

Clean Development Mechanism & Joint Implementation - Economic potentials and practical requirements of the Kyoto- Mechanisms in business practice

An overview provided by Perspectives GmbH, Hamburg / Zurich

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Overview

- Introduction: The project-based Kyoto-Mechanisms
- Who can profit from CDM & JI?
- The CDM project cycle
- The JI project cycle
- Risks
- Current developments
- Services offered by Perspectives

Introduction: The project-based Kyoto-Mechanisms

The Clean Development Mechanism (CDM) and Joint Implementation (JI) are project-based mechanisms, laid down in the Kyoto Protocol within the framework of the UNFCCC in 1997. On the one hand, they serve as a tool for the achievement of companies' or state's emission targets under minimum costs. On the other hand, they provide an economic incentive for investments in technologies aiming at climate protection.

The CDM and JI proceed as follows: the realisation of a climate protection project – e.g. an increase in the efficiency in power stations, the use of renewable energies, or the capture of landfill gas – leads to a reduction of greenhouse gases (GHGs), as e.g. CO₂, in the host country. These reductions are quantified and credited in the form of certificates. The certificates, in turn, can be sold, traded and used by other companies or states for compliance with their emission targets.

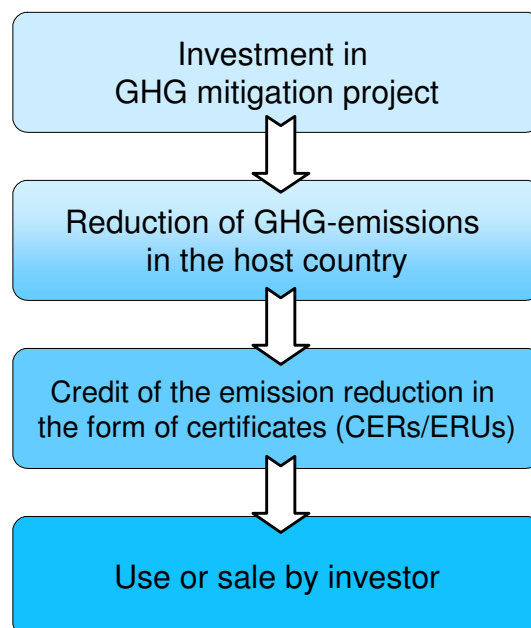


Figure 1: Flow chart project-based Kyoto-Mechanisms

CDM projects are, by definition, carried out in developing countries, and JI projects in industrialised countries. The formal requirements and approval processes of the two mechanisms are different, as shown in the subsequent sections of this paper. CDM projects can already generate certificates since 2000, JI projects not until 2008.

Who can profit from CDM & JI?

The project-based Kyoto mechanisms allow for classic win-win-situations: both the project developer / investor and the buyer of the certificates can profit economically.

Through the CDM /JI, project developers and/or investors tap new sources of revenues (sale of certificates), which can make the project attractive. Taking a wind energy project as an example, besides the remuneration for the electricity supplied, additional revenue can be generated through the sale of certificates. In the case of landfill gas capture – either with or without energy recovery in combined heat and power plants – a similar situation arises. Even if, in most cases, these additional revenues can only be realised after the implementation of the project, they represent positive components for creditors in the requests for financing.

Operators of installations covered by the EU-emissions trading scheme (EU-ETS) stand a chance to reduce their compliance costs with CDM and JI: While the price for EU-allowances currently is around 18 - 20 €/t from 2008 onwards, reduction certificates of the CDM are available on the market for 7 - 12 €/t, depending on the risk and liability rules. For an installation with an annual shortfall of CO₂ emission allowances amounting to 2,500 t, the use of the project-based Kyoto mechanisms can yield potential cost-savings from 12,500 to 31,250 €/year.

Deficiency t Co₂-eq	Price difference EU-allowances - reduction credits			
	5 €/t	7.5 €/t	10 €/t	12.5 €/t
1,000	5,000	7,500	10,000	12,500
2,500	12,500	18,750	25,000	31,250
5,000	25,000	37,500	50,000	62,500
7,500	37,500	56,250	75,000	93,750
10,000	50,000	75,000	100,000	125,000

Potential for cost reductions through CDM/JI

The so-called EU-Linking-Directive allows operators of installations to credit the CDM-certificates (so-called „Certified Emission Reductions, CERs) from 2005 and the JI-certificates (so-called „Emission Reduction Units, ERUs) from 2008 onwards against their emission targets.

