

Application of the Oeko-Institut/WWF-US/ EDF methodology for assessing the quality of carbon credits

This document presents results from the application of version 3.0 of a methodology, developed by Oeko-Institut, World Wildlife Fund (WWF-US) and Environmental Defense Fund (EDF), for assessing the quality of carbon credits. The methodology is applied by Oeko-Institut with support by Carbon Limits, Greenhouse Gas Management Institute (GHGMI), INFRAS, Stockholm Environment Institute, and individual carbon market experts. This document evaluates one specific criterion or sub-criterion with respect to a specific carbon crediting program, project type, quantification methodology and/or host country, as specified in the below table. Please note that the CCQI website [Site terms and Privacy Policy](#) apply with respect to any use of the information provided in this document. Further information on the project and the methodology can be found here: www.carboncreditquality.org

Sub-criterion:	1.2 Vulnerability
Project type:	Recovery of associated gas from oil fields
Date of final assessment:	31 January 2023
Score:	3

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Assessment

Relevant scoring methodology provisions

In market situations where the supply of carbon credits from already registered and implemented projects considerably exceeds the current and expected future demand for carbon credits, the purchase of carbon credits does not necessarily trigger further emission reductions. The methodology therefore evaluates for carbon credits in collapsed markets whether the projects would continue to reduce GHG emissions even without carbon credit revenues, or whether they are at risk of discontinuing GHG abatement without these revenues. In the latter case, they are classified as vulnerable projects. The methodology employs a stepwise approach for assessing the vulnerability of the respective project type or individual project:

- Step 1: Evaluate whether the relevant market of the carbon credit can be characterized as collapsed (see methodology for further details). Note that currently, this situation only applies to the CDM.
- Step 2: Identify potential continuation and discontinuation scenarios. If applied on the project type level a representative sample of projects can be assessed.
- Step 3: Evaluate how applicable legal requirements affect the feasibility of the scenarios identified in step 2. Apply this step to both continuation and discontinuation scenarios. Remove scenarios that could not be pursued due to applicable laws and regulations. This step may be applied at project or project type level in the context of a specific host country or at the level of the carbon crediting program (see methodology for further details).
- Step 4: Assess financial benefits and costs and rank the remaining scenarios in order of their financial attractiveness by performing a cost-benefit analysis of each scenario. The financial attractiveness of a project depends on whether its income exceeds the operational expenditure in the absence of carbon credits. Only OPEX and benefits are therefore considered in the analysis. Exclude costs and benefits that occur under all scenarios in a uniform manner.
- Step 5: Assess whether any of the scenarios faces non-financial barriers that exclude it from being the course of action. For conducting the barrier assessment, the same approach described in section 1.1.4 is applied using an expert judgement. Remove all scenarios that face non-financial barriers and are scored at 5 or 4 from further consideration.
- Step 6: Determine the most likely project scenario. The highest ranked remaining scenario is the likely course of action. If this is a continuation scenario, the project is deemed to have a low vulnerability to discontinue GHG abatement (score of 1). If the scenario is a discontinuation scenario, and it is either the only remaining scenario or any other scenarios are financially significantly less attractive, then the vulnerability is deemed to be high (score of 5). In other instances, e.g. where a continuation and discontinuation scenario may be equally plausible, no clear conclusion can be drawn on vulnerability (score of 3).

Degree of Vulnerability	Score
High Vulnerability	5
Vulnerability not conclusive	3
Low Vulnerability	1

Information sources considered

- 1 CDM Database for PAs and PoAs, Data accessed on 25 May 2022. Downloadable as excel spreadsheet under <https://cdm.unfccc.int/Projects/projsearch.html>
- 1 VCS registry. Data accessed on 25 May 2022
<https://registry.verra.org/app/search/VCS/Registered>
- 2 Voluntary Registry Offsets Database v5, Goldman School of Public Policy, University of California Berkeley. <https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database>

Assessment outcome

The project type is assigned a score of 3.

Justification of assessment

Step 1: Per the guidance in the methodology the CDM market is collapsed. There are currently 25 registered projects under the CDM. All other markets relevant for this assessment (ACR, CAR, GS and VCS) are considered functioning.

Step 2: The following continuation or discontinuation scenarios have been identified:

- Scenario 1: Mitigation activity continues as originally designed and implemented, and at the same scale.
- Scenario 2: Mitigation activity continues but at a smaller scale as only the liquid parts of the associated gas from oil exploration will be captured and prepared for utilization. The gaseous parts, however, will be vented or flared as in the situation prior to the project activity.
- Scenario 3: Mitigation activity discontinues as project owners will cease to operate the equipment necessary for the activity.
- Scenario 4: Mitigation activity discontinues as project owners will dismantle the equipment necessary for the activity.

