CLEAN DEVELOPMENT MECHANISM

CDM-SSCWG46-A23

Information note

Criteria for graduation and expansion of positive list of technologies under the small-scale CDM

Version 01.0

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Executive Board (hereafter referred to as the Board) at its sixty-eighth meeting requested the Small-Scale Working Group (SSC WG) to analyse options (e.g. penetration rate, time horizon) to objectively determine the graduation of the current positive list of technologies (i.e. point in time when they are become matured and cost competitive and shall be no longer defined automatically additional).

2. The SSC WG, at its 41st meeting, launched a call for public input on the "Information note - Questions for public inputs on expansion and framework for assessing graduation of the positive list of technologies", as contained in annex 11 to the SSC WG 41 meeting report. Three inputs were received.

3. The SSC WG, at its 43rd meeting, recommended options to the Board regarding the expansion of the positive list of technologies, including proposals for graduation criteria.

4. The Board, at its seventy-seventh meeting, considered the information note as recommended by the SSC WG at its 43rd meeting and agreed to the following (EB 77 meeting report, para 63):

    (a) The current positive list of technologies shall be retained until reassessment by early 2015, except for the technologies indicated in sub-paragraph (c) below. The SSC WG shall continue working on a guideline to assess the graduation of technologies, including concrete criteria (e.g. penetration rates, costs, end-user segment, cumulative installed capacity, number of projects for graduation of technologies), and make a recommendation to the Board at a future meeting;

    (b) The SSC WG shall reassess the positive list every three years and recommend modifications to the Board where necessary;

    (c) Compact fluorescent lamps (CFLs) shall be removed from the global positive list and consistent procedures shall be applied in large-scale and small-scale methodologies to determine the additionality of projects implementing CFLs;

    (d) The SSC WG and the secretariat shall propose guidelines and procedures for the submission and consideration of country-specific positive lists of technologies proposed by designated operational entities (DNAs);

    (e) The SSC WG shall make recommendations to the above issues, including draft revised "Guidelines on the demonstration of additionality of small-scale project activities" (hereafter referred to as small-scale additionality guideline) and "Guidelines on demonstrating additionality of micro-scale project activities" (hereafter referred to as microscale additionality guideline).

2. Purpose

5. The purpose is to inform about the recommendation of the SSC WG on the framework for assessing the graduation of the positive list of technologies in response to the mandate indicated in paragraph 4(a) above.

3. Key issues and proposed solutions

6. To respond to the mandate received from the Board at its seventy-seventh meeting in a systematic manner, the SSC WG identified the following work areas/products and the deliverables:

   (a) Development of **concrete criteria** (e.g. penetration rates, costs, end-user segment, cumulative installed capacity, number of CDM projects) to assess graduation of current positive list of technologies (hereinafter referred to as Graduation framework);

   (b) Development of guidelines for the submission and consideration of country-specific positive lists of technologies proposed by DNAs;

   (c) Revision of small scale methodologies related to lighting (e.g. AMS-II.J, AMS_II.C) to introduce specific criteria for automatic additionality of efficient lighting technologies and exclude them from the current positive list in "small-scale additionality guideline". This work item has been delivered at the SSC WG 46 meeting through revisions of AMS-II.J and III.AR, as contained in annex 12 and 13 of the SSC WG 46 meeting report;

   (d) Consideration of the public submission on expansion of positive list to cover land-fill and waste water projects. This work has been delivered at the SSC WG 46 meeting through revisions of AMS-III.G and AMS-III.H, as contained in annex 13 and 16 of the SSC WG 46 meeting report;

   (e) Clarification of terms such as "isolated units", "independent subsystems/measures", "communities", "off-grid project activity" and "distributed energy generation" across the micro-scale and small-scale additionality guidelines taking into account past clarifications issued by the Board[1];

   (f) Revision of "small-scale additionality guideline" and "microscale additionality guideline" taking into account the above.

7. The analysis and recommendation contained in this document is limited to graduation frame work (Item (a) of paragraph 6 above).

8. With regard to the mandates (Item (b), (e) and (f) of paragraph 6 above), the SSC WG recommended that the Board take note that the SSC WG is continuing to consider the issue for conclusion at a future meeting.

---

[1] The SSC WG, at its 42nd meeting, (SSC WG 42 internal report, annex 2) agreed to further clarify terms such as "isolated units", "independent subsystems/measures", "communities", "off-grid project activity" and "distributed energy generation" in the future revision of the small-scale and microscale additionality guidelines taking into account past clarifications issued by the Board

4. Impacts

9. The graduation metrics would improve the objectivity in the demonstration of automatic additionality and enhance the environmental integrity of the positive list.