CDM and JI can especially be advantageous in the long run: if the German objectives for 2020 win recognition (reduction of EU emissions by 30% compared to 1990 levels; reduction in Germany by 40%), the prices for emission allowances are likely to rise considerably.

Typical CDM project cycle

Prior to the generation of reduction certificates of a climate protection project, the project first needs to be registered and approved by the international climate secretariat. The therefore necessary formal process is complex; the approval of projects is dealt with restrictively. The basic steps of the CDM project cycle are shown in figure 2 and explained briefly in the following.

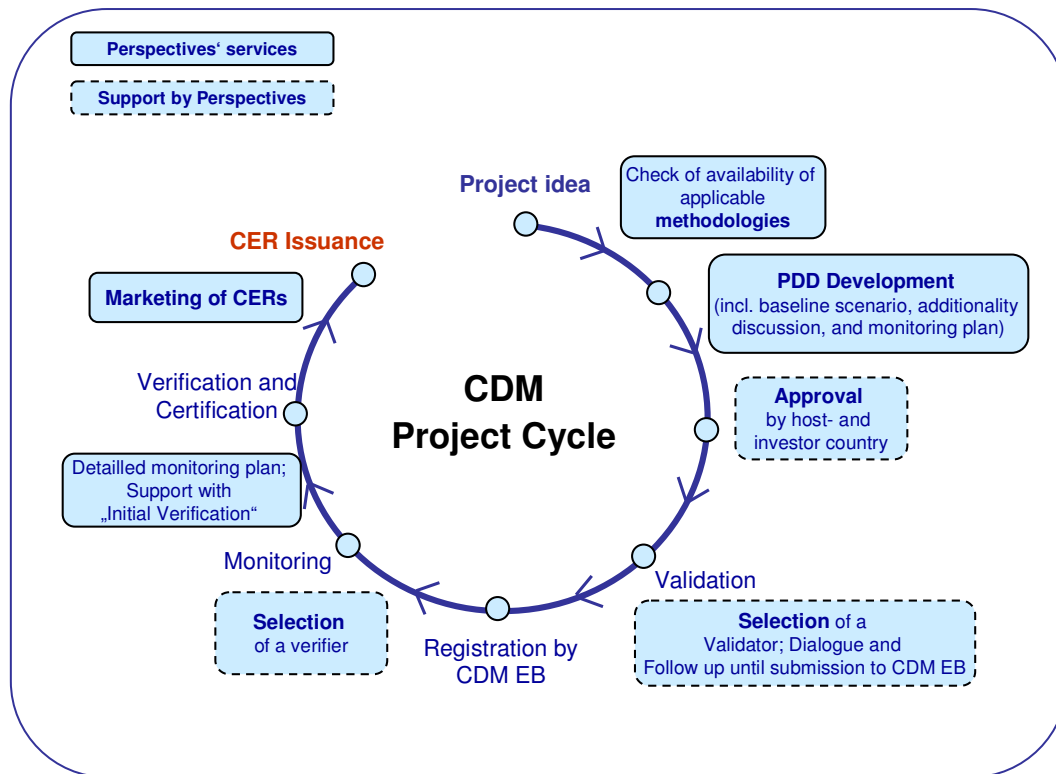


Figure 2: Basic steps of the CDM project cycle

As a basis for the approval by the decision-making body of the UN climate secretariat - the CDM Executive Board - CDM project developers have to develop a project documentation (Project Design Document, PDD). Besides the host country's confirmation to support the project, the baseline and the proof of additionality are the most important elements. The baseline is a reference scenario that quantifies the emission reductions of the project activity. The vital question is: How would the emission situation be in the absence of the project? The international comprehensive body of legislation allows the choice between three baseline-approaches. However, a stringent consideration of the individual circumstances is indispensable. The subsequent figure reveals the numerous possibilities. For the success of a CDM project, it is important to develop a competent baseline for approval. Past experience shows that this is often non-trivial.