Step 3: Most jurisdictions have legal requirements that limit the extent to which flaring or venting of the associated gas from oil exploration can occur (see also the respective assessment for sub-criterion 1.1.1.) For this reason, there is a possibility that new legal requirements are introduced or that existing legal requirements are enforced after a project is implemented. In this case, the mitigation activity might continue. It is difficult to assess, however, how often such a situation could occur. As there is no conclusive outcome on this step, the following steps are applied.

Step 4: As the assessment is conducted on the project type level, the relationship between revenues other than from carbon credits and operational expenditures (OPEX) was analysed for a sample of projects. The sample was constructed as follows:

- The project databases of the Clean Development Mechanism (CDM) and Verra’s Verified Carbon Standard (VCS)¹ were searched for projects of the project type, since these are the only two programmes that offer registrations for this project type.
- For the projects identified in each of the registries a search was performed whether they provide the necessary detailed information on their financial viability that is required for performing the assessment. In particular, the assessment requires the following data:
 - A time series of revenues other than from carbon credits over the operational period of the project
 - A time series of OPEX over the operational period of the project
- For the CDM, there are currently 28 projects with an active reference number. These have varying status with the program (registered, rejected, withdrawn, etc.). Furthermore, there are two VCS projects falling within our definition of this project type.
- A review of key project information for each of the 30 projects showed that 18 CDM projects and one VCS project² provide the financial information required for performing the assessment. Therefore, these 19 projects form the input for the data sample constructed for the assessment.
- All projects provide this information in a separate excel spreadsheet, which was downloaded for each project.

For constructing the data sample, the following information was directly retrieved from each excel spreadsheet for each project and transferred in a central excel spreadsheet created for conducting the analysis:

- The project ID
- The project start date
- The host country
- The host country region
- The currency and its unit used by the project proponent to present financial information (e.g., “10,000 RMB”)

In addition to this basic information, for each project the revenues other than carbon credits and the OPEX were considered. All projects provide this information as a time series over the full operational period of the project. However, while some projects indicate the actual years for the time series (2007, 2008, 2009, etc.) others only indicate the respective period (period 1, period 2, period 3, etc.).

¹ However, as the Verra Registry for the Verified Carbon Standard (Source 2) does not allow for filtering its entries by this project type, the UC Berkeley Voluntary Registry Offsets Database v5 (Source 3) was used in an initial step to identify the respective VCS projects.

² Generally, the VCS registry does not provide project registration documents with detailed financial information. However, as the VCS project 1166 was registered under the CDM before it was transferred to the VCS, there is access to the financial data submitted for CDM registration. This data is the basis for our assessment.

Consequently, this information was harmonized. The construction period was not considered for the assessment.

For each project, the information provided was reviewed in detail to identify the correct values for revenues and OPEX. Most projects accrue revenues from the sale of the associated gas from oil exploration. In a few cases however, projects indicate savings in gas expenditures instead, suggesting that the operation of their oil exploration site relies on gas purchases, which will partly be replaced by the on-site production of gas following the project implementation. Furthermore, there are projects which included avoided flaring or venting fees and recovered capital in their cash flow calculations. All these data have been considered in our calculations for the revenues except from carbon credit sales.

Regarding the OPEX, there are also categories which were not incorporated uniformly in the financial information across all the analysed projects, including value added tax, government contributions and other surcharges, insurance fees and royalties. Since these expenditures would presumably cease by the time the mitigation activity ceases, they were considered for the analysis where available.

Finally, the costs and revenues were compared for each project in each period. The results of the assessment are shown in Table 1 below. Green shaded cells indicate that the revenues other than carbon credit revenues exceed OPEX in the relevant period, while red shaded cells indicate the opposite.

Based on the outcome of this calculation, projects are assigned to different groups of projects with similar patterns in the relationship between revenues and costs (see Table 2). For each group, a statement is made whether the likely course of action for this group of projects is to continue or discontinue the mitigation activity.

For groups 1 and 2, consisting of 15 out of the 19 projects, there is a high likelihood that project owners will continue the mitigation activity even without revenues from carbon credits. For these projects revenues exceed OPEX in all or most periods.

For the group 3, comprising four projects, the assessment remains inconclusive. For these projects, OPEX begin to exceed revenues after a certain period without revenues returning to exceeding OPEX afterwards.

