

Closing the door to fraud in the EU ETS

In January 2011 cyber-criminals managed to steal allowances belonging to companies participating in the European Union Emissions Trading Scheme (EU ETS) by attacking several EU-Member States' national emissions registries. While these attacks did not affect the environmental integrity of the EU ETS, they are the latest in a series whereby fraudsters have targeted the carbon market. As such, they have posed a direct challenge to the confidence of market participants and the reputation of the EU's pioneering scheme. This Brief seeks to explain what has happened, why, and what is being done to restore confidence in the market. Importantly, it notes that these events are actually better explained by weaknesses in the governance of anti-fraud measures in the carbon market than by the policy choice of emissions trading *per se*.

Background

The European Union Emissions Trading Scheme has now been targeted by criminal activity on several occasions during the past 18 months. These activities have sought to profit illegally from the EU carbon market in three essentially different ways: VAT fraud; recycling of CERs; and cyber-theft of emissions allowances. What has happened?

VAT fraud

In 2009, authorities were alerted to the fact that the EU carbon market was being used to conduct VAT fraud. VAT-fraud can occur in different ways. In the case of the carbon market, it involved fraudsters setting up an account in one country and buying allowances from a seller in another country but not paying VAT in the purchase price, because EU VAT rules exempted cross-border sales of allowances from VAT. The fraudsters then resold the allowances with VAT added onto the price in a domestic transaction. However, instead of paying the VAT collected from the new customer to the State, the fraudster would pocket the VAT and disappear. Moreover, if the end customer was a business, it could claim a tax refund from the State for the VAT charged on the sale. Thus, the State ended up paying out tax refunds for tax money that it never received in the first place. This kind of fraud can theoretically occur in any market that, like the carbon market, allows for a quick turnover of high value goods and where VAT is reported by the seller. It is therefore known to authorities from other markets. In the immediate aftermath of the discovery of the frauds authorities suspended VAT on carbon market transactions and numerous arrests followed.

Recycled CERs

On 16th March 2010 it became known that a relatively small number of emissions offsets (known as Certified Emissions Reductions) were still circulating in the EU ETS even though they had already been used once by firms to offset their emissions. It later came out that the Hungarian Government had resold CERs which a Hungarian installation had surrendered for its own compliance with the EU ETS. The Hungarian government claimed that it had informed the buyer, a Hungarian company, that these CERs could not be used again in the EU ETS. However, due to a legal loophole technically allowing resale to EU ETS participants of used CERs these CERs did nevertheless turn up once again in the accounts of participants. From there they began being traded within the EU ETS as if they could still be

used for compliance in that scheme, which they could not. While not technically a case of fraud, there was clearly a case of “dishonest dealings” at some point in the chain of purchase and resale.

In order to avoid future such incidents, the European Commission has now closed the existing legal loophole that allowed CERs already used for compliance in the EU ETS to re-enter and be traded in that market. It did this by an amendment to its registry regulation, approved on April 16th, the Climate Change Committee. The amendments effectively required that surrendered CERs under the EU ETS be placed in a specific “retirement account” in each registry, out of which re-sale is forbidden.

Allowance theft: phishing

“Phishing” is a type of IT-fraud whereby fraudsters impersonate a legitimate and trusted entity in order to fool unsuspecting targets into providing access to sensitive or valuable data. An example of phishing should be familiar to anyone who has received an email impersonating an exiled prince who requests private bank details to transfer his fortune. More sophisticated examples can involve pop-ups or fake links which, when clicked on, download a virus that retrieves data from the user’s computer. Once again, phishing is not unique to the EU ETS.

In January 2010, the EU ETS was first touched by an instance of phishing, when a handful of account holders in Germany made the mistake of responding to a bogus email requesting access details to their companies’ accounts. Later, in November 2010, the German national EU ETS registry took the precaution of shutting down trade for several days after a more sophisticated (but unsuccessful) phishing attack involving a “Trojan” virus. This incident was followed by a similar attack on cement-producer Holcim’s account in Romania’s EU ETS registry in November 2010. This time, 1.6 million allowances were stolen and quickly re-sold in the market.

What is a national EU ETS registry and why is its security important?

National registries are an important piece of infrastructure in the European Union Emissions Trading Scheme. In order to facilitate the administration of the Scheme, each country maintains a separate database which stores relevant information on the activities of installations covered by the scheme and operating in its territory. The information contained in these databases includes:

- the reported and verified emissions of covered installations each year
- the number of allowances allocated to each installation each year
- the number of allowances surrendered by each installation for compliance with the scheme each year
- the official allowance accounts of EU ETS participants, from which they trade allowances.

