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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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:

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

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 or imported from a producing facility located in a Non-Annex 1 country.

8. The baseline emissions is given by:

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

Where:
BE_y Baseline emissions (tCO_2e)
$Q_{rec,y}$ 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.

9. 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.

10. In calculating baseline emissions, the caustic soda statistics shall include caustic soda sources from in- country caustic soda producing facilities and/or caustic soda imports from producing facilities located in a Non-Annex 1 country. Furthermore information on the electricity consumed for producing one tonne of soda must be readily available and should be taken as the minimum of the two options specified in paragraph 9 (a) and (b) above. Information that can be used to calculate the emission factor of the source of electricity supply as per the procedure described in AMS I.D must also be available. The caustic soda producing facilities in the non Annex 1 country must also be monitored in line with paragraph 9.

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Leakage

11. 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.

12. 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

13. 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.

14. 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)

Project activity under a programme of activities

The following conditions apply for use of this methodology in a project activity under a programme of activities:

15. In case the project activity involves the replacement of equipment, and the leakage effect of the use of the replaced equipment in another activity is neglected, because the replaced equipment is scrapped, an independent monitoring of scrapping of replaced equipment needs to be implemented. The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For

this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.