true-up”.

POs can choose to buy units early in the process or at the last minute.

Buyers make purchase decisions based on an estimate of when the carbon price will be low.

The price will increase when demand is high relative to supply.

High demand is possible at the last minute, so this can influence the carbon price.

The number of units purchased is based on how many units will be needed for all POs to comply.

In turn, this is based on abatement performance, which influences demand for units, and price.

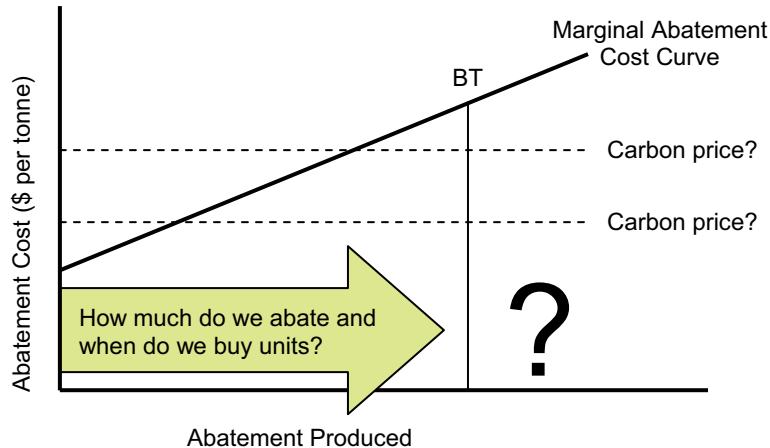
As such, supply and demand interact with compliance dynamics. Therefore, the carbon price during the management period is strongly influenced by the best estimates of market actors of how supply and demand will influence the carbon price during final compliance trades in the “true-up” period.

1.6 Why Is Carbon Price Important? ...continued

1.6.3 Why Are Carbon Price Signals Critical For Emissions Trading?

Carbon price signals come from market actors (e.g. carbon exchanges, brokers) and reports of buy/sell prices and offer 'spreads' and transaction volumes.

These price signals play a fundamental role in the analysis of marginal abatement costs, and in turn, strategic abatement and emissions trading decisions.



Without carbon price signals, POs don't know when it is strategically better to reduce emissions in-house or buy in units to take responsibility for emissions.

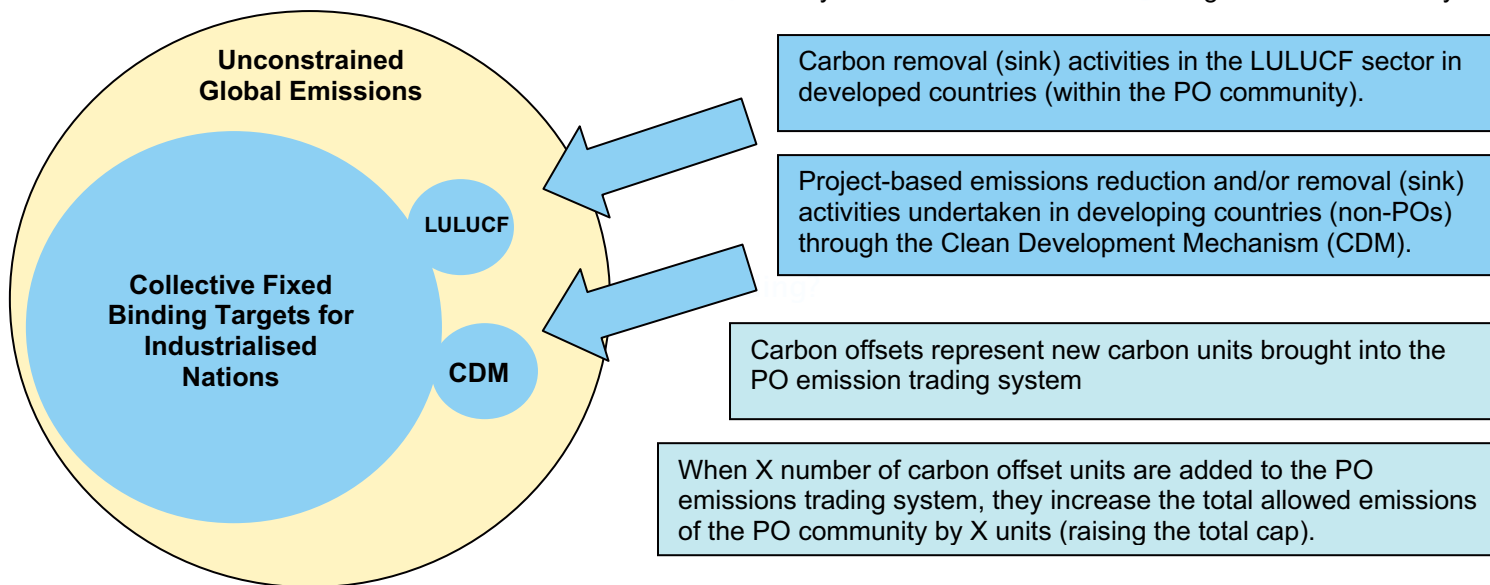
Information about carbon market activity is crucial and fundamental for emissions trading to work as intended.

1.7 What Are Carbon Offsets And How Do They Fit Into Emissions Trading?

1.7.1 How Do Carbon Offsets Fit Into Emissions Trading?

Carbon offsets (or **carbon credits**) in the compliance system are different from the allowance units which form the core unit of international emission trading in a binding cap-and-trade system. 'Offsets' generally refers to project-based crediting mechanisms. But the term is also sometimes used for credits from LULUCF activities in developed countries (see section 1.7.3)

Under the Kyoto Protocol carbon offsets are generated in two ways:



1.7 What Are Carbon Offsets And How Do They Fit Into Emissions Trading? ...continued

1.7.2 Why Is Additionality So Important For Carbon Offsets From Developing Countries?

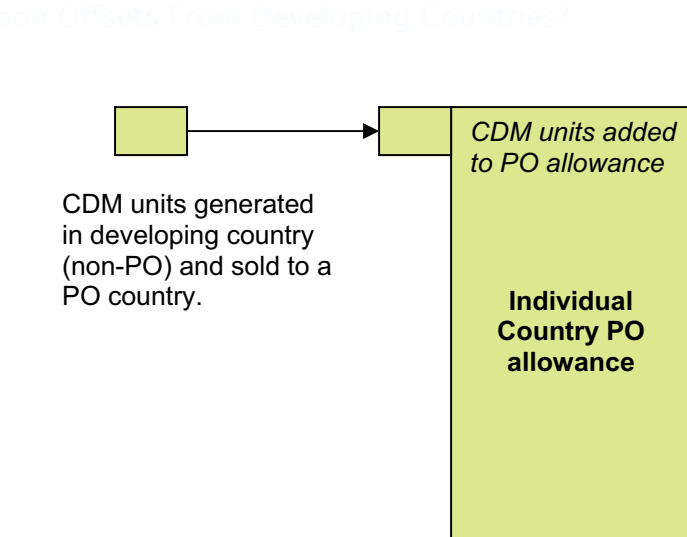
Additionality refers to the requirement that the CDM offset activity or project would not have otherwise occurred without the finance associated with the sale of carbon credits – or, more broadly, without the CDM.

If carbon offsets are generated in developing countries through CDM projects (i.e. outside the PO community and outside any BT requirement), they need to demonstrate additionality. If CDM projects are not additional (i.e. would have happened anyway) then there is a net loss for the environment.

This is because:

New carbon units have been generated that raise the cap in the PO community allowing a greater volume of carbon to enter the atmosphere.

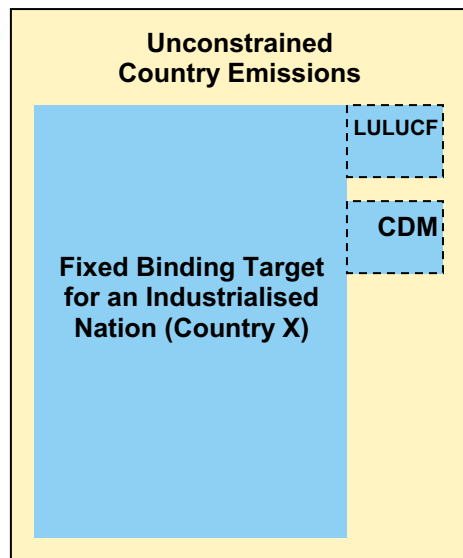
The CDM additionality requirement drives the need for a complex institutional quality assurance framework for this activity.



1.7 What Are Carbon Offsets And How Do They Fit Into Emissions Trading? ...continued

1.7.3 Why Is Additionality Not Required For LULUCF Credits From Developed Countries?

Kyoto compliant credits in the Land Use, Land Use Change & Forestry (LULUCF) sector in developed country POs, add to the total allowances for that country by the number of units generated by these activities.



These LULUCF activities are not required to demonstrate additionality under the Kyoto rules.

