

RECOMMENDATIONS FOR COMPLEMENTARY CRITERIA FOR COMPLEX MEASURES, SIGNAL TO NOISE RATIOS

(Version 01)

I. Introduction

1. In order to be eligible for small scale methodologies the following limits apply currently:

Project participants shall demonstrate in the CDM-SSC-PDD that the project activity characteristics are defined in a way that precludes project activities to go beyond the limits:

- *For Type I: project participants shall provide proof that the installed capacity of the proposed project activity will not increase beyond 15 MWe;*
- *For Type II: project participants shall provide proof that the efficiency improvements do not exceed the equivalent of 60 GWh per year every year throughout the crediting period;*
- *For Type III: project participants shall provide an estimation of emission reductions of the project activity over the crediting period and proof that the emission reductions every year will not go beyond the limits of 60 ktCO₂e/y over the entire crediting period.*

2. These limits were changed in 2007 for Type II (15 GWh to 60 GWh) and for Type III (15 ktCO₂e/y project emissions to 60 ktCO₂e/y emission reductions). Analyses of project data (please see below) indicate that the changed thresholds for Type III have been effective in ensuring that projects involving high levels of emission reductions do not qualify as Small Scale CDM projects.

3. For Type II projects, the analyses indicate there has been no discernible impact on project registration (size and number) due to the increased limits. With respect to Type I projects, analysis of project data show no particular patterns, except that some of the renewable energy projects such as solar, wind and cook stove projects have low equipment utilisation rates (usage hours) as compared to other types such as biomass and hydro.

4. In another issue related to small-scale methodology applicability, there have been a significant number of projects under validation that are industrial energy efficiency projects applying AMS-II.D (>55%). The Board recently rejected a SSC Type II methodology recommended by the SSC WG on the grounds that the signal to noise ratio was low in the project (400 ktCO₂/y project emissions as compared to less than 60 ktCO₂/y emission reductions). Thus, we interpret the intention of the Board to be that while SSC methodologies should remain relatively simple and broadly applicable, there may be a need to address limiting industrial project applicability to those that (a) require only relatively simple analyses for purposes of maintaining conservativeness and (b) have high signal (emission reduction) to noise (baseline and/or project emissions) ratios. We are also assuming that while the Board may want to encourage small scale CDM projects implemented in comprehensive and integrated manner so that they maximize emission reductions, e.g., multiple energy efficiency improvement projects in a single facility, this must be done only for such small-scale projects that have high signal to noise ratios and/are not so complex they require the type of analyses found in large scale methodologies to conservatively determine emission reductions.

II. Recommendations

5. Based on the issues introduced above and the background information provided below, the SSC Working Group is making the following three recommendations to the Executive Board:

- (a) No changes should be made to the small-scale threshold limits for Type I, II, or III projects.
- (b) The Board may wish to consider introducing new threshold criteria for Type II and Type III projects and methodologies pertaining to measures that take place in industrial facilities. The criteria can take the form of a minimum signal to noise ratio and industrial methodology procedures. These can be either in the form of a requirement in specific methodologies applicable to industrial projects and/or in a general guidance document. The suggested criteria are:
 - (i) Industrial projects with annual emission reductions (ex-ante) less than or equal to 10% of the baseline annual emissions (ER/BE) are not eligible to apply SSC Type II or Type III methodologies. Individual industrial projects with (ER/BE) in the range 10%-20% shall be determined to be appropriate for utilising a SSC Type II or Type III methodology only if it can be shown that their baseline and project emissions can be simply and conservatively documented.
 - (ii) For industrial projects in which the baseline energy use/emissions of the equipment affected by the Type II or Type III measure(s) can be isolated, through conservative analysis and/or measurement, from the energy use/emissions of the rest of the facility, the isolated baseline energy use/emissions can be used for determination of the percentages indicated in (a). An example of such a situation could be a project at a facility providing utilities to an industrial activity (e.g., heat, electricity, water supply, wastewater treatment, etc).
 - (iii) With respect to this guidance industrial projects are defined as those that take place at facilities that are engaged in mining, raw material extraction or processing, manufacture or modification of products, waste or energy (e.g., electricity) supply, and sewerage, waste management and/or remediation activities. These are as indicated as activities B, C, D and E in the United Nations' International Standard Industrial Classification of All Economic Activities.

III. Background on Impact of New Limits Applied by EB in 2007

Context

6. SSC thresholds were originally defined in paragraph 6.c of 17/CP.7. Per paragraph 31 of 7/CMP1, the Board was invited to review the SSC thresholds and if necessary make appropriate recommendations to CMP.

