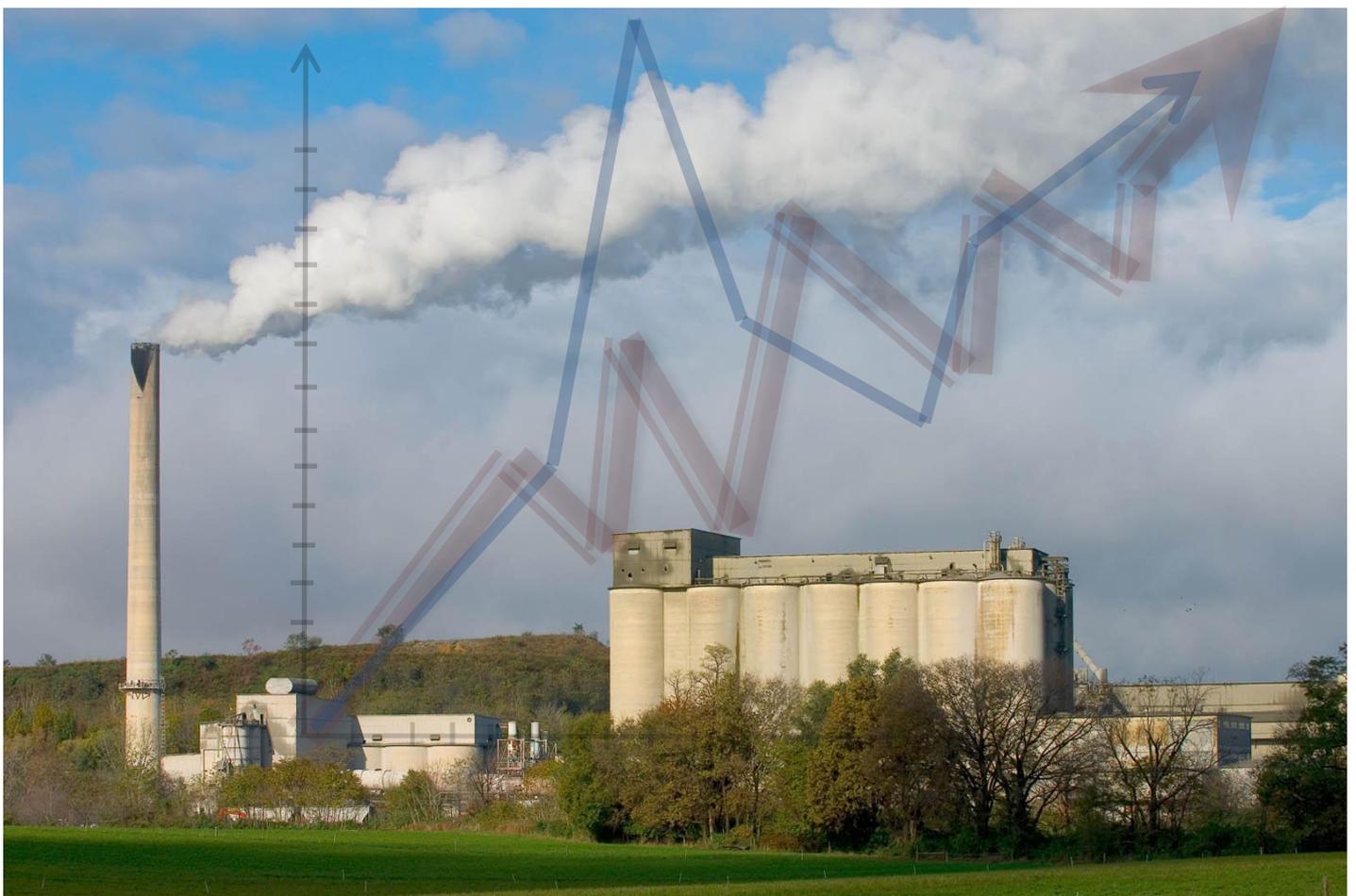




INTERPOL

ENVIRONMENTAL CRIME PROGRAMME

Guide to Carbon Trading Crime



June 2013

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1 INTRODUCTION

Over recent decades there has been a growing scientific consensus that average global temperatures are rising as a result of increased concentrations of greenhouse gases in the atmosphere caused by human activities, particularly industrialization. In response to this scientific evidence, the global community agreed in 1992 to an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC). The treaty requires countries to cooperatively consider what they could do to limit average global temperature increases and the resulting climate change and to cope with whatever impacts were, by then, inevitable. As at June 2013, the treaty has been ratified by 195 parties.¹

Greenhouse gases regulated under Kyoto Protocol:

Carbon dioxide (CO₂)
Methane (CH₄)
Nitrous oxide (N₂O)
Hydrofluorocarbons (HFCs)
Perfluorocarbons (PFCs)
Sulphur hexafluoride (SF₆)

1 carbon credit =
1 tonne of Carbon Dioxide,
or an amount of another
gas with the equivalent
global warming potential.

In 1997, the Kyoto Protocol was adopted as an international agreement under the UNFCCC and entered into force in February 2005.² As at June 2013, there are 192 parties to the Protocol.³ The major feature of the Protocol is that it sets binding targets for 37 industrialized countries (the “Annex I” parties)⁴ and the European Community to reduce their emissions of six specified types of greenhouse gases – the three most important being carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The others being hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆). While countries are encouraged to reduce emissions of all these greenhouse gases, for the purposes of standardising the measurements, the emissions of these other gases are converted into the equivalent “global warming potential” of CO₂. For example, methane (CH₄) has 21 times the global warming potential of carbon dioxide (which is measured over a 100 year timescale).⁵ Therefore the emission of 1 tonne of methane is considered to be equivalent to the emission of 21 tonnes of carbon dioxide.

While the Kyoto Protocol requires signatory countries to meet their targets primarily through domestic measures, it also provides for a number of *flexible mechanisms* that allows them to *offset* their emissions by purchasing reductions made in other countries. This is done by purchasing “units”, each unit being equivalent to one tonne of CO₂ (emissions of other greenhouse gases being converted to the equivalent number of tonnes of CO₂). Through the trading of these units to offset emissions of greenhouse gases, a new commodity has been created in the form of emission reductions or removals. Since carbon dioxide (CO₂) is the principal greenhouse gas, this market is widely referred to as the “carbon market”,⁶ with each of the units traded commonly referred to as “carbon credits”.⁷

Under the Kyoto Protocol, countries are to keep precise records of the trades carried out. Transfers and acquisitions of carbon credits are tracked and recorded through the registry systems under the Protocol. The UN Climate Change Secretariat, based in Bonn, Germany, keeps an international transaction log to ensure secure transfer of carbon credits between countries and to verify that transactions are consistent with the rules of the Protocol.

¹ Status of Ratification of the Convention, UNFCCC, http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php

² Kyoto Protocol, UNFCCC, http://unfccc.int/kyoto_protocol/items/2830.php

³ Status of Ratification of the Kyoto Protocol, UNFCCC, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php. The United States of America signed the Protocol on 12 November 1998 but has not ratified it and is therefore not bound by it. It is the only industrialized nation that has not ratified the treaty.

⁴ The countries with targets set under the Kyoto Protocol are the industrialized countries, including countries in the former U.S.S.R. These countries are set out in Annex I of the UNFCCC and are commonly referred to as “Annex I Parties”.

⁵ See Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, page 22. See http://unfccc.int/ghg_data/items/3825.php.

⁶ The carbon market is also commonly referred to as a “cap-and-trade regime”. This describes the underlying legal mechanism of the carbon market that involves limiting the allowed emissions (the “cap”). Emitters subject to the cap may buy or sell carbon credits to ensure they possess enough carbon credits to offset their emissions (the “trade”).

⁷ Carbon credits are also commonly referred to as “emissions certificates” or “emissions allowances”, as each unit allows a person to emit one metric tonne of carbon dioxide (CO₂) or carbon dioxide equivalent (CO₂e).

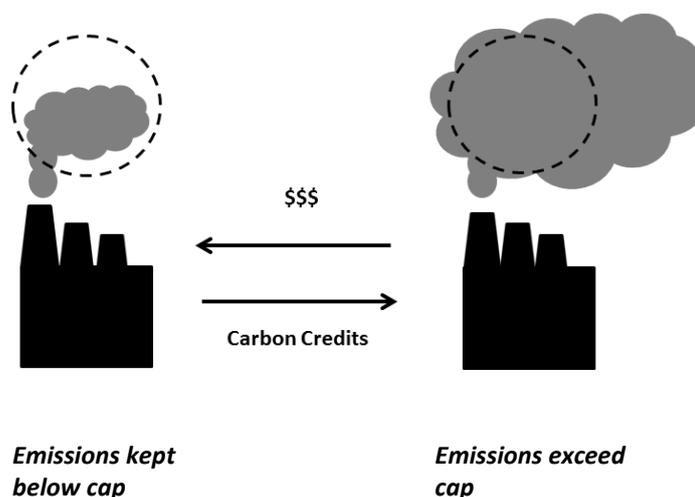
Emissions trading schemes may also be established as climate policy instruments at the national and regional levels. Under such schemes, governments set emissions obligations to be reached by the participating entities. The European Union’s Emissions Trading Scheme (EU-ETS) is the largest in operation.

INTERPOL, through its Environmental Crime Programme and the Economic and Financial Crimes sub-Directorate, recognize that emerging carbon markets, like any market, are at risk of exploitation through criminal means and therefore require proper monitoring and enforcement to ensure environmental and financial integrity. This guide is not intended to take a position on the value of carbon trading in either a general or specific form but is intended to assess the current vulnerabilities of the existing and emerging carbon markets and provide fundamental information necessary to establish adequate policing of these mechanisms. INTERPOL is the only international police organization with a trans-boundary mandate, with designated units addressing both environmental and financial crimes. Its mandate includes the exchange of criminal intelligence and sensitive information between law enforcement agencies amongst INTERPOL’s 190 member countries. INTERPOL recognizes carbon trading crime as a new and emerging type of environmental and financial crime.

Before assessing the potential scope for criminal activity, this report offers a comprehensive overview of the carbon market and carbon trading in practice, for those unfamiliar with its operations and terminology. Those that have a thorough understanding of the process are invited to go straight to the section entitled ‘Carbon Trading’s Vulnerability to Criminal Activity’.

2 OVERVIEW OF CARBON TRADING

The carbon market is also commonly referred to as a “cap-and-trade” regime. A limit (or “cap”) is set for countries or companies on the total amount of greenhouse gas emissions they can emit. If they exceed the limit they are required to buy carbon credits from others. Those with spare carbon credits may sell surplus credits to emitters that require more (the “trade”).



The Kyoto Protocol has set a “cap” for Countries that have accepted targets for limiting or reducing their emissions. These targets are expressed as a fixed number of Assigned Amount Units (AAUs)⁸. Each AAU represents an allowance to emit greenhouse gases equivalent to one tonne of CO₂. If the country exceeds its allowed emissions it needs to *offset* its (excess) emissions by purchasing *reductions* made in another jurisdiction.

There are a number of different types of *units* that may be purchased as *offsets*. Each of these units is given a different name depending upon the legal jurisdiction in which it is generated. In each case, however, each unit is standardised to one *carbon credit*, the equivalent of one tonne of CO₂ making them easily exchangeable across borders.

⁸ The conversion of emissions targets to an assigned amount is set out in Article 3.7 of the Kyoto Protocol, and Decision 13/CMP.1

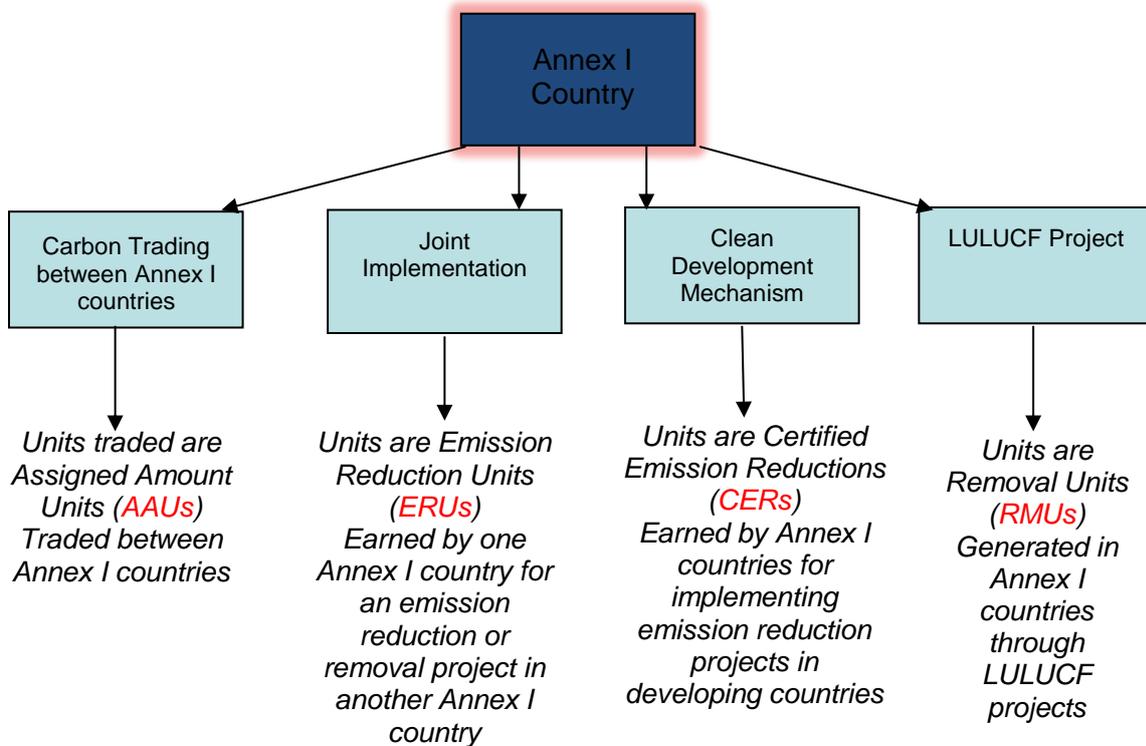
The Kyoto Protocol allows countries that have excess AAUs to spare (where that country was able to stay below its assigned target) to sell these excess units to countries that have exceeded their target. The types of units (or carbon credits) which may be transferred under the scheme are:

AAUs: Assigned Amount Units (AAUs) represents an allowance to emit greenhouse gases equivalent to one tonne of CO₂. AAUs are assigned to each country under the Kyoto Protocol, representing their “cap” or target for limiting or reducing their emissions.