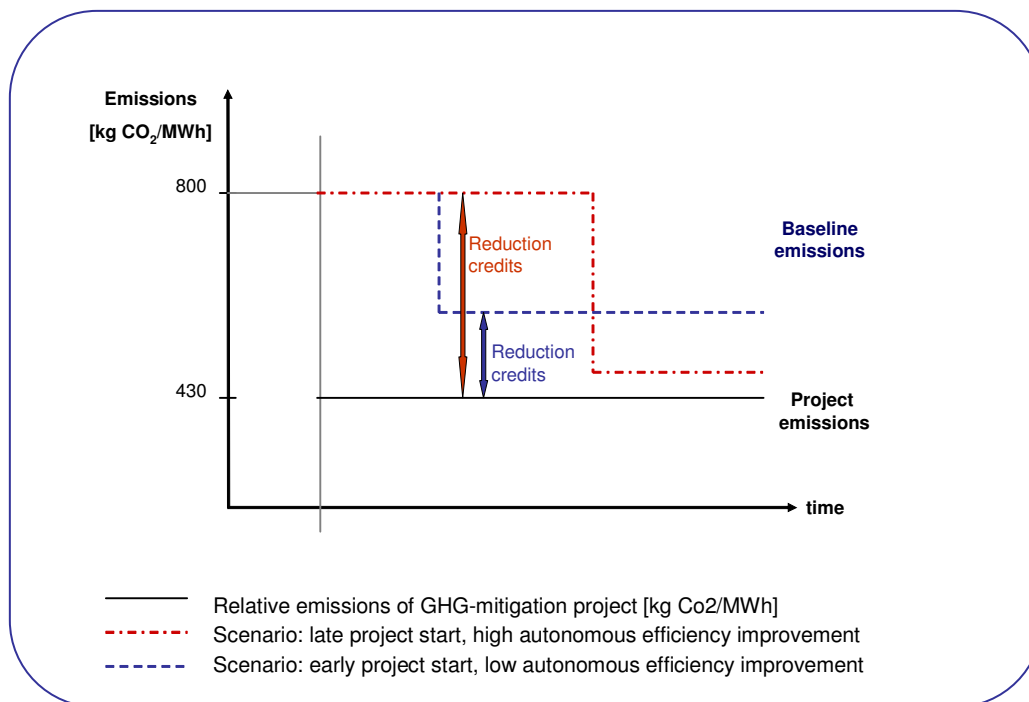


Figure 3: Baseline scenarios as means to calculate emission reductions

Another fundamental element for the approval is the proof of the project activity's additionality. Projects that would have been realised „anyhow“ because they are economically viable are not to be approved. The additionality proof is made via the analysis of economic, technical and political parameters. Moreover, a monitoring plan has to be established, stating which factors need to be monitored and recorded for the calculation of the effective reduction of the project activity.

Perspectives has long term experience in the development of project documentations and works with its clients on coherent methodologies and project documentations that are competent for approval.

Prior to the validation of the projects through an independent body, the host country has to consent to the project. A corresponding application needs to be made to the competent authority by the project developer. The requirements for the projects vary from host country to host country. Therefore, it is recommended that the project developer is familiar with the prevailing regulations at an early stage. The country, to which the potentially generated certificates should flow (mostly the industrialised country where the investor / project developer stems from), has an approval authority, too. It has to approve the transfer of CERs prior to the validation.

Perspectives informs its clients about the requirements of the corresponding host- and investor country, potential obstacles in the project approval as well as possibilities to overcome these obstacles early.

The established documents, including the corresponding approvals, are validated by an independent site before submission. If the CDM Executive Board approves a project, it will be officially registered with the climate secretariat. After the implementation of the project and the commissioning of the installation respectively, monitoring is carried out. At regular intervals, the project activity can be confirmed by an independent certifier who then applies for the issue of the corresponding certificates. The CDM-Executive Boards keeps 2% of the CERs as a form of „administrative fee“. In addition, it is compulsory for new project types (*project types that are not yet registered as CDM projects*) to establish a new baseline methodology.

Simplified processes and rules apply for small-scale projects, e.g. renewable energy projects with less than 15 MW capacity, efficiency improvement projects that lead to reductions of up to 15 GWh/a, and other projects that result in emission reductions and emit less than 60,000 t CO_{2-ec}/a. Compared to regular projects, the expenses for registration and monitoring for small- scale projects are much lower.

