Query No. 9

Subject: Recognition and valuation of Carbon Emission Reductions (CERs).[1]

A. Facts of the Case

1. A company (hereinafter referred to as 'the company') undertakes integrated waste management (IWM) and started its operations in the year 2007. It extracts value from all waste streams including biodegradables, combustibles and inerts (debris, glass, plastic etc.). As a result, compost, refuse derived fuel (RDF) / combustibles and carbon emission reductions (CERs) are produced on processing of municipal solid waste (MSW) input. The company has as on date, seventeen operating composting facilities across the country with waste handling capacity of 2,750 tonnes per day (TPD) of MSW.

2. CERs are generated at various facilities of the company during production of compost and the company has sold these CERs. During the past six years, the company has successfully earned revenue of about Rs. 170 mn by selling 4,67,534 number of CERs as against compost revenue of Rs. 288 mn.

3. The process involved in generation of CERs is briefly explained by the querist as below:

(i) Compost can be manufactured by an anaerobic or aerobic process. Aerobic composting means 'with oxygen', and anaerobic composting means 'without oxygen'. Aerobic composting makes MSW project eligible for CERs as per the United Nation Framework Convention on Climate Change (UNFCCC) Guidelines. Aerobic process is evaluated at the time of registration by UNFCCC for determining the eligibility of CERs benefits during operations. One tonne of methane mitigation by processing waste in aerobic condition makes company eligible for one CER.

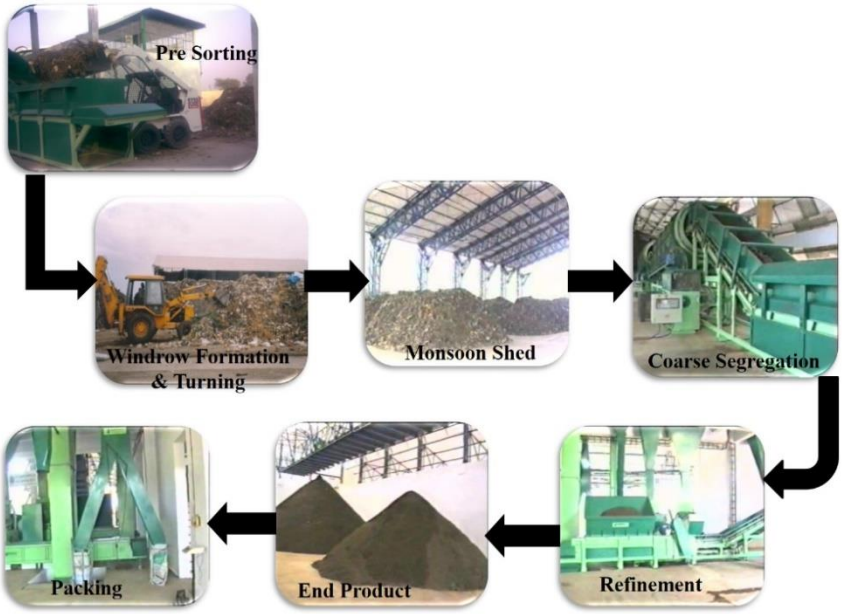
(ii) In contrast, if the waste is dumped into pits and composting takes place over a period of time in largely anaerobic conditions which leads to emission of Green House Gases (GHG - Methane) in the environment, these facilities are not eligible for CERs benefits.

(iii) CERs are generated due to the mitigation of methane generation in the decomposition of waste in an aerobic manner. The methane generation follows a First Order Decay (FOD) model, which is reflected in the calculation of CERs on year to year basis. The FOD is a compounding model, where it is considered that the previous year's waste does not decompose completely in a single year. The various components of MSW decay values are defined by the Inter-Governmental Panel on Climate Change (IPCC). Thus, the previous year's waste would continue to contribute fractionally towards CER generation in the subsequent years.

(iv) Aerobic process requires higher capital expenditure and involves additional operational costs (manpower, vehicle running, power and fuel, depreciation, interest etc.) at every stage of the process.

4. The process flow of the production of compost, RDF and CERs is enumerated below:

[1] Opinion finalised by the Committee on 17.3.2017.