RMUs: A special regime has been established for the agricultural and forestry sector (referred to technically under the Kyoto Protocol rules as the “land use, land-use change, and forestry” (LULUCF) sector). Emission units obtained in this sector, such as from reforestation, are referred to as removal units (RMUs).

ERUs: The Kyoto Protocol also provides for a mechanism, known as “joint implementation projects” that allows a Party to jointly implement “green” projects in another Annex I country⁹ that also has binding targets under the Kyoto Protocol (typically this has been a country in central and eastern Europe).¹⁰ This generates emission reduction units (ERUs), each equal to one tonne of CO₂. Joint implementation (JI) offers a flexible and cost-efficient means of fulfilling part of a Party’s Kyoto commitments, while the host Party benefits from foreign investment and technology transfer. ERUs can then be traded or used to cover the country’s emissions target.¹¹

CERs: The Clean Development Mechanism allows a Party to invest in emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂, which may be transferred between countries by emissions trading on the carbon market.¹² Eligible projects include renewable energy production and reforestation. The objective of the CDM mechanism is to stimulate sustainable economic development in developing countries using clean(er) technology, while giving industrialized countries some flexibility in how they meet their emissions targets.



Source: Jessica E. Fry, Carole Gibbs, and Edmund F. McGarrell, *The Kyoto Protocol and Carbon Trading Markets: An Overview*

⁹ The countries with targets set under the Kyoto Protocol are listed in Annex I of the UNFCCC and are colloquially referred to as “Annex I” Parties. These are the industrialized countries, including countries in the former U.S.S.R.

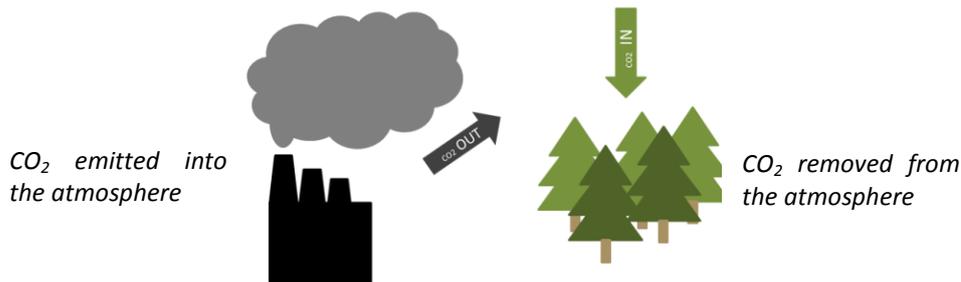
¹⁰ Kyoto Protocol, http://unfccc.int/kyoto_protocol/items/2830.php, art. 6.1.

¹¹ Kyoto Protocol, http://unfccc.int/kyoto_protocol/items/2830.php, art 3.1.

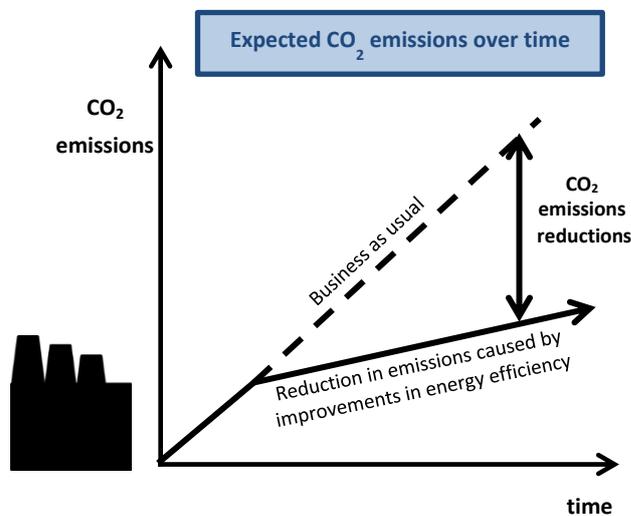
¹² Kyoto Protocol, http://unfccc.int/kyoto_protocol/items/2830.php, art 12.

2.1 Calculating the number of carbon credits generated from an emissions reduction project

Both the Joint Implementation (JI) and Clean Development Mechanism (CDM) encourage investment in “green” projects (either in an Annex I or a developing country respectively). These projects are eligible for carbon credits, equal to the equivalent number of tonnes of CO₂ that the project has “removed” from the atmosphere. In only a few cases, however, such as with reforestation projects or Carbon Capture and Storage (CCS)¹³, does the project actually remove CO₂ from the atmosphere.



In most cases the carbon credits are generated based on the extent to which the project resulted in fewer emissions than would otherwise have been released, for example as with upgrades to a factory to improve energy efficiency or other investments in cleaner technology.



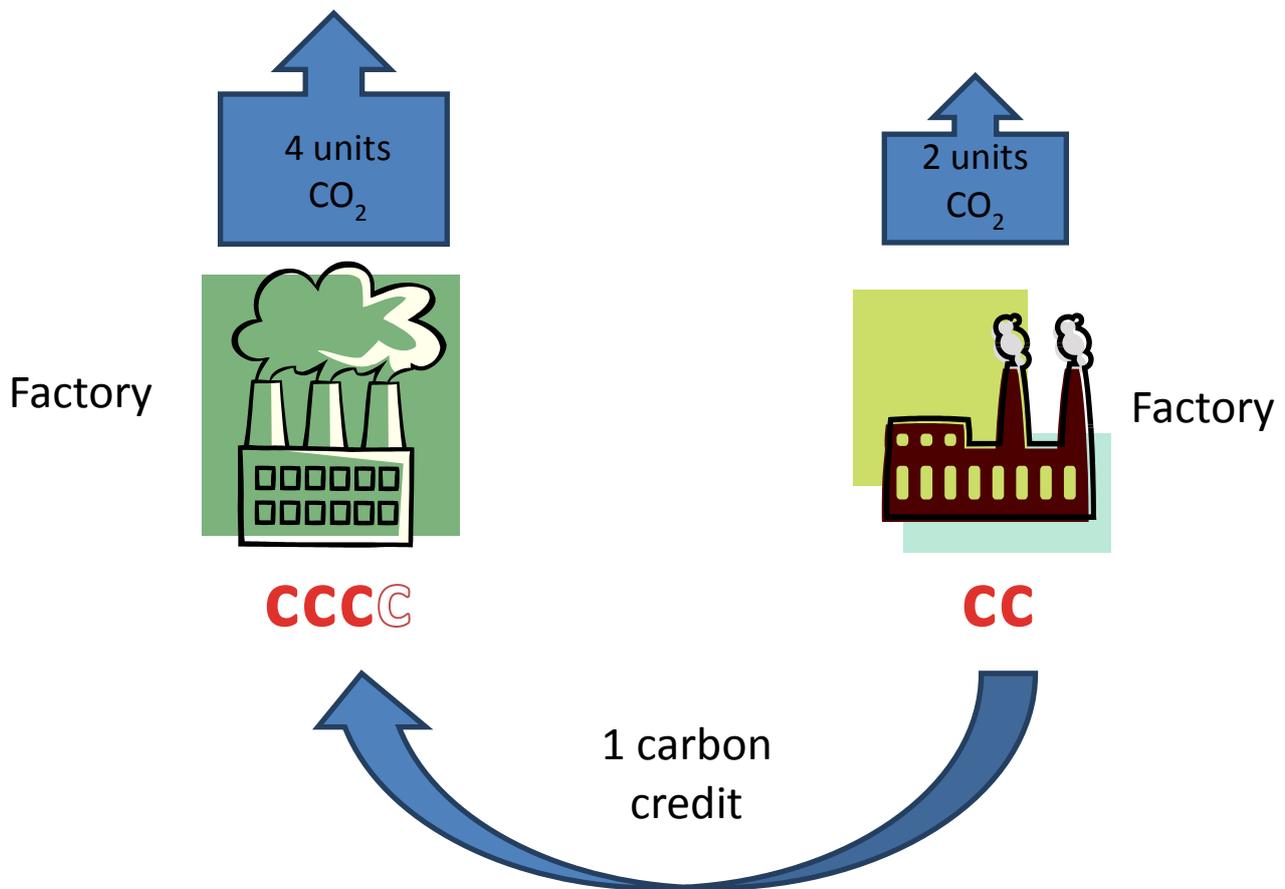
This raises a number of difficult questions. Firstly, it is difficult to estimate the amount of emissions that would have occurred if the project had not taken place. Secondly, the project developer must be able to prove that the project would not have happened anyway, in the absence of the financial incentive of the carbon credits. Only carbon credits from projects that are *additional* to the business-as-usual scenario represent a net environmental benefit. To assess this *additionality*, an assessment is made to establish whether the project would have happened anyway without the capital generated by selling carbon credits, for example, because it represents a common practice in the industry, because it yields strong financial returns, even in the absence of revenue from carbon credits (such as improvements to energy efficiency), or because it is required under existing regulations.

¹³ Carbon Capture and Storage refers to technology that attempts to prevent the release of CO₂ into the atmosphere from the burning of fossil fuel (such as in power generation and other industries) by capturing CO₂ before it enters the atmosphere, transporting it and ultimately, pumping it into underground geological formations to securely store it.

3 CARBON TRADING IN PRACTICE

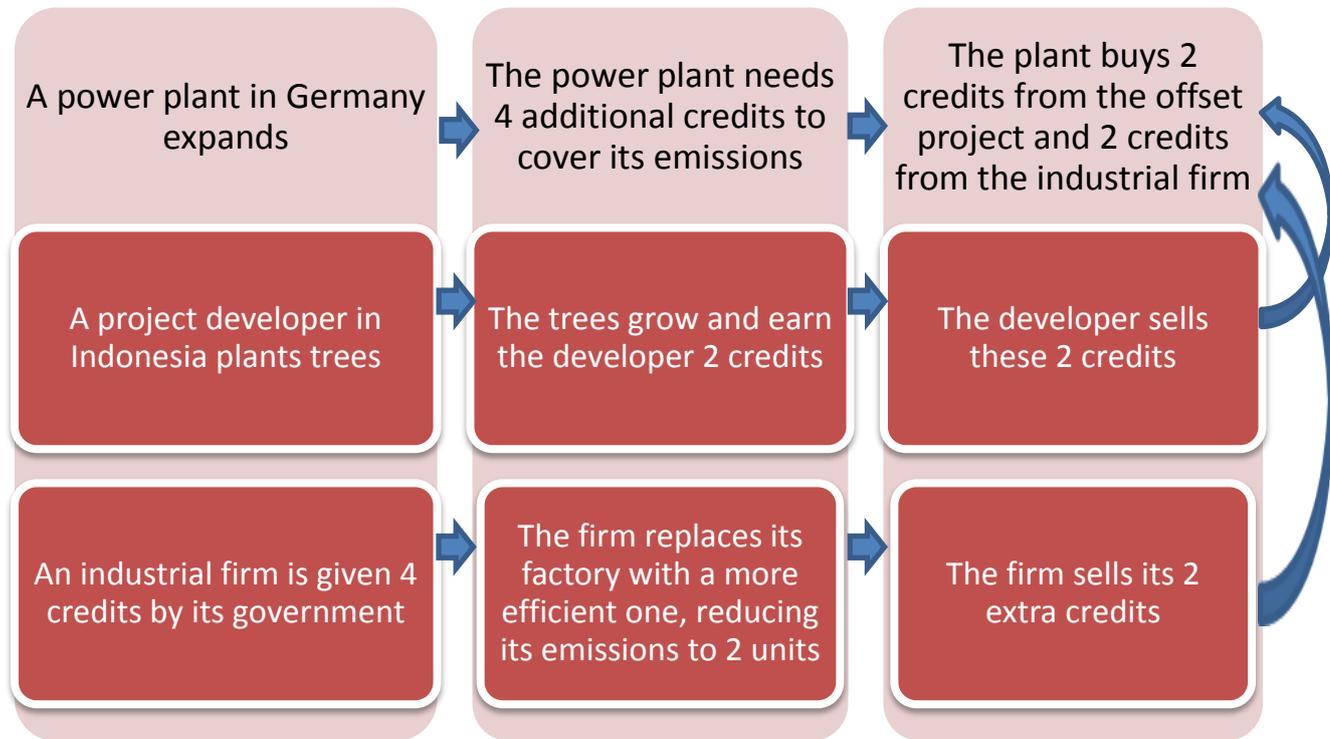
A number of national and regional carbon markets have been, or are in the process of being, developed or expanded. Under these national and regional carbon markets the responsibility falls on individual companies within the carbon market to trade carbon credits between each other. This is intended to ensure that the private sector is able to determine where it is least costly to make emissions cuts.

In the example below, both Factory 1 and Factory 2 receive 3 carbon credits (representing the right to emit three tonnes of carbon dioxide each). Factory 2 is able to improve its efficiency by installing upgrades so that it only emits 2 tonnes of carbon dioxide. Factory 1, on the other hand, increases its overall emissions to 4 tonnes of carbon dioxide. In this case it needs to purchase the extra carbon credit from Factory 2.



© US Environmental Protection Agency

Carbon trading gets more complicated when the flexible mechanisms of the Kyoto Protocol are added, but it still works in the same basic way as illustrated by the following diagram.



Carbon trading is the world’s fastest growing commodities market.¹⁴ According to the World Bank’s annual report on carbon markets, trading has been valued at US\$176 billion in 2011.¹⁵ It is estimated that if the United States were to adopt a carbon market it would grow to a \$2 to \$3 trillion market.¹⁶ Worldwide emissions trading in 2011 was 10.3 billion tonnes of carbon dioxide equivalent, with permits in the EU Emissions Trading Scheme (ETS) accounting for more than three quarters of the total.¹⁷

The European Union Emission Trading Scheme (EU ETS) is by far the largest regional carbon trading scheme. Its value was estimated by the World Bank at US\$148 billion in 2011 with average EU prices for each *carbon credit* for that year at \$18.80. Other national and regional carbon markets showed mixed results in 2011, where New Zealand's carbon market value tripled to \$351 million, while the Regional Greenhouse Gas Initiative in North America nearly halved to \$249 million. The World Bank, however, is of the view that recent and emerging carbon markets in Australia, California, Mexico, South Korea and Quebec will contribute to future growth in overall carbon trading.¹⁸

Carbon trading is the world’s fastest growing commodities market.