7. EB 24 was of the opinion that the Type III project thresholds defined in terms of project emissions would not restrict the size of projects appropriately ("The Board noted that Type III project activities may be able to achieve significant emission reductions, without exceeding the direct emissions limits i.e.,15 kilo tonnes CO₂e....." see EB 24, paragraph 64). Subsequently EB 26 recommended a revised threshold for Type II and Type III projects which resulted in the current SSC thresholds defined by CMP.2 as in table 1 below. Type I thresholds remained unchanged. Restricting the Type III projects to be within a reasonable size limits, eliminating any

barriers to energy efficiency projects due to SSC thresholds and to achieve an equivalence of limits for all the three project types seems to have been the priority of the Board at the time¹. A hypothetical 15 MW generator operating at 45% utilisation rate (4000 hrs /8760 hrs) was considered together with the data on CDM pipeline for the purpose of making a recommendation to CMP.

8. This paper analyses discernible impacts of the revised thresholds, if any, on the CDM pipeline and if there are emerging issues related to thresholds.

	Type I Renewable Energy Projects	Type II Energy Efficiency Projects	Type III Other Projects
Before January 2007 (as per 17/CP.7)	15 MW installed capacity	15 GWh/y energy savings	15 kt CO ₂ e/y direct project emissions
After January 2007 (as per 1/CMP.2)	15 MW installed capacity	60 GWh/y energy savings	60 kt CO ₂ e/y emission reductions

Table 1. SSC Thresholds in 17/CP.7 and 1/CMP.2

Method of analysis

9. Evolution of SSC CDM project pipeline over time is graphically presented (period before CMP.2 and period after CMP.2 is included); a vertical line (red) in the charts indicates the transition to new SSC thresholds.

10. Size of the each of the SSC Project in kilo tons of emission reduction per year is plotted on the y axis against the relevant dates (for example when the request for registration was made). Although most of the data is from registered projects, data on some validating projects is also included. Data from UNFCCC database has been used. For increased reliability of data analysis and cross check, UNEP Risoe database has also been used to develop charts.

Conclusions

11. Referring to figure 1 and figure 2 below, revised thresholds for Type III projects i.e., 60 kilo tons of emission reductions per year have been effective in restricting the size of the projects in a predictable way.

12. Referring to figure 3, revised Type II thresholds i.e., four fold increase in the eligible limits for energy efficiency projects do not seem to have significantly influenced the size of or number of registered energy efficiency projects so far. Referring to figure 3 and figure 4 however, a significant number of energy efficiency projects (>110) that have entered the CDM pipeline after January 2007, are undergoing validation. Over 55% of these projects are industrial energy

¹ 64. The Board noted that the threshold value of 15 GWh/year energy savings might have been a barrier to the development of Type II project activities. Further the Board considered that it was more appropriate to use a threshold based on emission reductions than a threshold based on project direct emissions for defining small-scale project activities under Type III.

65. In recommending these revisions the Board took into account the need to make the definitions of the three types equivalent to each other, and doing so decided to maintain the current definition of Type I project activities. Further the Board proposed a revised definition of Type II project activities based on the electrical energy generation capacity of a 15 MW power generating unit operating for 4000 hrs a year and a revised the definition of Type III project activities based on the emission reductions of currently registered Type I project activities with the highest projected annual emission reduction. (EB 26, para 64 and 65)

efficiency projects mostly applying AMS-II.D. It is possible that some of these AMS-II.D projects may involve complex industrial processes. In this regard it is important to take note of EB 47 para 58² and the concerns of the Board regarding signal to noise (small amount of emission reduction relative to a large amount project emissions) and the desire to keep the SSC methodologies simplified and broadly applicable.

Analysis of Type II project activities

13. Having recognised the issue related to Type II projects, a more detailed analysis is carried out on a number of validating and registered AMS-II.D projects i.e., data on baseline emissions, project emissions and emission reductions has been collected from 90 PDDs applying AMS-II.D as in table 2 below. The average of ER/BE ratio of 90 projects is 0.68 with a standard deviation of 0.36 i.e., 16% of the projects are likely to have ER/BE less than 0.32.