5. Brief explanations on key segments of the process are as follows:

(i) Pre-Sorting- MSW received in plant is a mixture of bio-degradables, combustibles and inerts. In the pre-sorting process, the materials like plastic, wood and inerts of particulars size are separated to ensure that maximum bio-degradable material is only transferred to the pad for windrow formation. This process helps in maximising the compost output and reducing GHG emission during aerobic composting at the pad. The segregated material other than inert is used as RDF/ combustibles. To carry out this process, operational cost towards manpower, equipments, power and fuel etc. is incurred for loading, segregating and transferring material to the next stage.

(ii) Windrow formation and Turning- Sorted bio-degradable waste is brought to the pad and windrows are formed for aerobic composting. The material is kept on the pad for atleast 4 weeks and is turned around at regular intervals to ensure proper oxidation, temperature control and aerobic decomposition. This involved operational costs towards manpower, handling equipments, monitoring devices, power & fuel etc.

(iii) Monsoon Shed: Once the material is decomposed, it is kept under shed or any other covered area to further reduce the moisture content. The material is required to be turned around at regular intervals for speeding up the drying process. This process generally takes 5–8 weeks depending on the location of the processing facility. At this stage also, operational costs are incurred towards manpower, handling equipments, power & fuel etc.

(iv) Core-segregation, refinement, storing and packing: Once the moisture is reduced upto a particular level, then it is required to screen the material and bring the material upto the size of 4 mm or below in order to ensure that the material is appropriate to be used as an agricultural input in farms. Part quantity of material with size of 4 mm and above is used as RDF/ combustible and part quantity is sent to reject site. Compost and RDF/combustible produced are kept under covered shed to ensure that the emission of GHG is minimised in the environment.

6. (a) The process stated above very clearly highlights the following points:

(i) There is requirement of various types of plant and machinery, equipments, vehicles, civil structure, monitoring devices etc. to produce compost through aerobic process.

(ii) There are various operational costs incurred towards manpower, power & fuel, repair & maintenance, vehicle hiring, etc. at every stage to produce compost through aerobic process alongwith CERs and RDF/ combustible simultaneously.

(b) Pursuant to the company following the aerobic process, it generates CERs throughout the year at each of its compost production facilities. They are accounted for on a calendar year basis.

(c) The verification of CERs generated is independently done by a Designated Operating Entity (DOE) accredited to the UNFCCC which finalises the number of CERs generated by the project, based on detailed verification of the compliance process followed by that project.

(d) The verification and certification reports are uploaded by DOE on the UNFCCC website capturing the number of CERs generated by the project during a specific period. The Executive Board of UNFCCC considers the report and issues the CERs to the entity. The CER's verified by DOE are rejected only on account of fraud, malfeasance or incompetence of the designated operational entities.

7. Recognition of CERs in the financial statements of the company as per the Guidance Note on Accounting for Self-generated Certified Emission Reductions, issued by the Institute of Chartered Accountants of India (ICAI):

(i) The ICAI has issued a Guidance Note on Accounting for Self-generated Certified Emission Reductions (CERs) (hereinafter referred to as the Guidance Note), which lays down the guidance on the matters of applying accounting principles related to recognition, measurement and disclosure of CERs generated by an entity through the Clean Development Mechanism (CDM).

(ii) *Recognition of CERs as an 'asset':*

(a) As per the Guidance Note, a *CER is to be recognised as an 'asset'* in the financial statements of an entity as it meets the criterion for recognition as an '*asset'*. For a CER to be considered as asset, it should be a resource controlled by the generating entity arising as a result of past events, and from which future economic benefits are expected to flow to the generating entity.

(b) At paragraph 17 of the Guidance Note, it has been stated that CERs come into existence when these are credited by UNFCCC in a manner to be unconditionally available to the generating entity. Therefore, CERs should not be recognised before that stage.

(c) The second criterion for recognition of CERs as an asset is the measurement of the cost incurred for their generation. The Guidance Note lists out at paragraph 24, various costs incurred to set up a CDM project activity, operate a CDM project and generate CERs.

(iii) *Valuation of CER Inventory as per Accounting Standard (AS) 2, 'Valuation of Inventories':*

(a) As per paragraphs 21 and 22 of the Guidance Note, though CERs are intangible assets but they have to be considered as inventory of the generating entity as they are generated and held for sale in the ordinary course of business and should be measured at cost or net realisable value, whichever is lower.

