TECHNICAL DESCRIPTION OF THE CO_2 REDUCTION PROGRAMMES – PROJECT DESIGN DOCUMENT (PDD) PREPARATION IN THE CASE OF VOLUNTARY CARBON EMISSIONS REDUCTIONS

Ákos LUKÁCS – PhD. Student of the Doctoral School of Economics and Business Administration of SZIE, Climate Advocate of the British Council.
Zsolt GÉMESI – PhD. Student of the Doctoral School of Economics and Business Administration of SZIE, associate of the RFH, Regional Development Holding.
Gábor HOLLÓ – PhD. Student of the Doctoral School of Economics and Business Administration of SZIE, associate of the FVM, Ministry of Agriculture and Rural Development.
Questions to the author: lukacs.akos@gtk.szie.hu; Szent István University Climate Office,
Gödöllő, Pater Karoly Str. 1.

Abstract

Greenhouse gas emissions have been decreasing in all main sectors (except transport) and are projected to further decrease (except in industrial processes) in 2009. Significant reductions in greenhouse gas emissions between 2006 and 2010 (in relative terms) can be expected from existing measures in the waste sector and from additional measures in the transport sector. At the same time, European companies, having a strong market interest in CEE, aiming to reduce their emissions by using JI or CDM are much likely to look for possibilities in CEE too, not only looking at carbon abatement price. Tol let this interest become financing tool for CEE low-carbon growth, price of carbon abatement should be calculated for sectors, and projected for the future, to raise interest in a more transparent CEE-en market economy to reduce emissions. Lower political and country associated risk can improve the position of CEE to invite low-carbon financing.

Keywords

CO_2 reduction, emissions trading, project design document, voluntary carbon market, climate change

Objective

The targets on renewable energy for 2010 and 2020 will not be met without significant further efforts from Member States. EU-15 greenhouse gas emissions from energy supply and use (excluding transport) were 4% below 1990 levels in 2006, while energy demand increased by 13% in the same period. With the existing measures, greenhouse gas emissions are expected to decrease by a further percentage point until 2010. In the energy supply sector, despite efficiency improvements, CO_2 emissions from public electricity and heat production have increased by 7% since 1990, driven by increasing electricity demand. Since 2004, these emissions have remained stable. Decoupling of greenhouse gas emissions from energy consumption has been observed in almost all Member States, although large differences can be observed in the extent of decoupling among Member States. CO_2 emissions from households decreased by 0.7% from 1990 to 2006, while the number of dwellings increased by 19%, which indicates gains in energy efficiency (EEA, 2008).

The greenhouse gas emissions in 2006 in nine EU 12 Member States were below their respective Kyoto or burden-sharing targets. All these Member States project that they will meet their Kyoto targets. Slovenia intends to meet its target with the use of Kyoto mechanisms and carbon sinks. If these had already been taken into account, 2006 emissions would already stand below the target.

Methods and materials

We look at emissions reductions projects as a tool to create carbon assets, trigger and ease financing of the low-carbon economy, therefore we identify the following process to carry out for monetising the greenhouse gases.

1. table. Voluntary project's GHG monetisation potential

Steps	Description
Project	The project is to be selected by sector, or industry, host country and size of carbon abatement looking at the potential financing scheme behind it
Methodology	Project developers should choose one of sectoral-specific methodologies, that are approved by the UNFCCC or other carbon market infrastructure facilitator, only such credits can be safely and surely marketed
Quality standard	Choosing quality standards are a question of socio-economic impacts of the project. When it has such, it is important to select Gold Standards, Social Carbon, Voluntary Carbon Standard or any other applied quality standard, that assures sustainability and increases the price of carbon abatament
Carbon assets and monetisation	Projects result into different products, carbon reductions, that can be monetised, or invested into as asset classes, many of these units, or credit are yet not really investigated as assets: ERUs, CERs, AAUs, RECs etc.
Financing	The financing of the project can be really diverse, there are projects run by banks and other associate investors, technology providers state grants, and a mixture of these. Nowadays the upcoming trend is to be risk-awarse by using carbon funds, state-, mixed- or privat-owned to mitigate the project, and financial risks, and carry out a perfect portfolio of good delivering projects.

Source: Lukacs et al. 2009

Projected emissions reductions occour mainly, because of the financial crisis, and not because of well established emissions reductions incentives based on sustainable financing. The two flexible mechanism, JI and CDM of the Kyoto Protocol are meant to support the reductions of the Kyoto Annex I. and II. nations, but looking beyond the Kyoto Protocol we can state, that the need for domestic offset schemes are more important than before in Central Eastern Europe (Fogarassy, 2009).