In 2011, the global carbon markets were valued at US\$176 billion, with 10.3 billion carbon credits traded.

¹⁴ See Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper’s Magazine, Feb. 2010 at p.31

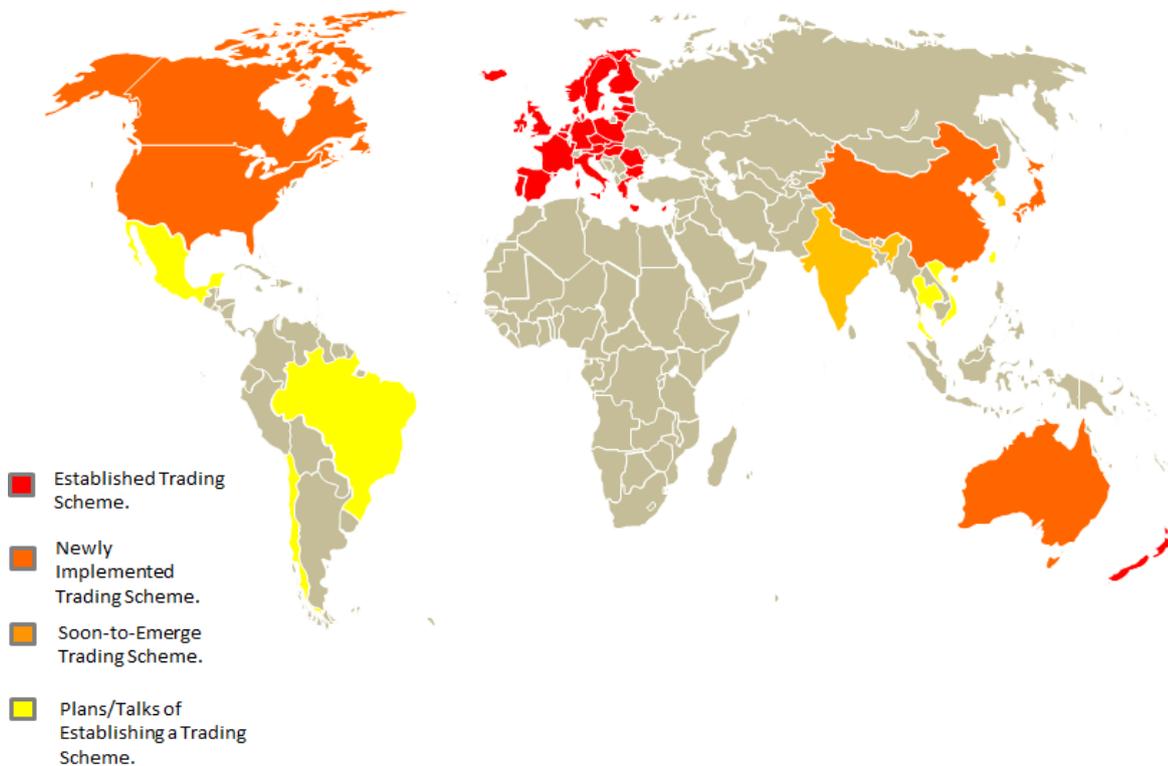
¹⁵ See the World Bank report, *State and Trends of the Carbon Market* (2012). At the time of publication, figures for 2012 were not available. For further information see <http://www.reuters.com/article/2012/05/30/us-world-bank-carbon-idUSBRE84T08720120530>

¹⁶ According to market analysis undertaken by Point Carbon. See Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper’s Magazine, Feb. 2010 at p.31

¹⁷ See World Bank, *State and Trends of the Carbon Market* (2012). For further information see <http://www.reuters.com/article/2012/05/30/us-world-bank-carbon-idUSBRE84T08720120530>

¹⁸ See <http://www.reuters.com/article/2012/05/30/us-world-bank-carbon-idUSBRE84T08720120530>

Global Greenhouse Gas Emissions Trading.



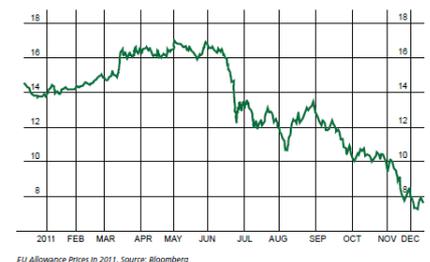
Source: Carbon-Politics.com

Set out below is a brief overview of a number of existing and emerging carbon markets. While each jurisdiction again uses a unique name to describe the *carbon credit* traded, each unit is still equivalent to one tonne of CO₂.

3.1 The European Union

The European Union Emission Trading Scheme (EU ETS) is the largest multi-national, greenhouse gas emissions trading scheme in the world. The EU ETS now operates in 30 countries (the 27 EU Member States plus Iceland, Liechtenstein and Norway). Under the EU ETS, companies receive emission allowances called European Union Allowances (EUAs) which they can sell to or buy from one another as needed. Once a year, companies must surrender enough carbon credits to cover their emissions for the year.¹⁹ Companies that do not surrender an adequate number of credits, however, have a grace period to produce the additional credits needed before facing financial penalties. If a company reduces its emissions, it can keep the spare credits to cover its future needs or sell them to another company that is short of allowances.

Phase I of this carbon trading system commenced in 2005. This first phase (which ran from 2005 to 2007), included approximately 40% of EU’s CO₂ emissions. The second Phase of the EU ETS (which ran from 2008 to 2012), expanded the scope of the scheme significantly, including through the introduction of carbon credits generated through Joint Implementation Projects (ERUs) and the Clean Development Mechanism (CERs).²⁰ The third trading period commenced in 2013.



¹⁹ European Commission, *Emissions Trading System (EU ETS)*, Nov. 15, 2010, http://ec.europa.eu/environment/climat/emission/index_en.htm.

²⁰ European Commission, *Emissions Trading System (EU ETS)*, Nov. 15, 2010, http://ec.europa.eu/environment/climat/emission/index_en.htm.

See also http://ec.europa.eu/clima/policies/ets/faq_en.htm

The EU ETS covers CO₂ emissions from installations such as power stations, combustion plants, oil refineries and iron and steel works, as well as factories making cement, glass, lime, bricks, ceramics, pulp, paper and board. Nitrous oxide emissions from certain processes are also covered. On 1 January 2012, emissions from the aviation sector were included. Any airline using an EU airport must pay a tax on each tonne of carbon emitted. Plans for a global emissions deal, which extends these rules to flights external to the EU, have been postponed for a year, in the face of much opposition from China, India and the US²¹. In 2013, the EU ETS was further expanded to the petrochemicals, ammonia and aluminium industries and to additional gases. The European Union hopes to link up the EU ETS with compatible systems around the world to form the backbone of a global carbon market.²²

3.2 Australia

In 2003, the New South Wales (NSW) state government unilaterally established the NSW Greenhouse Gas Abatement Scheme to reduce emissions by requiring electricity generators and large consumers to purchase NSW Greenhouse Abatement Certificates (NGACs). In 2011, this scheme was overtaken by a national scheme after the federal government of Australia passed the Clean Energy Act. This Act introduces a fixed-price carbon tax, but which will transform to a carbon market with a floating-price by mid-2015. At that time, the Australian government intends to link its carbon market with the European Union's Emissions Trading Scheme, with a full two-way link by July 2018.²³

3.3 New Zealand

In 2008, the New Zealand government established the NZ Emissions Trading Scheme (NZ ETS) covering all sectors and all greenhouse gases. Different sectors entered the scheme on different dates. Forestry, a net sink (responsible for reducing New Zealand's emissions by over 25% in 2010), entered on 1 January 2008. Emissions from stationary energy, industrial and liquid fossil fuel sectors entered on 1 July 2010, while agricultural emissions will not enter until 2015. A transition period was in operation from 1 July 2010 until 31 December 2012, during which the price of emissions units (referred to as New Zealand Emissions Units or NZUs) will be capped at NZ\$25. The NZ ETS is linked to international carbon markets, allowing the use of most Kyoto Protocol emission units.

3.4 Tokyo, Japan

The Tokyo Metropolitan Government (TMG) has established a carbon market covering the Japanese city of Tokyo. The first phase of this scheme runs up to 2014. From 2011 onwards, those organisations unable to operate below specified emissions caps are required to purchase carbon credits to offset any excess.

3.5 United States

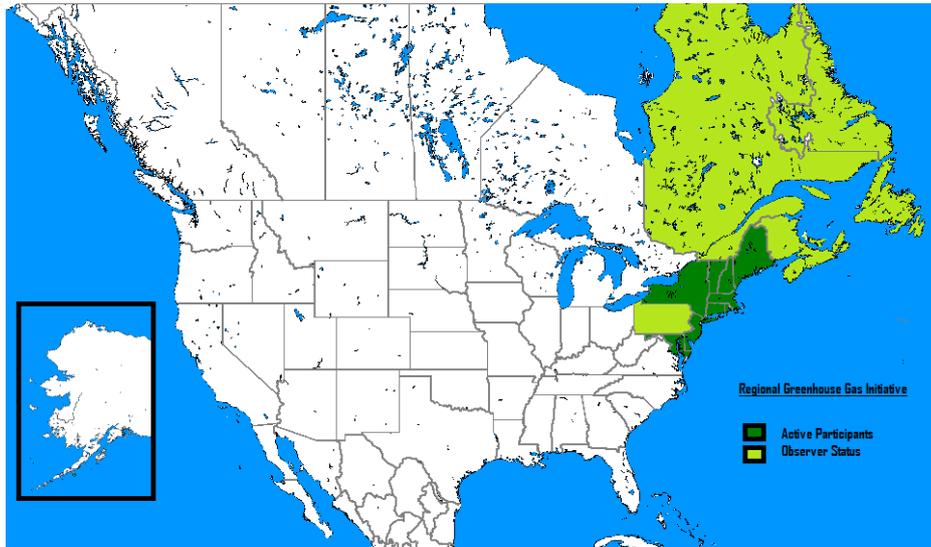
In 2003, New York State attained commitments from nine North-east states to form a cap-and-trade carbon dioxide emissions program for power generators. This programme, called the Regional Greenhouse Gas Initiative (RGGI), was launched on 1 January 2009 with the aim of reducing CO₂ emissions to 10% below 2009 levels of each state's electricity generation sector by 2018. Also in 2003, U.S. corporations were able to trade CO₂ emission allowances on the Chicago Climate Exchange under a voluntary scheme.

²¹ <http://www.bbc.co.uk/news/business-20299388>

²² European Commission, *Emissions Trading System (EU ETS)*, Nov. 15, 2010, http://ec.europa.eu/environment/climat/emission/index_en.htm

²³ EU Business, *Australia to link with EU carbon scheme from 2015* (28 August 2012), available at <http://www.eubusiness.com/news-eu/australia-economy.i39/>. See also EU Business, *Linking the Australian and European Union emissions trading systems* (28 August 2012) at <http://www.eubusiness.com/topics/environ/emissions-australia/>

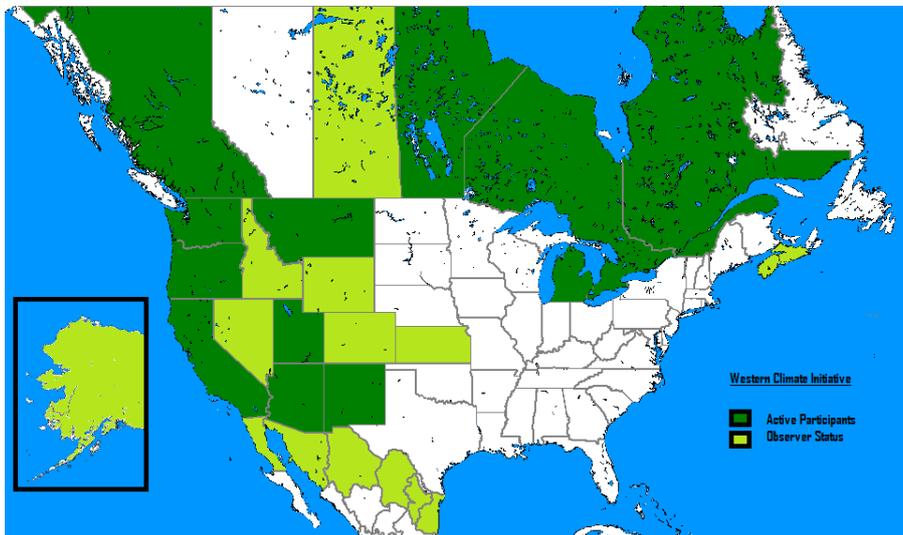
States and Provinces covered by the Regional Greenhouse Gas Initiative (RGGI)



Source: Carbon-Politics.com

In 2006, California passed legislation to establish a carbon market. The final regulation was adopted by the California Air Resources Board in October 2011. This market is intended to become part of a regional greenhouse gas emissions trading system through the Western Climate Initiative (WCI) with other U.S. states and Canadian provinces (including British Columbia, Ontario and Quebec) due to join. The proposed trading system will allow for flexible mechanisms in the form of project-based offsets. The main offset project types are manure management, rural and urban forestry, and destruction of ozone-depleting substances, although alternative methods to reduce greenhouse gas emissions may also be considered.