AMS-II.D: Projects at validation (66)					
	Baseline Emission (BE)	Project Emission (PE)	Emission Reduction (ER)	PE/BE	ER/BE
Minimum	1808	0	835	0.00	0.04
Maximum	356181	341643	64992	0.96	1.00
Average	38844	20421	18423	0.30	0.70
STDEV	50364	48894	14385	0.35	0.35

AMS-II.D: Registered Projects (24)					
	Baseline Emission (BE)	Project Emission (PE)	Emission Reduction (ER)	PE/BE	ER/BE
Minimum	1709	0	282	0.00	0.01
Maximum	181601	179755	34556	0.99	1.00
Average	30287	21607	8681	0.40	0.60
STDEV	45643	44590	9788	0.40	0.40

AMS-II.D: Projects at validation and registered (90)					
	Baseline Emission (BE)	Project Emission (PE)	Emission Reduction (ER)	PE/BE	ER/BE
Minimum	1709	0	282	0.00	0.01
Maximum	356181	341643	64992	0.99	1.00
Average	36562	20737	15825	0.32	0.68
STDEV	49044	47540	13952	0.36	0.36

Table 2 BE, PE and ER of AMS-II.D projects

² The Board considered the new small-scale methodology "AMS-II.K Industrial process optimization for energy efficiency and electricity generation" recommended by the SSC WG and agreed not to approve the methodology. The proposed methodology does not adequately capture baseline and project emissions associated with the complex industrial process to which the methodology is applicable. The Board was of the opinion a simplified small scale methodology may not provide the right framework for the kind of technology/measure being addressed by the methodology.

