

Forestry offsets in emissions trading systems: a link between systems?

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Received: 5 February 2008 / Accepted: 24 February 2009 /

Published online: 20 May 2009

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Abstract An important aspect in the linking of different emissions trading schemes is the degree to which these systems allow (or ban) external offset project categories. The EU Emission Trading Scheme (EU ETS) currently allows the use of credits from energy and industry projects developed under the Kyoto Protocol's Joint Implementation (JI) and Clean Development Mechanism (CDM) but excludes the use of carbon credits from forestry projects for compliance in the EU ETS. Forestry credits generated by the CDM have a limited lifetime and expire at the end of a project's crediting period, or earlier if the carbon stock for which the credits have been issued ceases to exist. According to the recently adopted amendment of the EU ETS Directive forestry credits will remain to be excluded until 2020. The present article reviews how the New South Wales Greenhouse Gas Abatement Scheme (Australia), the Regional Greenhouse Gas Initiative (US) and the voluntary scheme of the Chicago Climate Exchange integrate forestry offsets into the respective system and how they deal with the risk of losing stored and credited biomass. By comparing the results of different scenarios this article shows how differences in the treatment of forestry offsets could impact the efforts to link various emission trading systems in future.

Keywords Emissions trading · Offset projects · Climate policy · Linking of domestic emissions trading schemes · Forestry

This chapter is dedicated to our colleague and friend Bernhard Schlamadinger who passed away on 28 August 2008.

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1 Introduction

Carbon offsets are reductions of greenhouse gases (GHG) by an individual or institution. Offsets are used in regulated emission trading systems to allow companies, instead of reducing its own carbon use, to comply with emission caps by surrendering a carbon credit from projects implemented outside of the boundaries of the emissions trading scheme. Offsets play an important role in emissions trading schemes as they add flexibility to the scheme by giving companies the opportunity to identify cheap reduction measures outside the capped sector, while still decreasing the amount of overall GHG emissions.

Offset projects can be carried out in a broad range of areas, such as renewable energies, energy efficiency, agriculture and land use. To ensure that GHG emissions are actually reduced, the emission reductions generating the offsets need to be verified. Individual emissions trading schemes define quality and methodological standards for the projects that are eligible to generate offsets. Currently there is no common and internationally accepted standard in place that applies to offset activities across various emissions trading schemes. Consequently, the way these schemes deal with offsets differs significantly. The EU Emissions Trading Scheme (EU ETS) allows Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs) created by Clean Development Mechanism (CDM) and Joint Implementation (JI) projects be used to achieve compliance under the scheme (EC 2004). The linking of the EU ETS to the Kyoto Protocol flexible mechanisms adds liquidity to the scheme and serves to reduce the costs of compliance as it allows emission reductions that are more cost-efficient to be imported into the system. The EU ETS excludes, however, credits generated by CDM and JI forestry activities from the scheme. European law-makers consider forest carbon projects as burdened by the inherent “*inconsistency of*” Land-use, land-use change and forestry (LULUCF) “*projects ensuring permanency, verification and adequate monitoring of carbon storage.*” (EC 2007) In addition, the EU Commission finds that forestry “*in CDM slows down technology transfer and low-carbon technology development, as credits from forestry and land use will be much more competitive on price and hence crowd out other project types*” (EC 2007). The EU wishes to avoid additional technical problems associated with the use of credits that are of temporary nature, such as the CDM credits from forestry projects, to burden the system. The EU is unlikely to revise its ban on forestry credits in the near future as “*problems related to the temporary and reversible nature of LULUCF have not yet been solved and no effective solutions are in sight at the moment*” (EC 2007).

The view of the EU law maker is however not broadly shared internationally. A number of domestic and regional emissions trading schemes take a less strict view on forestry and allow the inclusion of forestry offsets in their compliance system. The present paper will give a brief overview of whether and how the Kyoto Protocol, the EU ETS, the New South Wales Greenhouse Gas Abatement Scheme (Australia), the Regional Greenhouse Gas Initiative (US) and the voluntary Chicago Climate Exchange integrate forestry offsets and how they deal with the risk of losing stored and credited biomass, the so-called permanence problem of forestry projects. It concludes with an analysis whether linking the EU ETS with the Australian or US scheme would result in an indirect acceptance of forestry credits in the EU ETS.

