CLEAN DEVELOPMENT MECHANISM
PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD)
Version 01

CONTENTS

Annexes

NOTE:

(i) This form is for the submission of CPAs that apply a large scale methodology using provisions of the proposed PoA.

(ii) The coordinating/managing entity shall prepare a CDM Programme Activity Design Document (CDM-CPA-DD)[1,2] that is specified to the proposed PoA by using the provisions stated in the PoA DD. At the time of requesting registration the PoA DD must be accompanied by a CDM-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the PoA must submit a completed CDM-CPA-DD.

[1] The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

[2] At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).

SECTION A. General description of CDM programme activity (CPA)

A.1. Title of the CPA:

Waste electricity recovery from performance tests of diesel engine generators at Factory A

Version 01

1 March, 2010

A.2. Description of the CPA:

The project activity introduces energy-conservation equipment to recover and utilize waste electricity which has been abandoned during performance tests of diesel engine generators at Factory A in China.

Factory A is a railway locomotive manufacturing factory. The factory is specialized in manufacturing diesel locomotives. It also manufactures electric locomotives and repairs diesel locomotives.

Baseline Scenario
The electricity generated at a performance test is not utilizable because the frequency/voltage of the electricity generated during performance tests varies widely due to testing load change according to test requirements. The 'waste electricity' is not historically used for any purpose; it is just abandoned into water (i.e. 'waste electricity' is disappeared by water rheostat). Without the proposing project activity, the waste electricity cannot cover any power demand of the factory.

Project Scenario
This project activity recovers and stabilizes the waste electricity and converts from direct current to alternating current for use at the power network. An inverter has been developed for this project. The inverter needs to adjust to a wide range of load changes and convert it to utilizable electricity at a power network. The water rheostat system will be no longer used in the project activity unless more than two diesel generators are tested at the same time. All the recovered electricity will be utilized within the plant and replace the electricity from the grid. Utilizing the waste electricity at the factory is expected to result in a reduction of 1,275 tCO_2/year.

The project supports sustainable development in China, reducing coal consumption, as well as SO_2 and NO_x emissions. Additionally, the project will contribute to China's further sustainable development by a reduction in coal ash production from the power plant, which is currently a serious environmental problem in China.

A.3. Entity/individual responsible for CPA:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
China (host)	Factory A	No
Japan	-	-

A.4. Technical description of the CPA:

A.4.1. Identification of the CPA:

A.4.1.1. Host Party:

People's Republic of China

A.4.1.2. Geographic reference of other means of identification allowing the unique identification of the CPA (maximum one page):

Address: China

A.4.2. Duration of the CPA:

A.4.2.1. Starting date of the CPA:

01 June 2010

A.4.2.2. Expected operational lifetime of the CPA:

20 years

A.4.3. Choice of the crediting period and related information:

Fixed Crediting period

A.4.3.1. Starting date of the crediting period:

01 January 2010

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

10 years

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

Years	Estimation of annual emission reductions in tonnes of CO2 e
2011	1,275
2012	1,275
2013	1,275
2014	1,275
2015	1,275
2016	1,275
2017	1,275
2018	1,275
2019	1,275
2020	1,275
Total estimated reductions (tonnes of CO2 e)	12,750
Total number of crediting years	10 years
Annual average of the estimated reductions over the crediting period (tCO2 e)	1,275

A.4.5. Public funding of the CPA:

No public funding is involved.

A.4.6. Confirmation that CPA is neither registered as an individual CDM project activity nor is part of another Registered PoA:

The CPA is neither registered as an individual CDM project activity nor is part of another registered PoA.