Typical JI project cycle

Joint Implementation is carried out in industrialised countries, and therefore covers many Eastern European countries and potential accession countries. The competent authority for JI projects on the part of the UN is the Supervisory Committee that still has to be created. The formalities and precise requirements for JI projects depend on the corresponding host country. If a host country does not fully comply with its reporting duties according to the Climate Convention, a procedure similar to the CDM process applies. With JI projects, it is also necessary to establish reference scenarios and to allow the documentations to be checked by independent sites.

In case the host country complies with all its reporting duties, there is no formal process to stride through. Hence, the quantification of emission reductions can include negotiation elements. Recently, several host countries, e.g. Rumania, announced that they will introduce standardised, formal procedures. An approval of the investor country is also required for JI projects.

If a JI project should be realised in a EU member state, interactions with the EU emissions trading have to be taken into account. As there is a danger of double counting (direct or indirect), the EU Commission adopts a very restrictive position on this issue. As a rule, the Aquis Communautaire needs to be considered in EU accession countries when establishing the baseline.

In the area of JI, Perspectives is available to aid in the development of project documentations and to provide support in the approval process in host- and investor country.

Risks

The economic and environmental opportunities of the project-based Kyoto-Mechanisms face several risks as well, which shall be named here openly.

For project developers, the highest risk lies possibly in the denial of approval by the international bodies. A sound and transparent application can prevent that from occurring. Moreover, it is necessary to calculate a relatively long lead time from the project idea to the generation of the first certificates - from 6 months up to 2 years. A lack of demand is not to be feared, as will be illustrated below.

The requesters of certificates are confronted with a failure-of-delivery-risk, which again can be minimised by a pre-check of the offered projects and a skilful portfolio management. In case no medium till long term planning is realised, it is possible that a short term demand of CERs / ERUs cannot be covered due to a bottleneck in the supply on the still young market. In this case, the implementation of an early strategy development that includes the different options, e.g. OTC-trades, derivative-trade, funds' investment or own investments, is recommended.

Current developments

Today, a wealth of „CO₂ certificates“ exist that are subjected to different rules and have special purposes of implementation. The following figure provides an overview on this.