This is because:

The KP LULUCF rules for developed countries agreed that credits could be given for “since 1990” activities (e.g. carbon sequestered over 2008-2012 by forests planted after 1 January 1990) and the countries’ BTs were set in the light of the expectation of what credits would be added to the BTs. In this way LULUCF credits generated in developed countries are quite different to CDM offset credits.

1.7 What Are Carbon Offsets And How Do They Fit Into Emissions Trading? ...continued

1.7.4 Why Is Additionality Required For JI Projects In Developed Countries?

Joint Implementation (JI) was designed as a mechanism to enable project-based emissions units to be traded between developed countries where both countries were subject to a fixed Binding Target. In particular, part of this mechanism (Track 2 JI) was designed to enable such trading to occur where the host country had not yet fully developed its national carbon monitoring and accounting system.

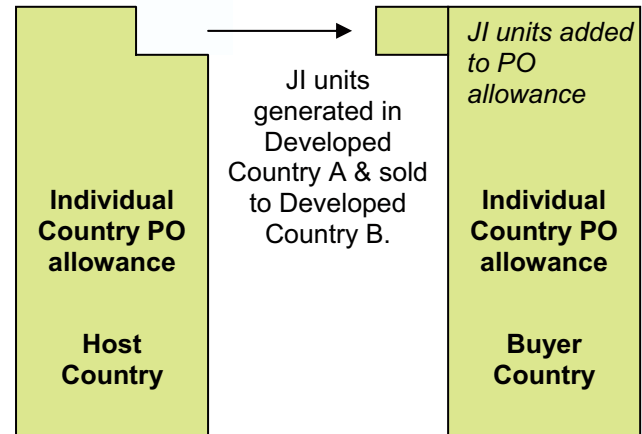
In the absence of a national monitoring and accounting system, any project would need to demonstrate additionality because this is the only place where carbon would be fully accounted for – hence the need to demonstrate additionality for Track 2 JI projects. The institutional process associated with additionality is similar to that for the CDM. However, under Track 1JI, which applies where the host country has a fully developed carbon monitoring and accounting system, a simple declaration by the host country that the project is ‘additional’ is enough.

Note on JI and country caps:

Unlike the CDM, Joint Implementation units, once generated, do not add to the total collective PO cap, or to individual PO allowances.

When a host country sells JI units, its own allowance total gets smaller by the same volume of units.

On the other hand, JI units are added to the buyer country allowance total – raising the BT for the buyer.

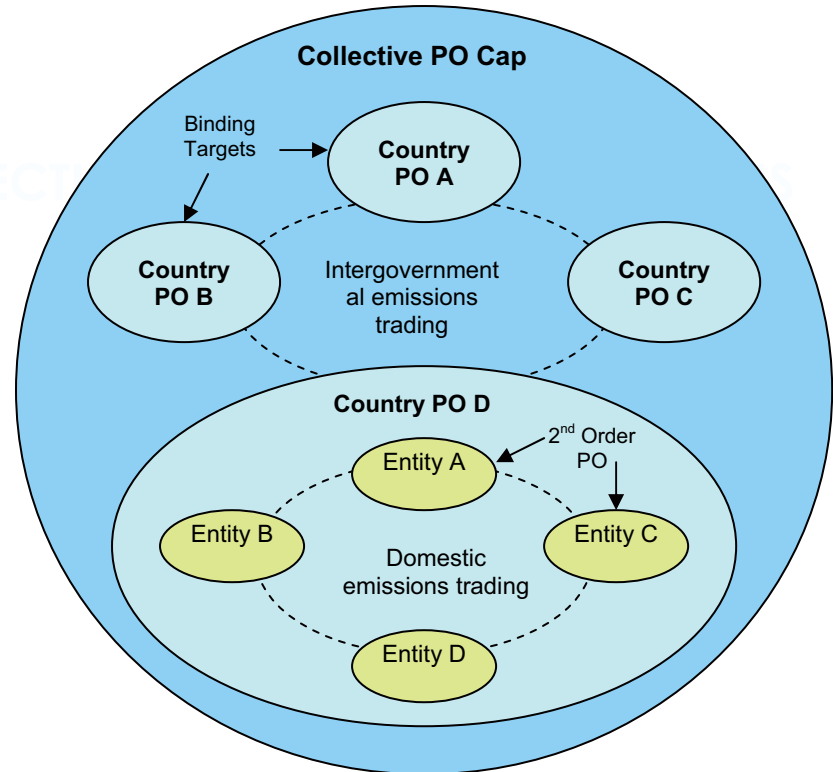


PART II: THE BASIC ARCHITECTURE OF DOMESTIC EMISSIONS TRADING

First Order POs (countries) are the only ones with obligations in the international Kyoto Protocol regime.

In managing their obligations domestically, countries can employ various policy mechanisms including emissions trading, carbon taxes, project based schemes, and other policies and measures such as incentives schemes, regulations, penalties etc.

Through domestic emissions trading schemes (DETS) countries can devolve their BTs to specific domestic entities (**Second Order POs**) such as private sector clusters (e.g. cement manufacturing, electricity generation, waste management, agriculture, forestry, transport).



2.1 Devolving Emissions Trading To Domestic Entities

Countries typically do not have a good idea of mitigation potentials and costs – firms and individuals do. Therefore all the concepts in Part I about least cost, in practice, imply a need for devolving emissions trading into the domestic economy through Domestic ETS (DETS) or domestic offset schemes.

The devolution of emissions trading from countries (**First Order POs**) to domestic entities (**Second Order POs**) is a means by which a country can link its performance under the international regime to its domestic economy.

This enables the international price of carbon to be transferred to the domestic economy, so that domestic (second order PO) abatement decisions are based on the international price signal.

Domestic ETS can be linked to other countries' schemes.

Domestic compliance periods can be shorter than the international compliance period (e.g. annual compliance periods, as with the EU ETS).

The devolution of emissions trading to the domestic level can involve the devolution of international emission units to domestic entities as the trading currency.

Alternatively, domestic units can be created that are fully **fungible** (interchangeable) with international units.

Fungible units transferred from one domestic emissions trading scheme to another will provide a means by which one country's carbon value will influence another. *

* **Note:** If domestic units are not fungible with international units, while the domestic outcomes may be lower cost internally (in comparison with no DETS), the overall country costs may be higher than need be. Domestic ETS (in isolation from other DETS) can help ensure that individual domestic actions don't happen higher than the countries' MAC in those curves, but it doesn't equalise these MACs across countries (see section 1.5.4 above).

2.2 What Domestic Emissions Trading Schemes Already Exist?

The main model so far is the EU ETS. Other schemes are in development in New Zealand, Japan, Australia, Canada, Norway, Iceland, Lichtenstein and Switzerland (all KP countries) and also in the US – particularly forthcoming schemes in the NE states (e.g. RGGI) (see Part III below).



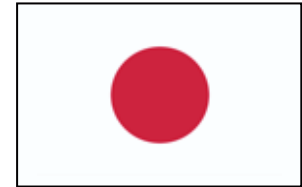
Canada



EU



New Zealand



Japan



Australia



USA



Norway



Iceland



Switzerland



Lichtenstein

2.3 How Do Domestic ETS Differ From Intergovernmental ETS?

The fundamental architecture of these schemes generally follow the model of intergovernmental ET described earlier (i.e. establish collective PO community cap, points of obligation, issue allowance 'units', registries, 'compliance equation', banking provisions – see section 1.2.1 above).

But there are also some key differences:

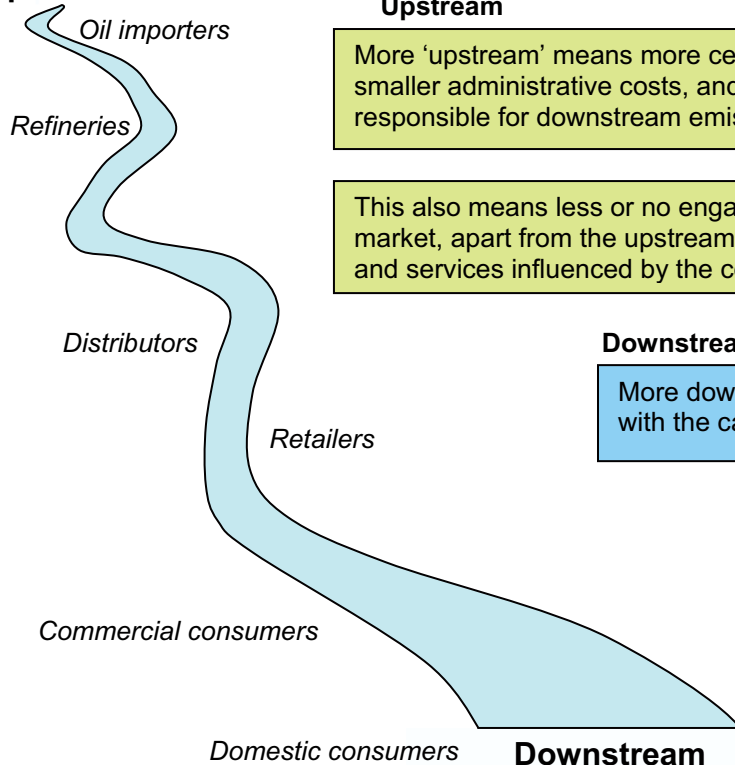
1. From 2008 domestic emissions trading schemes (ETS) in KP countries are nested within the Kyoto system, so in turn are under the Kyoto cap – which is the collective country PO cap that counts from a 'global' environmental management point of view with respect to these countries.*
2. Governments have chosen to create separate domestic units (e.g. EUAs, NZUs) and not just use the standard Kyoto units.
3. Compliance periods in the domestic ETS can be shorter than the Kyoto five year period (e.g. annual) – so that governments get an early picture of their own abatement performance well before the end of 2012. Domestic compliance periods can also be for the same duration as the intergovernmental regime (e.g. 5 years for the Kyoto Protocol).

