JCM proposed methodology and its attached sheet are preliminary drafts and have neither been officially approved under the JCM, nor are guaranteed to be officially approved under the JCM.

**JCM Proposed Methodology Form**

## Cover sheet of the Proposed Methodology Form

Form for submitting the proposed methodology

| | |
|---|---|
| Host Country | Republic of the Union of Myanmar |
| Name of the methodology proponents submitting this form | JFE Engineering Corporation |
| Sectoral scope(s) to which the Proposed Methodology applies | 1. Energy industries (renewable - / non-renewable sources)<br>13. Waste handling and disposal |
| Title of the proposed methodology, and version number | Power generation and avoidance of landfill gas emissions through combustion of municipal solid waste (MSW) |
| List of documents to be attached to this form (please check): | ☐The attached draft JCM-PDD:<br>☐Additional information |
| Date of completion | 26/02/2015 |

History of the proposed methodology

| Version | Date | Contents revised |
|---|---|---|
| 01.0 | 26/02/2015 | First edition |
| | | |
| | | |

## A. Title of the methodology

| |
|---|
| Power generation and avoidance of landfill gas emissions through combustion of municipal solid waste (MSW) |

## B. Terms and definitions

| Terms | Definitions |
|---|---|
| Municipal solid waste (MSW) | A heterogeneous mix of different solid waste types, usually collected by municipalities or other local authorities. MSW includes household waste, garden/park waste and commercial/institutional waste. |
| Solid waste disposal site (SWDS) | Designated areas intended as the final storage place for solid waste. |
| Fresh waste | Solid waste that is intended for disposal in a SWDS but has not yet been disposed. This may comprise MSW and excludes old waste and hazardous waste. |

## C. Summary of the methodology

| Items | Summary |
|---|---|
| *GHG emission reduction measures* | Installation of MSW incinerators avoids emissions of $CH_4$ associated with disposing organic waste in a SWDS and the project facility displaces electricity from a grid or captive power generator which is generated using fossil fuels resulting in GHG emission reductions. |
| *Calculation of reference emissions* | The BaU treatment of the MSW is considered to be open dumping, however, a discount factor is multiplied to BaU emissions for assuring conservativeness. Reference emissions are calculated by multiplying a discount factor and a sum of the following emissions:<br>● $CH_4$ emissions from SWDS: Calculated from the amount of MSW and fraction of each waste type incinerated in the incinerator using the first order decay (FOD) model; and |

| | |
|---|---|
| | ● $CO_2$ emissions from a grid or captive power generator: Gross electricity generated by the project facility multiplied by the emission factor of displaced electricity. |
| *Calculation of project emissions* | Project emissions are calculated as a sum of the following emissions:<br>● $CO_2$ emissions from combustion of fossil carbon contained in MSW: The amount of MSW multiplied by fraction of fossil carbon content and the conversion factor of carbon;<br>● $N_2O$ emissions from combustion of waste: The amount of MSW multiplied by the $N_2O$ emission factor associated with incineration;<br>● $CO_2$ emissions from electricity used to operate the project facility: Electricity used to operate the project facility multiplied by the emission factor of electricity; and<br>● $CO_2$ emissions from auxiliary fossil fuel consumption associated with incineration: The amount of fossil fuel consumption associated with incineration multiplied by the emission factor of the fossil fuel. |
| *Monitoring parameters* | ● Amount of waste (wet basis);<br>● Fraction of each waste type (wet basis);<br>● Gross electricity generated and sold by the project facility;<br>● Gross electricity purchased by the project facility; and<br>● Quantity of auxiliary fossil fuel consumption. |

## D. Eligibility criteria

This methodology is applicable to projects that satisfy all of the following criteria.