SECTION B. Eligibility of CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which CPA is added:

Waste electricity recovery from performance tests of diesel engine generators at a railway locomotive manufacturing factories in China

B.2. Justification of the why the CPA is eligible to be included in the Registered PoA :

Eligibility Criteria:

- Each CPA will involve waste electricity recovery at a railway locomotive manufacturing factory within the geographical boundary of China.
- Each CPA must implement the baseline and monitoring methodology ACM0012 "Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects" (*We are requesting revision*)
- No other CPA or CDM project involving the waste electricity recovery is already registered and operating at the same site.
- The coordinating entity will ensure that all CPAs under its PoA are neither registered as an individual CDM project activity nor included in another registered PoA, and that the CPA is subscribed to the PoA.
- Each CPA shall be uniquely identified and defined in an unambiguous manner by providing geographic information, and the exact start date and end date of the crediting period
- Each CPA must ensure that leakage, additionality, establishment of the baseline scenario, baseline emissions, eligibility and double counting are unambiguously defined.
- Each CPA must be approved by the coordinating entity and DOE prior to its incorporation into the PoA.

B.3. Assessment and demonstration of additionality of the CPA, as per eligibility criteria listed in the Registered PoA:

Key additionality criteria:

- Define credible possible alternative scenarios relating to the waste electricity recovery relevant to the CPA.
- Ensure that the proposed CPA is not the only alternative amongst those considered that is in compliance with mandatory regulations.
- Complete an investment analysis to demonstrate that without CDM revenue the CPA is not a financially attractive option.
- Describe essential differences between the CPA and similar activities that are occurring.

Baseline Scenario

The baseline candidates should be considered for the following facilities:

- For the industrial facility where the waste energy is generated; and
- For the facility where the energy is produced; and
- For the facility where the energy is consumed.

For the use of waste energy, the realistic and credible alternative(s) may include, *inter alia*:

W1: WECM is directly vented to atmosphere without incineration or waste heat is released to the atmosphere or waste electricity is released to the water or waste pressure energy is not utilized;
W2: WECM is released to the atmosphere (for example after incineration) or waste heat is released to the atmosphere or waste electricity is released to the water or waste pressure energy is not utilized;
W3: Waste energy is sold as an energy source;
W4 Waste energy is used for meeting energy demand;
W5: A portion of the waste gas produced at the facility is captured and used for captive electricity generation, while the rest of the waste gas produced at the facility is vented/flared;
W6: All the waste gas produced at the industrial facility is captured and used for export electricity generation.

For power generation, the realistic and credible alternative(s) may include, *inter alia:*

P1: Proposed project activity not undertaken as a CDM project activity;
P2: On-site or off-site existing/new fossil fuel fired cogeneration plant;
P3: On-site or off-site existing/new renewable energy based cogeneration plant;
P4: On-site or off-site existing/new fossil fuel based existing captive or identified plant;
P5: On-site or off-site existing/new renewable energy or other waste energy based existing captive or identified plant;
P6: Sourced Grid-connected power plants;
P7: Captive Electricity generation using waste energy (if project activity is captive generation using waste energy, this scenario represents captive generation with lower efficiency than the project activity);
P8: Cogeneration using waste energy (if project activity is cogeneration with waste energy, this scenario represents cogeneration with lower efficiency than the project activity);
P9: Existing power generating equipment (used previous to implementation of project activity for captive electricity generation from a captured portion of waste gas) is either decommissioned to build new more efficient and larger capacity plant or modified or expanded (by installing new equipment), and resulting in higher efficiency, to produce and only export electricity generated from waste gas. The electricity generated by existing equipment for captive consumption is now imported from the grid;
P10: Existing power generating equipment (used previous to implementation of project activity for captive electricity generation from **a captured portion** of waste gas) is either decommissioned to build a new more efficient and larger capacity plant or modified or expanded (by installing new equipment), and resulting in higher efficiency, to produce electricity from waste gas (already utilized portion plus the portion flared/vented) for own consumption and for export;
P11: Existing power generating equipment is maintained and additional electricity generated by grid connected power plants.

The baseline scenario for the waste energy generator and the recipient plant identified is the Scenario 1 described in Table 1 below.

Table 1: Combinations of baseline options and scenarios applicable to this methodology

Scenario	Baseline options		Description of situation
	Waste energy	Power/Heat/ mechanical energy	
1	W2	P6	Due to their lack of experience and knowledge regarding energy saving and their shortage of funding, the waste electricity would have been released into the water rheostat in the absence of the project activity. The electricity is obtained from the grid.