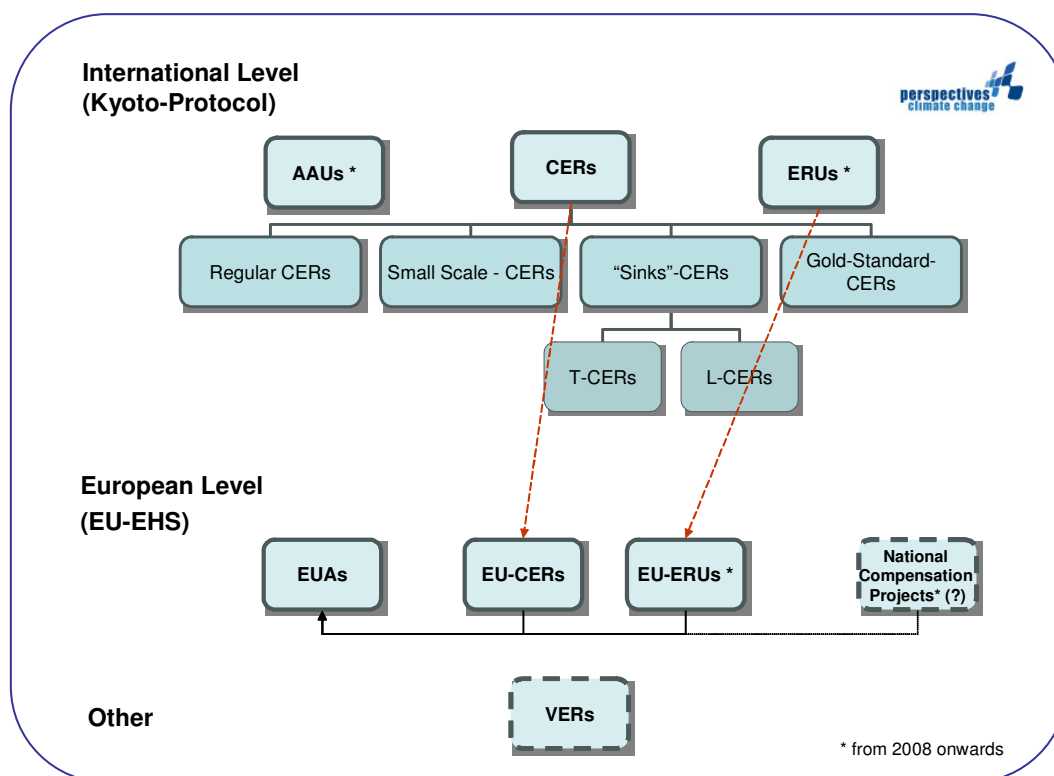


Figure 4: Certificate types on the international and European level

The demand side of reduction certificates experienced a clear upturn during the past two years. The governments of the EU alone initiated purchasing programmes with an accumulated volume of closely 2 billion € for the next six years. In addition, there are more purchasing programmes of international organisations, e.g. the Japanese government's programme worth nearly \$400 million. In total, there exist more than 25 state-run or private sector purchasing programmes at this point. Their terms certainly differ, so that a sound comparison should precede the choice.

Perspectives will assist you to identify the most favourable purchasing funds for your needs. Here, Perspectives uses its detailed and latest knowledge of the funds and their terms.

Figure 5 represents the actual CDM-Pipeline (projects with submitted to the CDM EB), subdivided by project types. Until 2012, about 1,100 million CERs are officially expected from these projects. Based on our experience with CDM-project, however, Perspectives only expects about 650 million CERs from these projects.

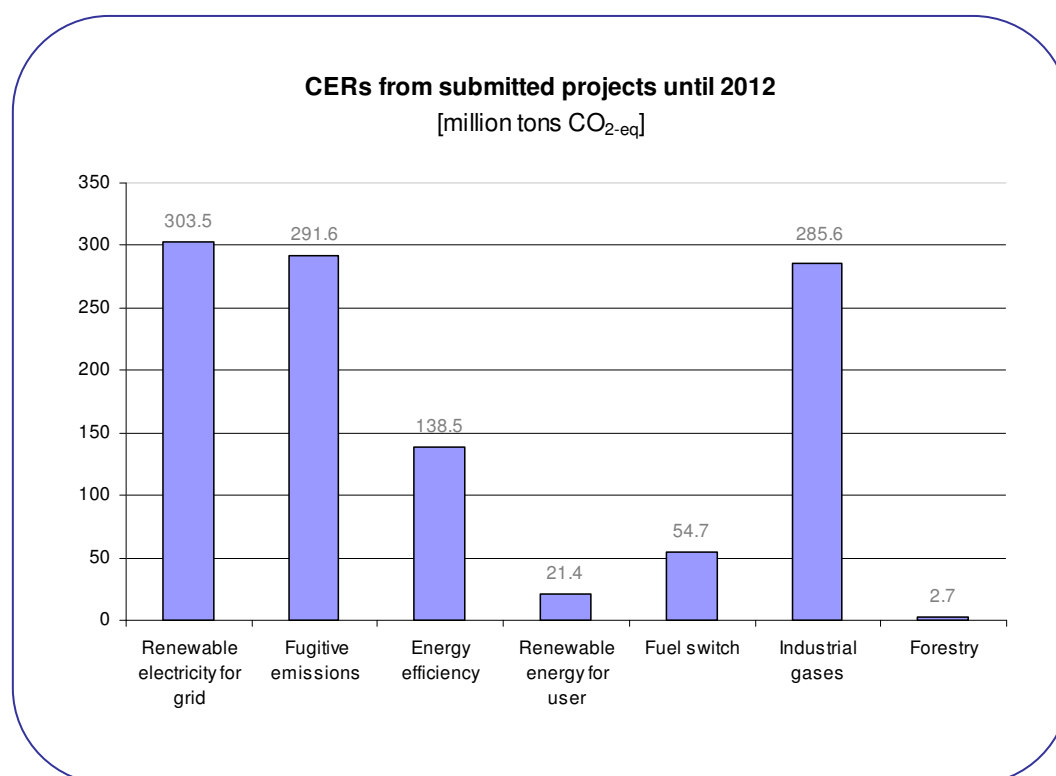


Figure 5: Number of CERs until 2012 from presently submitted CDM projects with approved baseline methodologies in million tons as of March 2007.

As of early March 2007, approximately 500 CDM projects were registered, i.e. they have completed the approval process. In addition, more than 4,500 CDM and JI project ideas are known world wide, of which about 50% are already in the advanced stage (Source: Point Carbon, 2007). The decisive question is how quick these projects will be submitted and approved.