| | |
|---|---|
| Criterion 1 | The project newly installs an incinerator, waste heat recovery boiler, exhaust gas treatment equipment and turbine generator. |
| Criterion 2 | The project incinerates fresh municipal solid waste and generates electricity from steam produced in a boiler which uses heat of incineration. |
| Criterion 3 | The project facility is constructed within the municipality where waste to be incinerated by the project is generated. |
| Criterion 4 | The fraction of energy generated by auxiliary fossil fuels in a construction design document is planned to be not more than 50 % of the total energy generated in the incinerator during normal operation. |

| | |
|---|---|
| Criterion 5 | Electricity generated is exported to a grid or used for displacing captive fossil fuel fired power generator. |
| Criterion 6 | Emissions of $NO_2$ and CO at the stack of incinerator are designed to be less than or equal to the following levels: $NO_2$ (230mg/m$^3$@11%$O_2$) and CO (42mg/m$^3$@11%$O_2$) |

## E. Emission Sources and GHG types

| Reference emissions | |
|---|---|
| Emission sources | GHG types |
| Decomposition of waste at SWDS | $CH_4$ |
| Electricity generation | $CO_2$ |
| | |
| | |
| | |
| | |
| | |
| **Project emissions** | |
| Emission sources | GHG types |
| Incineration of fossil based waste | $CO_2$ |
| Incineration of waste | $N_2O$ |
| On-site electricity use | $CO_2$ |
| Consumption of auxiliary fossil fuels needed to be added into incinerator | $CO_2$ |
| | |
| | |
| | |

## F. Establishment and calculation of reference emissions

### F.1. Establishment of reference emissions

A project that applies this methodology incinerates MSW and generates electricity. In Myanmar, MSW has been disposed in open dump sites. Although some initiatives exist to treat waste with alternative methods such as incinerating MSW, the cost of alternative treatment of waste hampers the actual installation, therefore, without the financial assistance the alternative waste treatment facility would not be installed. As a result, BaU for waste treatment is open dumping and BaU emissions are $CH_4$ emissions from open dumping of MSW and $CO_2$ emissions from fossil fuels fired to generate electricity which would be displaced by the project. To estimate reference emissions conservatively, calculated BaU emissions are multiplied by a discount factor to account for the waste treatment status.

**F.2. Calculation of reference emissions**

$$\mathrm{RE_p} = \left(\mathrm{RE_{CH4,p}} + \mathrm{RE_{elec,p}}\right) \times \mathrm{DF_{RATE}}$$

Where:

| | | |
|---|---|---|
| $\mathrm{RE_p}$ | = | Reference emissions during the period *p* ($tCO_2e$/p) |
| $\mathrm{RE_{CH4,p}}$ | = | Reference emissions from decomposition of waste at the SWDS during the period *p* ($tCO_2e$/p) |
| $\mathrm{RE_{elec,p}}$ | = | Reference emissions from electricity generation during the period *p* ($tCO_2e$/p) |
| $\mathrm{DF_{RATE}}$ | = | Discount factor |

$$\mathrm{DF_{RATE}} = 1 - \mathrm{RATE}$$

Where:

| | | |
|---|---|---|
| $\mathrm{DF_{RATE}}$ | = | Discount factor |
| RATE | = | Ratio of the amount of intermediately treated waste to the amount of all waste generated in the municipality where waste to be incinerated by the project is generated (weight fraction) |

$$\mathrm{RE_{CH4,p}} = \sum_{m=p\_start}^{p\_end} \left\{ \varphi \times (1-f) \cdot \mathrm{GWP_{CH4}} \cdot (1-\mathrm{OX}) \cdot \frac{16}{12} \cdot \mathrm{F} \cdot \mathrm{DOC_f} \cdot \mathrm{MCF} \cdot \sum_{i=1}^{m} \sum_{j} \mathrm{W_{j,i}} \cdot \mathrm{DOC_j} \cdot e^{-\frac{k_j}{12}(m-i)} \cdot \left(1 - e^{-\frac{k_j}{12}}\right) \right\}$$