* **Note:** The EU ETS is regional and international, but is categorised here as 'Domestic' because it was established to enable emissions trading to be conducted by Second Order POs (domestic entities within country POs) in and between the EU countries.

2.4 Upstream And Downstream Domestic Points Of Obligation

Governments can choose what level in their economy to set the domestic points of obligation.

Upstream



Upstream

More 'upstream' means more centralised, a smaller number of Second Order POs, smaller administrative costs, and greater coverage where upstream POs are responsible for downstream emissions.

This also means less or no engagement of downstream emitters with the carbon market, apart from the upstream carbon price influencing downstream prices for goods and services influenced by the commodity in question (e.g. electricity or liquid fuels).

Downstream

More downstream means greater direct engagement of emitters with the carbon market.

The EU ETS chose a more downstream model but restricted to larger size emission sources. As a result, transport fuels and fossil fuels used for the residential, commercial and small industry sectors aren't covered – but electricity is as generators are. So there are gaps and energy market distortions.

2.5 Grandparenting Vs Auctioning Domestic Allocations

Governments can choose to provide units to their POs at no charge (**grandparenting**) or require them to be purchased at an auction.

2.5.1 Disadvantages of Grandparenting

In the intergovernmental emissions trading system allowances are issued to PO countries free of charge (grandparented allocations). At the domestic level, there are certain disadvantages to issuing grandparented allocations/allowances. The goal is to motivate domestic POs (e.g. electricity generators or oil companies) to pass the cost of carbon onto the users of energy commodities so that the carbon price signal stimulates efficient demand side decisions.

If you have grandparented the allocations to these POs, they make windfall profits. This is because they charge downstream consumers for the units even though they got them for free.

These windfall profits amount to a commercial subsidy of upstream POs in countries using DETS.

This was one of the problems experienced in the EU ETS.*

* **Note:** However, grandparenting was needed politically to get the EU-ETS off the ground – after years of difficulty for EU policymakers to implement EU-wide energy or carbon taxes.

Another problem arises for emission intensive industries that cannot pass on the carbon costs (in their energy inputs) to their consumers.

An example of this might be an emissions' intensive manufacturer of an export product, whose market competitiveness (and market share) is dependent on maintaining certain prices.

In turn, this leads to loss of profits (and competitiveness concerns) for emissions intensive industries that cannot pass on the carbon costs in their commodities. This windfall profits and competitiveness risks story has been a big 'lesson learned' (so far by others) from the EU ETS design.

2.5 Grandparenting VS Auctioning Domestic Allocations ...continued

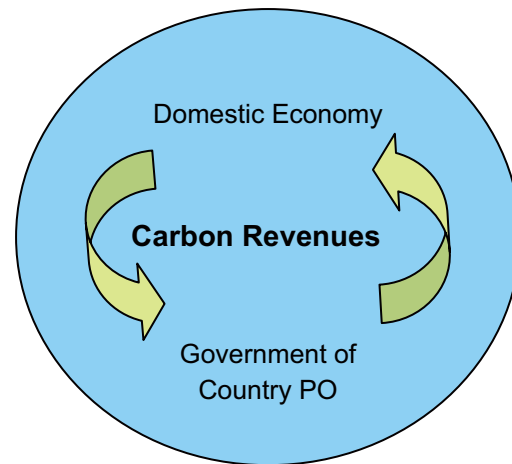
2.5.2 Advantages Of Auctioning

A better approach than grandparenting domestic allocations is for countries to either auction the units – or (for small countries like New Zealand) to require upstream domestic POs to acquire units in the international carbon market.

Auctioning provides a revenue stream to PO governments (similar to a carbon charge but more transparent).

Revenues from auctioning allocations can then be used to finance policies and measures to ameliorate the effects of increased energy costs on households and firms (who are unable to pass costs on) – e.g. reduce other taxes, provide targeted compensation, help people to invest in energy efficiency (so lower their bills), or improve public transport infrastructures. *

In the case of the NZ model, the revenue benefit to the government comes from the avoided cost of not having to use government units to match emissions (because they get the units from the domestic POs).



*** A note on the influence of domestic carbon price from grandparenting or auctioning systems:** Increases in the price of energy commodities like electricity and petrol can often have only a small effect on consumers' decisions, hence little reduction in emissions. Targeting revenue recycling to specific complementary measures in these sectors can significantly increase the overall responsiveness to the price signal.

2.5 Grandparenting VS Auctioning Domestic Allocations ...continued

2.5.3 Innovative Uses For Auctioning Revenues

Climate change policy takes place in a political economy (not just an economy) where business and public support for policies can be important in their success and durability in the political system. This is particularly relevant when climate policy is trying to bring about strategic changes in the economic system.

Revenue neutrality:

From a political perspective, auctioning schemes tend to be more successful if they are demonstrably revenue neutral (fiscally neutral) – i.e. so that they do not just become another source of income for a government.

Otherwise such policies can lead to business and public resentment to efficient climate change policy – and often delays in implementation.

Moreover, strategic revenue recycling (**hypothecating**) presents an opportunity for building business and public support for climate change policies designed to bring about a strategic shift towards a low carbon economy.

Compensating key 'losers':

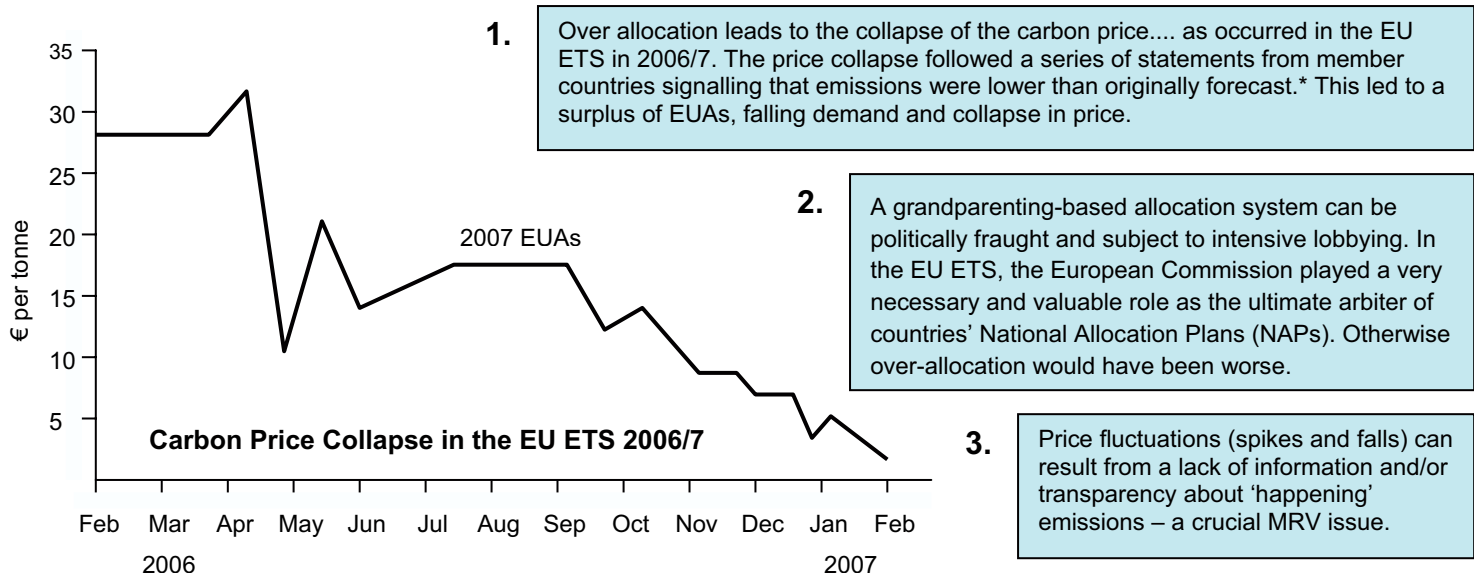
Governments can also use carbon units as a compensation mechanism. For example, a government may provide units directly to energy intensive exporters who are unable to pass on the carbon price to their international customers because of competitiveness issues. Here governments can cover the cost at a national (taxpayer) level. This is another reason why governments shouldn't needlessly grandparent units as they can better use them for other purposes.