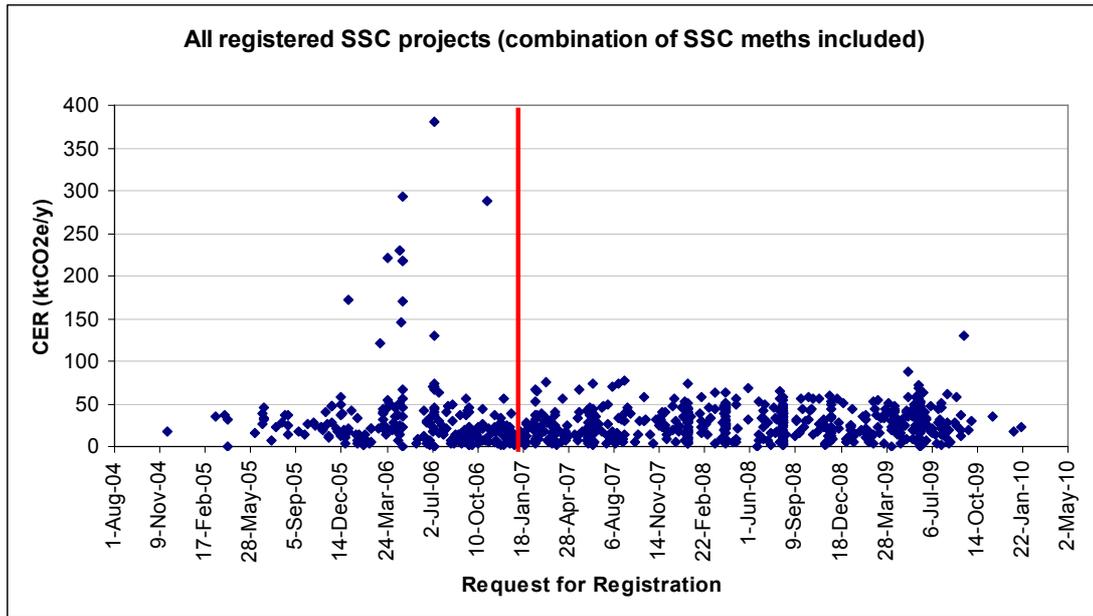


Figure 1. Size of all registered SSC projects

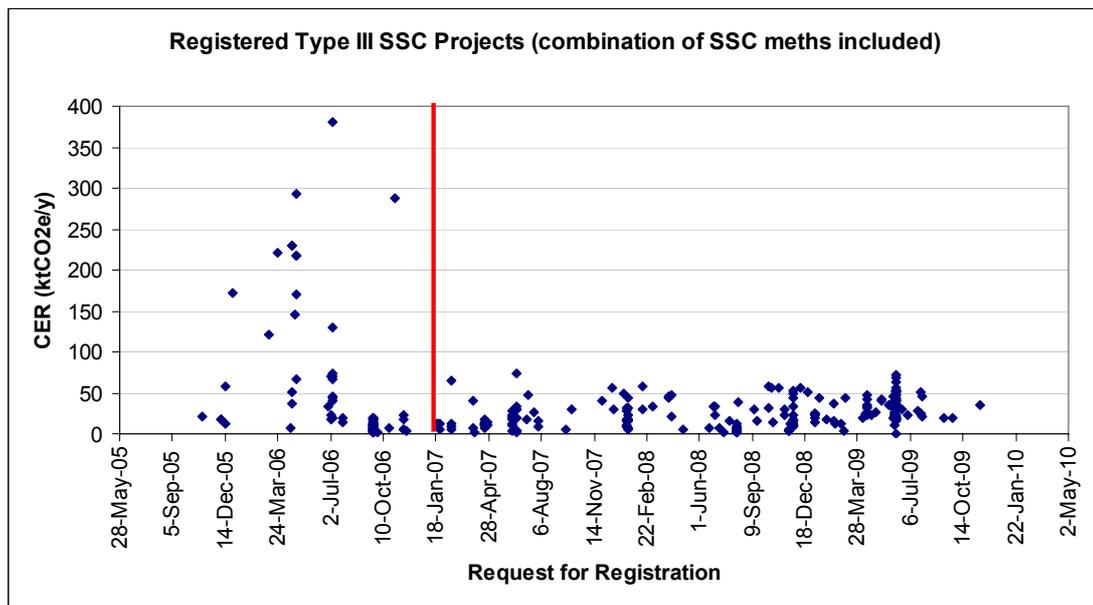


Figure 2. Size of registered Type III SSC projects

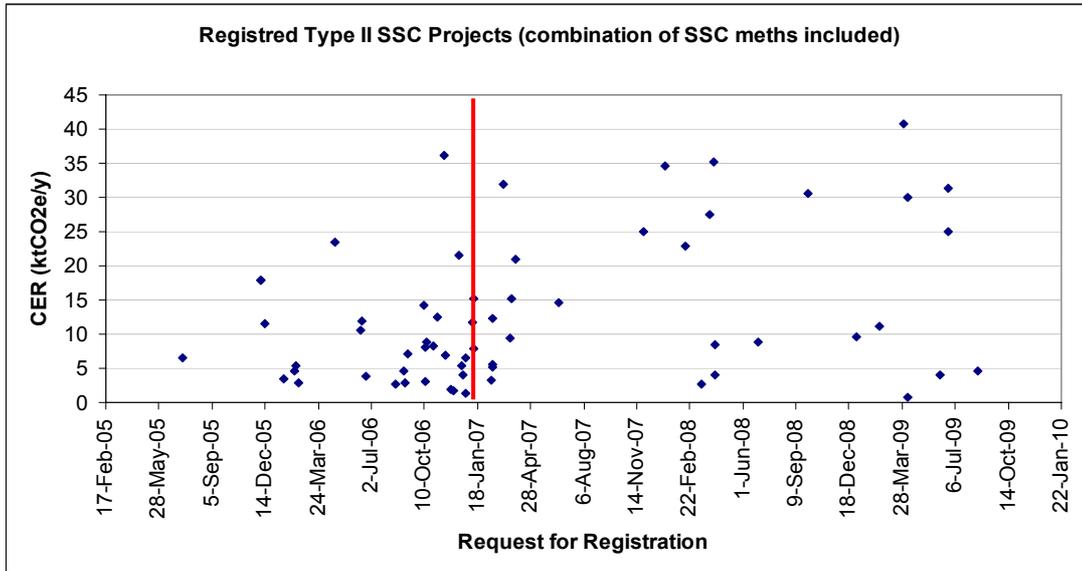


Figure 3. Size of registered Type II energy efficiency projects