5. Subsequent work and timelines

10. The SSC WG will propose revision to microscale and small-scale additionality guidelines at a future meeting as necessary taking into account Board's guidance on graduation metrics and the other mandates mentioned under paragraph 4 above.

6. Recommendations to the Board

11. The SSC WG recommends that the Board consider the recommendation provided in this information note regarding the graduation criteria.

7. References

(a) Public input on "Information note - Questions for public inputs on expansion and framework for assessing graduation of the positive list of technologies" available at: <http://cdm.unfccc.int/public_inputs/public_inputs/2013/sscwg41_a11/index.html>

(b) Guidelines on demonstration of additionality of microscale project activities available at: <http://cdm.unfccc.int/Reference/Guidclarif/index.html#meth>;

(c) Guidelines on the demonstration of additionality of small-scale project activities available at: <http://cdm.unfccc.int/Reference/Guidclarif/index.html#meth>;

(d) EB 68 request (paragraph 108). Available at: <http://cdm.unfccc.int/EB/archives/meetings_12.html#68>;

(e) Annex 12 and 13 of the annotations to the agenda of the sixty-eighth meeting of the Board, namely "Draft guidelines on the demonstration of additionality of small-scale project activities" and "Information note on the extension of simplified modalities for the demonstration of additionality of small-scale CDM project activities" respectively. Available at: <http://cdm.unfccc.int/Meetings/MeetingInfo/DB/Y5JBDO6K1WSUC29/view>;

(f) Annex 6 of the 33rd meeting report of the SSC WG, document entitled "Information Note on Guidelines for the demonstration of additionality of microscale project activities". Available at: <http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/ssc_033_an06.pdf>.

TABLE OF CONTENTS

1. Introduction

1. The Executive Board of the clean development mechanism (CDM) (hereinafter referred to as the Board) approved a positive list of technologies at its sixty-third and sixty-eighth meeting under the "small-scale additionality guideline".[2] Positive lists are defined as automatically additional for projects and CPAs of sizes up to the small-scale CDM thresholds i.e. up to 15 MW installed capacity of renewables, 60GWh/y of energy savings and 60kt CO_2/y emission reductions (refer to paragraph 2 of the appendix for the current positive list).

2. The Board, at its seventy-seventh meeting, requested the Small-Scale Working Group (SSC WG) to recommend concrete criteria (e.g. penetration rates, costs, end-user segment, cumulative installed capacity, number of projects for graduation of technologies), and make a recommendation to the Board at a future meeting.

2. Analysis and recommendation

2.1. Graduation framework

3. The Board, at its seventy-seventh meeting, considered the proposal made by the SSC WG at its 43rd meeting and further requested the SSC WG to continue working on a guideline to assess the graduation of technologies, including concrete criteria (e.g. penetration rates, costs, end-user segment, cumulative installed capacity, number of projects for graduation of technologies), and make a recommendation to the Board at a future meeting (EB 77 meeting report, para 63).

4. Table 1 of appendix 1 "Matrix containing current positive list of technologies and indicator used for defining them as automatically additional" provides a snap-shot/overview of current positive list technologies and shows which criteria were used to define them as automatically additional. A criterion or a combination of criteria was used to arrive at the positive list. For example under the small-scale additionality guideline:

   (a) 20 per cent threshold is used for rural electrification penetration rate as a proxy to barriers against deployment of renewable energy technologies in rural areas coupled with high upfront cost (e.g. capital costs of equipment together with CDM transaction costs) of technologies at least three times higher as compared to alternative technologies;

   (b) Levelised cost of electricity generation was used for grid connected emerging renewable energy technologies.

5. This document contains analysis and recommendation on graduation criteria of the following positive list of technologies currently included under small scale additionality guidelines.

[2] Available at <https://cdm.unfccc.int/Reference/Guidclarif/index.html>.

Table 1. Positive list of technologies currently defined under small scale additionality guidelines

1	**Renewable energy technologies**
	Aggregate installed capacity up to 15 MW, limited to following RE technologies: a. Solar PV and Solar-thermal electricity generation; b. Off-shore wind; c. Marine technologies (e.g. wave and tidal); d. Building integrated wind turbines or household roof top wind turbines (unit size =< 100 kW) e. In the case of countries with <20 per cent rural electrification rates all RE technologies are eligible
2	**Renewable energy technologies (Off-grid only)**

	Aggregate installed capacity up to 15 MW, limited to following RE technologies:
	a. Micro/pico-hydro (unit size =< 100 kW);
	b. Micro/pico-wind turbine (unit size =< 100 kW);
	c. PV-wind hybrid (unit size =< 100 kW);
	d. Geothermal (unit size =< 200 kW); e. Biomass gasification/biogas (unit size =<100 kW)

3	**Distributed technologies for households/communities/SMEs**
	Aggregate installed capacity up to 15 MW or annual energy savings of 60 GWh or annual emission reduction of 60 kt and unit size =< 5 per cent of SSC thresholds (=< 750 kW, =< 3 GWh/y or 3 ktCO_2e/y)

6. The SSC WG considered that graduation criterion for current positive list of specific technologies could rely on the same criterion that was used to identify them but using updated data. The approach should be complemented by using other criteria to address the issue of uncertainties/paucity of data as discussed below.