(b) Further, paragraph 23 mentions that in accordance with AS 2, ***"The cost of inventories should comprise all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition".***

(c) Paragraph 24 of the Guidance Note lists out the various costs incurred to set up CDM project activity as follows :

(i) research costs arising from exploring alternative ways to reduce emissions;

(ii) costs incurred in developing the selected alternative as a process/device to reduce emissions;

(iii) costs incurred to prepare the Project Design Documents;

(iv) fees paid to DOEs for validation and verification and to the National Authority for approval;

(v) fees of registering with UNFCCC;

(vi) costs incurred for monitoring the reductions of emissions;

(vii) costs incurred for certification of CERs; and

(viii) operating costs incurred to run the CDM project.

(d) However at paragraph 25, the Guidance Note mentions that the costs incurred by the generating entity for certification of CERs are the costs of inventories of CERs. It mentions that costs incurred on research and development, costs incurred for preparation of PDD and registration of CDM project with UNFCCC cannot be considered for inventory valuation and only costs incurred for certification should be considered. *However, according to the querist, it is completely silent on the operating costs incurred on generation of CERs as listed at paragraph 24.*

(Emphasis supplied by the querist.)

8. *Views of the company:*

The MSW operations of the company are based on mitigating methane generation through the aerobic composting which generates CERs as an intrinsic and integral part of compost producing process enumerated above. The company requires opinion of the Expert Advisory Committee on the following issues:

(1) Point of recognition of CERs as an 'asset'

(a) As per paragraph 17 of the Guidance Note, "CERs come into existence when these are credited by UNFCCC in a manner to be unconditionally available to the generating entity. Therefore, CERs should not be recognised before that stage". But the querist wishes to apprise the Committee that CERs can be

recognised as assets once the Designated Operating Entity (DOE) has verified the number of CERs generated in a period and has uploaded the report at UNFCCC site for the issuance and need not wait till the approval of issuance by the Executive Board. In this context, the paragraphs from the Guidance Note on 'Methodology for Issuance of CERs issued by UNFCCC' have been explained by the querist as below:

(i) The DOE shall, based on its verification report, certify in writing that, during the specified time period, the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of green house gases that would not have occurred in the absence of the CDM project activity. It shall inform the project participants, parties involved and the Executive Board of its certification decision in writing immediately upon completion of the certification process and make the certification report publicly available.

(ii) The certification report shall constitute a request for issuance to the Executive Board of CERs equal to the verified amount of reductions of anthropogenic emissions by sources of greenhouse gases.

(iii) The issuance shall be considered final 15 days after the date of receipt of the request for issuance, unless a party involved in the project activity or at least three members of the Executive Board request a review of the proposed issuance of CERs. Such a review shall be limited to issues of fraud, malfeasance or incompetence of the designated operational entities and be conducted as follows:

- Upon receipt of a request for such a review, the Executive Board, at its next meeting, shall decide on its course of action. If it decides that the request has merit, it shall perform a review and decide whether the proposed issuance of CERs should be approved;
- The Executive Board shall complete its review within 30 days following its decision to perform the review;
- The Executive Board shall inform the project participants of the outcome of the review, and make public its decision regarding the approval of the proposed issuance of CERs and the reasons for it.

(iv) Upon being instructed by the Executive Board to issue CERs for a CDM project activity, the CDM registry administrator, working under the authority of the Executive Board, shall, promptly, issue the specified quantity of CERs into the pending account of the Executive Board in the CDM registry, …

(v) However, as per the querist's view, the CERs should be recognised as assets in the books post 15 days from the date of report submission by DOE to Executive Board of UNFCCC since there is certainty of the same numbers of CERs to be issued by the Executive Board except in the extreme circumstances of fraud, malfeasance or incompetence of the DOE. Past trends confirming that there is no change in numbers of CERs verified by DOE and issued by UNFCCC Executive Board in respect of the company have been provided by the querist for the perusal of the Committee.

(vi) Further, as per the querist, non-recognition of CERs as inventory in the financial year in which cost is incurred for the generation/production of CERs has the following impact:

- Mismatch in recognition of cost and revenue towards CERs generation
- The entire cost is loaded to the production of compost and RDF which leads to undervaluation of inventory
- Financials of the company do not give true and fair view of the performance of the respective financial year

(2) Compost, CERs and RDF are joint products

(a) It may be mentioned that in respect of MSW facilities, due to the intrinsic and integral nature of activities, CERs and compost / RDF are produced as joint products.