Where:

| | | |
|---|---|---|
| $\mathrm{RE_{CH4,p}}$ | = | Reference emissions from decomposition of waste at the SWDS during the period *p* ($tCO_2e$/p) |
| m | = | Month in the period *p* for which methane emissions are calculated |
| p_start | = | The first month in the period *p* for which methane emissions are calculated |
| p_end | = | The last month in the period *p* for which methane emissions are calculated |
| i | = | Months in the time period in which waste is disposed at the SWDS, extending from the first month in the time period (*i* = 1) to month *m* (*i* = *m*) |

| | | |
|---|---|---|
| $\varphi$ | = | Model correction factor to account for model uncertainties |
| $f$ | = | Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere |
| $GWP_{CH4}$ | = | Global Warming Potential of methane ($tCO_2e/tCH_4$) |
| $OX$ | = | Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste) |
| $F$ | = | Fraction of methane in the SWDS gas (volume fraction) |
| $DOC_f$ | = | Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS (weight fraction) |
| $MCF$ | = | Methane correction factor |
| $W_{j,i}$ | = | Quantity of waste type *j* fed into incinerator in month *i* (t) |
| $DOC_j$ | = | Fraction of degradable organic carbon in the waste type *j* (weight fraction) |
| $k_j$ | = | Decay rate for the waste type *j* (1/yr) |
| $j$ | = | Type of waste |

$$W_{j,i} = W_i \times \frac{\sum_{n=1}^{3} p_{n,j,i}}{3}$$

Where:

| | | |
|---|---|---|
| $W_{j,i}$ | = | Quantity of waste type *j* fed into incinerator in month *i* (t) |
| $W_i$ | = | Quantity of waste fed into incinerator in month *i* (t) |
| $p_{n,j,i}$ | = | Fraction of the waste type *j* in the sample *n* collected during three consecutive months including month *i* (weight fraction) |
| n | = | Three samples collected during three consecutive months including month *i* |
| j | = | Type of waste |
| i | = | Months in the time period in which waste is fed into the incinerator, extending from the first month in the time period (*i*=1) to month *m* (*i*=m) |
| m | = | Months of the period *p* for which methane emissions are calculated |

$$RE_{elec,p} = EG_{elec,p} \times EF_{elec}$$

Where:

| | | |
|---|---|---|
| $RE_{elec,p}$ | = | Reference emissions from electricity generation during the period *p* ($tCO_2e/p$) |
| $EG_{elec,p}$ | = | Gross electricity generated and sold by the project facility during the period *p* (MWh/p) |
| $EF_{elec}$ | = | Emission factor for electricity generation ($tCO_2e/MWh$) |

## G. Calculation of project emissions

$$PE_p = PE_{COM\_CO2,p} + PE_{COM\_N2O,p} + PE_{EC,p} + PE_{FC,p}$$

Where:

| | | |
|---|---|---|
| $PE_p$ | = | Project emissions during the period *p* ($tCO_2e/p$) |
| $PE_{COM\_CO2,p}$ | = | Project emissions of $CO_2$ from combustion of fossil waste associated with incineration during the period *p* ($tCO_2e/p$) |
| $PE_{COM\_N2O,p}$ | = | Project emissions of $N_2O$ from combustion of waste associated with incineration during the period *p* ($tCO_2e/p$) |
| $PE_{EC,p}$ | = | Project emissions from electricity consumption by the project facility during the period *p* ($tCO_2e/p$) |
| $PE_{FC,p}$ | = | Project emissions from fossil fuel consumption associated with incineration during the period *p* ($tCO_2e/p$) |

$$PE_{COM\_CO2,p} = EFF_{COM} \times \frac{44}{12} \times \sum_j W_{j,p} \times (1 - WC) \times FCC_j \times FFC_j$$