2.1.1. Analysis on graduation criteria for grid connected renewable electricity generation technologies

7. The criteria that was used to arrive the positive list of grid connected technologies (i.e. Solar PV, Off-shore wind and Marine technologies (e.g. wave and tidal) are based on its state of the art exhibited by high levelised cost (in current and future projections) of electricity generation compared to alternative fossil fuel technologies (using publicly available global data from the international organizations such as IPCC, IEA, IRENA) and near zero penetration level- these exhibit obvious barriers for their deployment.[3]

8. **The SSC WG recommends** to use the same criteria applied before to re-assess its validity i.e. current and future projection of levelised cost of electricity generation and per cent age penetration criteria as the most appropriate indicator of barriers to renewable energy technology deployment:

   (a) The SSC WG proposes that at the time of assessment if levelised cost of electricity (LCOE) of specific renewable electricity generation technology is 150 per cent or higher compared to fossil fuel electricity generation technologies and its penetration rate is less than 3 per cent, it will be retained in the positive list, else it will be considered graduated and removed from the positive list.

[3] See annex 06 of SSC WG 33 available at: <http://cdm.unfccc.int/Panels/ssc_wg> and EB 63 presentation: <http://unfccc4.meta-fusion.com/kongresse/cdm63/pdf/4.1_c_65-70_EB63%20SSC%20standards_final.pdf>.

2.1.2. Analysis on graduation criteria for off-grid renewable electricity generation technologies

9. The criteria that were used earlier by the SSC WG to arrive at the positive list of off-grid technologies that are generally distributed type was based on obvious barrier due to high initial investment cost as compared to baseline alternatives (diesel units). This was informed by literature review that showed that due to its high initial investment costs and/or due to low energy prices (subsidized fossil fuel or electricity) in many developing countries CDM off-grid renewable energy systems are financially not attractive compared to the baseline diesel generation technologies.

10. The SSC WG thus included those off-grid technologies in the positive list whose capital cost is at least three times higher than that of a diesel generator of comparable size (based on projected cost to 2015).[4]

11. **The SSCWG recommends** applying the same criteria to assess its graduation i.e. when at the time of assessment, the investment cost of specific off-grid renewable energy technology is not higher than at least three times that of a diesel generator of comparable size, it will be removed from the positive list.

2.1.3. Analysis on graduation criteria for distributed technologies for households/communities/SMEs

12. The technologies/measures are considered automatically additional for dispersed unit projects with unit size =< 5 per cent of small-scale thresholds (=< 750 kW for Type I, =<3 GWh/y for Type-II or 3 ktCO_2e/y for Type-III) and provide services to households/communities/SMEs. The project can include units with aggregate installed capacity up to 15 MW or annual energy savings of 60 GWh or annual emission reduction of 60 kt CO_2e.

13. The criteria that were used to arrive at the positive list for dispersed-units (documents referred in footnote 3 contain detail discussions on criteria):

    (a) For the case of small-scale CDM project activities or component project activities (CPA) comprising of distributed small units, it was considered appropriate to define additionality based on a criteria that takes into account the relative size of the units included the service is being provided to households/communities/SMEs;

    (b) In the case of CPAs or small-scale CDM projects when the project involves aggregation of large number of small distributed units providing services to household/communities it exhibits obvious barriers due to high upfront investment cost (including transaction cost) as compared to baseline alternatives.

14. It is also to be noted that the Board based on the recommendation from the SSC WG, at its 43rd meeting, agreed to remove CFL from the positive list (refer to paragraph 6(c) in

[4] The various criteria that were used to derive a positive list are explained in detail in annex 12 and 13 of the annotations to the agenda of the sixty-eighth meeting of the Board namely “Draft guidelines on the demonstration of additionality of small-scale project activities” and “Information note on the extension of simplified modalities for the demonstration of additionality of small-scale CDM project activities” respectively. Available at: <http://cdm.unfccc.int/Meetings/MeetingInfo/DB/Y5JBDO6K1WSUC29/view>.

the information note). It was considered graduated based on the recent information provided by UNEP lighting initiative[5] that this technology is rapidly expanding in many countries including LDCs.