2.5 Grandparenting VS Auctioning Domestic Allocations ...continued

2.5.4 Lessons From The EU ETS

The European Union Emissions Trading Scheme (EU ETS) has been operating since 2005 when the Kyoto Protocol came into force (but prior to the first commitment period – 2008 to 2012). Phase I of the EU ETS (2005-2007) provided an opportunity to ‘test drive’ a domestic emissions trading scheme at a large scale.

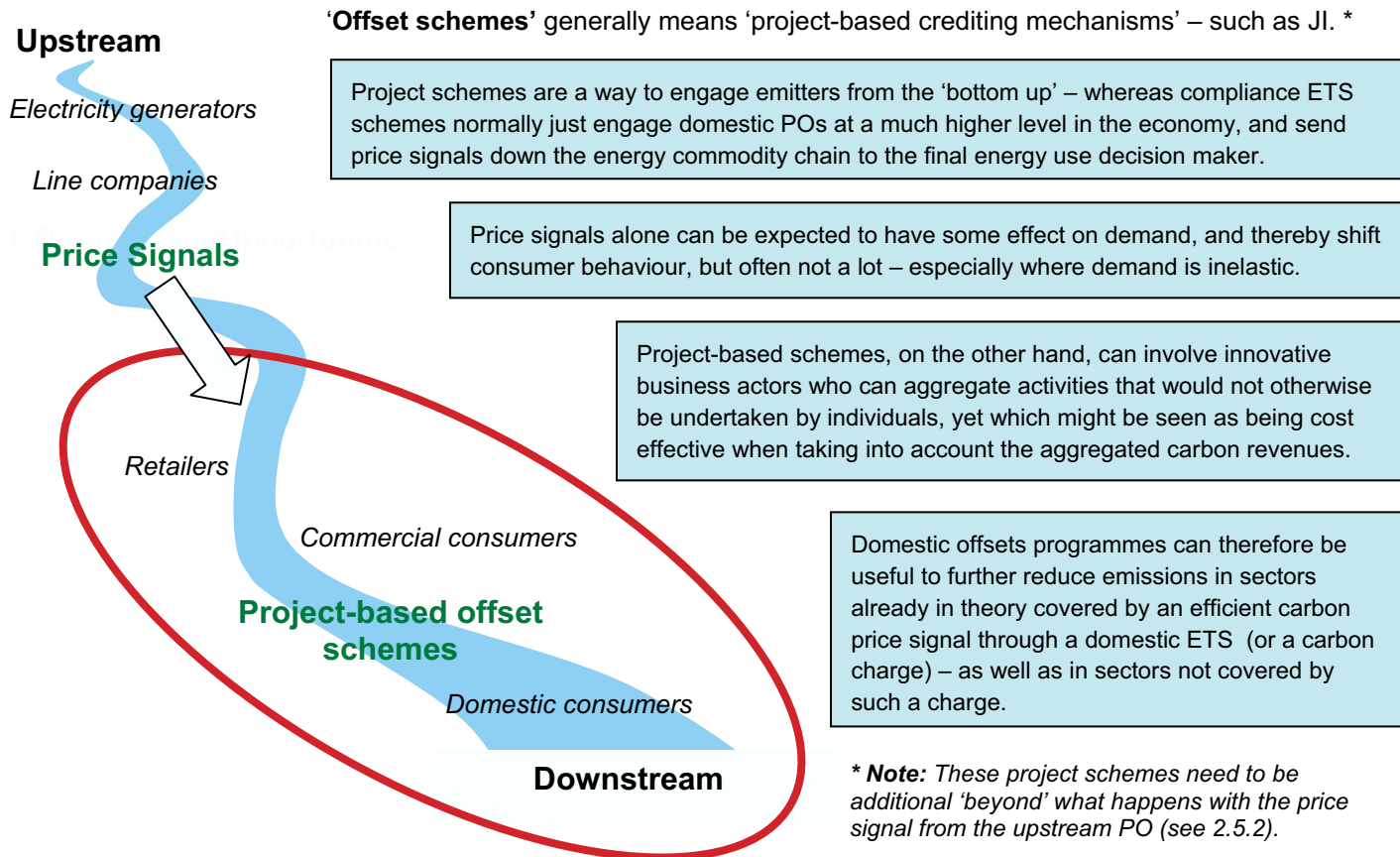
Some important lessons have been learned from that Phase I experience:



** Note: Given this experience that over-allocation can result from a lack of information about expected emissions, early MRV is a good place to start as ETS schemes are being designed.*

2.6 Domestic Offset Schemes In Countries Covered By Kyoto Caps

2.6.1 Downstream Opportunities



2.6 Domestic Offset Schemes In Countries Covered By Kyoto Caps ...continued

2.6.2 Examples of Domestic Offset Schemes

There is limited experience with domestic offsets schemes where the incentive is compliance carbon units (i.e. Kyoto units or domestic ETS units).

There is experience in Eastern European countries which have active domestic JI programs, which generate and then sell project-based units (ERUs) to countries in the EU and entities covered by the EU ETS).



New Zealand had an early scheme called Projects to Reduce Emissions (PRE) – well regarded by international policy experts but set aside when NZ chose to design a domestic ETS.



France has developed a domestic offset scheme.



Germany is exploring programmatic-type JI similar to programmatic CDM. 'Programmatic' refers to the bundling together of several different projects into a program, to increase the economies of scale for the crediting activity.

2.6 Domestic Offset Schemes In Countries Covered By Kyoto Caps ...continued

2.6.3 Additionality and Domestic Offsets

Credit-based project schemes need to ensure that credits are not provided for activities that were just going to happen anyway, or did not need the carbon finance to happen. So a means to assess “additionality” is important.

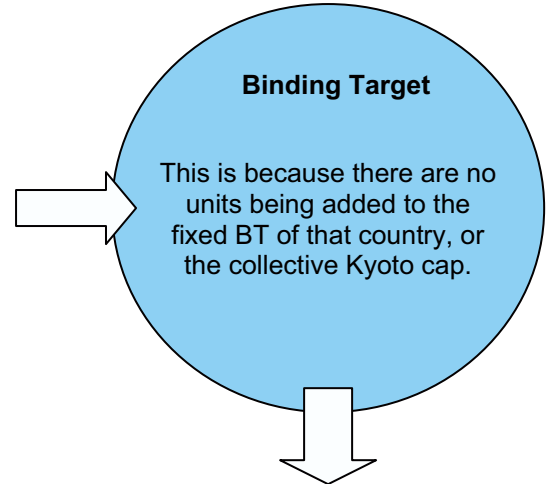
In the CDM, non-additional credits mean the atmosphere has been ‘short changed’ for reasons explored above (section 1.7.2).

Non-additionality in offsets schemes in countries under the Kyoto cap does not harm the atmosphere.



But governments that give Kyoto units to partially or completely non-additional domestic offset projects, are needlessly giving away their units.

This transfers additional costs onto their taxpayers (which, however, is no different than any other tax-payer funded climate change mitigation program).

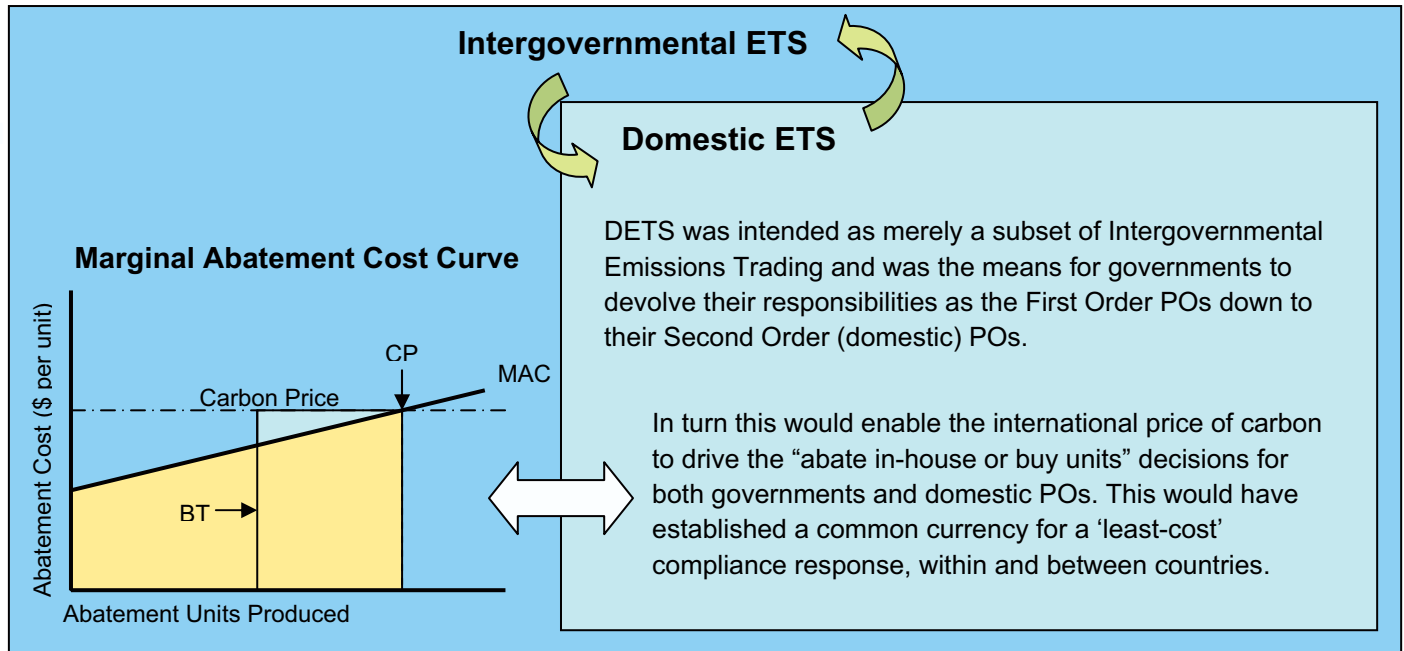


These fixed binding targets set the overall environmental goal for countries contained within the collective cap. Non-additional domestic offset projects do not affect this.