Where:

| | | |
|---|---|---|
| $PE_{COM\_CO2,p}$ | = | Project emissions of $CO_2$ from combustion of fossil waste associated with incineration during the period *p* ($tCO_2e/p$) |
| $EFF_{COM}$ | = | Combustion efficiency of incinerator (fraction) |
| $\frac{44}{12}$ | = | Conversion factor ($tCO_2/tC$) |
| $W_{j,p}$ | = | Quantity of waste type *j* fed into incinerator during the period *p* (t/p) |
| $WC$ | = | Water content of waste (%) |
| $FCC_j$ | = | Fraction of total carbon content in waste type *j* (% dry waste) |
| $FFC_j$ | = | Fraction of fossil carbon in total carbon content of waste type *j* (weight fraction) |

$$W_{j,p} = \sum_i^m \left( W_i \times \frac{\sum_{n=1}^3 p_{n,j,i}}{3} \right)$$

Where:

| | | |
|---|---|---|
| $W_{j,p}$ | = | Quantity of waste type *j* fed into incinerator during the period *p* (t/p) |
| $W_i$ | = | Quantity of waste fed into incinerator in month *i* (t) |
| $p_{n,j,i}$ | = | Fraction of waste type *j* in the sample *n* collected during three consecutive months including month *i* (weight fraction) |
| n | = | Three samples collected during three consecutive months including month *i* |
| j | = | Type of waste |

| | | |
|---|---|---|
| i | = | Months in the time period in which waste is fed into the incinerator, extending from the first month in the time period (*i*=1) to month *m* (*i*=m) |
| m | = | Months of the period *p* for which methane emissions are calculated |

$$PE_{COM\_N2O,p} = W_i \times EF_{N2O} \times GWP_{N2O}$$

Where:

| | | |
|---|---|---|
| $PE_{COM\_N2O,p}$ | = | Project emissions of $N_2O$ from combustion of waste associated with incineration during the period *p* ($tCO_2e/p$) |
| $W_i$ | = | Quantity of waste fed into incinerator in month *i* (t) |
| $EF_{N2O}$ | = | Emission factor for $N_2O$ associated with incineration ($tN_2O$/t waste) |
| $GWP_{N2O}$ | = | Global Warming Potential of nitrous oxide ($tCO_2e/tN_2O$) |

$$PE_{EC,p} = EC_p \times EF_{elec}$$

Where:

| | | |
|---|---|---|
| $PE_{EC,p}$ | = | Project emissions from electricity consumption by the project facility during the period *p* ($tCO_2e/p$) |
| $EC_p$ | = | Gross electricity purchased by the project facility during the period *p* (MWh/p) |
| $EF_{elec}$ | = | Emission factor for electricity generation ($tCO_2e$/MWh) |

$$PE_{FC,p} = \sum_{fuel} FC_{fuel,p} \times NCV_{fuel} \times EF_{CO2,fuel}$$

Where:

| | | |
|---|---|---|
| $PE_{FC,p}$ | = | Project emissions from fossil fuel consumption associated with incineration during the period *p* ($tCO_2e/p$) |
| $FC_{fuel,p}$ | = | Quantity of fuel combusted during the period *p* (kL or $m^3$/p) |
| $NCV_{diesel}$ | = | Net calorific value of fuel (GJ/kL or $m^3$) |
| $EF_{CO2,fuel}$ | = | Weighted average $CO_2$ emission factor of fuel ($tCO_2$/GJ) |
| fuel | = | Type of fuel |

## H. Calculation of emissions reductions

$$ER_p = RE_p - PE_p$$

Where:

| | | |
|---|---|---|
| $ER_p$ | = | Emission reductions during the period *p* ($tCO_2e/p$) |
| $RE_p$ | = | Reference emissions during the period *p* ($tCO_2e/p$) |

| | | |
|---|---|---|
| $PE_p$ | = | Project emissions during the period *p* ($tCO_2e/p$) |

## I. Data and parameters fixed *ex ante*

The source of each data and parameter fixed *ex ante* is listed as below.