States and Provinces covered by the Western Climate Initiative (WCI)



Source: Carbon-Politics.com

3.6 Canada

Québec joined the Western Climate Initiative (WCI) in April 2008, and adopted its own carbon market program in December 2011. The province is now working toward linking it with California’s carbon market starting in 2013. Québec is the first Canadian partner to adopt regulations to establish a carbon market.²⁴

²⁴ For further information see the Quebec Ministry of Sustainable Development, Environment and Parks website, at <http://www.mddep.gouv.qc.ca/changements/carbone/index-en.htm>

3.7 Other markets

In April 2012, both Mexico and the Republic of Korea passed comprehensive climate bills, laying the foundation for future market-based mechanisms.²⁵

In September 2012, Thailand and Vietnam announced plans to launch their own emissions trading schemes, while the European Union has agreed to help China with the design and implementation of an emissions trading scheme. A carbon trading scheme will be piloted in seven Chinese provinces and cities beginning in 2013. It will cover energy production and various energy-intensive industries. India has introduced a mandatory energy efficiency trading scheme, set to begin in 2014 after a three-year rollout period. It covers eight sectors responsible for 54 percent of India's industrial energy consumption. Taiwan has also indicated its intention to launch a carbon offset scheme. According to market analysts, the increasing number of countries adopting carbon markets is a move towards a potential international scheme in the future.²⁶

China Trading Provinces



Source: Carbon-Politics.com

3.8 The voluntary carbon market

The markets outlined above are referred to as 'compliance markets' because they constitute the trading of carbon credits and offsetting of carbon emissions by countries that are legally bound to comply with the emissions targets set by the Kyoto Protocol. Outside of these markets, carbon offset credits can be traded in the 'voluntary carbon market' by any citizen or institution looking to offset their greenhouse gas emissions.²⁷ The most common examples are voluntary efforts to offset emissions caused by air travel, efforts to reduce the *carbon footprint* of conferences or public events, or manufacturing of a product. The voluntary market is currently much smaller than the compliance market, presently valued at \$576 million or 0.03% of the compliance market²⁸. However, with issues of climate change reaching mainstream awareness on an increasing level, the voluntary carbon market is likely to expand.

While the premise and operations of the voluntary carbon market are similar to those of the compliance market, the lack of binding targets and international institutions set-up to reinforce these targets exposes the voluntary market to less scrutiny and transparency than in the compliance market. Indeed, many projects rejected by the Clean Development Mechanism on the grounds that they do not provide sufficient additionality, often find their way onto

²⁵ See World Bank press release, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:23206021~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

²⁶ See *Factbox: Carbon trading schemes around the world* (Reuters, 26 September 2012) available at:

<http://www.reuters.com/article/2012/09/26/us-carbon-trading-idUSBRE88P0ZN20120926>

²⁷ http://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/redd/redd_plus_explained/

²⁸ See *Developing Dimension: State of the Voluntary Carbon Markets 2012* (Ecosystem Marketplace and Bloomberg New Energy Finance, May 2012)

the voluntary carbon market²⁹. It is important to note, therefore, that potential illegal activity in compliance markets, such as fraudulent manipulation of measurements or misleading claims (outlined below) will be just as likely, if not more present, in the voluntary market.

4 CARBON TRADING'S VULNERABILITY TO CRIMINAL ACTIVITY

Unlike traditional commodities, which at some time during the course of their market exchange must be physically delivered to someone, carbon credits do not represent a physical commodity but instead have been described as a *legal fiction* that is poorly understood by many sellers, buyers and traders. This lack of understanding makes carbon trading particularly vulnerable to fraud and other illegal activity. Carbon markets, like other financial markets, are also at risk of exploitation by criminals due to the large amount of money invested, the immaturity of the regulations and lack of oversight and transparency.

Carbon markets involve more than just direct trading in carbon credits, they also include trading its derivatives and other financial instruments. As carbon markets develop, so too does the complexity of the financial instruments that can be traded. The recent global

financial crisis has illustrated difficulties in regulating financial markets when financial instruments become too complex to properly disaggregate and assess for compliance. Many of the same derivatives traders responsible for developing these complex financial instruments are also actively engaged in investing in the carbon market. The financial crisis demonstrated the lack of technical and enforcement capacity among financial regulators to deal with complex financial instruments. The carbon market is at risk, therefore, of following the same path unless its regulators are able to properly manage these complex financial instruments.

"Offsets are an imaginary commodity created by deducting what you hope happens from what you guess would have happened."

Dan Welch, British journalist

www.guardian.co.uk/environment/2007/jun/16/climatechange.climatechange

This guide seeks to identify those areas within emerging carbon markets that are potentially, or have proven to be, vulnerable to criminal activity. In broad terms, the illegal activities identified include:

- (i) Fraudulent manipulation of measurements to claim more carbon credits from a project than were actually obtained;
- (ii) Sale of carbon credits that either do not exist or belong to someone else;
- (iii) False or misleading claims with respect to the environmental or financial benefits of carbon market investments;
- (iv) Exploitation of weak regulations in the carbon market to commit financial crimes, such as money laundering, securities fraud or tax fraud; and
- (v) Computer hacking/ phishing to steal carbon credits and theft of personal information.

4.1 Manipulating measurements to fraudulently claim additional carbon credits

Clean Development Mechanism (CDM) projects generate carbon credits based on the extent to which the project resulted in fewer emissions than would otherwise have occurred. This provides fraudsters with two possible approaches to manipulate measurements and fraudulently obtain a greater allocation of carbon credits. Firstly, they might overinflate the estimate of the emissions that would otherwise have occurred (through, for example, overstating the *business-as-usual* scenario). Secondly, they might fraudulently claim the project reduces emissions to a greater degree than it actually does.

There are a number of ways to manipulate these measurements. Most obviously, the data can be intentionally misreported. More subtly, however, those doing the measurements might distort their analysis through measuring only certain variables, a selective choice of sites for collecting data, or adopting certain assumptions in the

²⁹ See *Trading Carbon*, Fern, August 2010.

calculations. In many developing countries, a lack of reliable data and/or poor institutional capacity to monitor the data collection process provides ample opportunity for those with vested interests to manipulate carbon measurements to their own advantage.

To address this risk, the CDM mechanism requires third-party validation and verification before a project receives carbon credits. This function is carried out by *Designated Operation Entities* (DOEs) certified by the *CDM Executive Board*.³⁰ Even independent third party auditors, however, may be susceptible to bribes or collusion to manipulate the results. Particularly when projects include state elites and powerful business interests, auditing agencies or individual staff may be subject to considerable political pressure, or offered bribes, to verify carbon measurements that show benefits higher than those actually achieved by the project.

Further, concern has been raised about the level of *independence* of the DOEs. The usual business practice for the commercial arrangements under a CDM project is for the DOE to be paid by the project developer, and only after the project has been approved by the CDM Executive Board. This raises an inherent conflict of interest in which DOEs are incentivised to facilitate the project's approval rather than to ensure accuracy of the validation process.³¹

Since all carbon credits are interchangeable with each other (in market terms this is referred to as being “fungible”) there is little distinction on the carbon market between carbon credits originating as AAUs or those generated as RMUs, ERUs or CERs. To ensure *market integrity* therefore, the priority is only to ensure that the carbon credits are legally recognized under the relevant legal regime, and can be bought and sold as such. This can be achieved through establishing clear, independently regulated trading rules. *Environmental integrity*, however, requires that the project results in a verifiable reduction in greenhouse gas emissions. This misalignment of objectives – ensuring that the carbon credits are verified and legally tradable versus ensuring emissions are actually reduced – undermines the incentives of participants in the carbon market to investigate (or self-regulate) the origin of the carbon credits. Reducing fraud and other forms of corruption in the generation of carbon credits therefore requires specific oversight by regulatory authorities.



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³⁰ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 32.

³¹ See Michael Szabo, *DNV Suspension Another Jab at Battered CO2 Scheme*, REUTERS, Dec. 2, 2008, <http://www.reuters.com/article/2008/12/02/us-carbon-dnv-idUSTRE4B04K120081202>.

In 2008 and 2009 respectively the UN temporarily suspended two independent carbon-accounting organisations – Norwegian company Det Norske Veritas and Swiss firm SGS – after spot checks found flaws in their methodologies.³² Investigations showed that both companies had approved projects without surveying them.³³ The UN inspection found one company had a flawed review process, inadequate preparation and training of their auditing staff, and an overall failure to assign auditors with the proper technical skills.³⁴ The other was suspended after an inspection raised concerns about staff qualifications and the quality of its internal reviews.³⁵

Although the temporary suspension of these two firms was a significant step forward in the efforts of the United Nations to oversee the activities of the DOEs, it also illustrates the limits in its capacity to monitor those firms. In particular, the United Nations was only able to evaluate the DOEs based on the validation reports they had written and the data they had gathered. That is, using the evidence they themselves create and present. When it conducted spot checks it performed those functions in their offices not in the field. With the number of projects taking place in remote areas of the world, there will continue to be limits in the United Nations ability to properly police those projects.³⁶

In a 2009 review of the validation process on behalf of the World Wildlife Fund International, the Öko-Institut, a Berlin think tank, scored the five largest DOEs on an A-to-F scale. None received a score higher than a D.³⁷

4.1.1 Additionality

Projects are eligible for carbon credits under the Clean Development Mechanism only if the emissions reductions are *additional*, that is emissions of greenhouse gases are reduced below what would have occurred anyway.³⁸ It is also a critical factor in determining the environmental integrity of the CDM mechanism, since this requirement ensures it only incentivises new projects and does not simply bankroll existing, or already planned, activities that would have been paid for elsewhere.

Additionality, however, can only be assessed *theoretically* as it is not possible to prove with certainty what could or would have happened in the absence of a project's implementation.³⁹ The difficulty in assessing additionality provides ample opportunity to manipulate the process and make false claims over the environmental integrity of the project. Under these circumstances, companies can ensure their projects receive carbon credits in circumstances where they should not have received any at all.

There are already many examples of projects being credited with carbon credits which, according to independent research, were not additional. In an assessment of a hundred offset projects for the journal *Climate Policy*, engineers found that 40% of companies would have reduced their emissions anyway. In 2007 a UN official estimated that 15–20% of all CDM *carbon credits* were issued inappropriately due to inadequate findings of additionality.⁴⁰ Research by *International Rivers* found almost three-quarters of CDM projects were complete at the time of approval for carbon credits, indicating that receiving the carbon credits was not a prerequisite for the project to move forward.⁴¹

³² At the time these two companies were dominating the validation/verification market. For further information see Michael Szabo, *DNV Suspension Another Jab at Battered CO2 Scheme*, REUTERS, Dec. 2, 2008, <http://www.reuters.com/article/2008/12/02/us-carbon-dnv-idUSTRE4B04K120081202>.

³³ Danny Fortson, *Carbon-Trading Market Hit as UN Suspends Clean-Energy Auditor*, THE TIMES, Sept. 13, 2009, http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article6832259.ece; James Murray, *DNV Wins UN Authorisation CDM Project Approval*, BUSINESS GREEN, Feb. 16, 2009, <http://www.businessgreen.com/bg/news/1804681/dnv-wins-un-authorisation-cdm-project-approval>.

³⁴ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 36.

³⁵ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 36.

³⁶ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 36.

³⁷ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 34.

³⁸ See paragraphs 43–52 of *Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol*, UNFCCC, Decision 3/CMP.1, Mar. 30, 2006, available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a01.pdf#page=6>.

³⁹ Michael Gillenwater, et. al., *Policing the Voluntary Carbon Market*, NATURE REPORTS CLIMATE CHANGE, Oct. 11, 2007, <http://www.nature.com/climate/2007/0711/full/climate.2007.58.html>.

⁴⁰ Mark Schapiro, *Conning the Climate: Inside the Carbon Trading Shell Game*, Harper's Magazine, Feb. 2010, at 34.

⁴¹ H. Sterling Burnett, *Burnett: Carbon Offsets Scam*, WASHINGTON TIMES, Mar. 8 2009, <http://www.washingtontimes.com/news/2009/mar/08/carbon-offsets-scam/>.

4.2 Sale of carbon credits that either do not exist or belong to someone else

The intangible nature of carbon credits makes it possible to separate ownership in the carbon rights from the physical project. A project such as planting trees, or upgrading a factory, for example, may be owned and managed by one person or company, while another acquires the legal rights to trade in any carbon credits generated. The risk of corruption, therefore, is increased by the fact that there is no physical indication of the identity of the person who holds the carbon rights, beyond a piece of paper or record in a government register. Fraud may also be facilitated by government corruption that allows persons to register forged documents concerning ownership of carbon credits.

This raises a number of risks:

- (i) It is difficult to prevent the owner of the carbon rights from selling the same carbon credits over and over to multiple parties – a practice known as “double-counting”. Double-counting can be easier to get away with when carbon credits are sold through several foreign exchanges with different regulations and lax standards of monitoring or cross-checking between exchanges.
- (ii) If someone were to fraudulently claim ownership of the carbon credits generated by a particular CDM or JI project, it is unlikely locally-based law enforcement officers would detect such fraud unless they are regularly monitoring the government carbon registry.



Hypothetical example showing what could happen as different carbon markets begin to link to each other and allow trades between different exchanges. Double-counting can be easier to get away with when carbon credits are sold through several foreign exchanges. Regulators must ensure compatible laws and regulations exist, together with robust standards of monitoring or cross-checking between exchanges.

A country recently investigated a number of transactions in which people purchased forested land with boundaries that either did not exist or were poorly marked. According to INTERPOL reports there is evidence that documents were forged and bribes paid to facilitate the process. The land was sold to other companies and the legal right to the carbon stored in the forest then traded. Authorities estimate the value of the fraud at US\$80 million.⁴²

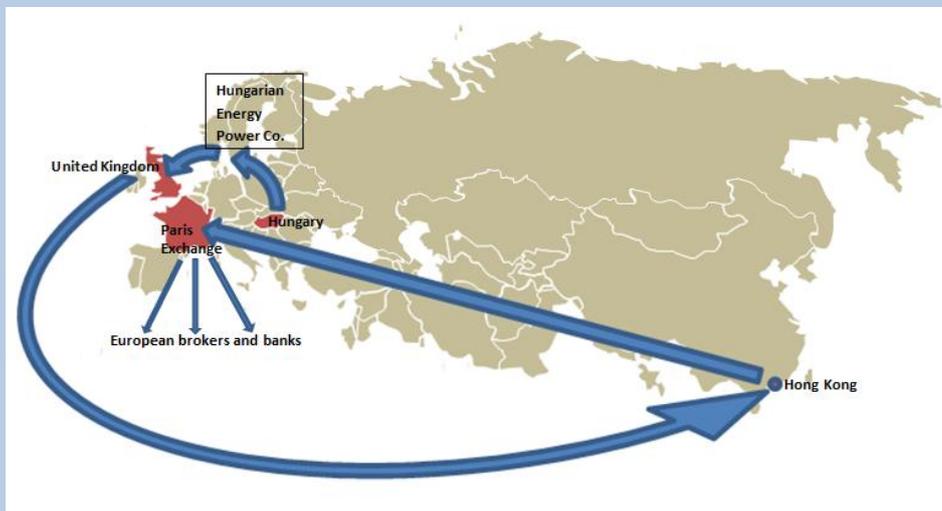
These sorts of cases rely on forged documents, using forest areas that are remote, with often unclear records as to ownership. As the value of the carbon markets increase, this sort of fraudulent activity can be expected to rise.