2.7 How Does Domestic ETS Link With International Emissions Trading?

2.7.1 DETS As Originally Intended

The architects of the Kyoto Protocol expected relatively open links between domestic and intergovernmental emissions trading from 2008, e.g. where the units of trade in domestic ETS would be Kyoto units including AAs.

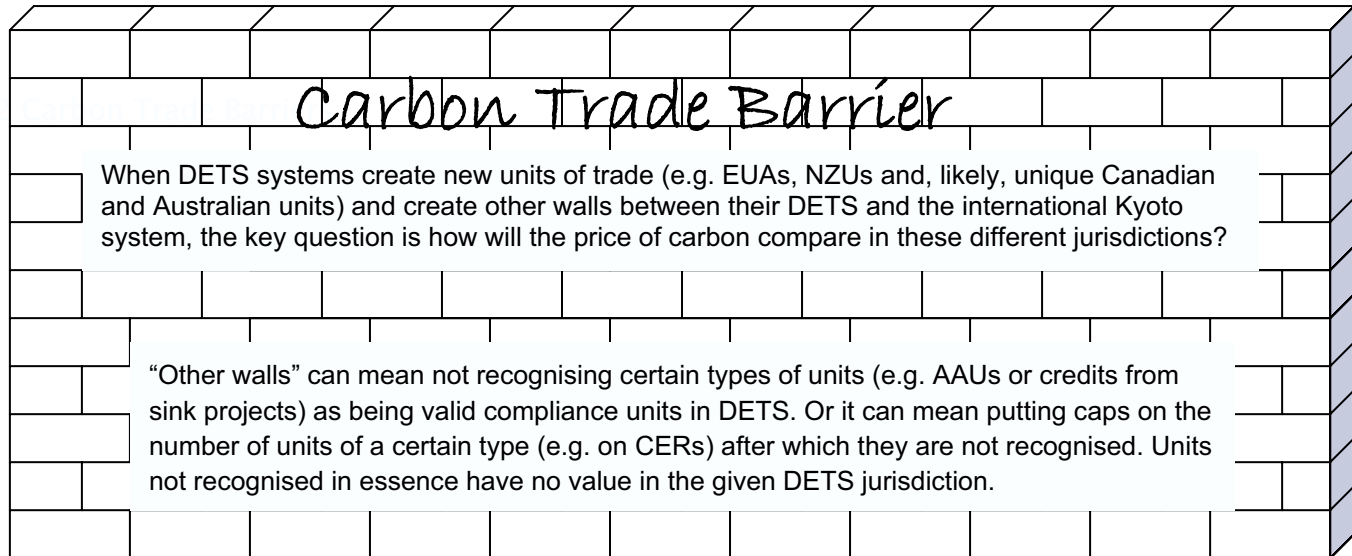


It mostly hasn't worked out that way and instead different countries are developing their own units, and in the process are building carbon currency walls around their jurisdictions.

2.7 How Does Domestic ETS Link With International Emissions Trading? ...continued

2.7.2 Carbon Trade Barriers

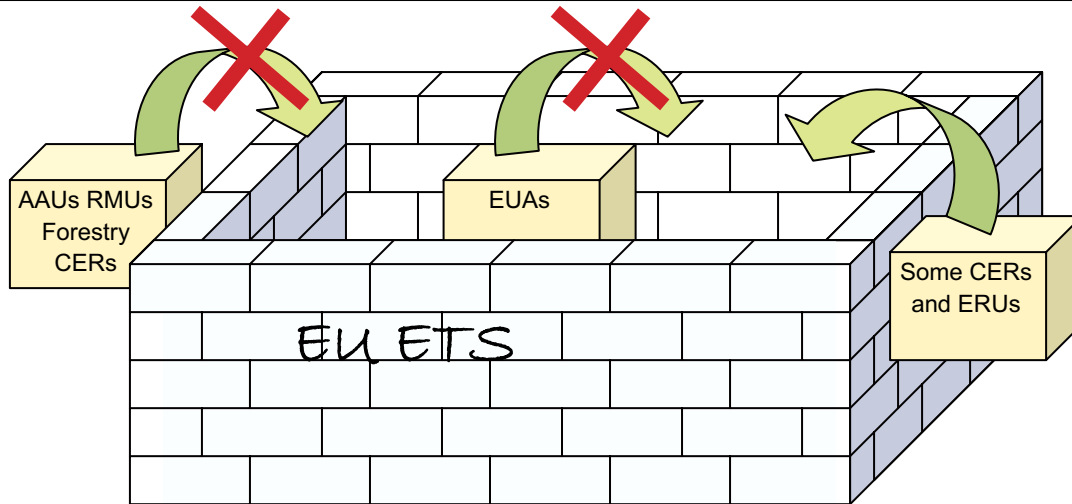
In practice, a variety of carbon trade barriers are now developing in DETS. This is having an effect on the domestic and international price of carbon and the overall efficiency of the global carbon market. However, note that when the US pulled out of Kyoto, it so disturbed the demand-supply balance of KP CP1 that technically there was little, if any, scarcity in total allowances supply. So achieving a carbon price in the EU-ETS required at least some walls.



Another feature of DETS that can affect the value of units is if there is some form of a price cap. One example is the ability to pay Cdn\$15 per tonne into a Technology Fund (instead of having to provide compliance units) in the proposed Canadian scheme.

2.7 How Does Domestic ETS Link With International Emissions Trading? ...continued

Wherever DETS design features affect the value of carbon units, it means that open links between different DETS are not possible. This is because people would buy units in the cheaper scheme and sell them into the more expensive one. This is what financial markets call **arbitrage** and usually regulate to minimise or prevent.



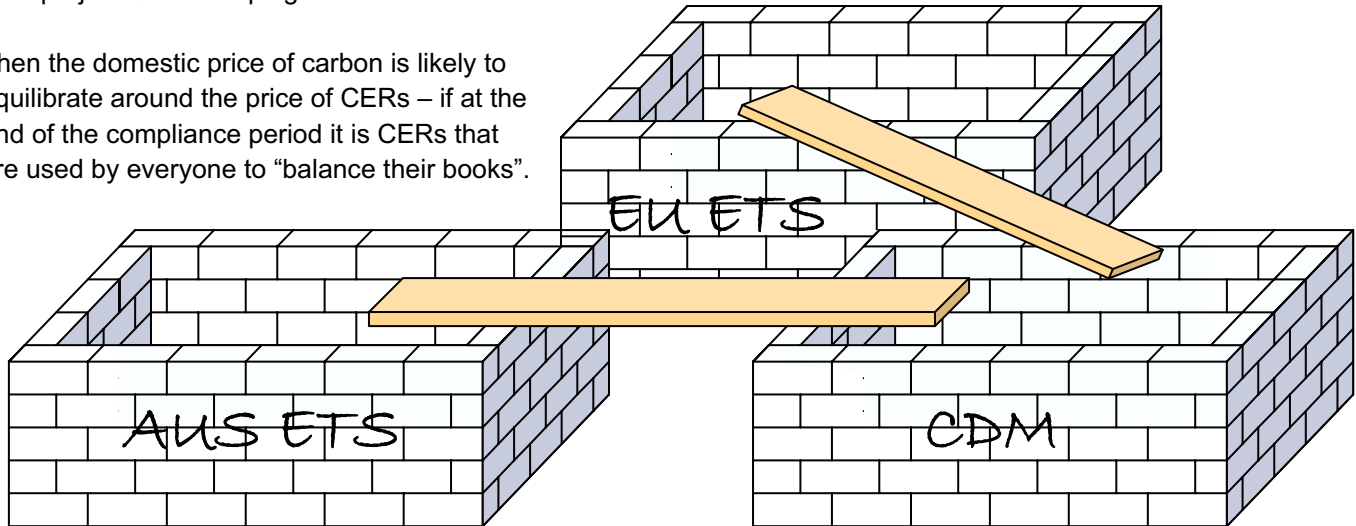
Varying prices of carbon in different jurisdictions is a particularly salient issue for multinational firms with similar operations in different jurisdictions. It is also a key competitiveness concern among global industries: "What carbon price do my competitors face?" And experience shows that trade barriers that create competitiveness concerns, beget further barriers.