JI and CDM are based on international agreement of Kyoto, and not tailor-made for Central and Eastern Europe, rather having a developing world focus as host countries of projects in terms of financing also, therefore CEE has to develop its own way of

financial flow for a low-carbon future, using the available standards and methodologies agreed under the UNFCCC.

This lack of applicability for CEE can be seen, when we look at the project pipeline of CEE in the UNFCCC registry. The number of projects are very small; although there are both structural and host country challenges to improve the JI, CDM, for good reasons, looking beyond these two mechanisms, and looking for the fundamentals of any emissions reductions project can give guidance on how a CEE, voluntary (business incentivised) emissions reduction projects can be designed and financed.Having a look at the project cycle of CDM and JI, we can conclude the challenges, they face, and those points, that can be improved, and simplified in a domestic CEE-en offset scheme (Fogarassy et al, 2008a). CDM and JI projects run in different countries, but since JI is using methodologies of the CDM, and improvement of both mechanisms follow each other, it is the best to look at both of theirs' infrastructure.

2.table. CDM and JI project cycle steps

CDM	JI (track 1 and 2 both)
Project Idea Note (PIN)	*Project Design Document*
Project Design Document	Host and Investor country approval
Host and Investor country approval	Determination
Validation	Final determination
Registration	Monitoring
Monitoring	Verification
Verification and certification	Issuance of carbon credits
Issuance of carbon credits	

Source: First Climate AG

Looking beyond the project cycle we can conclude, that the project cycle is about project financing, and the emissions reductions add up to the better internal return of the project, let it be renewable, or energy efficiency, the final goal is to tailor-made the process, so that emission reductions can become economically viable to invest into. The basic document to look at is always the PDD, that is compiled by the emissions reductions projects' owner, and therefore supplying the most information about the presence and future of the emissions reductions (Fogarassy et al, 2008b). All other steps are necessary steps of the architecture of the CDM and JI for approval under the UNFCCC.

Project Design Document (PDD)

The project design document, or PDD, is the central component in the marketable emission reduction project cycle, and its preparation is a complex task. A comprehensive project design document includes: project description, baselines methodology and assessment of additionality (choosing a baseline approach, adopting or creating a baseline methodology, defining project boundaries, establishing additionality within the boundaries, developing an emissions baseline, projecting emissions, accounting for leakage, calculating net emissions reductions, crediting period, monitoring plan, assessing environmental impacts and stakeholder comments.

A PDD acts as a business plan of the project in terms of carbon monetisation, therefore credible information and risk awareness of this complex document is an essence. In december 2009, a major step was taken to involve the so called smalle-scale projects in a programme-based JI, that is also a great signal for the voluntary market to adjust its PDD development.

JI PoA as the UNFCCC calls it stands for Programm of Activities. A JI PoA is defined as a coordinated action by a legal or governmental entity that implements a policy or stated goal and is comprised of one or more interrelated types of JI programme activities (JPAs). A JPA is a project undertaken under a JI PoA that results in a reduction of anthropogenic emissions by sources or enhancement of anthropogenic removals by sinks that are additional to any that would otherwise occur. A type of JPA is defined by the technologies and/or measures to be used and includes a selection and a justification of the baseline setting and monitoring plan chosen for each technology and/or measure. A JI PoA has the compulsory elements in its PDD (UNFCCC, 2009) so as: „General description of a JI programme of activities (JI PoA)"; „Duration of the JI PoA", „Environmental impacts", „Stakeholders. Comments", „Application of a baseline and monitoring plan for each technology and/or measure under each type of joint implementation programme activity (JPA)".

Results and discussion

From this investor point of view, we list the following challenges, that lay ahead, when carrying out project financing in JI or CDM, and how they can be solved, so as to result in a voluntary carbon abatament scheme.

Size of the project

Corrections for market opening were made in the UNFCCC already, that only certain big projects, those above 50.000 t CO_2e/year abatement are eligible under JI. The smaller projects could have been bundled together in the past to become eligible, and in december 2009, the JI PoA was accepted, the so called Programme of Activites, where smaller projects from the same sector, or programme could become partly financed by JI. People call this the programmatic approach, that has been a major improvement of the UNFCCC flexible mechanisms (Fogarassy et al, 2008c). Looking at aggregated projects, we should call for lower transactional costs, so that aggregated small projects are not held up by huge transactional costs for verification and project management.