⁴² For further information see INTERPOL and The World Bank, *Chainsaw Project: An INTERPOL perspective on law enforcement in illegal logging*, undated, pp.45- 46. Available at <http://www.interpol.int/Public/EnvironmentalCrime/Manual/WorldBankChainsawIllegalLoggingReport.pdf>

Recycling Credits

In one recent example of double-counting, carbon credits were traded on the EU-ETS and then after being used to offset emissions found their way back onto the EU-ETS via a number of international transfers. In effect, this allowed those same carbon credits to offset emissions twice. In March 2010, the Hungarian government resold 2 million carbon credits which had been surrendered by businesses to the government. The rules of the EU-ETS allowed the Hungarian government to legally sell these carbon credits because Hungary anticipated being below its Kyoto Protocol target. However, the rules prevented these used or recycled credits from being re-used within the EU.⁴³

On this occasion, Hungary sold the carbon credits to a recently created company, Hungarian Energy Power, with restrictions that they were ineligible for use in Europe and notified the European Commission of the sale.⁴⁴ This company then sold the credits to a British trading company, which resold them to a firm in Hong Kong. The Hong Kong firm, however, then put those same recycled carbon credits on BlueNext, a Paris carbon exchange,⁴⁵ where a number of European brokers and banks purchased them not knowing the carbon credits had already been used in Europe.⁴⁶



Although in this case the selling of the recycled credits was legal, their re-sale on the EU-ETS was not. This case raised serious questions about the functioning and validity of the trading regimes and their level of oversight. When this case was discovered, BlueNext immediately suspended trading sending the spot price for CERs spiralling downward.⁴⁷

After shutting down for three days to isolate the recycled credits, BlueNext facilitated “swap backs” for the recycled credits to help restore confidence in the market.⁴⁸ In these trades, sellers bought back the credits. With the reopening of trading, the price rose back to its previous level.⁴⁹ The European Commission has since reported that it closed the loophole which allowed recycled credits to re-enter the EU-ETS.⁵⁰ This case, however, highlights the importance of strong regulations for monitoring the transfer of carbon credits through several foreign exchanges, particularly cross-checking between those exchanges.



Source: CER futures contract (CERZ1) settlement price, ICE, 31 December 2011

⁴³ See <http://www.euractiv.com/climate-environment/hungarys-sale-co2-credits-worrie-news-368250>

⁴⁴ Catherine Airlie, *BlueNext Arranges 'Swap Back' of Recycled CO2 Credits After Trading Halt*, BLOOMBERG, April 14, 2010, <http://www.bloomberg.com/news/2010-04-14/bluenext-arranges-swap-backs-of-recycled-co2-credits-after-trading-halt.html>.

⁴⁵ *The Wrong Sort of Recycling*, THE ECONOMIST, Mar. 25, 2010, <http://www.economist.com/node/15774368>.

⁴⁶ Danny Fortson and Jonathan Leake, *Hunt for 'Rogue Trader' Over Recycled Carbon Credits*, THE TIMES, Mar. 21, 2010 <http://www.timesonline.co.uk/tol/news/environment/article7069741.ece>

⁴⁷ *The Wrong Sort of Recycling*, THE ECONOMIST, Mar. 25, 2010, <http://www.economist.com/node/15774368>.

⁴⁸ Catherine Airlie, *BlueNext Arranges 'Swap Back' of Recycled CO2 Credits After Trading Halt*, BLOOMBERG, April 14, 2010, <http://www.bloomberg.com/news/2010-04-14/bluenext-arranges-swap-backs-of-recycled-co2-credits-after-trading-halt.html>

⁴⁹ *The Wrong Sort of Recycling*, THE ECONOMIST, Mar. 25, 2010, <http://www.economist.com/node/15774368>.

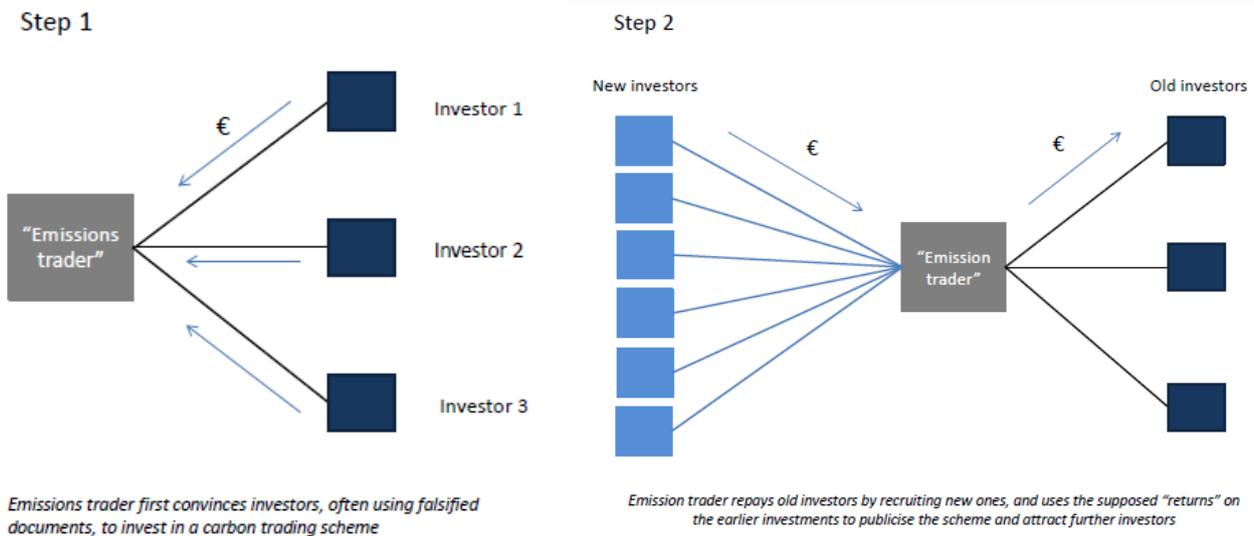
⁵⁰ *EU Closes Carbon Emissions Trading Loophole*, UTILITY WEEK, April 21, 2010, http://www.utilityweek.co.uk/news/news_story.asp?id=148910&title=EU+closes+carbon+emissions+trading+loophole.

4.3 False or misleading claims with respect to the environmental or financial benefits of carbon market investments

The relative complexity of the carbon markets, and the fact that they are new and emerging markets, means there is little understanding among traders and buyers. This “customer naivety” has been taken advantage of by companies, with many examples of advertising campaigns or investment advice that involves false and misleading claims.

The excitement of investing in a “new” market could be used by fraudsters to establish a Ponzi scheme and attract investors. The Ponzi scheme involves recruiting new investors to pay off earlier investors, thereby creating the façade of high returns. False claims made about the financial returns on the investments are then used to attract further investors.⁵¹

In one example, a carbon trader used false invoices and sales documents to establish a Ponzi scheme in the year 2000, using the Californian pollution trading program. Old investors were repaid by recruiting new ones. In 2004 she was indicted on six counts of wire fraud, and investors filed \$50-80 million in claims during her bankruptcy proceedings. In 2005, the carbon trader pleaded guilty to one charge and received five years’ probation.⁵²



Concern about companies making these types of false claims has led the US Federal Trade Commission to propose a set of guidelines prohibiting unfair and deceptive marketing, specifically aimed at helping carbon offset companies comply with the Federal Trade Commission Act. Concerns about the truthfulness of carbon offset marketing have also led the Australian Competition and Consumer Commission (ACCC) to look specifically into marketing fraud in this area.⁵⁵

In 2009 and 2010, an investment firm ran an aggressive telemarketing strategy in Australia advertising false connections to legitimate organizations and environmental standards. Potential investors were offered a high return investment opportunity in carbon credits.⁵³ These claims were found to be false, and the firm is estimated to have defrauded Australian victims of \$3.2 million.⁵⁴

⁵¹ See Michelle Chan, *Ten Ways to Game the Carbon Market* (Friends of the Earth, May 2010).
⁵² Chip Jacobs, “Air of Deceit,” *Pasadena Weekly*, 20 Aug 2009 at http://www.pasadenaweekly.com/cms/story/detail/an_air_of_deceit/7616/
⁵³ David Fogarty, Firm Accused of Carbon Scam May Face Legal Claims, REUTERS, Mar. 26, 2010, <http://uk.reuters.com/article/2010/03/26/us-carbon-investment-fraud-idUKTRE62P19020100326>
⁵⁴ SCAMwatch, WesternField Holdings Inc. Carbon Credit Investment Scams, <http://www.scamwatch.gov.au/content/index.phtml/itemId/781866>. See also David Fogarty, Firm Accused of Carbon Scam May Face Legal Claims, REUTERS, Mar. 26, 2010, <http://uk.reuters.com/article/2010/03/26/us-carbon-investment-fraud-idUKTRE62P19020100326>
⁵⁵ In 2008, the ACCC developed guidance for consumers and businesses on carbon claims, such as, *The Trade Practices Act and carbon offset claims, Avoiding hot air: a consumer guide to carbon claims, Green Marketing and the TPA*, and *Your consumer rights: environmental claims*. See Press Release, Australian Competition and Consumer Commission, ACCC Addresses Carbon Claims (Jun. 27, 2008), <http://www.accc.gov.au/content/index.phtml/itemId/833354>.

In early 2010, the Australian Competition and Consumer Commission (ACCC) took action against an energy company that was part of the Government's *Global green programme* designed to encourage home owners to use "green" power. Under the programme, the company accepted (additional) payments from customers in return for promising to purchase "renewable energy certificates" (*carbon credits*) on their behalf. Following an investigation, the ACCC found the power company had not purchased as many carbon credits as it had promised to its customers. The company was forced to purchase the extra credits, and was eventually deregistered from the Global Green programme.⁵⁶ The Acting ACCC chairman at the time, Michael Schaper, commented⁵⁷

"These are markets where consumers don't fully understand what's on offer to them, businesses are still coming to grips with what they can and can't do, and regulators are still grappling with how consumer's expectations are matching up with promises from business."

4.4 Exploitation of weak regulations to commit financial crimes

As with the example of Ponzi schemes, many "common" types of financial fraud well-known in other sectors are also finding their way into the carbon market. Financial regulators need to be vigilant against "white collar" criminals moving into the carbon market, and be on the lookout for financial crimes such as securities fraud, tax evasion and money laundering.

The recent global financial crisis has shown clearly that current methods of regulating markets are vulnerable to manipulation. The complexity of carbon markets makes them particularly difficult to regulate. Poor legal regulation, together with the lack of any tangible asset behind the traded carbon credits makes this market perhaps even easier to manipulate. The rapid growth of investment, while regulation and oversight of the carbon markets remain at an immature stage, makes them vulnerable to exploitation. This is of particular concern with the development of new financial products which have not been adequately vetted, and with regulators whose technical knowledge and resources are limited.

It is anticipated that in the near future, Carbon credits may be generated in one country, sold to persons in another and traded through several carbon exchanges before reaching the hands of the final owner. The more countries involved, the harder it is to trace the carbon credit from its origin to final purchaser, and the easier it is for criminals to take advantage of any legal loopholes or inconsistent regulations between different national legislation. Law enforcement and regulators are often limited in their ability to work outside their own domestic legal jurisdiction, making enforcement of international carbon markets complicated and difficult without a proper global enforcement response. INTERPOL, with its trans-boundary mandate, can assist law enforcement agencies to police the carbon market across multi-jurisdictions.

Of particular concern is the number of cases where existing carbon markets are looking to expand into countries without a strong track record in viable markets and where regulatory regimes are extremely weak. Further, any inconsistency between the licensing rules for carbon traders or between the regulations across different jurisdictions is likely to see businesses migrate to the jurisdiction with the minimum legal or regulatory requirements.

⁵⁶ James Thomson, *ACCC Takes Aim at Carbon Cowboys After Another Green Company Taken to Court*, SMART COMPANY, Jan 7, 2010, <http://www.smartcompany.com.au/climate-change/20100107-acc-c-takes-aim-at-carbon-cowboys-after-another-green-company-taken-to-court.html>.

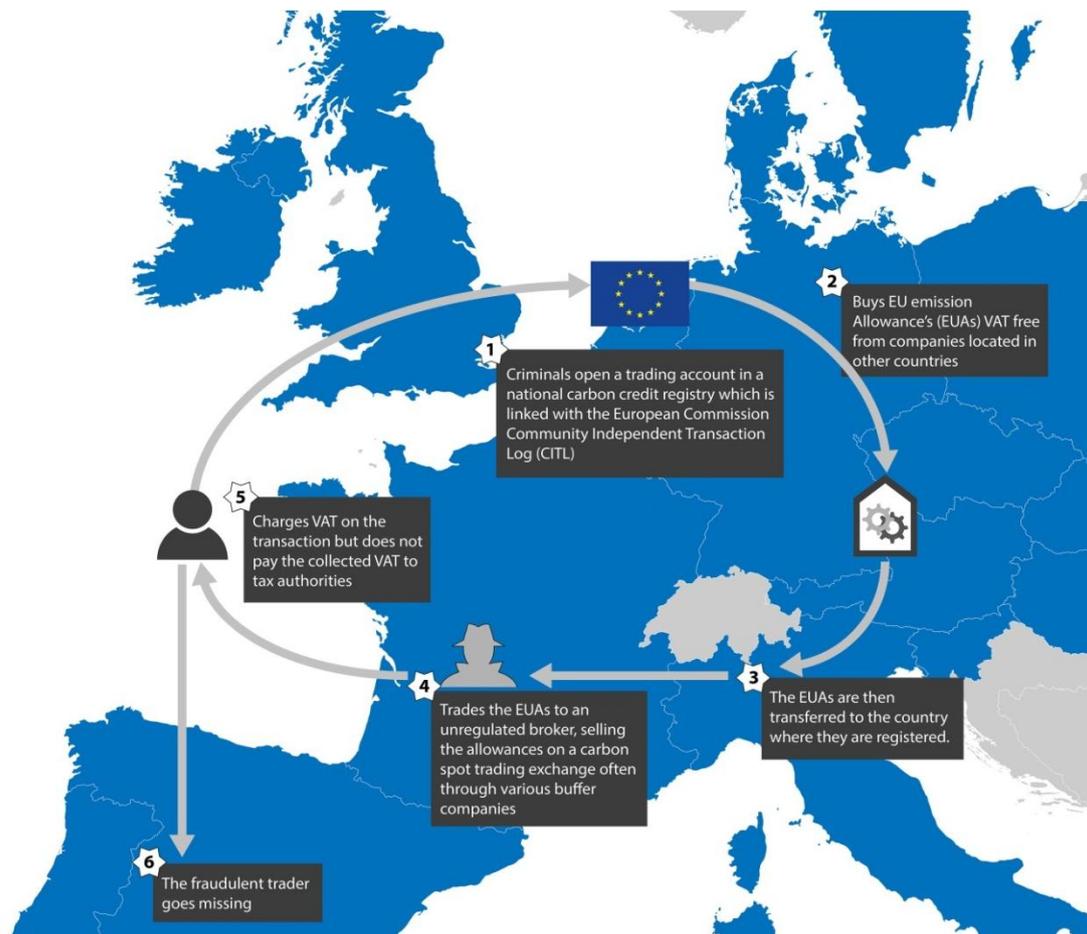
⁵⁷ James Thomson, *ACCC Takes Aim at Carbon Cowboys After Another Green Company Taken to Court*, SMART COMPANY, Jan 7, 2010, <http://www.smartcompany.com.au/climate-change/20100107-acc-c-takes-aim-at-carbon-cowboys-after-another-green-company-taken-to-court.html>.

