TYPE III - OTHER PROJECT ACTIVITIES

Follow the link to find General guidance / Abbreviations

III.G. Avoidance of methane production from biomass decay through controlled combustion

Technology/measure

1. This project category comprises measures that avoid the production of methane from biomass or other organic matter that would have otherwise been left to decay anaerobically in a solid waste disposal site without methane recovery. Due to the project activity, decay is prevented through controlled combustion. The project activity does not recover or combust methane (unlike III E). Measures shall both reduce anthropogenic emissions by sources, and directly emit less than 15 kilo tonnes of carbon dioxide equivalent annually.

2. If the combustion facility is used for heat and electricity generation the project can use a corresponding methodology under type I project activities.

Boundary

3. The project boundary are the physical, geographical sites:

a. where the solid waste would have been disposed and the avoided methane emission occurs in absence of the proposed project activity,

b. where the treatment of biomass through controlled combustion takes place,

c. and in the itineraries between them, where the transportation of wastes and combustion residues occurs.

Project Activity Direct Emissions

4. Total annual project activity related emissions shall be less than or equal to 15 kilo tonnes of CO_2 equivalent. Project activity emissions consist of

a. CO_2 emissions related to the combustion of the non-biomass carbon content of the waste (plastics, rubber and fossil derived carbon) and auxiliary fuels used in the combustion facility,

b. Incremental CO_2 emissions due to incremental distances between the collection points to the controlled combustion site and to the baseline disposal site as well as transportation of combustion residues and final waste from controlled burning site to disposal site,

c. CO_2 emissions related to the power used by the project activity facilities, including the equipments for air pollution control required by regulations. In case the project activity consumes grid-based electricity, the grid emission factor (kg_{CO2e}/kWh) is used, or it is assumed that diesel generators would have provided a similar amount of electric power, calculated as described in category I.D. .

$$PE_y = PE_{y,comb} + PE_{y,transp} + PE_{y,power}$$

where:

PE_y project activity direct emissions in the year "y" (tonnes of CO_2 equivalent)

$PE_{y,comb}$ emissions through combustion of non-biomass carbon in the year "y"
$PE_{y,transp}$ emissions through incremental transportation in the year "y"
$PE_{y,power}$ emissions through electricity or diesel consumption in the year "y"

5. The expected annual amount and composition of the waste combusted by the project activity during the crediting period shall be described in the project design document, including the biomass and non-biomass carbon content of the waste ($Q_{biomass}$ and $Q_{non-biomass}$). Also the expected consumption of auxiliary fuel for the incineration process ($Q_{fuel,aux}$) should be reported in the project design document. These data will be used to estimate the annual baseline emissions, and the ex-post project activity emissions. CO_2 emissions from the combustion of the non-biomass carbon content of the wastes and from the auxiliary fuel consumed will be estimated assuming the complete oxidation of carbon to CO_2 in the combustion.

$$PE_{y,comb} = Q_{y,,non-biomass} * 44/12 + Q_{y,fuel} * E_{y,fuel}$$

where:
$Q_{y,,non-biomass}$: Non-biomass carbon of the waste combusted in the year "y" (tonnes of Carbon)
$Q_{y,fuel}$ Quantity of auxiliary fuel used in the year "y" (tonnes)
$E_{y,fuel}$ CO_2 emission factor for the combustion of the auxiliary fuel (tonnes CO2 per tonne fuel, according to IPCC Guidelines)

6. Project activity emissions from trucks for incremental collection activities will be estimated and considered as project activity emissions.

$$PE_{y,transp} = (Q_y/CT_y) * DAF_w * EF_{CO2} + (Q_{y,ash}/CT_{y,ash}) * DAF_{ash} * EF_{CO2}$$

where:
Q_y quantity of waste combusted in the year "y" (tonnes)
CT_y average truck capacity for waste transportation (tonnes/truck)
DAF average incremental distance for waste transportation (km/truck)
EF_{CO2} CO_2 emission factor from fuel use due to transportation ($kgCO_2$/km, IPCC default values or local values can be used.
$Q_{y,ash}$ quantity of combustion residues produced in the year "y" (tonnes)
$CT_{y,ash}$ average truck capacity for combustion residues transportation (tonnes/truck)
DAF_{ash} average distance for combustion residues transportation (km/truck)

Baseline

7. The baseline scenario is the situation where, in the absence of the project activity, biomass and other organic matter are left to decay within the project boundary and methane is emitted to the atmosphere. The baseline emissions are the amount of methane from the decay of the biomass content of the waste treated in the project activity. The Yearly Methane Generation Potential is calculated using the first order decay model based on the discrete time estimate method of the IPCC Guidelines, as described in category AMS III-E. Baseline emissions shall exclude methane emissions that would have to be removed or combusted to comply with national or local safety requirement or legal regulations.

$$BE_y = MB_{,y} * GWP\_CH_4 – MD_{y,reg} * GWP\_CH_4$$

where,

$MB_{,y}$ methane generation potential in the year "y" (tonnes of CH_4), estimated as in AMS III-E

$MD_{y,reg}$ methane that would be destroyed or removed in the year "y" for safety or legal regulation

CH_4_GWP GWP for CH_4 (value of 21 is used for the first commitment period)

Leakage

8. If the controlled combustion technology is equipment transferred from another activity or if the existing equipment is transferred to another activity, leakage effects at the site of the other activity are to be considered.

Monitoring

9. The emission reduction achieved by the project activity will be measured as the difference between the baseline emission and the sum of the project emission and leakage.

$$ER_y = BE_y - (PE_y + Leakage_y)$$

where:

ER_y Emission reduction in the year "y" (tonnes of CO_2 eq.)

10. The amount of waste combusted in the project activity in each year (Q_y) shall be measured and recorded, as well as its composition through representative sampling, to provide information for estimating the baseline emissions . The auxiliary fuel used ($Q_{y,fuel}$) will be measured and registered, and the non-biomass carbon in the waste combusted ($Q_{y,C,non\text{-}biomass}$) will be measured by sampling, to yield the project activity emission through combustion. The total quantity of waste combusted (Q_y) and the average truck capacity (CT_y) will be measured to yield the project activity emission through transportation. The power consumption and/or generation will be measured and registered. The monitoring will also record the distance for transporting the waste in baseline and the project scenario.

11. The project participants will demonstrate annually that the amount of waste combusted in the project activity facilities would have been disposed in a solid waste disposal site without methane recovery in the absence of the project activity.