2.7 How Does Domestic ETS Link With International Emissions Trading? ...continued

2.7.3 CDM Bridge Between Different DETS

One feature that helps bridge the gap (even where these walls exist) is when each system recognises CDM credits from projects in developing countries.

Then the domestic price of carbon is likely to equilibrate around the price of CERs – if at the end of the compliance period it is CERs that are used by everyone to “balance their books”.



In turn, the price of CERs will be pulled (up or down) to the value of the primary carbon commodity in the biggest DETS (e.g. the EUA in the EU ETS). So there can be a general trend towards a common price, at least up until some cap on CER purchases in the highest value DETS breaks its CDM bridge.

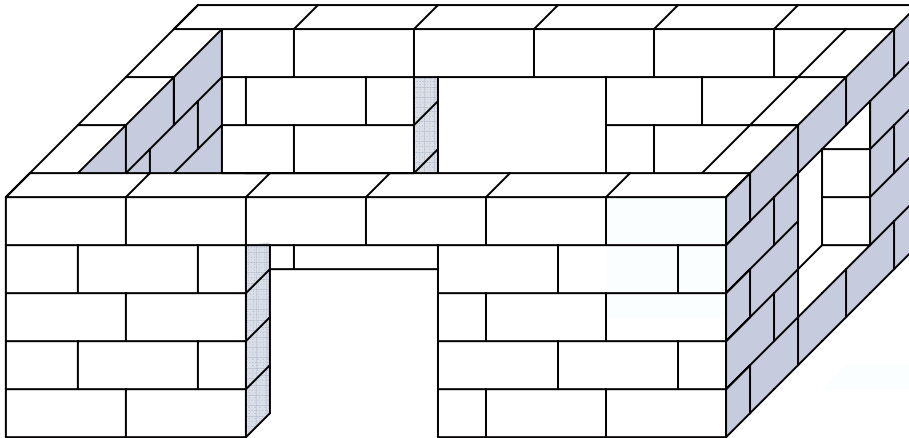
At best these are flimsy and temporary bridges. They can create huge uncertainty in the price of CERs, and in turn others' primary compliance units. So this architecture is not the means to an efficient global carbon market.

2.7 How Does Domestic ETS Link With International Emissions Trading? ...continued

2.7.4 Open International Carbon Market

An open international carbon market has:

1. a balance between demand and supply (i.e. scarcity created by real emission reduction targets) that is transparent, **and**
2. a 'common currency' (and therefore, common value of carbon).

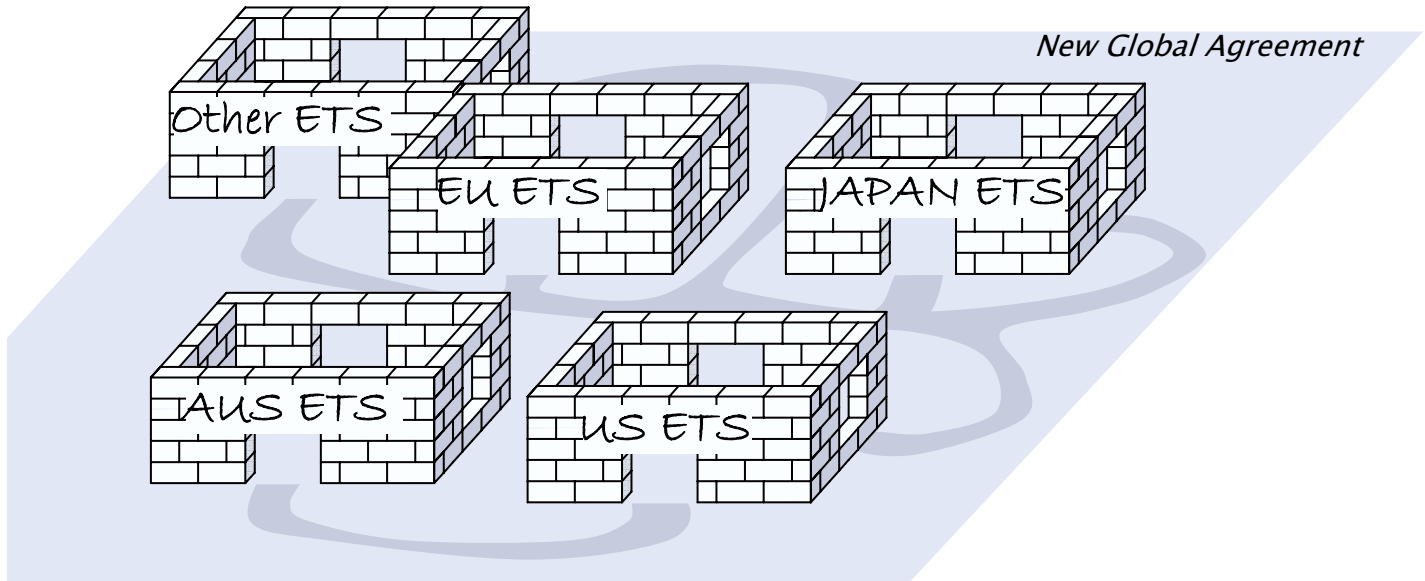


This would eliminate all these carbon trade barriers, improve the overall efficiency of the carbon market, and reduce the overall cost of compliance.

The original objectives of the architects of Kyoto were the right ones.... and hopefully might be realised with the new market settings created by the next global climate change deal (the post-2012 agreement).

2.8 Constructing A Global Carbon Market

Picture the next global agreement establishing the basis for sovereign domestic ETS, with open pathway trading in common currencies of industrialised country allowances and offset credits from developing country actions.



2.9 Baseline-and-Credit Vs Cap-and-Trade

2.9.1 How Is Baseline-and-Credit Different From Cap-and-Trade?

'Baseline-and-credit' schemes are similar to cap-and-trade emissions trading schemes, but differ in important ways and are useful in circumstances not suited to the cap-and-trade approach.* Baseline-and-credit schemes are normally associated with intensity baselines, and provide a means for engaging competitiveness-at-risk firms that cannot pass on their costs of carbon.

A 'baseline' is a quantity or intensity of emissions that could be improved upon with the help carbon finance. The baseline can be calculated historically in a base year or base period, where emissions for that year or period are calculated. Alternatively, baselines can be projected into the future as a conservative estimate of the BAU scenario for a future year or period.

Cap-and-Trade



A quantity of allowances are issued to domestic POs; these POs then have to 'return them' in the compliance process; if the POs emissions have overshoot their allowance they buy units; if the PO over-complies they can sell units (the standard cap and trade model).

Baseline-and-Credit



Instead of a quantity of allowances being issued to domestic POs and them having to 'return them' in the compliance process, firms have their baselines 'noted', and then (depending on emissions) are issued credits or have to supply extra units at the time of compliance.

* **Note:** This section on baseline-and-credit is not about project-based schemes (which also have baselines and produce credits).

2.9 Baseline-and-Credit Vs Cap-and-Trade ...continued

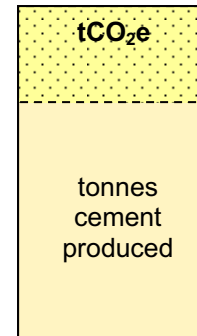
2.9.2 Intensity Targets and Competitiveness-At-Risk Firms

The Baseline-and-Credit form of emissions trading is particularly relevant where targets are established in intensity terms for competitiveness-at-risk firms.

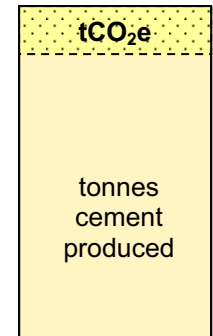
'Emissions intensity' is the volume of emissions per unit of production (e.g. tonnes of cement produced). An emissions intensity target involves a reduction in the emissions intensity for that activity. 'Competitiveness-at-risk' firms are those that cannot pass on the cost of carbon to their consumers and, therefore, whose competitiveness would be adversely affected by additional carbon costs.

Under an emissions intensity model the absolute number of 'allowances' would not be known until the end of the compliance period when the value of the intensity metric was also known (e.g. the number of tonnes of cement produced).

Because the intensity metric is not known until the end of the management period, a cap-and-trade model for intensity targets would need to issue allowances at the end of the management period and then immediately ask for them back (plus or minus the emissions reduction performance relative to the allowance total).



Baseline



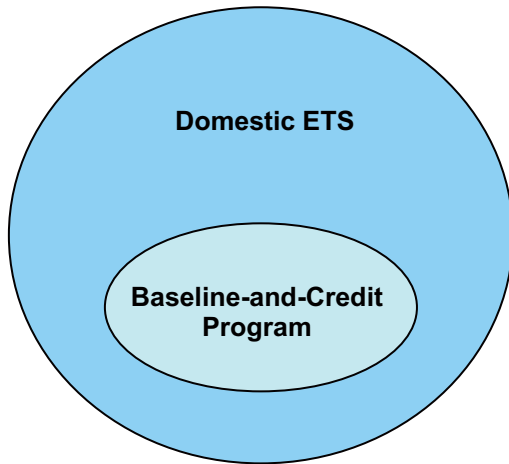
Compliance Deadline

It doesn't make sense to issue allowances at the same time they are being returned in the compliance process. So, instead the 'true up' is done just around the edges (in net change terms), with the government issuing units to firms that over-comply, and collecting units from firms that under-comply.