15. The SSC WG considered that the 5 per cent that applies to dispersed-units covers wide range of technologies applicable under Type-I, II and III small-scale methodologies. In this context, the SSC WG is of the view that a flexible requirement would be needed to assess graduation e.g. consideration of capital cost and global market penetration as criteria.

16. **The SSC WG thus recommends** to apply the following criteria to assess graduation for distributed units:

    (a) Identify technologies/measures that frequently apply the provision based on data from CDM pipeline;

    (b) Assess publicly available literature on the technology;

    (c) Use market penetration and installation/deployment cost for identified technology/measure;

    (d) If it is evident that the particular technology/measure is becoming common practice and/or its installation/deployment cost is not higher than at least three times compared to the most plausible baseline technology identified, those will be considered graduated from the positive list;

    (e) The analysis will be carried out every three years i.e. next analysis will be conducted in early 2017.

[5] Efficient Lighting Policy Status Map developed by UNEP and available at <http://www.enlighten-initiative.org/ResourcesTools/GlobalPolicyMap.aspx>.

Table 2. Recommendation on graduation criteria

Positive list Currently defined under small-scale additionality guideline	Validity[6]	Graduation criteria (where mentioned all criteria shall be used)			
		End users type /nature	Levelised cost of service	Penetration rate	Capital cost of technology
Grid connected renewable electricity generation technologies					
All renewable energy technologies in the current positive list	3 years	-	At least 50 per cent higher compared to all fossil fuel technologies	Global average penetration rate < [3%]	-
Off- grid renewable electricity generation technologies					
All off-grid renewable technologies in the current positive list	3 years	-	-	-	At least 3-times higher compared to all fossil fuel technologies
Distributed technologies for households/communities/SMEs					
All distributed unit technologies/measures, eligible under Type I/II/III small-scale methodologies and providing services to households/communities/SMEs	3 years	Assess appropriateness of types of users, where required redefining of SMEs, Communities	-	Global average penetration rate < [3%]	At least 3-times higher compared to all plausible baseline technologies identified by the group

[6] From the date of adoption by the Board.

3. Recommendations to the Board

17. The SSC WG recommends that the Board considers the recommendation provided in this information note regarding the graduation criteria/metrics for positive list of technologies currently defined under small scale additionality guidelines covering:

    (a) Grid connected renewable electricity generation technologies;

    (b) Off- grid renewable electricity generation technologies;

    (c) Distributed technologies for households/communities/SMEs.

18. The SSC WG also recommends the Board to provide a mandate to the secretariat to list the up to date positive list of technologies with the period of validity on the CDM website.

Appendix. Criteria used for positive list of technologies

Table 1. Matrix containing the current positive list of technologies and indicator used for defining them as automatically additional

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
A. Positive list								
i. Based on technology								
a. Small-scale (< 15 MW, < 60 GWh/y, <60 ktCO2/y)	Additionality guidelines, version 9.0							
1. Electricity generation (up to installed capacity of 15 MW) –**Grid and Off-grid**	Paragraph 2(a) and (b)	Till early 2015						
a. Solar PV and Solar-thermal electricity generation						✓		
b. Off-shore wind						✓		
c. Marine technologies e.g. wave and tidal						✓		
d. Building integrated wind turbines or household roof top wind turbines (size of individual unit up to 100 kW)						✓		
2. Electricity generation (up to installed capacity of 15 MW) –**Off-grid**		Till early 2015						
e. Micro/pico-hydro (size of individual unit up to 100 kW)								✓

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
f. Micro/pico-wind turbine (size of individual unit up to 100 kW)								✓
g. PV-wind hybrid (size of individual unit up to 100 kW)								✓
h. Geothermal (size of individual unit up to 200 kW)								✓
i. Biomass gasification/biogas (size of individual unit up to 100 kW)								✓
b. Large scale								
1. Self-ballasted LED Lamps	AM0113, Validity 3 years from entry into force of version 01.0	7 Nov. 2016					✓	
ii. Based on criteria								
a. Microscale (< 5 MW, <200 GWh/y, <30 ktCO$_2$/y)	Microscale additionality guidelines, version 5.0							
1. An off-grid project activity up to 5 MW installed capacity supplying electricity to households/communities	Paragraph 8(b)	Open	✓					✓
2. An off-grid project activity up to 5 MW installed capacity designed for distributed energy generation with each of	Paragraph 8(c)	Open	✓					✓

