Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories

TYPE III - OTHER PROJECT ACTIVITIES

Project participants shall take into account the general guidance to the methodologies, information on additionality, abbreviations and general guidance on leakage provided at http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html.

III.M. Reduction in consumption of electricity by recovering soda from paper manufacturing process

Technology/measure

1. This project category comprises of technology/measures for recovering caustic soda from waste black liquor generated in paper manufacturing. Production of caustic soda in traditional soda manufacturing processes requires more energy in comparison to recovery of equivalent amount of caustic soda.

2. Measures are limited to those that result in emission reduction of less than or equal to 60 $ktCO_2e$ annually.

Boundary

3. The project boundary includes all physical, geographical sites where:

(a) The waste liquor is processed for recovery;

(b) The physical site where caustic soda is procured;

(c) The electricity generation plants connected to soda manufacturing and recovery plants are located.

Project Activity Emissions

4. Project activity emissions is given by:

$$PE_y = PE_{y,electrical} + PE_{y,thermal}$$

Where:

PE_y Project activity emissions in the year "y" (tCO_2e)

$PE_{y,electrical}$ Emissions due to power consumption by project activity equipment/facility (tCO_2e)

$PE_{y,thermal}$ Emissions due to thermal energy consumption by the recovery process (tCO_2e)

5. Emissions due to power consumption by project activity equipment/facility is given by:

$$PE_{y,electrical} = Q_{rec,y} * E_{PT} * EF_P$$

Where:

$Q_{rec,y}$ Quantity of soda recovered in year "y" (tonnes of NaOH)

E_{PT} Electricity consumed for recovering 1 tonne of soda (kWh/tonne of NaOH)

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III.M. Reduction in consumption of electricity by recovering soda from paper manufacturing process (cont)

EF_P Emission factor of the electricity used for recovering soda (tCO_2/kWh) estimated as per the procedures described in AMS I.D.

6. Emissions due to thermal energy consumption by the recovery process is given by:

$$PE_{y,thermal} = Q_{ff,y} * EF_{ff,y}$$

Where:

$Q_{ff,y}$ Quantity of fossil fuel consumed for thermal energy in the recovery process in year "y" (tonnes)

$EF_{ff,y}$ Emission factor for the fossil fuel (tCO_2/tonne, local values are used, if local values are difficult to get IPCC default values may be used)

Baseline

7. The baseline scenario is the situation where, in the absence of the project activity, caustic soda would be purchased from in-country production facilities.

The baseline emissions is given by:

$$BE_y = Q_{rec,y} * E_{BT} * EF_B$$

Where:

BE_y Baseline emissions (tCO_2 e)

$Q_{rec,y}$ Quantity of soda recovered in the process (tonnes of NaOH)

E_{BT} Electricity consumed for producing one tonne of soda (kWh/tonne of NaOH)

EF_B Emission factor of the electricity used for soda production (tCO_2/kWh) estimated as per the procedures described in AMS I.D.

Electricity consumed for producing one tonne of soda shall be taken as the minimum of the following:

(a) Ex-ante based on average of the last three years data from caustic soda supplier(s) to the paper-manufacturing unit;

(b) Ex-post based on actual average data from soda supplier(s) to the paper-manufacturing unit.

In calculating baseline emissions the caustic soda statistics should exclude quantity that was imported, so as to ensure that emission reductions are claimed only for displacement of caustic soda produced in the in-country facilities.

Leakage

8. If the caustic soda recovery equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

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III.M. Reduction in consumption of electricity by recovering soda from paper manufacturing process (cont)

9. If a quantity of the residue is used in producing lime (CaO) in a facility outside the boundary then CO_2 emissions from the production of lime shall be considered as leakage to conservatively estimate emission reductions.

Monitoring

10. The following shall be monitored:

(a) Electricity consumption for manufacture of a unit quantity of caustic soda (specific energy consumption) during the crediting period. The monitoring process shall utilize reports submitted to the company by the suppliers, verified or audited by an authorized third party. In case more than one manufacturer is supplying, weighted average calculations shall be done and result used in the baseline calculation. Ex-ante estimation using the most conservative data from a minimum of three recent historical three years shall be used in the project design document;

(b) Quantity of caustic soda recovered per year;

(c) Annual average electricity consumption in the caustic soda recovery plant;

(d) Annual average fossil fuel and any auxiliary fuel used in the caustic soda recovery plant;

(e) The quantity of residues produced, portion of residue used for the production of lime and portion of residue that is disposed in a solid waste disposal site.

11. The emission reduction achieved by the project activity shall be calculated as the difference between the baseline emission and the sum of the project emission and leakage.

$$\mathbf{ER_y = BE_y - PE_y - Leakage}$$

Where:
ER_y Emission reduction in the year "y" (tCO_2e)