2 Forestry offsets and emissions trading

Forestry projects that reduce emissions or sequester carbon differ significantly from other GHG mitigation projects and therefore require particular consideration when included in

emissions trading schemes. The central problem is the non-permanence of the carbon sequestered. Disturbances, such as fires or illegal logging, can release the carbon stored in biomass and soils back into the atmosphere in form of CO₂ and reverse the environmental benefits of carbon sequestration. If forestry projects are accepted to generate offsets, the risk of non-permanence of the climatic benefits must be addressed. When legislators allow forestry projects to create compliance-grade carbon credits, they have to allocate the liability resulting from the risk of losing the carbon after carbon credits have been issued. This liability can either remain with the creator of the carbon credits (e.g. in GGAS and under RGGI) or be transferred to the owner of the credits (e.g. CDM). The following section focuses on how different offsets mechanisms deal with the non-permanence problem.

3 Forestry in the Kyoto protocol and the CDM

Articles 3.3 and 3.4 of the Kyoto Protocol make provisions for the inclusion of carbon sequestration from land use changes and forestry into the compliance system of the Protocol: Article 3.3 describes LULUCF activities that require GHG emissions by sources and removals by sinks to be accounted for by industrialized (Annex I) Parties in the Kyoto Protocol's first commitment period. These activities, however, are restricted to afforestation, reforestation, and deforestation (UNFCCC 1997). Under Article 3.4 of the Protocol, countries can choose to account also for other land use activities, including forest management, cropland and grazing land management and revegetation.

Under the JI mechanism all possible types of forestry projects can be credited for the emission reductions and removals they produce. The eligibility of forestry projects under the CDM is however limited to afforestation / reforestation (A/R) projects. In addition, negotiators have set a cap for the use of credits generated by CDM A/R projects which amounts to 1% of any industrialized country's 1990 emissions (UN 2001). They are thus temporary and come in two variations: temporary certified emissions reductions (tCERs) and long term CERs (lCERs). tCERs expire every 5 years, while the lCERs expire when the carbon sequestered at the previous verification has been lost, but not later than at the end of the crediting period of the project for which they were issued (UN 2003).

4 National and regional initiatives

4.1 The EU ETS

In 2004 the EU has amended the directive establishing the EU Emission Trading System with the objective of linking the EU ETS to the Kyoto Protocol (EC 2003). The amended EU ETS authorizes Member States to allow private entities to use CERs and ERUs for compliance under the EU ETS. This authorization explicitly excludes however credits generated by CDM and JI forestry activities. While some Member States and the European Commission opposed the inclusion of forestry credits in principal, arguing that carbon sequestered in forestry projects is less certain and measurable than emission reductions of industrial JI/CDM project categories, the majority of the Member States and Parliamentarians wanted to avoid technical problems associated with the temporary nature of forestry credits under the CDM. EU stakeholders considered the replacement liability carried by temporary forestry credits as an undesirable feature of the nascent EU ETS after 2012. In addition, some Member States argued that forestry credits were cheaper than other carbon

credits and may be preferred at the expense of project categories that promote technology transfer. According to the draft amendment of the EU ETS Directive published by the EU Commission on 23 January 2008, forestry credits remain excluded from the EU ETS after 2012. This exclusion may be reviewed in the context of an international post-2012 agreement (EC 2008).

The designers of a number of other emissions trading systems, however, have taken a less radical position with respect to forestry offsets. Australia, the US, and Japan have traditionally argued in favour of considering forestry credits in international and national emissions trading. They lobbied for a broader consideration of these credits and project classes during the negotiations of the Kyoto Protocol and the Marrakesh Accords. It is therefore no surprise that forestry offsets have a prominent role under Australian and US GHG programs. The following section gives an overview how other trading schemes and GHG programs integrate forestry offsets in their compliance systems.

4.2 New South Wales Greenhouse Gas Abatement Scheme

The New South Wales Greenhouse Gas Abatement Scheme (GGAS) commenced operation in 2003 and will remain in force at least until 2012. It has been announced that the scheme will be extended to 2020, unless a national emissions trading scheme becomes operational before that date. GGAS establishes annual state-wide GHG reduction targets for electricity retailers and certain other entities including large electricity users (NSW 2003a). The scheme requires participants (accredited abatement certificate providers) to meet mandatory benchmark targets, based on the size of their share of the electricity market. To meet their targets the participants in the scheme are able to offset their GHG emissions through the purchase of tradable certificates called “NSW Greenhouse Abatement Certificates” (NGACs). Credits from forestry offsets are allowed in the scheme. NGACs can be generated by sequestration that occurs from 2003 onwards. For a forest to be eligible to create abatement certificates in GGAS, it must meet the definition of afforestation or reforestation that is specified by the Kyoto Protocol. To create abatement certificates from forestry activities, an abatement certificate provider must be accredited under the GGAS (NSW 2003b). To become accredited, the abatement certificate provider must own or control the carbon sequestration rights registered on the eligible land on which the forestry activity takes place, and satisfy a number of requirements under the Carbon Sequestration Rule (Greenhouse Gas Benchmark Rule 2003).