2.9 Baseline-and-Credit Vs Cap-and-Trade ...continued

2.9.2 Intensity Targets and Competitiveness-At-Risk Firms ...continued

It is feasible that a trading scheme among a community of POs could be entirely of this baseline-and-credit form. But more typically a Baseline-and-Credit scheme would sit within a scheme with an overarching cap, and a cap-and-trade ETS (and perhaps with offsets from 'outside' – either CDM or domestic LULUCF units).



For example, within a DETS (in turn sitting under an intergovernmental emissions trading cap) there could be some POs who have intensity targets. The most obvious reason for this is to deal with internationally competitiveness-at-risk sectors, i.e. those firms who are unable to pass through the costs of carbon.

Intensity targets deal well with issues that confound absolute fixed allocations in cap-and-trade schemes, such as how to deal with new entrants, and what to do with firms that have been grandfathered units but then significantly reduce production levels.

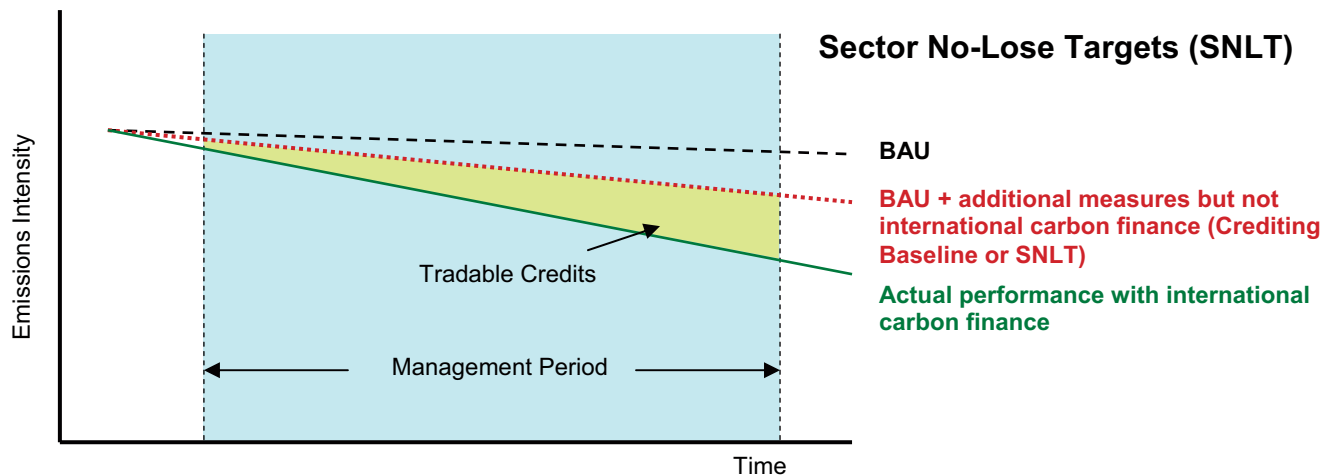
The Canadian DETS proposes to use intensity targets – but not just for competitiveness-at-risk sectors.

2.10 Baseline-and-Credit In An International Emissions Trading Framework

The Baseline-and-Credit approach has its place in the current international post-2012 negotiations in the concept of *sector no lose targets (SNLT) for developing countries*. These are 'no-lose' targets in the sense that failure to beat the crediting baseline would constitute no penalty, for countries that choose to participate.

These baselines (targets) would likely be set in intensity terms because:

1. Absolute targets (crediting baselines) will be seen as a cap on the development of developing countries (and not tolerated by those countries in the negotiations)
2. Absolute targets for just existing sources of emissions will not ensure that huge new capital investments in coming decades are as low carbon as possible.

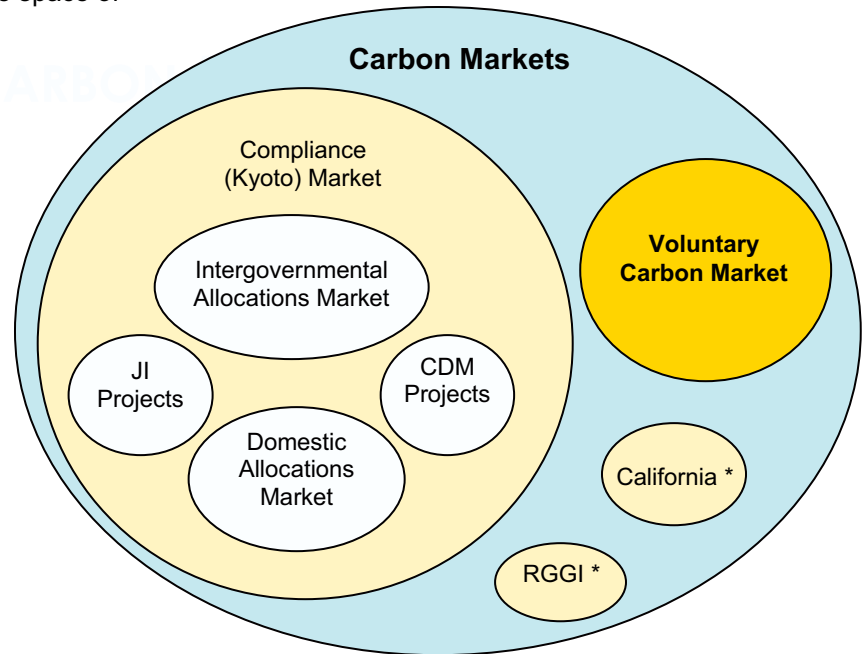


PART III: VOLUNTARY CARBON MARKETS

The voluntary carbon market exists outside the space of binding emission reduction targets.

This can include:

1. Current carbon market activities in countries without a binding target (e.g. the US)
2. Sectors not covered by the Kyoto Protocol (e.g. international aviation, avoided deforestation)
3. Entities that are not points of obligation in a country covered by a binding target (e.g. households and individuals)



** **Note:** Proposed compliance schemes in the USA. The Northeastern US states are developing a compliance cap-and-trade scheme – the Regional Greenhouse Gas Initiative (RGGI). California is also developing a similar compliance scheme. But these compliance schemes lie outside an intergovernmental binding target and so are fundamentally different from the Kyoto compliance carbon market. Because they are regulated schemes they are also different from the voluntary carbon market.*

3.1 What Voluntary Carbon Markets Already Exist?

The voluntary carbon market can be broken down into two categories:

1. Institutional Programs



The Chicago Climate Exchange (CCX). This is the world's only voluntary cap-and-trade system (mostly allowance units are traded, with some offsets). Units traded: Carbon Financial Instruments (CFI).



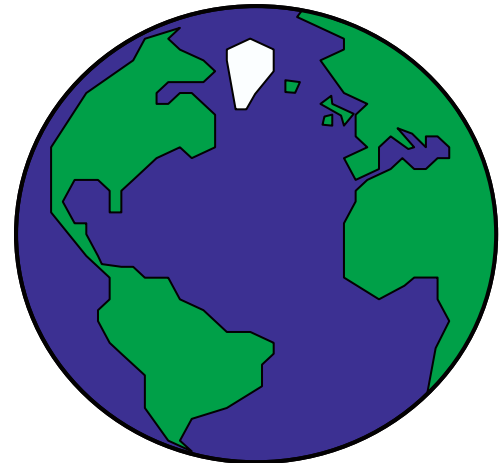
The Australian government developed the Greenhouse Challenge Plus Program as a voluntary mechanism prior to its accession to the Kyoto Protocol (i.e. not covered by a national cap).



In Japan the Keidanren Voluntary Action Plan was developed as a voluntary scheme involving 58 Japanese business associations.

2. Global Offset Activities

Global offset activities are connected to CSR and carbon neutrality efforts. The emissions trading dimension of these activities are undertaken through the voluntary 'Over the Counter' (OTC) market (sometimes called the 'voluntary offsets market'). This involves bilateral deals operating outside an exchange (project-based offsets are traded). Units traded: Verified Emissions Reductions (VERs), Voluntary Carbon Units (VCUs) etc.



3.2 Voluntary Carbon Market Drivers

Voluntary carbon markets typically have a completely different set of fundamental drivers compared with the Kyoto market.