| Parameter | Description of data | Source |
|---|---|---|
| RATE | Ratio of the amount of intermediately treated waste to the amount of all waste generated in the municipality where waste to be incinerated by the project is generated (weight fraction)<br>Estimate at the time of validation or the start of operation, whichever comes earlier, using data or information provided from the municipality. | Data or information provided from the municipality |
| $\varphi$ | Model correction factor to account for model uncertainties<br>Default value: 0.85<br>The appropriate value was selected from the default values $\varphi_{default}$ in the tool. | CDM Methodological Tool "Emissions from solid waste disposal sites" (Version 06.0.1) |
| f | Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere<br>Default value: 0 | Decided taking into consideration the situation in Myanmar |
| $GWP_{CH4}$ | Global Warming Potential of methane ($tCO_2e/tCH_4$)<br>Default value: 25 | Table 2.14, of the errata to the contribution of Working Group I to the Fourth Assessment Report of the IPCC |
| OX | Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)<br>Default value: 0.1 | CDM Methodological Tool "Emissions from solid waste disposal sites" (Version 06.0.1) |
| F | Fraction of methane in the SWDS gas (volume fraction) | CDM Methodological Tool "Emissions from solid waste |

| | | |
|---|---|---|
| | Default value: 0.5 | disposal sites" (Version 06.0.1) |
| $DOC_f$ | Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS (weight fraction)<br>Default value: 0.5 | CDM Methodological Tool "Emissions from solid waste disposal sites" (Version 06.0.1) |
| MCF | Methane correction factor<br>Select one of the followings taking into consideration the situation of the project.<br><br>(1) In Yangon City: Default value of 0.8<br>The appropriate value was selected from the default values $MCF_{default}$ in the tool taking into consideration the situation in Yangon City.<br><br>(2) In other places in Myanmar:<br>(2)-1 In case of a water table above the bottom of the SWDS, estimate the MCF using the following equation.<br>$$\mathrm{MCF} = \mathrm{MAX}\left\{\left(1 - \frac{2}{d_y}\right), \frac{h_{w,y}}{d_y}\right\}$$<br>$h_{w,y}$ = Height of water table measured from the base of the SWDS (m)<br>$d_y$ = Depth of SWDS (m)<br>(2)-2 In case that the SWDS does not have a water table above the bottom of the SWDS, select the applicable value from the following:<br>● 1.0 for anaerobic managed solid waste disposal sites. These have controlled placement of waste (i.e. waste directed to specific deposition areas, a degree of control of scavenging and a degree of control of fires) and will include at least one of the following: (i) cover material; (ii) mechanical compacting; or (iii) leveling of the waste;<br>● 0.5 for semi-aerobic managed solid waste disposal sites. These have controlled placement | CDM Methodological Tool "Emissions from solid waste disposal sites" (Version 06.0.1) |