4.5 Tax Fraud

Carbon trading in the European Union has already been hit by a particular form of tax fraud involving the theft of Value Added Tax (“VAT”) (also known as carousel fraud or Missing Trader Intra-Community fraud).

This type of fraud exploits how VAT is treated in multi-jurisdictional trading in Europe. It involves importing goods from one jurisdiction that is VAT-free (such as between member states of the European Union) followed by selling those goods charging both the sales price plus VAT. The goods and the VAT may then be sold on through a number of companies, passing across a number of borders, with each additional layer of transactions making it more difficult to trace the link between the final VAT that is owed to the relevant government authority and the original importer, who by this time has disappeared without paying the tax.

In its most basic form, Person A in Country 1 sells carbon credits to Person B in Country 2. Because the transaction is over a border, it is VAT free. Now, Person B sells to Person C, who is also in Country 2. Person C must pay VAT on the sale to Person B, who is required to pass it along to the government. In VAT fraud, Person B disappears without remitting the money.⁵⁸ The diagram below provides a simple outline of how this type of VAT fraud was committed with respect to carbon trading on the EU-ETS.



Source: Europol, https://www.europol.europa.eu/sites/default/files/carbon_credit_carousel.jpg

Prior to exploiting the carbon market, this form of tax fraud had been widely used by criminals for items that are of high value but small and easily shipped across borders (such as mobile phones or computer chips). With carbon credits, however, such fraud is even more attractive as there is no product to physically ship across jurisdictions, since the credits are transferred electronically.⁵⁹

⁵⁸ Macken, Ken, *Strengthening Credibility in the EU ETS Following Security and Fraud Related Incidents 2-3* (June 2011) (conference paper available at http://inece.org/conference/9/papers/Macken_Ireland_Final.pdf).

⁵⁹ Macken, Ken, *Strengthening Credibility in the EU ETS Following Security and Fraud Related Incidents 2-3* (June 2011) (conference paper available at http://inece.org/conference/9/papers/Macken_Ireland_Final.pdf).

In 2009 authorities began to observe high volumes of trade on France's BlueNext carbon exchange. Subsequent investigations revealed the sudden spike in trading was the result of highly organised criminals trading large volumes of *carbon credits* as part of a carousel fraud scheme. The European police agency, Europol, subsequently estimated that up to 90% of all carbon trading in some countries was a result of these fraudulent activities.⁶¹ This fraud was estimated to have resulted in losses to several governments of around 5 billion euros in just over 18 months.⁶²

This experience showed that carbon markets are particularly vulnerable to loopholes being exploited by criminals when different tax rules apply when trades are made across different jurisdictions. The risk of exploitation and tax fraud will increase the more national and regional carbon markets are linked to each other, unless strong regulations are in place that are consistent across each jurisdiction. Regulators will need to ensure to close all loopholes when faced with large volumes of carbon credits being exchanged between multiple carbon markets, each subject to different legal regimes.⁶³

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In June 2012, at Southwark Crown Court in the United Kingdom, three defendants were found guilty of carbon trading carousel fraud and jailed for a combined total of 35 years.

The three VAT fraudsters had established a number of bogus companies to import the carbon credits into the UK, and when those credits were sold on the original companies were dissolved. The credits were sold on again between three further 'buffer' companies – also run by the gang – to make the trading chain appear legitimate, before the credits were finally sold to legitimate companies, charging VAT which was never paid back to the government. During the 69 days of trading, the total turnover was 276million euros, of which 41million euros was due in VAT. The trades were made in a matter of minutes via a computer system, and the stolen VAT was transferred to offshore bank accounts in the United Arab Emirates to 'clean' the stolen cash which the gang then spent.⁶⁰

4.6 Securities Fraud

Securities fraud involves deceptive practices in the carbon market in violation of securities laws that induce investors to make decisions to purchase or sell carbon credits on the basis of false information, frequently resulting in losses. Examples include manipulating the price of carbon credits to outright theft from investors (e.g. embezzlement by traders).

The price of carbon credits can be manipulated, for example, by large traders issuing buy/sell recommendations to their customers on the one hand, while doing the opposite with their own carbon credits. Another way to push up carbon credit prices is for those companies that publish *commodity indexes*⁶⁴ to adjust their index weightings to include more carbon credits. The adjustment would result in an increase in demand, and investment into the carbon market, which could also drive up the price.⁶⁵

⁶⁰ See <http://www.dailymail.co.uk/news/article-2161520/Fraud-mastermind-cheated-taxpayer-39million-just-69-DAYS-spent-money-1million-home-Rolls-Royce-jailed-15-years.html#ixzz29O6SfXtp>

⁶¹ Rowena Mason, *Copenhagen Climate Summit: Carbon Trading Fraudsters in Europe Pocket €5bn*, THE TELEGRAPH, Dec. 10, 2009, <http://www.telegraph.co.uk/earth/copenhagen-climate-change-confe/6778003/Copenhagen-climate-summit-Carbon-trading-fraudsters-in-Europe-pocket-5bn.html>.

⁶² See Europol press release, "Carbon Credit fraud causes more than 5 billion euros damage for European Taxpayer", 9 December 2009. Available at <https://www.europol.europa.eu/content/press/carbon-credit-fraud-causes-more-5-billion-euros-damage-european-taxpayer-1265>

⁶³ Following the uncovering of carousel fraud on the EU-ETS in 2009, the UK and France took measures to effectively remove carbon credits from being subject to VAT. In response, the EU Commission decided to apply a reverse charge to carbon credits, collecting VAT from the buyer rather than the seller, making fraud by the buyer less lucrative. See Ashley Seager, *Brussels Targets Carbon Trading Fraud Ahead of Copenhagen Summit*, THE GUARDIAN, Sept. 29, 2009, <http://www.guardian.co.uk/business/2009/sep/29/carbon-trading-carousel-fraud-eu>.

⁶⁴ A commodities index tracks the price of a range of commodities (such as precious metals, agricultural commodities, or *carbon credits*) to measure their performance. The value of these indexes fluctuates based on the value of their underlying commodities.

⁶⁵ MICHELLE CHAN, FRIENDS OF THE EARTH, TEN WAYS TO GAME THE CARBON MARKET 7 (May 2011), available at http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf.

Many of the large derivatives traders, in addition to trading carbon credits have also purchased or established businesses responsible for generating carbon credits through offset projects.⁶⁶ This raises the possibility of those traders pushing up the price of carbon credits through increasing the volume of their own trades or issuing “buy” recommendations to customers, in order to increase profits in the part of their business responsible for generating those carbon credits.⁶⁷

4.7 Transfer mispricing

It is possible that companies that need to purchase carbon credits to offset their emissions may also have investments in derivatives trading and in businesses responsible for generating carbon credits.⁶⁸ This raises the potential for those related companies to engage in *transfer mispricing*. Transfer mispricing, also known as transfer pricing manipulation, refers to trades between two related parties at artificial prices for the purposes of tax avoidance.

If two unrelated companies trade with each other (known as “arms-length” trading), it is generally accepted that they will deal with each at the market price for the transaction because it is the product of genuine negotiation in a market. But when two related companies – that is, a parent company and a subsidiary, or two subsidiaries controlled by a common parent – trade with each other, they may artificially distort the price at which the trade is recorded, to minimise the overall tax bill. This might, for example, help the company record as much of its profit as possible in a tax haven with low or zero taxes.⁶⁹

In the case of the carbon market, for example, a company (the “parent company”) may need to purchase carbon credits to offset its own emissions. It may invest in an offset project in Africa to generate those carbon credits. But first it establishes a trading company in a tax haven (with zero taxes). The subsidiary company in Africa sells its carbon credits (at a very low price) to the trading company, who then sells those carbon credits (at a very high price) to the parent company. In this case the subsidiary company in Africa receives an artificially low price for the carbon credits, resulting in low profits – and consequently an artificially low tax bill in Africa. The company in the tax haven sells the credits at a high price – artificially transferring all of the profits there, but being a tax haven, no tax is paid.⁷⁰

4.8 Money laundering

Money laundering is any act to conceal or disguise the identity of illegally obtained proceeds to make them appear to have originated from legitimate sources. Illegally obtained funds are laundered using entities to disguise the true owner of money, and then moved around the globe using intermediaries and money transmitters. In this way, the illegal funds remain hidden and are integrated into legal business and into the legal economy.

⁶⁶ MICHELLE CHAN, FRIENDS OF THE EARTH, TEN WAYS TO GAME THE CARBON MARKET 7 (May 2011), available at http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf.

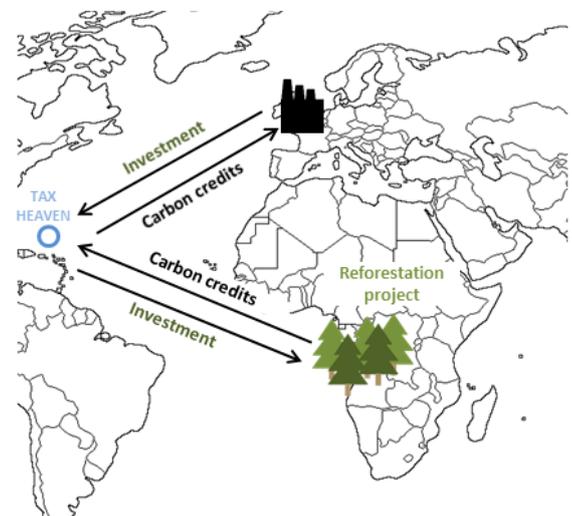
⁶⁷ MICHELLE CHAN, FRIENDS OF THE EARTH, TEN WAYS TO GAME THE CARBON MARKET 7 (May 2011), available at http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf.

⁶⁸ MICHELLE CHAN, FRIENDS OF THE EARTH, TEN WAYS TO GAME THE CARBON MARKET 7 (May 2011), available at http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf.

⁶⁹ See http://www.taxjustice.net/cms/front_content.php?idcat=139

⁷⁰ MICHELLE CHAN, FRIENDS OF THE EARTH, TEN WAYS TO GAME THE CARBON MARKET 7 (May 2011), available at http://www.foe.org/sites/default/files/10WaystoGametheCarbonMarkets_Web.pdf.

Transfer Mispricing



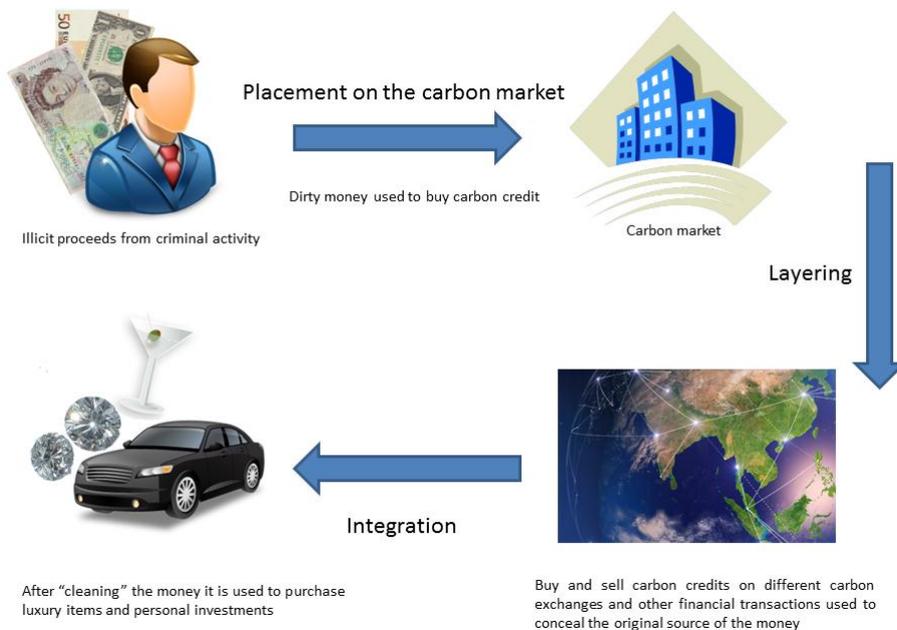
Money laundering usually occurs in three steps: first, the proceeds of the crime (usually in the form of cash) is introduced into the financial system by some means ("placement"), the second involves carrying out complex financial transactions in order to camouflage the illegal source ("layering"), and the final step involves using those illicit funds for investments to acquire wealth ("integration").

Law enforcement officials should be aware that criminals may purchase carbon credits as a way of introducing illicit proceeds into the financial system, with subsequent trades used to hide the illegal source, making it difficult to trace the funds. This might involve, for example, using cash to purchase carbon credits through a broker, which are then re-sold, with subsequent trades used to layer the transactions before the revenue is withdrawn and deposited into a financial institution.