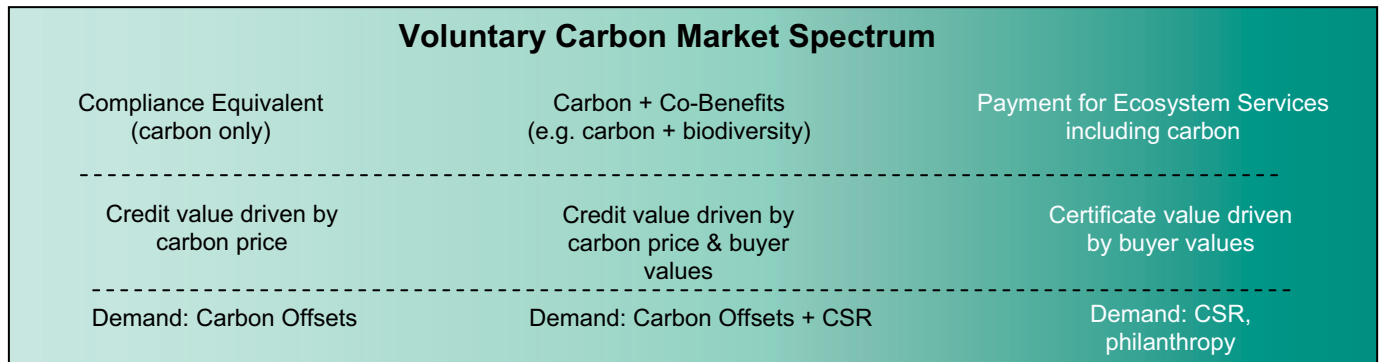
Demand

The 'demand' side of the market is created voluntarily by individuals, firms and organisations who want to buy 'carbon offsets' for their emissions causing activities – e.g. stemming from *Corporate Social Responsibility (CSR)* reporting or aspirations to become wholly or partially *carbon neutral*, or have a *low carbon footprint*.

Supply

The 'supply' side of the market are usually project-based activities similar in many ways to CDM projects – in particular voluntary market standards require activities to be “real, verifiable and additional”, so CDM methodologies are frequently used as well as the same, or similar, accredited independent project validators and verifiers. (ISO standards 14064 parts 2 and 3 and 14065 provide a set of 'rules' for all this.)

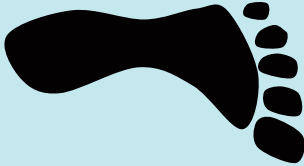
The voluntary carbon market can also be seen as a spectrum running from 'almost compliance' (i.e. buyer interest in only carbon volumes), through to carbon + co-benefits, and Payment for Ecosystem Services (PES).



3.3 Carbon Neutrality

The goal of carbon neutrality is a voluntary effort by firms, individuals, and even some countries to 'neutralise' their carbon footprint. The goal of carbon neutrality involves the following general steps:

1. Calculate your carbon footprint.



2. Undertake a program of emissions reductions to make the footprint as small as possible.



3. Buy carbon offsets for the quantity of residual emissions that could not be eliminated.



Carbon neutrality is gaining popularity among consumers and retailers for products and services that bear a stamp of climate responsibility.

Some carbon market entities in the voluntary carbon market have established carbon neutrality services, offering clients carbon calculation services, emission reduction plans, and carbon offset credit purchasing services. Some offer carbon neutrality certificates provided the client meets a certain standard as defined by the service provider.

Buyer Beware

Carbon neutrality claims, and those businesses that offer carbon neutrality brokerage services are coming under increasing scrutiny to provide quality assurance to their customers. This has led to the growing emergence of voluntary carbon market standards (discussed below).

3.4 Voluntary Carbon Market Standards

The voluntary market is increasingly emulating compliance schemes to help ensure its integrity and credibility from a quality assurance point of view. Of particular concern to carbon market watchdogs – especially environmental groups – is the environmental integrity of this market system.

3.4.1 Integrity Of Voluntary Market System

The integrity of the voluntary carbon market is undermined if offset projects are not real (or not completely real), such as a reforestation project where the plantations are not properly managed (e.g. many trees die) but the credits are still sold.

Another concern is where the project (even a well managed one) is not additional (i.e. where the project would have happened even without the carbon credit finance).

3.4.2 Quality Assurance

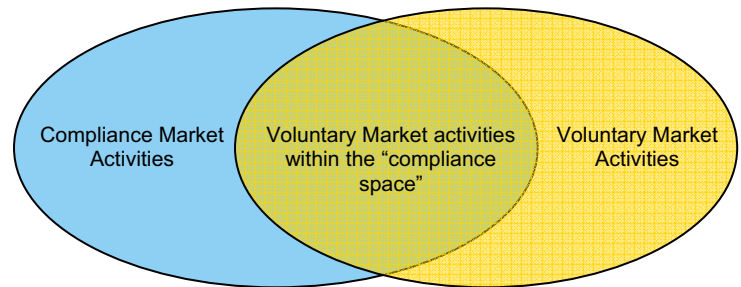
In response to this demand for quality there has been a tightening of voluntary carbon market standards and an increased demand for credits supporting the highest of these standards. The most popular standards are the Voluntary Carbon Standard (VCS), Clean Development Mechanism (CDM), Chicago Climate Exchange (CCX), VER+, and the Gold Standard.

Voluntary units (e.g. called VERs or VCUs) get issued into secure electronic registries, are held in and get transferred between holding accounts depending on external trading activities, and ultimately are *retired* when ‘used’ by buyers seeking to offset their emissions. Units can also be *cancelled* in one voluntary registry and be reissued in another one.

3.5 Voluntary Carbon Markets Operating Inside Compliance Jurisdictions

It is possible for voluntary carbon market activities to legitimately occur inside sectors and countries covered by compliance scheme caps. Certain conditions need to be met to ensure credibility and to avoid double counting. One way of achieving this is to have a distinct class of voluntary units for activities of this type.

For example, programs run by the commercial private sector or community groups might run aggregated energy efficiency programs. These programs pass the tests of being “real, verifiable and additional.” They are financed partly through the creation of voluntary carbon credits that are sold to other firms or individuals in their country who are seeking carbon offsets as part of voluntary *CSR* or *carbon neutrality* programs.



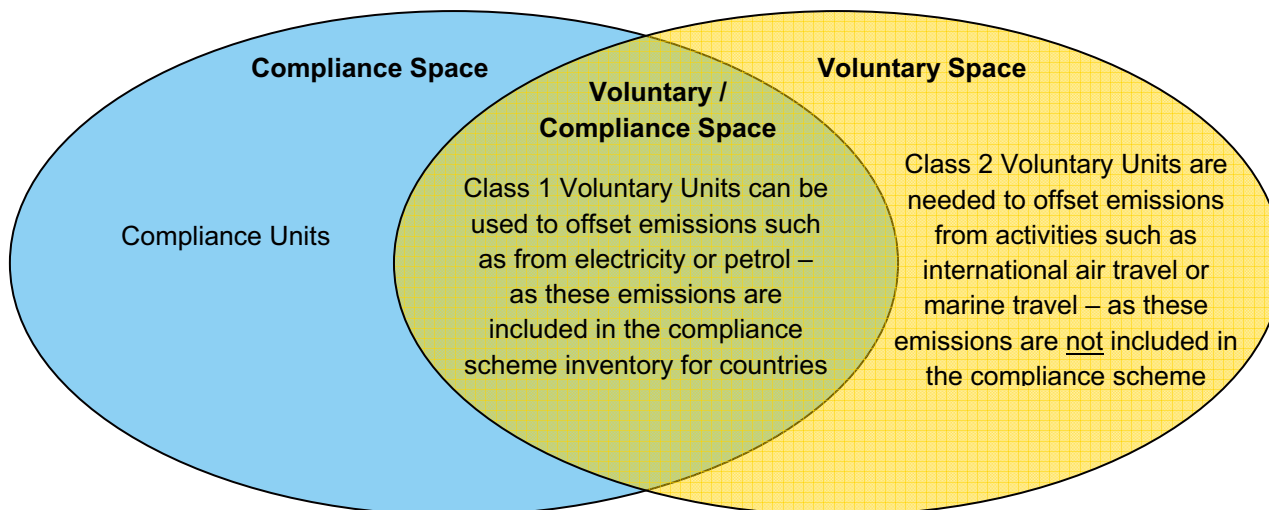
While it is true that such actions will also help their countries meet their commitments under a compliance scheme (such as Kyoto) this is no different, or less legitimate, than any other domestic action taken that reduces these same kinds of emissions (e.g. Step 2 of a carbon neutrality program).

The distinction needs to be drawn between ‘double beneficiaries’ (as in this case) which is perfectly legitimate, and ‘double counting’ which is something quite different, and fundamentally damages the integrity of the market system.

3.5 Voluntary Carbon Markets Operating Inside Compliance Jurisdictions ...continued

3.5.1 Proper Matching of Emissions and Offsets

To ensure proper matching of offsets to emissions, there needs to be one class of voluntary units for offsets created by activities in sectors and countries covered by compliance scheme caps (e.g. called Class 1 Voluntary Units) and one class for activities happening in sectors not covered by such caps (e.g. called Class 2 Voluntary Units).



The benefits of a voluntary carbon market within the **Voluntary / Compliance Space** are similar to the benefits arising from domestic policies and measures that reduce compliance emissions for that country. The key difference is that such activities are undertaken and funded by the private sector, and facilitated by private sector innovators.