Therefore, if a company in a given country wishes to make a purchase or sale of allowances to another company, the transaction must go through the registry – just like with a normal bank account. A record of all transactions is recorded in each national registry of the two parties to the transaction, as well as in a central EU “logbook” known as the Community Independent Transaction Log (CITL). Therefore, since the registry system is effectively like the banking system for the EU ETS, its security is extremely important.

News: Theft of allowances from national registry accounts

On 19th January 2011, it was further learned that the national emissions allowance registries of 5 Member States (Austria, Romania, Czech Republic, Greece and Italy) had been “attacked” and that several million EUAs were believed stolen and quickly resold into the market by cyber-criminals. The quick succession of attacks suggested that the EU ETS was faced with a concerted effort to steal allowances by exploiting weaknesses in the data security systems of several Member States’ registries. Indeed, subsequent statements by the European Commission suggested that those Member States who had been successfully

attacked were also among those who had not implemented important minimum registry security measures required of them under recent regulations first approved in April 2010.

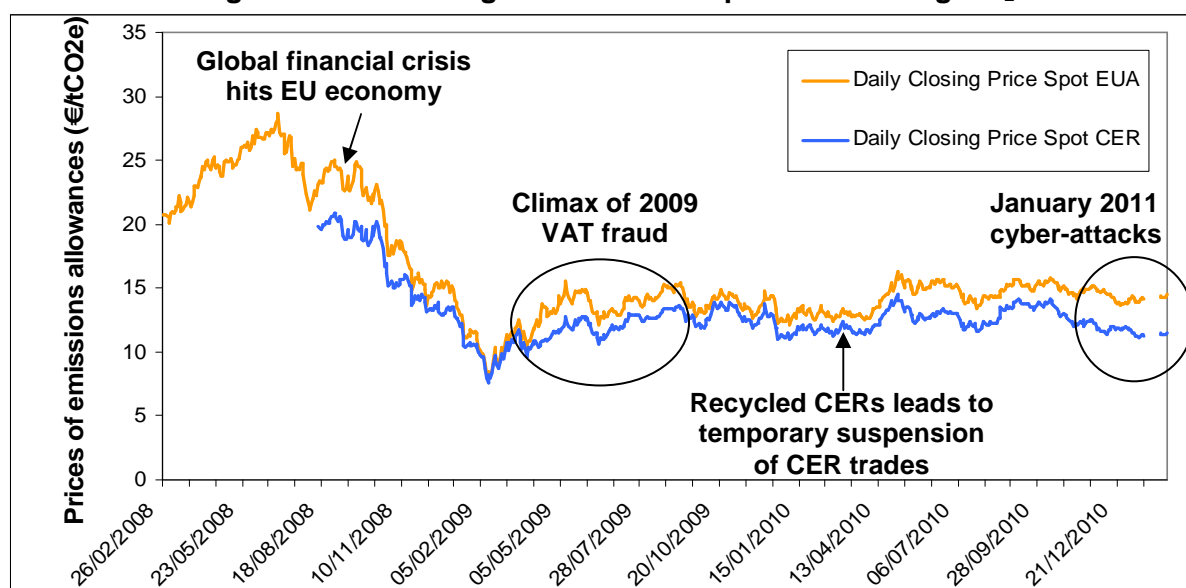
Since this time the attacks on national registries came in quick succession and appeared to expose a systematic threat to the EU ETS, on 19th January the Commission took the extraordinary step of suspending transfers of allowances at registries until it could verify (and, in many cases, improve) the security of registries in all 27 EU Member States. As this Brief was being written, 10 registries had been given the all-clear to re-open (France, UK, Germany, the Netherlands, Slovakia, Portugal, Spain, Estonia, Belgium and Luxembourg) and spot trading was slowly resuming.

How did these events affect the carbon market?

The EU ETS has two fundamental goals. The first is to reduce emissions of greenhouse gases in the 30 participating countries. The second is to do so at the least possible economic cost, through emissions trading.

The environmental objective of the EU ETS to reduce emissions is guaranteed by the Community-wide limit on emissions set for the economic sectors concerned. This limit is practically enforced by the total number of emissions allowances which are issued into the carbon market and which installations must hold for each tonne of CO₂ they emit each year. The instances of fraud described earlier have not affected the first goal: they did not change the total amount of emissions allowances available in the EU ETS.