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
the independent subsystems/measures is smaller than or equal to 1500kW electrical installed capacity and serving end users such as households/communities/ SMEs								
3. Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 gigawatt hours per year if each of the independent subsystems/measures achieves an estimated annual energy savings equal to or smaller than 600 megawatt hours; and end users of the subsystems or measures are households/ communities/SMEs	Paragraph 9(b)	Open	✓					✓

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
4. Project activities that aim to achieve emission reductions at a scale of no more than 20ktCOe per year if each of the independent subsystems/measures achieves an estimated annual emission reduction equal to or less than 600 tCO_2e per year; and end users of the subsystems or measures are households/communities/ SMEs	Paragraph 10(b)	Open	✓					
b. Small-scale (< 15 MW, < 60 GWh/y, <60 $ktCO_2/y$)	additionality guidelines, version 9.0							
1. Project activities solely composed of isolated units where the users of the technology/measure are households or communities or SMEs and where the size of each unit is no larger than 5 per cent of the small-scale CDM thresholds	Paragraph 2(c)	Till early 2015	✓					✓
2. Rural electrification project activities using renewable energy sources in countries with rural electrification rates less than 20 per cent	Paragraph 2(d)	Till early 2015			✓		✓	

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
c. Large scale								
1. The project activity is considered additional if: within the project boundary (a), there is no public distribution network supplying SDW; and (b) , the proportion of the population using improved drinking-water sources is equal to or less than 60 per cent; and (c) the fraction of population served by point-of-use zero-energy water purification technologies is less than 50 per cent before the implementation of the project activity	AM0086, version 3.0.0	Open					✓	
2. The project activity involves lamp sold or distributed to a household by the project coordinator is self-ballasted CFLs, for countries which have no or only limited lighting efficiency regulations when the CDM-PDD is published for global stakeholder consultation, according to the Efficient Lighting Policy Status Map developed by UNEP's en.lighten initiative, the project activity is deemed additional	AM0113, version 1.0.0	Open		✓			✓	

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
3. The following types of project activities are deemed automatically additional if prior to the implementation of the project activity the LFG was only vented and/or flared but not utilized for energy generation: (a) The LFG is used to generate electricity in one or several power plants with a total nameplate capacity that equals or is below 10 MW; (b) The LFG is used to generate heat for internal or external consumption; (c)The LFG is flared	ACM0001, version 15.0.0	7 Nov 2016					✓	✓
d. Small-scale								
1. For project activities involving electric and hybrid vehicles is automatically additional if in the ex ante, the market share of project electric/hybrid vehicles is equal to or smaller than 5 per cent of the vehicles of the same category	AMS-III.C, version 13.0	Open					✓	
2. If it is demonstrated that that there is no regulation in the host country, applicable to the project site that requires the collection and destruction of methane from livestock manure and LFG is used to generate electricity in power plants with a total nameplate capacity that equals or is below 5 MW	AMS-III.D, version 19.0	Open		✓				

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
B. Country specific positive list								
i. Based on technology								
a. Microscale	Additionality guidelines, version 5.0							
1. The share of grid connected project activity up to 5 MW is less than 3 per cent in total installed capacity in the grid as recommended by the host country DNA and approved by the Board	Paragraph 8(d)	3 years from the date of approval by the Board					✓	
b. Standardized baseline framework								
1. Approved standardized baseline from the host country using the procedure for development, revision, clarification and update of standardized baselines	Submitted through a bottom-up process	3 years from the date of approval by the Board					✓	
ii. Based on criteria								
a. Microscale	Additionality guidelines, version 5.0							
1. Project activities that employ renewable energy as their primary technology up to 5 MW in LDC/SIDS or in SUZ of a host Party	Paragraph 8(a)	Open			✓			

Positive list	Decision/ Regulatory document	Validity	Barriers used to arrive positive list					
			End users type /nature	Regulation	Location	Levelised cost of service	Penetration rate	Capital cost of technology
2. Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWH per year if geographic location of the project activity is in an LDC/SIDS or SUZ of the host country	Paragraph 9(a)	Open			✓			
3. Project activities with emission reductions less than 20ktCOe per year and if the geographic location of the project activity is in LDC/SIDS or SUZ of the host country	Paragraph 10(a)	Open			✓			

- - - - -

Document information

Version	*Date*	*Description*
01.0	7 November 2014	SSC WG 46 internal meeting report, Annex 23 Initial publication. To be considered by the Board at EB 81.

Decision Class: Regulatory
Document Type: Information note
Business Function: Methodology
Keywords: data collection and analysis, positive list, recommendations from executive advisory bodies, SSC project activities, simplified methodologies