<table>
<tr>
<td></td>
<td>of waste and will include all of the following structures for introducing air to the waste layers: (i) permeable cover material; (ii) leachate drainage system; (iii) regulating pondage; and (iv) gas ventilation system;<ul><li>0.8 for unmanaged solid waste disposal sites–deep. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of greater than or equal to 5 meters;</li><li>0.4 for unmanaged-shallow solid waste disposal sites or stockpiles that are considered SWDS. This comprises all SWDS not meeting the criteria of managed SWDS and which have depths of less than 5 meters. This includes stockpiles of solid waste that are considered SWDS.</li></ul></td>
<td></td>
</tr>
<tr>
<td>$DOC_j$</td>
<td>Fraction of degradable organic carbon in the waste type j (weight fraction)<br>Default values for $DOC_j$:
<table>
<tr><td>Waste type j</td><td>$DOC_j$<br>(% wet waste)</td></tr>
<tr><td>Wood and wood products</td><td>43</td></tr>
<tr><td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr>
<tr><td>Food, food waste, beverages and tobacco (other than sludge)</td><td>15</td></tr>
<tr><td>Textiles</td><td>24</td></tr>
<tr><td>Garden, yard and park waste</td><td>20</td></tr>
<tr><td>Nappies</td><td>24</td></tr>
<tr><td>Glass, plastic, metal, other inert waste</td><td>0</td></tr>
<tr><td>Sludge</td><td>5</td></tr>
</table></td>
<td>CDM Methodological Tool “Emissions from solid waste disposal sites” (Version 06.0.1) and Table 2.4, chapter 2, volume 5 of 2006 IPCC guidelines</td>
</tr>
<tr>
<td>$k_j$</td>
<td>Decay rate for the waste type j (1/yr)<br>Default values for $k_j$:
<table>
<tr><td colspan="2">Waste type j</td><td>$k_j$<br>(1/yr)</td></tr>
<tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard (other than sludge), textiles</td><td>0.07</td></tr>
<tr><td>Wood, wood products and straw</td><td>0.035</td></tr>
<tr><td>Moderately degrading</td><td>Other (nonfood) organic putrescible</td><td>0.17</td></tr>
</table></td>
<td>CDM Methodological Tool “Emissions from solid waste disposal sites” (Version 06.0.1)</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>
<table>
<tr><td></td><td>garden and park waste</td><td></td></tr>
<tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.40</td></tr>
</table>
The default values $k_j$ for Tropical (Mean annual temperature>20 degree C) and Wet (Mean annual precipitation>1000mm) were selected taking into consideration the climate condition of Myanmar.
</td>
<td></td>
</tr>
<tr>
<td>$\mathrm{EF}_{\mathrm{elec}}$</td>
<td>Emission factor for electricity generation ($tCO_2e$/MWh)<br>Select one of the followings taking into consideration the situation of the project.<br>For grid electricity: The value available from PDD of the most recently registered CDM project hosted in Myanmar or the calculated value using the latest version of the “Tool to calculate the emission factor for an electricity system” under the CDM at the time of validation.<br>For captive electricity: The most recent value available from CDM approved small scale methodology AMS-I.A.</td>
<td>For grid electricity: PDD of the most recently registered CDM project hosted in Myanmar or the latest version of the “Tool to calculate the emission factor for an electricity system” under the CDM at the time of validation<br>For captive electricity: CDM approved small scale methodology AMS-I.A.</td>
</tr>
<tr>
<td>$\mathrm{EFF}_{\mathrm{COM}}$</td>
<td>Combustion efficiency of incinerator (fraction)<br>Default value: 1 (100%)</td>
<td>Table 5.2, chapter 5, volume 5 of 2006 IPCC guidelines</td>
</tr>
<tr>
<td>$\mathrm{FCC}_{\mathrm{j}}$</td>
<td>Fraction of total carbon content in waste type j (tC/t)<br>Default values for $FCC_j$:
<table>
<tr><th>Waste type j</th><th>$FCC_j$ (tC/t)</th></tr>
<tr><td>Paper/cardboard</td><td>50</td></tr>