Figure 1. No meaningful effect on the price of emitting CO₂



Data: BlueNext, as at 14/02/2011

With respect to the second, economic goal, in the short term the fraud events described above have not yet had an extremely destabilising impact on the behaviour of the carbon market as a market. For instance, the market was not “shut down”, since trading of allowances for future settlement (aka “futures”), which typically account for approx. 80% of all daily transactions, did not stop. Also, as Figure 1 shows, prices of allowances have not become unusually volatile in the wake of the series of attacks since late-2010, even if volumes have been low because of the freeze on transactions and legal uncertainties surrounding national money laundering laws¹.

However, fraud – if not adequately addressed – can potentially affect the stability of the EU ETS as a market in more fundamental ways. For example, January’s series of allowance thefts quickly went from being the concern of a few companies, to a system-wide concern about the legal ramifications for participants who might have unwittingly bought or re-sold stolen allowances. Since the legal status of an EU ETS emissions allowance is neither clear nor harmonised across countries, and since the European Commission claimed to have no

mandate to co-ordinate and publish a list of allegedly stolen allowances, market participants were left feeling nervous about trading. In general, if participants do not have confidence in the value of what they are trading in any market, liquidity can quickly evaporate and prices can become volatile. This is why it is important that the causes of fraud in the EU ETS are adequately addressed and the confidence of market participants restored before too long.

Issues: Why did this happen to the EU ETS?

Emissions trading is not to blame

The fact that fraudsters have made the EU Emissions Trading Scheme their target does not imply that emissions trading was the cause. Indeed, there is little evidence to suggest that these events expose any inherent vulnerability of emissions trading to fraudulent activity. For instance, VAT fraud is well-known to other markets, such as for mobile phones, computer chips and designer clothes. In those cases we do not conclude that we should not have markets for portable phones, computer hardware and fancy clothes. Similarly, there is a logical problem with the conclusion that “phishing/cyber-attacks prove that emissions trading doesn’t work”. Would we immediately conclude that the banking system as a whole does not function, because sometimes criminals rob banks? As for recycled CERs – an issue specific to the carbon market – the simple closure of the legal and procedural loopholes that allowed it occur means that it should not occur again.

Fundamental causes

There are three factors which have made the EU ETS too easy a target for fraud during its first 6 years of operation:

- 1. A high-value, highly-liquid, international market needs proper protections.** The EU currently puts a price on the emissions of more than 11,000 industrial installations in 30 European countries (\approx 2 billion tonnes of CO₂eq emissions per year). It has become a “mature” and liquid commodity-like market in which 100 – 500 million tonnes worth of CO₂ allowances are traded each month – a fact which allows companies to easily trade allowances to meet their compliance obligations at least cost. However, as the Prada Commission on Regulation of CO₂ Markets concluded in April, 2010: “The CO₂ market has grown considerably within a light, incomplete and heterogeneous framework: improved regulation is now needed to ensure that a robust and lasting price signal can emerge in Europe.”²
- 2. Inappropriate/insufficient implementation of policies across Member States.** The instances of VAT fraud which have occurred in the carbon market are clearly the result of an inappropriate VAT policy across the EU with respect to carbon market transactions. Moreover, even though European VAT law has now changed regarding transactions on carbon allowances, the more appropriate rules have not yet been consistently implemented across all Member States. Allowance-thefts via both phishing and cyber-attacks on registries also point to insufficient and inconsistent implementation of anti-fraud policies. Following the first reported phishing attack in Germany in January 2010, the European Commission amended its Regulation relating to the governance of EU ETS registries, approving requirements for new minimum security standards for registries in its Climate Change Committee in April 2010:
 - **Minimum “know-your-customer” checks**, including specific types of proof of user identity when accounts are opened with a national registry.
 - **Rules allowing national registries to suspend or close accounts** of account holders meeting certain criteria (e.g. engagement in suspicious behaviour, failure to pay fees, failure to provide appropriate documentation, etc).

It was required that Member States implement these minimum security standards immediately after the publication of the adopted regulation in the Commission’s official

journal in October 2010³. However, by 24th January 2011, these minimum standards, limited as they were, had only been implemented in half of 27 Member States' registries⁴. Those Member States whose registries had been successfully attacked in January 2011 were understood to have been among the list of Member States not to have implemented the new security measures.