Financial additionality

The financial additionality under JI and CDM was always questionned, and hard to measure. Additionality means basically, that no business-as-usual project can participate in the CDM or JI, because they would have anyway carried out, so why using money from CDM and JI, when they are already marketable. This thought has created a set of additionality instruments, modells,

and concepts, that can be applied, once a project is planned. The one, that hit the ground and ran was the measurement of IRR, and NPV for the projects. This created a little bubble around, how project managers should calculate the figures of the project so as become eligible under JI. The most frequently used argument is, that until IRR is above 10 years, and NPV is negative, the porject can use ERUs from JI. So the project financing brings NPV in positive range, at the same time IRR comes close to 8 years in the case of the same project, we can say, that the project became eligible only by carbon financing (Farkas et al, 2009). This way of calculating additionality makes complications, and might result in unintended money bubbled in the project, encouraging business as usual project to be overpriced, therefore causing problems in the system. Another example could be better used, and this is a sectoral benchmarking approach for agriculture and renewables certainly: looking at the statistics, until farmers in Hungary are utilising their animal husbandry manure in let's say under 25% of the whole animal husbandry sector in Hungary, they should be eligible tor un JI based biogas projects. As soon as they reach the treshold of 25%, biogas production is not anymore additional, since technology is available on market price, and technics, infrastructure, and know-how is there to deploy information, and boom a biogas technology market. After this treshold, farmers applying cleaning of the biogas for biomethane could become the new additionality criteria for a treshold of 25% again. This can result in rapid technology shift both, and no money wasted in IRR and NPV calculations, and potential overpricing.

Validation, verification, audit

Validation of the project design document (PDD) by a so-called Designated Operational Entity, and independent thirs party is important to validate the PDD, and those project documents, that improve the success factor of registration of the project. At the same time, here a project developer fee is charged for such a validation, that can increase the time period of the project, and extend its budget.

Conclusions

Price of carbon abatement is a crucial figure, when deciding about investment into emissions reductions. Because of cheaper resource price we can state, that CEE cannot really compete with e.g. China or India, which countries mean the low-hanging fruit in terms of best and cheap projects for investors. At the same time, European companies, having a strong market interest in CEE, aiming to reduce their emissions by using JI or CDM are much likely to look for possibilities in CEE too, not only looking at carbon abatement price. Tol let this interest become financing tool for CEE low-carbon growth, price of carbon abatement should be calculated for sectors, and projected for the future, to raise interest in a more transparent CEE-en market economy to reduce emissions. Lower political and country associated risk can improve the position of CEE to invite low-carbon financing. The total market for emissions reductions in CEE are small, compared to single countries, like China, being able to make huge steps in energy efficiency. Ukraine and Russia have huge surpluses of AAUs to bring on the market, classically known as „hot air assets", which can compete with the JI and CDM market in the future, but being closed from private capital at the moment. Markets can be scaled up, when there are certain methodologies developed for emissions reductions, some of those much likely needed, because of the positive externality impacts: biogas, bioethanol, biodiesel, biomass methodologies.

References

EEA Report (2008) Greenhouse gas emission trends and projections in Europe 2008, Luxembourg: Office for Official Publications of the European Communities, 2008

Farkasné Fekete M., Fogarassy Cs., Szűcs I. (2008) Az externális hatások figyelembevétele a hatékonysági számításoknál. In: Szűcs István, Farkasné Fekete Mária (szerk.) Hatékonyság a mezőgazdaságban: elmélet és gyakorlat. Budapest: Agroinform Kiadó, 2008. pp. 114-122. (ISBN:978-963-502-889-4)

First Climate - Project Financing (2009), www.firsclimate.com

Fogarassy Cs. (2009) Karbongazdaságtan. OBEKK Tudományos Közlemények – Szent István Egyetemi Kiadó, Gödöllő, 2009, ISBN 978-963-269-140-4
http://www.rgvi.gtk.szie.hu/upload_files/KarbongazdasagtanFogarassy.pdf

Fogarassy Cs., Lukacs A., Huba B. (2008a) GIS links to the voluntary market: CO_2 mitigation potential of agriculture manure management. „Facilitating Green Investment Schemes: first lessons learnt and way forward" 24-25 April 2008, Budapest, REC Hungary, 2008

Fogarassy Cs., Lukács A., Nagy, H. (2008b) Potential benefits of linking the Green Investment Scheme of the Kyoto Protocol with institutional voluntary markets like the Chicago Climate Exchange. ENVECON – UK Network of Environmental Economics, Royal Society, London, 2008

Fogarassy Cs., Lukacs, A., Böröcz, M. (2008c) Basic structure of CO_2 emission management practice in agricultural land use. VII. Alps-Adria Scientific Workshop, Stara Lesna, Slovakia, 2008

Lukács A., Fogarassy Cs., Borocz M. (2009) Carbon management in the agricultural production and consumption: Foodstuff production vs. nonfood agricultural production utilisation. In: Delhi Business Review – An International Journal of Society for Human Transformation & Research. Vol. 10, No.2, July-December, 2009 p. 105. IF: 3,0

UNFCCC (2009): JI PoA description, www.unfccc.int