(b) Based on the above, the costs incurred for monitoring the reduction of emissions and the operating costs incurred to run the CER projects are crucial and hence, have to be included in the costs for the purpose of valuation of inventories and not only costs incurred for certification of CERs. The cost of production upto the stage of compost manufacturing should be treated as joint costs to be allocated between the three products, i.e., compost, RDF and CERs.

(c) Joint cost is defined as the cost of common resources used to produce two or more products or services simultaneously. As per paragraph 10 of AS 2, one of the methodologies of bifurcating the joint costs is:

"A production process may result in more than one product being produced simultaneously. … When the costs of conversion of each product are not separately identifiable, they are allocated between the products on a rational and consistent basis. The allocation may be based, for example, on the relative sales value of each product either at the stage in the production process when the products become separately identifiable, or at the completion of production. …"

(d) Accordingly, in respect of MSW projects, production of compost, RDF and CERs are intrinsic and integral part of the entire production process which become separately identifiable at the finished stage of compost production. Aerobic composting is an activity which gets completed on production of compost. CER and compost are produced simultaneously and the split-off for these two products are at the point of compost production. Thus, for valuation of inventory of compost, RDF/combustibles and CERs, the company needs to bifurcate joint production cost. This can be done at their respective net sales realisation. However, the CER inventory valuation will be carried out at the lower of cost of production or net realisable value (NRV).

(3) Costs incurred in the process of aerobic composting:

(a) The aerobic composting process efficiency directly impacts production of CERs which includes close control of various parameters like temperature, oxygen, moisture etc. that are controlled through processes like mechanized pre-sorting, deployment of vehicle and manpower for turning of windrows and finished compost, various stages of refinement etc. These combined operational

costs incurred towards compost production and CERs generation include the following:

(i) Manpower cost

(ii) Weighing section

(iii) Pre-processing section

(iv) Waste heap pad

(v) Compost refining section

(vi) Vehicle hire charges, diesel and repairs cost

(b) Paragraph 25 of the Guidance Note has apparently not considered any cost other than costs incurred by the generating entity for certification of CERs, for the purpose of valuation of CERs inventories. The Guidance Note appears to be more based on renewable (Solar, Hydro, Wind) energy projects. In these projects, CERs are generated from replacement of energy from fossil fuel generation plants. The operations of these projects do not involve external inputs beyond that of natural resources like sunlight, water and wind. The monitoring of such projects is based on the energy uploaded at the grid inter-connect point and requires verification of only a single parameter. On the other hand, MSW processing projects of the company involves monitoring of large number of parameters in comparison to renewable projects which requires additional capital and operational costs. Differences in various renewable energy processes involved have been provided by the querist for the perusal of the Committee.

B. Query

9. On the basis of the above, the opinion is sought by company on the following issues:

(a) Whether CERs inventory can be recognised in the financials of the company post 15 days of verification report submitted by DOE to UNFCCC Executive Board for issuance of CERs since review by Executive Board post verification by DOE is more of documentation review and issuance is certain except in case of fraud, malfeasance or incompetence of the DOE.

(b) Whether compost, RDF and CERs are joint products.

(c) Whether for the purpose of CER inventory valuation, the costs should include all operating expenses upto the stage of compost production and not be limited to verification and certification expenses.

C. Points considered by the Committee

10. The Committee, while expressing its opinion has examined only the issues raised in paragraph 8 above and has not examined any other issue that may arise from the Facts of the Case, such as, inventory valuation of composts/RDFs, accounting for sale of CERs etc.

11. With regard to the first issue raised by the querist relating to point of recognition of CERs as assets, the Committee notes the following paragraphs of the Guidance Note on Accounting for Self-generated Certified Emission Reductions, issued by the ICAI as follows:

"13. From the above-mentioned definition of 'asset' it follows that for a CER to be considered as an asset of the generating entity, it should be a resource controlled by the generating entity arising as a result of past events, and from which future

economic benefits are expected to flow to the generating entity.