3. Limitations of the EU ETS' governance model. The foregoing discussion raises the question of who is responsible for ensuring that EU ETS-relevant national policies are appropriately harmonised and efficiently implemented. Historically, responsibility for the governance of the EU ETS has been divided as follows:

- **The European Commission is the central implementing authority of the EU ETS.** It is responsible for developing legislation and implementing procedures that set the rules for actors to follow when participating in and administering the EU ETS, but it is not the market regulator.
- **The EU Member States (and 3 other participating countries) are responsible for applying the rules** at the national level. The Member States act as scheme administrators for the day-to-day functioning of the market within their national territory, including the management of national registries and associated tasks, such as allocation and surrender of allowances.
- **The Commission can and often does work in collaboration with Member States** in order to ensure effective and harmonised implementation of its rules. This is effectively as a practical and necessary extension of its role as the scheme's creator, developer and central governing body. However, the Commission's legal powers to coerce Member States who do a "bad job" implementing its rules are limited.

Next steps: fixing the problem & restoring confidence

More appropriate VAT rules

In order to address the long term risk, in April 2010 the European Commission amended its VAT-Directive as part of an important new policy move to apply a Community-wide "reverse charges" mechanism to VAT on transactions of emissions allowances. Simply stated, the Commission asked Member States to make the buyer (rather than the seller) responsible for paying the VAT on carbon market transactions⁵. This change should eliminate the possibility of VAT fraud in this market, because it removes the possibility of "buying low" in one country without VAT and "selling high" in another. It is understood that the Commission is currently working to ensure these guidelines are implemented in all Member States.

Immediate enforcement and improvement of existing registry security

With respect to phishing/cyber-attacks, on 25th January 2011 the Commission and Member States agreed on a new list of minimum security standards which all national registries were required to implement before their registries could be unsuspending. The contents of this list were not public knowledge when this Brief was being published. At a minimum it would likely have included those measures contained in the amended registry regulation approved by the Commission's Climate Change Committee on 16th April 2010 (see above) and probably some form of second-level identification requirement for access to user accounts. The close co-operation between the Commission and Member States in verifying the implementation of these minimum measures was expected to ensure that all registries meet the standards. In addition, as this Brief was going to print the European Commission had announced that it was speaking to member states and recommending the following measures be immediately implemented at national registries⁶:

- Regular reviews and updates of registry security plans
- A review and strengthening of policies concerning the opening of registry accounts, building on best practice, and a risk-based review of existing registry account holders

- Information exchange between Member States regarding suspicious requests to open an account
- Better training for registry users
- Better collaboration on implementing existing EU legislation to prevent VAT fraud

A single EU-wide registry with one central administrator

From 2012 a single centralised European registry governed by one central administrator (either the Commission or someone appointed by the Commission) is to replace the existing system of 30 separate national registries. This change will significantly simplify the work required of the Commission in ensuring that the carbon market's registry system is adequately secured. In addition, the Registry Regulation approved by the Commission's Climate Change Committee on 16th April 2010, required that all accounts use a form of "second-level of identification" for account-holders (e.g. a second set of passwords and usernames carried by another person that is also needed to make transactions).

Further specific proposals for consideration

In addition to these measures, the public debate about ensuring carbon market security from cyber-crime following the incidents of late-2010/January-2011 led to several suggestions which may be considered for the future. The European Commission is now drawing up a list and reviewing alternatives for additional measures and possible revisions to its registries Regulation. Some of the suggestions for improvement (from various stakeholders) include:

- **Developing a harmonised legal framework for responding more effectively in the event of such incidents.** Even if they are stolen, EU ETS emissions allowances cannot leave the registry system: they can only be transferred between the different national registry accounts in the EU. Allowances therefore cannot "disappear" if stolen. Rather, since every allowance has a unique digital serial number and the registries are a closed system, stolen or "recycled" allowances are theoretically able to be quickly identified, and traced and effective blocks put on their trade. An official list of the allowance identification codes, published by the Commission would have helped traders have confidence that the allowances they are buying are not stolen. However, in practice there currently is no adequate legal or administrative framework to allow for this. Clarification of who bears liability in the case of stolen allowances is another important issue. Finally, of particular importance for rebuilding confidence of market actors, it will be necessary to find a legal way of either blocking or removing allegedly stolen allowances from the system while their theft is being legally confirmed.
- **Limiting the types of actors who can hold a registry account** to only those companies with a compliance obligation under the ETS and market participants that have been officially approved by the relevant nation's financial market regulator.
- **Strengthening the "second-level identification" system** for transactions to be applied to registry accounts both in the new centralised registry (and potentially also at individual national registries before this date). One of the proposals involves a requirement that accounts could not be accessible simply by means of information contained in software – such as username, password, date of birth, etc. Instead, another level of "hard" authentication is needed which could not be accessed by a person from a remote location, e.g. a code sent by SMS, user token with electronic codes, or security card.
- **Implementing a "safety delay" of several hours between when a transaction command is made and when the transfer of allowances is completed.** This might allow a useful margin of error which could allow for irregularities to be identified and addressed before becoming a problem that is more difficult to resolve.
- **Requiring automated computer and server identification checks before transactions can be validated.** In principle, a registry receiving a command to transfer allowances from one account to another should be able to electronically verify the location and source of where the command has been enacted from.