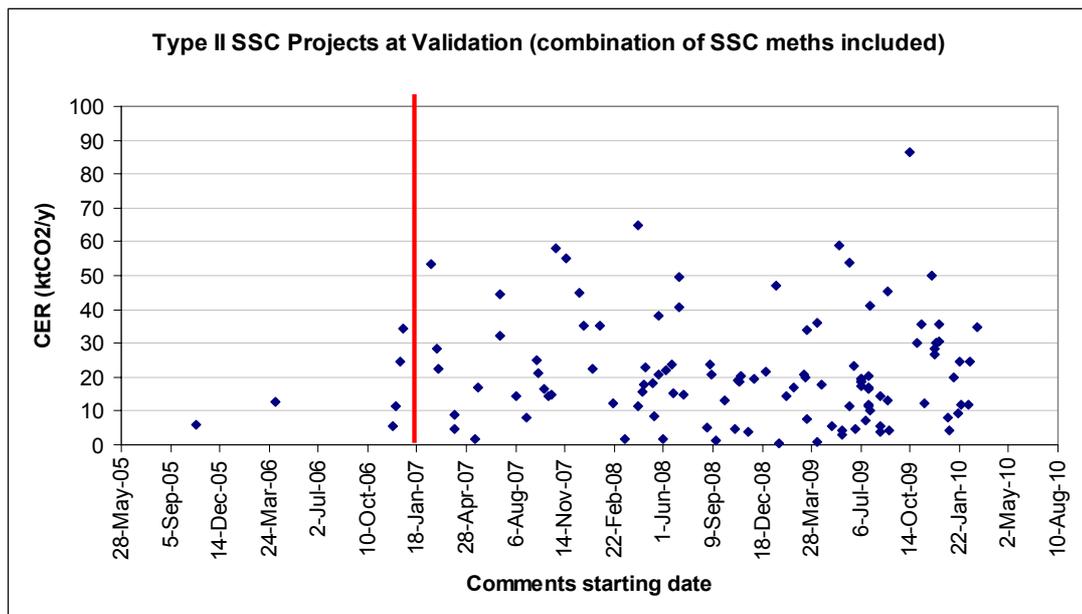


Figure 4. Size of validating Type II energy efficiency projects

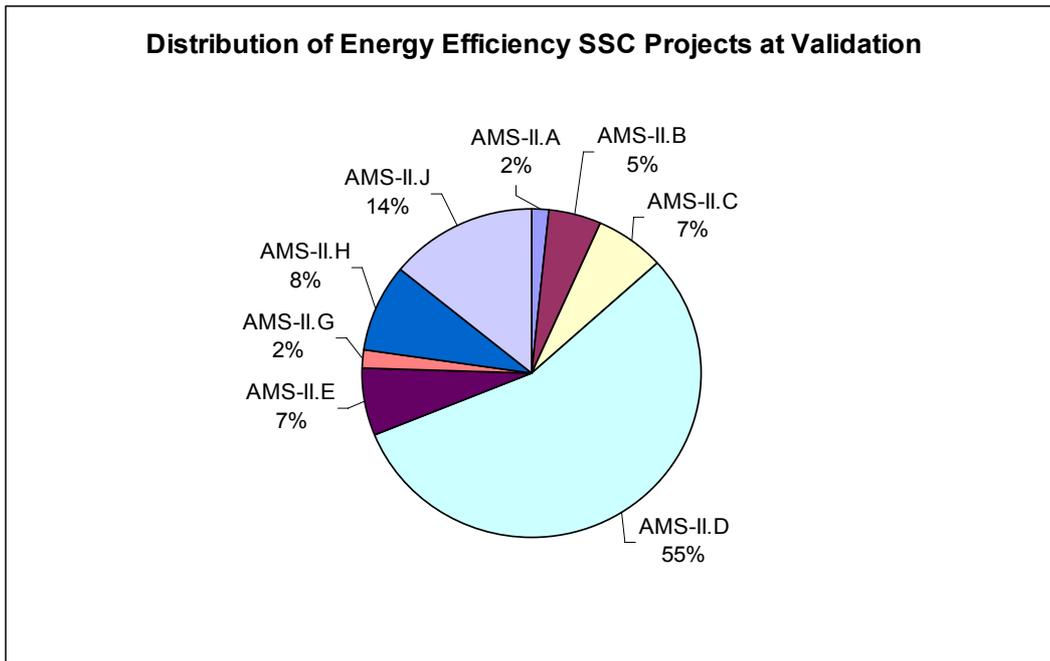


Figure 5. Relative share of methodologies in the validating SSC energy efficiency projects