The Carbon Sequestration Rule also addresses the issue of permanence: Participants in the scheme that decide to generate carbon offsets must be able to demonstrate that the carbon sequestration achieved by the forest project will be maintained for 100 years. Within a “permanence framework” it provides that the carbon sequestration must be consistent with the long term maintenance of carbon stocks. Furthermore, the permanence framework requires that for each eligible forest a restriction on the use of land is registered on the title of the respective parcel of eligible land. This restriction is only triggered if there is clear evidence that the carbon stocks in the sequestration pool have fallen (or are likely to fall) below the quantity for which NGACs have been created. The Carbon Sequestration Rule furthermore provides that, based on the probable distribution of carbon stock change, there must be at least a 70% probability that the actual carbon sequestration in any given period exceeds the quantum of carbon sequestration represented by NGACs issued for that period (Greenhouse Gas Benchmark Rule 2003). At the end of each crediting period, the total adjusted carbon stock has to be calculated. For the purpose of creating NGACs the abatement deemed to have occurred during the crediting period is equal to the total adjusted

carbon stock change in the current crediting period. An audit of certificate creation and on-going compliance with the rule is required each time the provider wishes to create NGACs.

4.3 The US Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort by ten US Northeast and Mid-Atlantic States to implement a regional cap-and-trade system. RGGI represents the first GHG emissions trading scheme in the US. The system begun operations in 2009 and applies to fossil fuel electricity generators of 25 MW and larger. The goal of this scheme is to stabilize emissions from 2009 to 2014 and to reduce emissions by 10% from 2015 till 2019. Each participating State will receive an emission budget and is free to determine how to allocate 75% of the corresponding allowances among industries. At least 25% of the allocated allowances have to be assigned to consumer benefit or strategic energy purposes such as new technologies. The scheme allows for five types of offsets, including agricultural or forestry offsets generated domestically to be used for compliance under the scheme.¹ The amount of emissions that plants may offset depends on the price at which allowances are traded. Offsets thus serve as a safety valve to limit the costs of complying with emission limitation targets. Per default, plants may offset 3.3% of their emissions. If the allowance price exceeds US\$7 per ton, this percentage increases to 5%, and above US \$10 plants may offset up to 10%. In the latter case participants may also use credits from the EU ETS and from the flexible mechanisms under the Kyoto Protocol.² The use of temporary CDM CERs is not explicitly addressed in the RGGI model rule and will need to be clarified in future guidance.

Forestry offset projects that sequester carbon through the conversion of land from non-forested to forested land may qualify for emission offset allowances if the relevant land has been non-forested for at least 10 years prior to commencement of the offset project. RGGI rules address permanence explicitly through the requirement that lands included in the offset project boundary be placed in a legally binding conservation easement. This land must then be maintained in a forested state in perpetuity (RGGI 2007).³ The conservation easement must include a requirement that the carbon density within the offset project boundary be maintained at or above what was achieved by the end of the CO₂ offset crediting period. The net carbon stock change for the offset project is the sum of the net changes in the carbon stock of all applicable pools in all reporting sub-populations within the offset project boundary, minus 10% to account for potential losses of sequestered carbon. This 10% discount rule is waived, however, provided the project sponsor retains a long-term insurance that guarantees the replacement of any lost sequestered carbon for which CO₂ offset allowances were issued.

4.4 Voluntary carbon offsets: Chicago Climate Exchange

The Chicago Climate Exchange (CCX) is a voluntary US GHG program that accepts members that make legally binding commitments to reduce their GHG emissions. In the

¹ See Model rule <http://www.rggi.org/modelrule.htm>. The model rule does not give only details on how such use can technically be achieved.

² RGGI model rule, p 132

³ Ibid

first period (2003–2006) members were required to reduce GHG emissions by 4% below the 1998–2001 baseline emissions. Phase two, which extends the program until 2010, requires reductions of 6% below the baseline emissions. The tradable emission offsets created under the rules of the CCX are called Carbon Financial Instruments (CFI). Members of the CCX can choose to reduce emissions internally, create CFIs, purchase such instruments from other members, or from verified external offset projects, which can be implemented in the US and abroad. Eligible offset project categories include methane destruction, agricultural practices, renewable energy projects, carbon sequestration in forests, and CDM credits if approved by the CCX Offsets Committee (CCX Rulebook 2004).