- **Implementing a system of regular security checks and upgrades of registries.** This is important because techniques used by fraudsters or cyber-criminals can evolve over time, making “old technology” vulnerable.

Review of carbon market oversight

On 21st December 2010, the European Commission released a Communication explaining its own preliminary findings from a broader review of oversight and regulation in the carbon market. In general it found that the futures market was adequately regulated but that the oversight in the spot market could be improved. One of the issues at stake is whether the carbon market should be regulated like other financial or commodity markets, to which it has both important similarities and important differences. Also at stake are questions about how the regulation of the carbon market can be better harmonised and the legal status of allowances clarified to remove uncertainty in the market. An excellent report outlining the issues, plus the pros and cons of different approaches, is that of the French Prada Commission on CO₂ market regulation (April 2010), see link below.

To find out more on...

- *The Commission's Press Release of 23rd February 2011 outlining additional measures to improve registry security and prevent fraud*
<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/219&format=HTML&aged=0&language=EN&quiLanguage=en>
- *The carbon market oversight review of the European Commission*
http://ec.europa.eu/clima/news/docs/communication_en.pdf
- *The Regulation of CO₂ markets: Assignment report by Michel Prada, Emeritus General Inspector of Finance (France)*
<http://www.minefe.gouv.fr/services/rap10/101004prada-report.pdf>
- *The Registries in the EU ETS*
http://ec.europa.eu/clima/policies/ets/registries_en.htm
- *The suspension of transactions in the EU ETS registry system*
<http://ec.europa.eu/environment/ets/>
- *The Consolidated amended EC Registries Regulation approved by the Climate Change Committee on 16th April 2010*
http://ec.europa.eu/clima/documentation/ets/docs/regreg_iv_final_consolid_100416.pdf
- *The Amended VAT Directive of the Commission to prevent VAT fraud in EU ETS*
http://register.consilium.europa.eu/pdf/en/10/st05/st05984-re06_en10.pdf
- *The Report of the Hungarian Government on the sale of recycled CERs*
http://www.kvvm.hu/cimq/documents/cer_report.pdf

¹ One additional worry for some market participants may be that the registries may not be able to unsuspend transactions in advance of the next allowance surrender deadline for 2010 emissions, on 30th April 2011. However, until 2012, installations are allowed to use their next year's allocation of allowances, which are typically allocated in February, to surrender against the emissions of the previous year, which is always due in April. Such “borrowing” of allowance allocations from 2011 for 2010 emissions means that the vast majority of installations are unlikely to be caught short at compliance time because of a temporary inability to trade. Nevertheless, had the same incident happened at the end of 2012, with installations not being able to borrow from their 2013 allocations, there would have been such a problem.

² La République Française, *The Regulation of CO₂ markets: Assignment report by Michel Prada, Emeritus General Inspector of Finance (France)*

³ Cf. EUR-Lex Bibliographical Notice (7/10/2010) 32010R0920
<http://eurlex.europa.eu/Notice.do?val=524377:cs&lang=en&list=524377:cs.&pos=1&page=1&nbl=1&pgs=10&hwrds=>

⁴ Delbeke J., Director-General, DG Climate Action, *Statement before the European Parliament*, Brussels, 24/01/2011

⁵ Cf. *Council Directive of 16/3/2010 Amending Directive 2006/112/EC*
http://register.consilium.europa.eu/pdf/en/10/st05/st05984-re06_en10.pdf

⁶ IP/11/219 Brussels, 23 February 2011 *Emissions trading: Commission outlines actions to enhance registry security and combat fraud*
<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/219&format=HTML&aged=0&language=EN&quiLanguage=fr>