Today, most countries have adopted legal, regulatory and operational measures to combat money laundering.⁷¹ These require financial institutions to identify unusual or suspicious behavior which may indicate money laundering and report those transactions to the financial intelligence unit in the respective country. According to the international standards these requirements apply to all *financial institutions* including any person who conducts business trading in:

- (a) money market instruments (cheques, bills, certificates of deposit, derivatives etc.);
- (b) foreign exchange;
- (c) exchange, interest rate and index instruments;
- (d) transferable securities; or
- (e) commodity futures trading.⁷²

It is unclear whether these regulations would necessarily apply to carbon traders, since it is unclear whether trading in *carbon credits* falls into any of the financial instruments listed above. In many countries, the legal character of carbon credits is still being determined as their carbon markets are still in the early stages of development.



⁷¹ Based on the international standards set by the Financial Action Task Force. See <http://www.fatf-gafi.org>.

⁷² See the definition of "financial institution" in the *International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation - The FATF Recommendations* (February 2012) at page 115. Available at [http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%20\(approved%20February%202012\)%20reprint%20May%202012%20web%20version.pdf](http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%20(approved%20February%202012)%20reprint%20May%202012%20web%20version.pdf)

There are some examples, however, where countries have adopted regulations to minimize the risk of carbon traders being inadvertently used to facilitate money-laundering. In Australia, for example, the government amended its Anti-Money Laundering legislation in November 2011 to explicitly mention traders and brokers of carbon credits to ensure they adopt anti-money laundering measures and report suspicious transactions.⁷³ A European Union Directive⁷⁴ requires similar anti-money laundering actions be adopted by persons engaged in investment services including dealing in financial instruments relating to climatic variables and emission allowances.⁷⁵ Although these regulations should ensure carbon traders report suspicious activity, it does not necessarily make them immune to being unwittingly used by criminals to launder the proceeds of crime.

Law enforcement officials should also be aware that companies developing projects to generate carbon credits might use those projects as a mechanism to filter illegally obtained funds. For example, a money launderer could use a combination of legal and illegally obtained funds to purchase wind turbines for an offset project, especially targeting projects in developing countries where oversight and regulations are less advanced.⁷⁶ The criminal would then generate supposedly “legitimate” profits through the sale of carbon credits generated by the project, thus concealing the wealth obtained from the original illegal source.

4.9 Internet crimes and computer hacking to steal carbon credits

Under the mechanisms of the Kyoto Protocol national registries have been established to keep track of all carbon credits. Trades take place on these registries by transferring units from the accounts of sellers to the accounts of buyers. Each registry is linked to the International Transaction Log, which verifies registry transactions.⁸² Weaknesses in the internet security of these registries, however, have been exploited by criminals to steal carbon credits. The electronic nature of carbon credits and their registries make the carbon trading market particularly susceptible to technology crimes such as hacking. Although carbon credits can be identified by unique serial numbers, making it possible to track stolen credits, this can be undermined by weak regulatory oversight, particularly when the stolen credits are traded across different jurisdictions.

A hacking attack in November of 2010 resulted in 1.6 million carbon credits being stolen from the Romanian registry account of Holcim Ltd., the world’s second largest cement-maker. The hacking was carried out using a virus named “Nimkey” that stole account data from Holcim’s computers.⁷⁷ The hackers used the data to login to the Romanian registry and transfer €23.5 million worth of carbon credits. Holcim immediately posted the identification numbers of the stolen credits on its website.⁷⁸ Collaborative law enforcement efforts between Romania and Liechtenstein were able to track and return 600,000 of the stolen credits.⁷⁹ While the unique identification number of the carbon credits allowed them to be tracked⁸⁰, returning those credits to Holcim was more complicated due to their varied legal status across jurisdictions. Some jurisdictions required the holder to return the stolen credits to the legal owner at the holder’s loss, while other jurisdictions allowed the buyer to keep them, with the original owner carrying the loss.⁸¹

⁷³ See http://www.austrac.gov.au/aml_ctf.html

⁷⁴ Directive 2005/60/EC on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing (26 October 2005).

⁷⁵ See also Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments.

⁷⁶ See Deloitte, *Carbon credit fraud: The white collar crime of the future* (November 2009) at page 3. Available at: http://www.deloitte.com/assets/Dcom-Australia/Local%20Assets/Documents/Services/Forensic/Carbon_credit_fraud.pdf

⁷⁷ Catherine Airlie, *EU Carbon Dioxide Emissions Permits Stolen from Romanian Unit of Holcim*, BLOOMBERG, Dec. 1 2010, <http://www.bloomberg.com/news/2010-12-01/romania-s-holcim-says-eu-carbon-permits-stolen-from-its-account.html>.

⁷⁸ Emissionshandelsregister, Recent News: Million EUAs Stolen from Romanian Registry, Dec. 2, 2010, http://en.emissionshandelsregister.at/service/recent_info/items/news127.html.

⁷⁹ Emissionshandelsregister, Recent News: Million EUAs Stolen from Romanian Registry, Dec. 2, 2010, http://en.emissionshandelsregister.at/service/recent_info/items/news127.html.

⁸⁰ Catherine Airlie, *EU Carbon Dioxide Emissions Permits Stolen from Romanian Unit of Holcim*, BLOOMBERG, Dec. 1 2010, <http://www.bloomberg.com/news/2010-12-01/romania-s-holcim-says-eu-carbon-permits-stolen-from-its-account.html>.

⁸¹ Macken, Ken, *Strengthening Credibility in the EU ETS Following Security and Fraud Related Incidents 2-3* (June 2011), at p.5 (conference paper available at http://inece.org/conference/9/papers/Macken_Ireland_Final.pdf)

⁸² UNFCCC, Registry Systems Under the Kyoto Protocol, http://unfccc.int/kyoto_protocol/registry_systems/items/2723.php.

In January 2011, computer hackers stole 2 million carbon credits from registries in Austria, the Czech Republic, Estonia, Greece and Poland.⁸³ Users attempting to access the websites of these registries were re-directed to fake websites created by the hackers, where any transactions attempted were redirected to accounts controlled by the hackers.⁸⁴

When this security breach was discovered, the European Commission suspended certain types of transactions (known as *spot trading*)⁸⁵ from being initiated on all 30 national registries in the EU ETS in order to protect the integrity of the overall registries system.⁸⁶ Austrian officials traced stolen carbon credits to Lichtenstein and Sweden, where all of the carbon credits from Austria were frozen and prevented from re-entering the market.⁸⁷ Czech authorities were also able to track over 1.3 million carbon credits to Britain, Germany, and Estonia, at which time the European Commission was requested to freeze those carbon credits too.⁸⁸

This incident shows that because of the electronic nature of carbon credits, computer hackers are able to quickly move stolen carbon credits out of the jurisdiction and through the national registries of other countries. Tracking those stolen credits, therefore, requires a global law enforcement response and a multi-national investigation.

The European's EU ETS was vulnerable to cyber-attacks because the security systems at some national registries, which manage companies' accounts, were pervasively lax, there was no hub for the market, no central clearing house, and no single set of laws to define the legal status of carbon credits.⁸⁹ With security standards varying widely between countries before the hacking incidents, the European Commission instituted minimum security requirements for all national registries,⁹⁰ and commenced preparations to transition to a single registry of the EU ETS. Transition to a single registry took place in two steps, with airlines being allowed to open registry accounts in January 2012, with full activation of the single registry, including the transfer of existing accounts from national registries, taking place in June 2012. The public site for the European Union Transaction Log was opened in August 2012.⁹¹

In June 2011 the EU Climate Change Committee approved a set of new regulations to improve the security of the registries to prevent fraud and bring them into line with the security measures used in the financial sector.⁹² The effectiveness of these new measures, however, depends of course upon their implementation, oversight and enforcement. For past victims of stolen carbon credits, however, the damage is already done. They are likely to face years of litigation involving laws across the many jurisdictions in which the carbon credits were traded.⁹³

⁸³ *Estonians Find Stolen Czech Carbon Credits*, EUBUSINESS, Feb. 3, 2011, <http://www.eubusiness.com/news-eu/climate-warming.8gp>.

⁸⁴ Jart Armin, *Carbon Trading Market Hacked for \$40 Million*, INTERNET EVOLUTION, Jan. 26, 2011, http://www.internetevolution.com/author.asp?section_id=679&doc_id=203500.

⁸⁵ Spot trading involves the sale of carbon credits for immediate delivery. Spot trades are settled "on the spot", as opposed to a date set in the future. Since these types of trades are settled electronically, the spot market is essentially instantaneous. Although the European carbon market consists mainly of futures, where delivery does not take place immediately, this suspension still affected almost a fifth of the overall market activity.

⁸⁶ Press Release, European Commission, Statement on the Suspension of the EU ETS National Registries (Jan. 25, 2011), <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/44&format=HTML&aged=0&language=EN&guiLanguage=en>.

⁸⁷ Ewa Krukowska, *Stolen Carbon Permits Won't Enter Market Austrian Registry Says*, BLOOMBERG, Feb. 7, 2011, <http://www.bloomberg.com/news/2011-02-07/stolen-carbon-permits-won-t-re-enter-the-market-austrian-registry-says.html>.

⁸⁸ *Estonians Find Stolen Czech Carbon Credits*, EUBUSINESS, Feb. 3, 2011, <http://www.eubusiness.com/news-eu/climate-warming.8gp>.

⁸⁹ See Gabriele Steinhauser, *EU carbon trading thefts reveal systemic flaws* (24 January 2011) at <http://www.huffingtonpost.com/huffwires/20110124/eu-travel-carbon-trading/>

⁹⁰ Associated Press, *Carbon Trading Thefts Reveal Systemic Flaws*, BOSTON HERALD, Jan 24, 2011, <http://www.bostonherald.com/business/general/view.bg?articleid=1311670>.

⁹¹ See the European Commission, *Climate Action, European Union Transaction Log* at <http://ec.europa.eu/environment/ets/>

⁹² European Commission, "Questions & Answers on Emissions Trading: new registry rules," 8 July 2011 at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/495>

⁹³ Ewa Krukowska and Matthew Carr, *Carbon Thieves Force EU to Improve Security, Close Spot Market*, BLOOMBERG, JAN. 21, 2011, <http://www.bloomberg.com/news/2011-01-21/carbon-thieves-force-eu-to-improve-security-close-spot-markets.html>.

4.10 Phishing/Theft of personal information or identity theft

Criminals have also identified opportunities to use existing carbon markets to steal personal information from customers and investors, such as usernames, passwords, and bank details. This information can then be used to illegally transfer money and/or carbon credits.

One particular way in which this identity theft has occurred is known as *phishing*. This describes a particular type of internet crime where fake internet websites are established, whose appearance is almost identical to the legitimate one. Unsuspecting customers are directed to the website where they are requested to enter personal information, in which case their financial information and passwords may then be stolen.⁹⁴

In February 2010, German authorities uncovered the theft of a considerable number of carbon credits as a result of phishing from companies across Europe, Japan and New Zealand. The victims had received fraudulent emails asking them to re-register on the national carbon registry due to “security problems”. This email, however, included a link to a fraudulent website, where the companies were required to input their account data. Once the fraudsters obtained the companies' account details, they were able to steal carbon credits by transferring them to other accounts and immediately selling them. 250,000 credits were stolen, worth €3.2 million.⁹⁵

The German Emissions Trading Authority immediately suspended trading and several other countries followed suit. In total this fraud caused registries in nine countries to close.⁹⁶ Trading on the German registry closed for a full week.⁹⁷ While a number of security features were available to guard against this type of carbon credit theft, they were optional only, and not used by all members.⁹⁸

Another example occurred in 2011 following the passing of Australian Government's Clean Energy Act. This Act introduced a price on greenhouse gas emissions, and will transform into a carbon market by mid-2015. As part of this scheme, the Australia government is to offer lump sum payments to persons as compensation for any increase in prices in goods and services resulting from the introduction of the carbon market.⁹⁹ In July 2011, however, approximately one year before these compensation payments were due to be made, there were a number of reports received by the ACCC of cold-calling by companies offering carbon tax compensation payments of \$5000, where the callers were attempting to obtain bank account information.¹⁰⁰

5 CONCLUSIONS

In the past two decades, there has been increased action by the global community to limit the damaging effects of climate change. The most prominent and contemporary movement, under the Kyoto Protocol, has been to bind industrialized (“Annex 1”) countries to a greenhouse gas emissions cap which can be met either through trading carbon credits on the carbon market, or obtaining carbon credits by investing in overseas emissions reductions projects. This has led to carbon trading becoming the fastest growing commodities market in the world, with the European Union Emissions Trading Scheme (EU ETS) alone valued at US\$148 billion.

As a financial market, the carbon market has similar features to, and faces the same vulnerabilities as, other financial markets. Examples of potential exploitation include white collar crimes such as securities fraud and insider trading,

⁹⁴ Microsoft, Phishing: Frequently Asked Questions, <http://www.microsoft.com/security/online-privacy/phishing-faq.aspx>.

⁹⁵ Jeremy Kirk, *E-mail Scam Steals €3 Million in Carbon Credits*, PCWORLD, Feb. 4, 2011, http://www.pcworld.com/businesscenter/article/188522/email_scam_steals_and83643_million_in_carbon_credits.html.

⁹⁶ *Phishing Attack Nets 3 Million Euros of Carbon Permits*, BBC, Feb. 3, 2010, <http://news.bbc.co.uk/2/hi/technology/8497129.stm>.

⁹⁷ Felicity Carus, *Carbon Trading Fraudsters Steal Permits Worth £2.7m in 'Phishing' Scam*, THE GUARDIAN, Feb. 4, 2010, <http://www.guardian.co.uk/environment/2010/feb/04/carbon-trading-fraudsters-steal-permits>.

⁹⁸ Jeremy Kirk, *E-mail Scam Steals €3 Million in Carbon Credits*, PCWORLD, Feb. 4, 2011, http://www.pcworld.com/businesscenter/article/188522/email_scam_steals_and83643_million_in_carbon_credits.html.

⁹⁹ Natasha Bitá, *Carbon Tax Scams Have Started: Watchdog*, THE AUSTRALIAN, Jul. 15, 2011, <http://www.theaustralian.com.au/national-affairs/carbon-plan/carbon-tax-scams-have-started-watchdog/story-fn99tjf2-1226094905098>.