14. In order to generate CERs, an entity undertakes a CDM project activity and thereby reduces carbon emissions. It is mentioned in paragraph 9 above that various stages are involved in a CDM project activity to generate CERs. After a successful registration, as the CDM project is operated, carbon emission reductions are generated and these continue to be generated over the course of the project. However, at this stage, i.e., when the emission reductions are taking place, CERs do not arise. It may be argued that as soon as emission reductions take place these should be considered as assets since certification thereof subsequently in the form of CERs is a procedural aspect. In this regard, it is noted that issuance of CERs is subject to the verification process, i.e., CERs are applied for and on the expiry of 15 days having received no request for review and after having satisfied all requirements, a communication is received from UNFCCC thereby crediting CERs to the generating entity. It is, thus, possible that emission reductions may not eventually result in to creation of CERs. Accordingly, at this stage when emission reductions are taking place, CERs can, at best, be said to be contingent assets as per Accounting Standard (AS) 29, *Provisions, Contingent Liabilities and Contingent Assets*, which defines a contingent asset as *"**a possible asset that arises from past events the existence of which will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise".*** This is because when the generating entity reduces carbon emissions by way of a CDM project, the generating entity becomes eligible to receive CERs from UNFCCC. However, whether CERs will actually arise and be received by the generating entity or not will depend on a future uncertain event, i.e., certification of the same by UNFCCC.

15. It follows from the above that a CER comes into existence and meets the definition of an asset only when the communication of credit of CERs is received by the generating entity. This is because only at this stage the CER becomes a resource controlled by the generating entity and therefore leads to expected future economic benefits in the form of cash and cash equivalents which would arise on the future sale of CERs. As stated above, at other earlier stages of the CDM project activity, there is no resource in existence for the generating entity, and hence the question of 'resource controlled' and 'expected future economic benefits' therefore do not arise. Accordingly, CER is an 'asset', when it comes into existence as stated aforesaid."

"17. From paragraph 15 it follows that CERs come into existence when these are credited by UNFCCC in a manner to be unconditionally available to the generating entity. Therefore, CERs should not be recognised before that stage. Further, from the above it follows that for CERs to be recognised in the financial statements of the generating entity as assets, the two criteria with regard to probable future economic benefits flowing from the CERs and CERs possessing a cost or value that can be measured with reliability should be met as follows:

(a) As regards the probability criterion for recognition of CERs, it may be mentioned that the concept of probability refers to the degree of certainty that future economic benefits associated with CERs will flow to the entity. Therefore, the probability criterion is said to be met when there is a reasonable assurance that future economic benefits will flow from the CERs to the entity. As the market for CERs is relatively new, the future economic benefits may not always be assured. Thus, an entity needs to make an assessment for the

probability of future economic benefits. Accordingly, if there is a probable market for the self-generated CERs ensuring flow of economic benefits in the future, CERs should be recognised.

(b) As regards the criterion for measurement of cost or value, there are certain costs which are incurred to generate CERs, and therefore the cost of CERs can be measured reliably. The value at which CERs are to be measured is discussed in later paragraphs.

For reasons stated above, the recognition of CERs as an asset at any earlier or later stage than when they are credited by UNFCCC is not justified in the following cases:

(a) CERs are recognised upon execution of a firm sale contract for the eligible credits.

(b) CERs are recognised on an entitlement basis based on reasonable certainty after making adjustments for expected deductions."

From the above, the Committee notes that the Guidance Note specifically states that CER becomes a *resource controlled* by the generating entity only when the communication of credit of CERs is received by the entity. Accordingly, before that stage and unless other conditions for recognition as an 'asset' as discussed in the Guidance Note are fulfilled, it cannot be recognised as an asset in the financial statements of the generating entity. The Guidance Note also specifically provides that recognition of CERs at an earlier stage than when they are credited by UNFCCC on an entitlement basis based on reasonable certainty is also not justified. Accordingly, the Committee is of the view that CERs inventory cannot be recognised in the financials of the company post 15 days of verification report submitted by DOE to UNFCCC Executive Board for issuance of CERs, as being argued by the querist.