Eligible forest projects types include forestation and forest enrichment, combined forestation, forest conservation projects and urban tree planting. Forestation and forest enrichment projects must be implemented on land that has been unforested or degraded after January 1990. Forest owners must provide evidence that forest holdings are sustainably managed by obtaining certification from CCX-approved third party verification programs. All medium and large scale forest offset projects must be verified by a CCX approved verifier. Small forestation projects are allowed to submit data and documentation to the CCX without third party review.

The CCX addresses permanence by requiring forestry project owners to commit to long term permanent maintenance of forest carbon stock by the project. Options for demonstrating this include the establishment of long term conservation easements for forestry maintenance and legal protection through transfer of ownership to recognized conservation entities. To account for any net losses in forest carbon stocks, a quantity of CCX CFI offsets equal to 20% of all forest offsets generated by CCX eligible forestry projects is held in a CCX forest carbon reserve pool. All CCX CFI offsets in the reserve pool will be released to project owners at the end of the program. The CCX also allows CDM credits including tCERs and ICERs, but such projects would still need to comply with all existing CCX rules, including a commitment to long-term maintenance via conservation easement or some other mechanism that insures that the land will remain forested.

5 Linking the EU ETS with other emissions trading schemes

Experts and policy makers on both sides of the Atlantic have expressed interest in exploring the possible harmonization and linking of emissions trading schemes. Linking can take different forms, ranging from a full technical link to acceptance of similar or the same offset credits. A difference in the acceptance of offsets and in project eligibility requirements among the different schemes may create problems when it comes to linking the systems. In the case of forestry projects the various ways of addressing permanence add to the problem.

The following section analyzes the consequences of linking the schemes described above with the EU ETS. It focuses on how the various schemes deal with the issue of permanence of forestry emissions reductions, but will not take into account other political considerations that may come into play if policy-makers decide to link emissions trading schemes. Linking various regimes and GHG programs requires recognition of the allocation of liabilities. The liabilities, and obligations to replace, compensate, or maintain credits must be acknowledged by the importing schemes. However, such acknowledgement does not mean that the allocation of liability in the importing schemes needs to be the same as in the originating scheme.

5.1 Responsibility to ensure permanence rests with the creator of the offsets

In cases where the responsibility to ensure permanence rests with the creator of the offsets—the owners of the project—linking is relatively easy. Once the credits have been created there are no reasons why they should not flow freely in the market. They have the same value as any other permanent credit. Linking does not pose any regulatory problem provided that the schemes to be linked apply the same (or sufficiently similar) accounting and verification rules. The integrity of the system depends on the enforcement capacity of the country that has approved the issuance of the respective credits. If the emissions of the country are capped (as in the case of JI), the country assumes the ultimate responsibility for the permanence of the credits. In other cases (like in GGAS or under RGGI) the entity creating the credit is responsible for the permanence of the carbon stock.

If EU policy makers consider the linking of the EU ETS with other international and national GHG regimes where the responsibility to ensure permanence rests with the creator of the offsets such as RGGI or GGAS, the following would apply:

- In RGGI the quantity of offsets that can be used depends on the carbon price; the generation of forestry offsets requires the establishment of a permanent easement on the land. The integrity of the system depends on the enforcement capacity of the participating States, which generally can be considered as high. Allowing RGGI forestry into the EU ETS system would not affect the overall integrity of the system. If any concerns remain, EU policy makers could make the use of RGGI forestry credits dependent on certain conditions.
- GGAS allows forestry credits to be used for compliance, but requires the carbon pool manager to guarantee a permanent sequestration (understood as counting a minimum of 100 years). There are no limits to the use of forestry offsets. Since permanence must be guaranteed in order for NGACs to be issued, allowing these credits into the EU ETS would not create any additional risks or complications.
- Linking with JI LULUCF credits: In the case of ERUs generated by forestry credits, the host country assumes the final responsibility for the permanence of the project, as it backs all emissions removals with its assigned amounts. Linking of JI LULUCF with the EU ETS is therefore not problematic.
- Under the CCX rules forestry project owners must commit to a long term permanent maintenance of forest carbon stock by the project. There are various ways to demonstrate such long term commitment. The strategy chosen by the CCX forest owner must be approved by the relevant CCX compliance committees. While the CCX rules require a long term commitment to maintain the sequestered carbon, the enforcement capacity of a voluntary private sector scheme is limited. In case a project owner decides to change its strategy and cash in on the timber of forested land, CCX has quite limited means to penalize such a decision. A link between the CCX offsets and the EU ETS would therefore be difficult, as the control and enforcement mechanisms of the two schemes are not balanced: one represents a mandatory, legally binding and penalizing emissions trading scheme, while the other a voluntary effort of industry to show commitment to the cause of climate change.