Table 1 **Difference between revenues other than from carbon credits and OPEX for selected projects of the project type**
Recovery of associated gas from oil fields

ID	Year	Country	Cur.	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<u>CDM</u>																									
1144	2004	ID	USD	100,000	-0.6	83.0	83.0	17.0	17.0	13.4	13.4	13.4	13.4	13.4											
2029	2007	NG	USD	100,000	156.5	372.3	372.3	372.3	372.3	372.3	372.3	351.9	332.1	292.0	271.6	203.3	200.7	200.3	201.2	201.2	199.9	199.5	66.6	54.6	
2126	2003	IN	INR	1,000,000	33.3	33.3	33.2	33.1	28.0	27.6	27.2	26.8	26.3	25.9											
2422	2006	IR	USD	100,000	6.0	8.6	5.5	2.1	-0.8	-3.9	-5.8	-10.7	-14.4	-16.2	-20.4	-21.4	-22.3	-23.3	-24.3	-24.8	-25.7				
2908	2007	CN	RMB	1,000,000	70.5	65.5	60.3	53.0	46.9	41.2	35.6	30.7	26.8	24.6											
3208	2006	MX	MXN	1,000,000,000	149.9	146.5	146.5	141.9	128.2	113.9	100.7	90.1	80.4	71.5	64.1	57.3	50.7	45.0	40.1						
6008	2009	ID	USD	100,000	62.7	49.3	51.9	56.5	52.8	50.8	29.0	11.9	-5.1	-20.8											
6817	2008	OM	USD	100,000	1.0	27.6	60.3	64.2	59.7	78.3	63.4	55.1	45.2	39.6	36.4										
8286	2010	IN	INR	1,000,000	27.6	52.2	55.9	59.8	63.9	68.4	73.1	78.1	83.4	89.1											
8659	2012	CO	COP	100,000	70.1	101.6	114.4	114.4	114.4	114.4	114.4	114.4	114.4	110.4											
8788	2008	CN	RMB	1,000,000	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8											
9023	2011	ID	USD	100,000	-6.7	187.2	146.2	83.8	45.0	16.3	0.6	-13.3	-13.3	-13.3	-34.4										
9193	2010	TH	THB	100,000	30.1	29.2	26.7	28.8	26.7	29.2	25.4	27.9													
9358	2012	TT	USD	100,000	17.9	18.1	18.4	18.6	18.8	19.1	19.4	19.6	19.9	20.2	20.5	20.8	21.1	21.5	21.8	22.2	22.6	23.0	23.4	23.8	
9400	2011	AE	USD	100,000	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9
9892	2014	KW	KWD	100,000	15.1	15.8	16.6	17.4	18.2	19.1	20.0	20.9	21.9	22.9	23.9	24.9	26.0	27.2	28.3	29.6	30.8	32.1	33.5	34.9	
10108	2015	IN	INR	1,000,000	34.8	38.8	46.7	51.7	53.8	56.7	52.5	55.2	58.1	52.4	57.8	63.8	56.0	47.5	38.0	27.6	32.4	37.8	44.0	51.0	
10584	2019	OM	USD	100,000	31.4	31.6	30.7	31.0	37.7	32.6	26.4	20.1	10.5	9.3											
<u>VCS</u>																									
1166	2012	CN	RMB	1,000,000	171.9	192.9	218.5	171.8	114.5	68.1	24.8	-10.7	-39.1	-60.7											

Source: Own calculation based on information provided by project documents.

Table 2 **Assessment of vulnerability for project sample**

Group	Project IDs	#	Description	Likely course of action
1	2029, 2126, 2908, 3208, 6817, 8286, 8659, 8788, 9193, 9358, 9400, 9892, 10108, 10584	14	Revenues exceed OPEX during all periods of project operation. Continuing the activity is therefore the most likely scenario for these projects.	Continue the activity
2	1144	1	Revenues exceed OPEX during all periods of project operation except for the first periods. ³ As revenues exceed OPEX for all following periods, it is likely that the activity will be continued.	Continue the activity
3	2422, 6008, 9023, VCS 1166	4	<p>OPEX exceed revenues for several years at the end of the project operational period. This could however be true also under the scenario with revenues from carbon credits as there are</p> <ul style="list-style-type: none"> a) no anticipated emission reductions for the respective periods (2422), or b) forecasts of emission reductions to rapidly decrease in the second half of the activity (6008), or c) no calculations which take into account carbon credit revenues (9023, VCS 1166). <p>Therefore, the consideration of carbon credits may not affect the decision of the continuation of these projects in the respective periods.</p>	Inconclusive

Source: Own compilation.

³ This is because in these periods a low sales volume of associated gas products and high rental costs for compressors occur at the same time.

Step 5: It is assumed that non-financial barriers would be an immaterial factor affecting whether these kinds of projects will continue or discontinue in the event of a market collapse.

Step 6: The most likely scenario for the project type cannot be clearly identified. Comparing OPEX against revenues for each project over its respective operational period, we concluded that 15 of the 19 projects analyzed have financial incentives for continuing the activity. The likelihood of a partial continuation of the project (scenario 2 as outlined above) is deemed rather low, considering that many jurisdictions restrict routine venting or flaring of associated gas (even if only partially). However, some important oil producing countries such as Russia or Brazil do not have such restrictions in place. The scenario therefore cannot be fully excluded when assessing the likely course of action for the project type on a global level. Per the methodology, the vulnerability analysis is therefore inconclusive and the project type is assigned a score of 3 under the CDM.