12. With regard to the second and third issue relating to compost, CERs and RDF being considered as joint products and relating to CER inventory valuation, the Committee notes the following paragraphs of the Guidance Note:

"6. To be eligible for CDM benefits, the proposed project must have the feature of additionality, i.e., the CDM project must provide reductions in emissions that are additional to that would occur in the absence of the project. For example, an entity can generate CERs under CDM, if it installs a waste heat boiler that saves energy. This is because reduced fuel use reduces the amount of carbon dioxide emitted. However, if an entity has to undertake the project activity because of law, for example, if the industry is legally mandated to have a waste-heat recovery boiler, such a project is generally not eligible for CDM benefits."

"23. AS 2 prescribes the composition of cost of inventories as follows:

"6. The cost of inventories should comprise all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition."

24. Various costs are incurred by the generating entity to set up a CDM project activity, operate the CDM project and generate CERs. These may include the following:

(i) research costs arising from exploring alternative ways to reduce emissions;

(ii) costs incurred in developing the selected alternative as a process/ device to reduce emissions;

(iii) costs incurred to prepare the Project Design Documents;

(iv) fees paid to DOEs for validation and verification and to the National Authority for approval;

(v) fees of registering with UNFCCC;

(vi) costs incurred for monitoring the reductions of emissions;

(vii) costs incurred for certification of CERs; and

(viii) operating costs incurred to run the CDM project.

25. As already mentioned earlier, CERs do not come into existence and, therefore, do not become the assets of the generating entity till the UNFCCC certifies and credits the same to the generating entity. Accordingly, not all costs incurred by the generating entity give rise to CERs and therefore not all costs can be considered as the costs of bringing the CERs to existence (i.e., their present location and condition). For example, the research and development costs as mentioned above are the pre-implementation costs of the CDM projects which do not result in CERs. Accordingly, these should be treated as per Accounting Standard (AS) 26, *Intangible Assets* (refer also to paragraph 30 below) when they bring into existence a separate intangible asset such as a patent of a process to reduce carbon emissions. Similarly, the other costs such as those incurred for preparation of PDD and registration of the CDM project with UNFCCC, etc., do not result in CERs coming into existence, and therefore these costs cannot be inventorised. It is only the costs incurred for the certification of CERs by UNFCCC which bring the CERs into existence by way of credit of the same by UNFCCC to the generating entity. Thus, the costs incurred by the generating entity for certification of CERs, are the costs of inventories of CERs."

"35. An entity should disclose the following information relating to certified emission rights in the financial statements:

a) No. of CERs held as inventory and the basis of valuation.

b) No. of CERs under certification.

c) Depreciation and operating and maintenance costs of Emission Reduction equipment expensed during the year."

From the above, the Committee notes that the Guidance Note although considers the CERs as an item of inventory since these are held for sale, it considers them as an ancillary benefit of the CDM project apart from the main product(s) being produced (for example, compost and RDF in the extant case) out of the CDM project and not as a joint product. The Committee also notes that since the Guidance Note requires to recognise the CERs as asset only when communication of credit of CERs is received by the entity, the question of recognition of CERs as joint product before that stage does not arise. Further, with regard to inventory valuation, although the Guidance Note lists out the costs incurred for monitoring the reductions of emissions in paragraph 24, it does not consider such costs to be the cost of inventories of CERs; rather it specifically states that only the costs incurred by the generating entity for certification of CERs, are the costs of inventories of CERs. Accordingly, the Committee is of the view that CERs in the extant case should not be considered as a joint product and the cost of the inventories of CERs should not include

operating expenses upto the stage of compost production, as being argued by the querist. Incidentally, with regard to querist's contention regarding mismatch in recognition of cost and revenue towards CERs generation, the Committee wishes to point out that the same would be addressed by the disclosure required under paragraph 35 (b) of the Guidance Note.

D. Opinion

13. On the basis of the above, the Committee is of the following opinion on the issues raised in paragraph 9 above:

(a) CERs inventory cannot be recognised in the financials of the company post 15 days of verification report submitted by DOE to UNFCCC Executive Board for issuance of CERs, as discussed in paragraph 11 above.

(b) Compost, RDF and CERs are not joint products, as per requirements of the Guidance Note, as discussed in paragraph 12 above.

(c) For the purpose of CER inventory valuation, the costs should not include all operation expenses upto the stage of compost production and should be limited to the cost incurred by the generating entity for certification of CERs, as discussed in paragraph 12 above.