5.2 Responsibility to ensure permanence rests with the buyer of the offsets

The situation is more complicated in the case where temporary credits must be replaced due to loss of the original carbon stock. In this case, the credits and not the project owner carry

the liability (as in the case of tCERs and ICERs). The country allowing the credits to be imported must deal with the liability attached to the credits. This liability can be transferred to the participants of the scheme or assumed by the country. In case the country does not want to allow the temporary credits into the system, the solutions pointed out for an interim linking of tCERs and ICERs and the EU ETS, such as swapping or the charging of a permanence premium, could apply (Schlamadinger et al. 2005). Such scenarios would lead to an increase in the value of the credits in the importing country (being stripped of the replacement obligation). The country that assumes the replacement obligation would have to reflect the increase in value in either a modified exchange rate (it retains a certain number of credits reflecting the discount of the replacement obligation) or in the requirement to make a corresponding payment. The private sector importing such credits and recognizing the increase in value would have to make a compensatory payment to the country. Such payment could be used by the country to replace credits that expire for the loss of stored carbon.

In the case in which temporary credits are allowed in the system, the linked schemes will also have to harmonize or recognize the respective verification systems. The importing country will have to enforce the replacement obligation if the stored carbon that ensures the value of the carbon credit is lost. Since the credits in this scheme travel abroad and gain physical and regulatory distance from the original project (and the carbon stock), credible reporting must ensure the information flow as well as the associated transfer of the replacement obligation.

If EU policy makers consider linking the EU ETS with other international and national GHG regimes where the responsibility to ensure permanence rests with the buyer of the offsets, the following would apply:

- By allowing LULUCF credits from the CDM into the EU ETS, the replacement liability is transferred to the country that allows the relevant credits to be used for compliance. In case of such a direct link, the receiving country would most likely transfer the replacement liability to the private sector entity benefiting from the use of the credits. As soon as the relevant credit expires the benefiting private sector entity would have to replace the expired credit with a permanent or a new temporary credit.
- Provided that RGGI or any other of the described schemes would allow the use of tCERs and ICERs in their respective systems, linking either of both schemes to the EU ETS would require an analysis of how the respective systems treat temporary credits. If tCERs and ICERs would have to comply with existing rules addressing non-permanence, such as in RGGI, linking would constitute little additional risk. The scheme that receives temporary credits would turn them into “permanent” ones by formulating additional requirements regarding the permanence of the carbon stock. In cases where tCERs and ICERs can flow into the system without any further requirements regarding permanence, the EU ETS would need to formulate its own permanence strategy.

6 Conclusions

Linking of emissions trading schemes increases liquidity and decreases costs. The rules governing offsets within these schemes have an impact on the linking. With RGGI, GGAS and CCX, we have analyzed two regulated and one voluntary emissions trading scheme, all of which have chosen to accept forestry credits for compliance. They have adopted a special set of rules to address the risk of carbon loss associated with forestry projects.

In cases where the responsibility to ensure permanence rests with the creator of the offsets, as in the case of the reviewed regimes, linking is relatively simple. Once the credits have been created, they can flow freely into the market. They have the same value as any other permanent credit.

In the case where the responsibility to ensure permanence rests with the buyer of the offsets, such as with tCERS and ICERS, the country allowing the credits to be imported must also agree to assume the liability attached to these credits. This liability can be transferred to the participants of the scheme or assumed by the country.

In case of a complete linking, unilateral restrictions on certain offsets can be circumvented by swapping credits at the borders of the discriminating regime. When linking with RGGI, and the CCX, non-Kyoto parties may determine the type of forestry offsets that enter the EU ETS. When considering the linking of schemes, the stringency of the offset rules and the enforcement capacity are important. The weakest system may determine the overall integrity of the linked system.

A way forward to the linking of emissions trading schemes would be the creation of international standards for offsets, which address the important issues of permanence, eligibility and the enforcement capacity when generating forestry offsets.

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