¹⁰⁰ Natasha Bitá, *Carbon Tax Scams Have Started: Watchdog*, THE AUSTRALIAN, Jul. 15, 2011, <http://www.theaustralian.com.au/national-affairs/carbon-plan/carbon-tax-scams-have-started-watchdog/story-fn99tjf2-1226094905098>.

embezzlement, money laundering, transfer mispricing and internet crimes. However, the relative immaturity of the carbon market, coupled with the intangible nature of the commodity itself, leaves the carbon market particularly susceptible to crimes that would typically be incapable of penetrating other commodity markets. The noteworthy potential for the carbon market to be exploited rests on a single significant vulnerability that distinguishes it from other markets - the intangible nature of carbon itself.

Typically the success of an investment can be measured by the additional commodities or revenue it yields. Because carbon is not a physical commodity however, the actual emission reductions that take place, or any improvement on the business-as-usual scenario (known as additionality), becomes much harder to measure and verify. Substantiating claims of improvement in emissions reductions requires comparing the investment to a hypothetical counterfactual scenario. The intangible nature of carbon emissions thus makes investments in emission reductions particularly vulnerable to the fraudulent manipulation of measurements and false or misleading claims with respect to the environmental or financial benefits of carbon market investments.

As carbon trading journalist, Mark Shapiro, sums up “unlike traditional commodities, which sometimes during the course of their market exchange must be delivered to someone in physical form, the carbon market is based on the lack of delivery of an invisible substance to no one”¹⁰¹. When this is combined with the fact that carbon trading is fast expanding into new industries as well as new regions (Australia, New Zealand, Canada, Japan and South Korea), the need to grasp the potential loopholes of the carbon market becomes even more urgent. INTERPOL, with its trans-boundary mandate, can assist law enforcement agencies to police the carbon market across multi-jurisdictions.

This report has outlined a number of case studies demonstrating that the capacity to skip corners, falsify information, or receive bribes has been found to exist in supposedly *independent* greenhouse gas accounting firms, national authorities operating in jurisdictions with poor regulation, and individuals or companies claiming to offset emissions in return for an investment.

Carbon as an intangible asset leads to a separation between ownership of the investment project and the rights to trade the emissions that are offset. This makes tracing the origin of carbon credits more difficult than for other credits derived from physical commodities. When trading across international jurisdictions, monitoring capacity is often diluted, making the illegal recycling, double-counting and sale of non-existent or stolen carbon credits much more viable. The example of Hungary recycling carbon credits on the BlueNext carbon exchange highlights the need for stricter regulatory oversight that is consistent, and clearly communicated, across multiple jurisdictions.

The carbon market is an immature market compared to its commodity counterparts. Regulation and monitoring of the carbon market is not yet pervasive and its potential for criminal activity has been poorly researched. Whilst the trades are regulated through the UNFCCC and tracked on an international transaction log, the data is still vulnerable to internet theft and fraud. The lack of a physical commodity underlying the stolen credits makes tracing the true ownership of the credits all the more difficult, and the process usually involves the suspension of trading for several days.

The discrepancy between the objectives of the financial players in the market – to maximize profit – and the overall objective of the Kyoto Protocol – to ensure overall greenhouse gas emissions are reduced – places diverse pressures on the regulation of the market when drawn alongside other typical commodity markets. Regulations for the financial side of the market are likely to be quickly enforced because monitoring and quantification of the field is already well established. Historically, there have been fewer markets based on environmental objectives, which means that an effective and comprehensive regulatory system is likely to evolve only after more trial-and-error. Moreover, pressure from the UNFCCC towards better regulation of the trading of carbon credits on financial markets will not necessarily overcome criminal activity specific to the environment.

¹⁰¹ Mark Shapiro, “Conning the Climate”. Harper’s Magazine. 2010: <http://citizensclimatelobby.org/files/Conning-the-Climate.pdf>

5.1 Key recommendations

This report is intended to provide an initial overview of carbon trading crime and to raise awareness of the current vulnerabilities of the emerging carbon markets. INTERPOL recognises that these carbon markets are at particular risk of exploitation and require sufficient monitoring and robust legal enforcement to tackle the potential for environmental and financial crime.

To address these concerns, INTERPOL recommends enhanced efforts to:

- (i) raise awareness amongst law enforcement, including an investigative workshop bringing together regulators and experts to undertake strategic analysis of the existing and emerging carbon markets to identify the risk of criminal exploitation;
- (ii) build and strengthen the capacity of government institutions responsible for regulating and policing the carbon markets;
- (iii) engage the law enforcement and regulatory community in the design of carbon trading platforms, and advise on necessary law reforms to avoid loopholes and ensure that carbon trading regulations are consistent between different jurisdictions, practical and enforceable;
- (iv) improve coordination and communication channels between law enforcement from different countries to share information on the trades in carbon credits;
- (v) improve internet security of the carbon trading exchanges to prevent computer hacking;
- (vi) improve transparency in the financial transactions conducted on carbon trading exchanges; and
- (i) establish clear guidelines on determining additionality, and procedures to ensure the measurement process, methodologies and calculations of emissions reductions are conducted transparently and are easily verifiable, including use of indicators or types of data that are difficult to manipulate, clearly defined and easy to verify objectively.



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GLOSSARY¹⁰²

Additionality

Criterion for the evaluation and issue of carbon credits in Joint Implementation (JI) projects or projects under the Clean Development Mechanism (CDM), which mandates that emission reductions must be additional (i.e. would not have happened anyway) if compared to a business-as-usual scenario.

Afforestation

Planting of new forests on lands that historically have not contained forests.

Annex I Parties

The industrialized countries listed in Annex I to the United Nations Framework Convention on Climate Change (UNFCCC) which have committed to return their greenhouse-gas emissions. They have accepted specific emissions targets under the Kyoto Protocol. They include the 24 original members of the Organisation for Economic Co-operation and Development (OECD), the European Union, and countries with economies in transition.

Anthropogenic greenhouse emissions

Greenhouse-gas emissions resulting from human activities.

Assigned amount unit (AAU)

A Kyoto Protocol unit equal to 1 metric tonne of CO₂ equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading.

Banking

Saving or setting aside carbon credits rather than surrendering them for compliance purposes.

Cap and Trade

Another name for the carbon market. It describes the underlying legal mechanism of the carbon market that involves limits on the total quantity of (allowed or desired) emissions (the "cap"). Under such a mechanism, emitters subject to the cap must surrender carbon credits equal to the total amount of emissions they create. Companies possessing more credits than required may sell off surplus allowances/credits to emitters that require more (the "trade").

Carbon market

A popular term to describe the trading system through which participants may buy or sell units of greenhouse-gas emission allowances (permits) or credits. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called "carbon-dioxide equivalents."

Carbon sequestration

The process of removing carbon from the atmosphere and securing it in long-term or permanent storage (e.g. re-planting or regenerating a forest).

Certified emission reductions (CER)

A type of carbon offset credit specifically under the Kyoto Protocol, equal to 1 metric tonne of carbon dioxide (CO₂) equivalent. CERs are issued for emission reductions from projects under the Clean Development Mechanism (CDM). Two special types of CERs called temporary certified emission reduction (tCERs) and long-term certified emission reductions (lCERs) are issued for emission removals from afforestation and reforestation CDM projects.

¹⁰² All terms were taken from: Glossary of Climate Change Acronyms, UNFCCC, http://unfccc.int/essential_background/glossary/items/3666.php#R; and DIETMAR DUERR, *Annex II, EU EMISSION TRADING FACT BOOK*, (Inagendo GmbH 2007) available at http://www.inagendo.com/res/doc/inagendo_ets_fact_book.pdf.

Community Independent Transaction Log (CITL)

Central emission trading registry of the European Union, which links and balances all single national emission registries. The CITL itself cross-links to the global emission registry (UNFCCC Independent Transaction Log) of the United Nations.

Clean Development Mechanism (CDM)

A mechanism under the Kyoto Protocol through which developed countries or emitters may finance or buy greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

Executive Board of the Clean Development Mechanism

A 10-member panel which supervises the CDM and issues certified emission reduction units (CERs).

CO₂ Equivalent (CO₂e)

Carbon dioxide is only one of six greenhouse gases regulated by the Kyoto Protocol. These gases differ in their climate impact, although for the purposes of standardising the measurements, the relative climate impact of each greenhouse gas is converted into the equivalent “global warming potential” of CO₂. One tonne of methane for example, which is a major compound in stock farming, has 21 times the global warming potential of carbon dioxide when measured over a 100 year timescale according to the Intergovernmental Panel on Climate Change. Therefore 1 tonne of methane would represent 21 tonnes of CO₂e.

Countries with Economies in Transition (EIT)

Those Central and East European countries and former republics of the Soviet Union in transition from state-controlled to market economies.

Deforestation

Conversion of forest to non-forest.

Designated National Authority (DNA)

An office, ministry, or other official entity appointed by a Party to the Kyoto Protocol to review and give national approval to projects proposed under the Clean Development Mechanism.

Emission Certificate

General term for a vested right to emit one metric tonne of carbon dioxide (CO₂) or carbon dioxide equivalent (CO₂e). There are different types of emission certificates, depending on the underlying regime. For example, under the Kyoto Protocol, Annex I countries issue assigned amount units (AAUs). Countries in the European emission trading system issue EU allowances (EUAs). The Clean Development Mechanism Executive Board issues Certified Emissions Reduction certificates (CERs), while Countries with Economies in Transition can issue Emission Reduction Units (ERUs) for Joint Implementation (JI) projects.

Emission reduction unit (ERU)

A type of carbon offset credit specifically under the Kyoto Protocol, equal to one metric tonne of CO₂ equivalent. ERUs are generated for emission reductions or emission removals from JI projects.

Emissions Trading

One of the mechanisms to achieve the CO₂ reductions laid down in the Kyoto Protocol, by which an Annex I Party may transfer units to or acquire units from another Annex I Party. An Annex I Party must meet specific eligibility requirements to participate in emissions trading.

EU Allowance (EUA)

Emission certificate under the European Union Emission Trading System (EU ETS). Issued by European governments, these emissions allowances or permits provide the right to emit one metric tonne of carbon dioxide (CO₂). Under the EU ETS, EU Allowances are traded, usually through dedicated carbon exchanges.

European Union Emission Trading System (EU ETS)

The EU began Phase I of its Emission Trading System on 1 January 2005, to build up experience with trading and allowing for a more gradual approach to the introduction of the compliance period under the Kyoto Protocol. Phase II (2008-2012) expanded the carbon market by allowing trades in certified emission reductions (CERs) and emission reduction units (ERUs). Phase III began in 2013.

European Union (EU)

As a regional economic integration organization, the EU is a Party to both the UNFCCC and the Kyoto Protocol. However, it does not have a separate vote from its member states. Members are Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

Flexible mechanisms

Three procedures established under the Kyoto Protocol to increase the flexibility and reduce the costs of making greenhouse-gas emissions cuts; they are the Clean Development Mechanism, Emissions Trading and Joint Implementation.

Global warming potential (GWP)

An index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.

Greenhouse gases (GHGs)

The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent --but very powerful -- greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Intergovernmental Panel on Climate Change (IPCC)

Established in 1988 by the World Meteorological Organization and the UN Environment Programme, the IPCC surveys world-wide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the UNFCCC's subsidiary bodies. The IPCC is independent of the UNFCCC.

International Transaction Log (ITL)

Global emission registry at the UNFCCC that verifies transactions of national greenhouse gas registries and the CDM registry. Such transactions include additions of certified emission reductions (CERs) or emission reduction units (ERUs) to, or transfers of AAUs between, country registries. The centralized European emissions register (CITL) cross-links with the ITL.

Joint implementation (JI)

A mechanism under the Kyoto Protocol through which a developed country can receive emission reduction units (ERUs) when it helps to finance projects that reduce greenhouse-gas emissions in another developed country (in practice, the recipient state is likely to be a country with an "economy in transition"). An Annex I Party must meet specific eligibility requirements to participate in joint implementation.

Kyoto Protocol

An international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of greenhouse-gas emissions by industrialized countries.

Land use, land-use change, and forestry (LULUCF)

A greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities.

Leakage

That portion of greenhouse-gas emissions reductions that may reappear elsewhere as the greenhouse gas emitting activity shifts. For example, multinational corporations may shift factories from developed countries to developing countries to escape restrictions on emissions; efforts to preserve forests in one area may push logging to an adjacent forest.

Least Developed Countries (LDCs)

The World's poorest countries. The criteria currently used by the Economic and Social Council (ECOSOC) for designation of a country as an LDC include low income, human resource weakness and economic vulnerability. Currently 48 countries have been designated by the UN General Assembly as LDCs.

Marrakesh Accords

Agreements reached at the 7th Conference of the Parties under the UNFCCC in Marrakesh, which set various rules for "operating" the more complex provisions of the Kyoto Protocol. Among other things, the Accords include details for establishing a greenhouse-gas emissions trading system; implementing and monitoring the Protocol's Clean Development Mechanism; and setting up and operating three funds to support efforts to adapt to climate change.

Mitigation

In the context of climate change, mitigation describes human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere.

Non-Annex I Parties

Refers to countries that have ratified or acceded to the United Nations Framework Convention on Climate Change that are not included in Annex I of the Convention.

Protocol

An international agreement linked to an existing convention, but as a separate and additional agreement which must be signed and ratified by the Parties to the convention concerned. Protocols typically strengthen a convention by adding new, more detailed commitments.

Quantified Emissions Limitation and Reduction Commitments (QELROs)

The technical term describing the legally binding targets and timetables set under the Kyoto Protocol for developed countries to limit or reduce their greenhouse-gas emissions.

Reforestation

Replanting of forests on lands that have previously contained forests but had been converted to some other use.

Registries, registry systems

Electronic databases that track and record all transactions under greenhouse gas emissions trading systems and mechanisms.

Reservoirs

Also known as "sinks", a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored. Trees are "reservoirs" for carbon dioxide.

Removal unit (RMU)

A type of carbon credit specifically under the Kyoto Protocol, equal to 1 metric tonne of carbon dioxide equivalent. RMUs are generated in Annex I Parties by LULUCF activities that absorb carbon dioxide.

Sink

Any process, activity or mechanism which removes a greenhouse gas or a precursor of a greenhouse gas from the atmosphere. Forests and other vegetation are considered sinks because they remove carbon dioxide through photosynthesis.

Technology transfer

A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders. The UNFCCC specifically requires developed countries to transfer technology to developing countries.



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Guide to Carbon Trading Crime



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