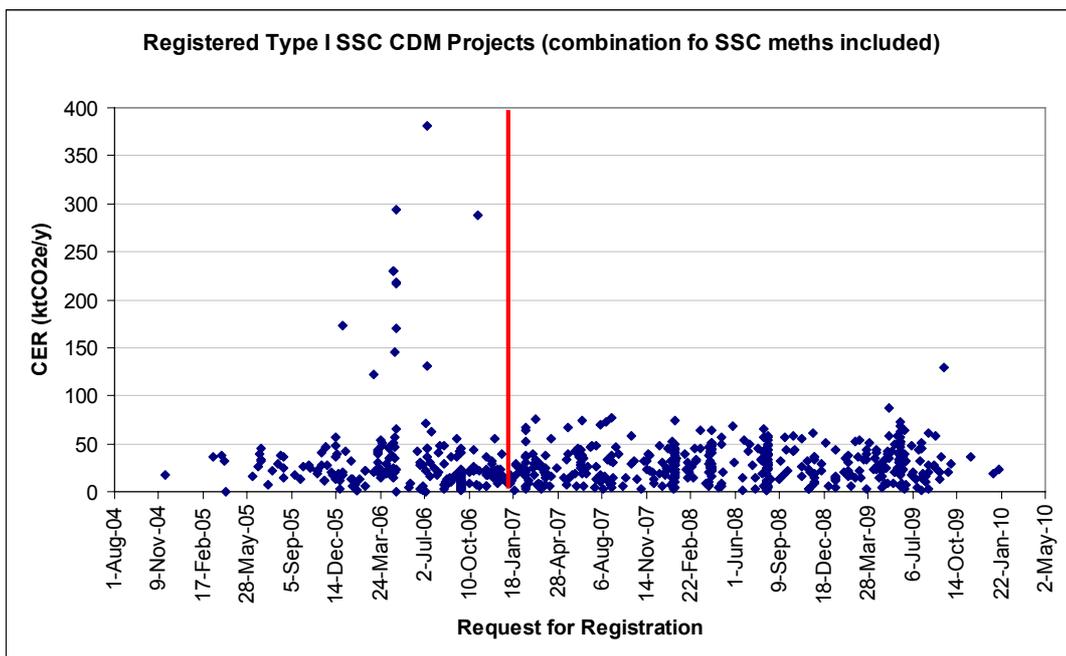


Figure 6. Size of registered Type I projects

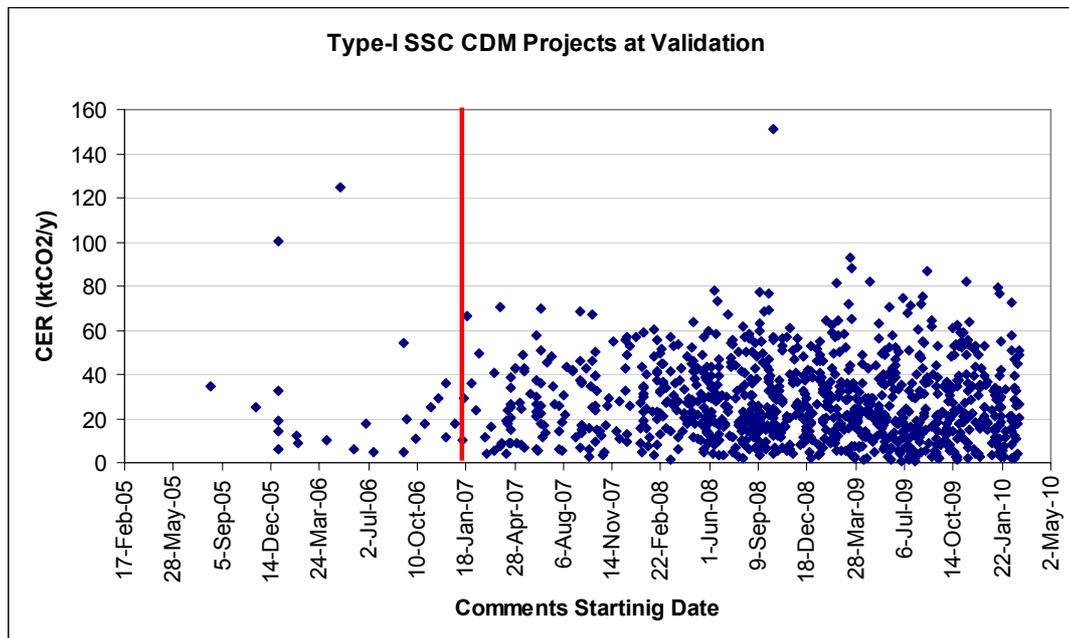


Figure 7. Size of the validating Type I SSC projects

Type of project	No of projects	Average utilisation rate	Standard deviation of utilisation rate	Range of utilisation rate
Biomass energy projects	70	0.67	0.15	0.11-0.92
Hydro projects	270	0.49	0.13	0.03-0.92
Wind projects	66	0.25	0.06	0.12-0.55
Solar PV projects	8	0.16	0.02	0.14-0.20

Table 3. Utilisation rates of AMS-I.D registered projects

History of the document

Version	Date	Nature of revision
01	EB xx, Annex # dd mm 2010	Initial adoption.
Decision Class: Regulatory Document Type: Guideline Business Function: Methodology		