<tr><td>Textiles</td><td>50</td></tr>
<tr><td>Food waste</td><td>50</td></tr>
<tr><td>Wood</td><td>54</td></tr>
<tr><td>Garden and Park waste</td><td>55</td></tr>
<tr><td>Nappies</td><td>90</td></tr>
<tr><td>Rubber and Leather</td><td>67</td></tr>
<tr><td>Plastics</td><td>85</td></tr>
<tr><td>Metal*</td><td>NA</td></tr>
<tr><td>Glass*</td><td>NA</td></tr>
<tr><td>Other, inert waste</td><td>5</td></tr>
</table>
*Metal and glass contain some carbon of fossil origin. Combustion of significant amounts of glass or metal is not common.
</td>
<td>CDM approved consolidated baseline and monitoring methodology ACM0022 “Alternative waste treatment processes” (Version 1.0.0)</td>
</tr>
<tr>
<td>$\mathrm{FFC}_{\mathrm{j}}$</td>
<td>Fraction of fossil carbon in total carbon content of</td>
<td>CDM approved consolidated</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>waste type j (weight fraction)<br>Default values for $FFC_j$:
<table>
<tr><td>Waste type j</td><td>$FFC_j$ (%)</td></tr>
<tr><td>Paper/cardboard</td><td>5</td></tr>
<tr><td>Textiles</td><td>50</td></tr>
<tr><td>Food waste</td><td>-</td></tr>
<tr><td>Wood</td><td>-</td></tr>
<tr><td>Garden and Park waste</td><td>0</td></tr>
<tr><td>Nappies</td><td>10</td></tr>
<tr><td>Rubber and Leather</td><td>20</td></tr>
<tr><td>Plastics</td><td>100</td></tr>
<tr><td>Metal*</td><td>NA</td></tr>
<tr><td>Glass*</td><td>NA</td></tr>
<tr><td>Other, inert waste</td><td>100</td></tr>
</table>
*Metal and glass contain some carbon of fossil origin. Combustion of significant amounts of glass or metal is not common.</td>
<td>baseline and monitoring methodology ACM0022 “Alternative waste treatment processes” (Version 1.0.0)</td>
</tr>
<tr>
<td>WC</td>
<td>Water content of waste (%)<br>Average value of at least three samples on waste generated within the same municipality where the project facility is to be constructed.</td>
<td>Study conducted by the project participants</td>
</tr>
<tr>
<td>$EF_{N2O}$</td>
<td>Emission factor for $N_2O$ associated with incineration ($tN_2O$/t waste)<br>Select one of the following default values taking into consideration the situation of the project.<br>Default values for $EF_{N2O}$:
<table>
<tr><td>Type of waste</td><td>Technology / Management practice</td><td>$EF_{N2O}$ ($tN_2O$/t waste wet basis)</td></tr>
<tr><td>MSW</td><td>Continuous and semicontinuous incinerators</td><td>$1.21*50*10^{-6}$</td></tr>
<tr><td>MSW</td><td>Batch-type incinerators</td><td>$1.21*60*10^{-6}$</td></tr>
</table></td>
<td>CDM approved consolidated baseline and monitoring methodology ACM0022 “Alternative waste treatment processes” (Version 1.0.0) and Table 5.6, chapter 5, volume 5 of 2006 IPCC Guidelines</td>
</tr>
<tr>
<td>$GWP_{N2O}$</td>
<td>Global Warming Potential of nitrous oxide ($tCO_2e/tN_2O$)<br>Default value: 298</td>
<td>Table 2.14, of the errata to the contribution of Working Group I to the Fourth Assessment Report of the IPCC</td>
</tr>
<tr>
<td>$NCV_{fuel}$</td>
<td>Net calorific value of fuel (GJ/kL or $m^3$)<br>Decided from the specifications described on invoices or other commercial/contractual evidence.</td>
<td>Invoices or other commercial/contractual evidence</td>
</tr>
<tr>
<td>$EF_{CO2,fuel}$</td>
<td>Weighted average $CO_2$ emission factor of fuel</td>
<td>Table 1.4, chapter 1, volume</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>($tCO_2/GJ$)<br><br>Default values for $EF_{CO2,fuel}$:
<table>
<tr><th>Fuel type fuel</th><th>$EF_{CO2,fuel}$ ($tCO_2/GJ$)</th></tr>
<tr><td>Diesel</td><td>0.0748</td></tr>
<tr><td>Gas</td><td>0.0748</td></tr>
<tr><td>Kerosene (Other kerosene)</td><td>0.0737</td></tr>
<tr><td>Heavy oil (Residual Fuel Oil)</td><td>0.0788</td></tr>
</table>
* IPCC default value at the upper limit of the uncertainty at a 95% confidence interval.</td>
<td>2 of 2006 IPCC Guidelines</td>
</tr>
</table>