B.4. Description of the sources and gases included in the project boundary and proof that the CPA is located within the geographical boundary of the registered PoA.

The geographical extent of project boundary includes the industrial facility where waste energy is generated, that is the railway locomotive manufacturing facility and the grid as defined in the "Tool to calculate the emission factor for an electricity system".

Overview of emission sources included in or excluded from the project boundary is provided in Table 2.

Table 2: Summary of gases and sources included in the project boundary, and justification explanation where gases and sources are not included

	Source	Gas	Included?	Justification / Explanation
Baseline	Electricity generation, grid or captive source	CO_2	Included	Main emission source.
		CH_4	Excluded	Excluded for simplification. This is conservative.
		N_2O	Excluded	Excluded for simplification. This is conservative.

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

Data / Parameter:	$Q_{WCM,BL}$
Data unit:	MWh
Description:	Average quantity of waste energy released in atmosphere/water by WECM in three years prior to the start of the project activity
Source of data used:	Direct Measurements by generator of WECM through an appropriate metering device (e.g. turbine flow meter) for three years prior to implementation of project activity.
Value applied:	1,427,166

Justification of the choice of data or description of measurement methods and procedures actually applied :	Average of 2007-2009. Calculated based on the frequency of the performance tests at the project test stand and the maximum amount of electricity generation during a test for each type of diesel generators. The test procedures have been developed based on standards of Union Internationale des Chemins de Fer (UIC).
Any comment:	-

B.5.2. Ex-ante calculation of emission reductions:

$$BE_{Elec,y} = f_{cap} * f_{wcm} * \sum_{j} \sum_{i} (EG_{i,j,y} * EF_{Elec,i,j,y})$$

f_{wcm}	-	1
$EF_{elec,i,j,y}$	-	0.89355
$BE_{elec,y}$	t CO_2/yr	1,275

$$f_{cap} = \frac{Q_{WCM,BL}}{Q_{WCM,y}}$$

$\boldsymbol{Q_{WCM,BL}}$	MWh/yr	1,427
$\boldsymbol{Q_{WCM,y}}$	MWh/yr	1,427
f_{cap}	-	1

$$ER_y = BE_y - PE_y - LE_y$$

BEy	t CO_2/yr	1,275
PEy	t CO_2/yr	0
LEy	t CO_2/yr	0
ERy	**t CO_2/yr**	**1,275**

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO_2e)	Estimation of baseline emissions (tonnes of CO_2e)	Estimation of leakage (tonnes of CO_2e)	Estimation of overall emission reductions (tonnes of CO_2e)
2011	0	1,275	0	1,275
2012	0	1,275	0	1,275
2013	0	1,275	0	1,275
2014	0	1,275	0	1,275
2015	0	1,275	0	1,275
2016	0	1,275	0	1,275
2017	0	1,275	0	1,275

2018	0	1,275	0	1,275
2019	0	1,275	0	1,275
2020	0	1,275	0	1,275
Total (tonnes of CO_2e)	**0**	12,750	**0**	12,750

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

The quantity of recovered electricity will be continuously monitored with a sensor.

SECTION C. Environmental analysis

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

☐ Please tick if this information is provided at the PoA level. In this case sections C.2. and C.3. need not be completed in this form.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

>> Work in progress

C.3. Please state whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA),:

In accordance with the host Party laws/regulations, an environmental impact assessment is NOT required for a typical CPA, included in the programme of activities (PoA).

SECTION D. Stakeholders' comments

>> Work in progress

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

☐ Please tick if this information is provided at the PoA level. In this case sections D.2. to D.4. need not be completed in this form.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

>>

D.3. Summary of the comments received:

>>

D.4. Report on how due account was taken of any comments received:

>>

Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE CPA

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	
E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is involved.

Annex 3

BASELINE INFORMATION

Annex 4

MONITORING INFORMATION

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