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

CONTENTS

Annexes

NOTE:

(i) This form is for submission of CPAs that apply a small scale approved methodology using the provision of the proposed small scale CDM PoA.

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

A.1. Title of the small-scale CPA:

- The title of the project activity

Idling Stop Device Introductions to the Buses of ____ in ____ City, China (CPA-_)

- The current version number of the document

Version

- The date when the document was completed.

Date Moth, Year

A.2. Description of the small-scale CPA:

The purpose of small-scale CPAs is to reduce GHG emissions from buses operating by _____in Shandong Province, China. In the project activity, CPA implementers will install the post-fit type idling stop devices to in-use buses resulting in saving of fuel consumption while idling of the buses.

The baseline scenario of the project activity is the situation where, in the absence of the project activity, idling will be continued at stoplights or other situations without installing post-fit type idling stop device. On the other hand, the project scenario of the project activity is the situation where, idling stop will be conducted using idling stop device subject to rather long period stop at stoplights or other situations resulting in saving of fuel consumptions with consequent reduction in GHG emissions.

The emission of air atmosphere pollutant of NOx and PM are also reduced at the same time.

A.3. Entity/individual responsible for the small-scale CPA:

The entity responsible for the SSC-CPA is _____.

A.4. Technical description of the small-scale CPA:

A.4.1. Identification of the small-scale CPA:

A.4.1.1. Host Party:

People’s Republic of China

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

The physical location of the proposed project is ____ city of Shandon province covering roads where the buses installed with the idling stop device will be driven, bus terminal, intersections and bus stops etc.

Figure 1: Geographical boundary of the CPA

The contact details of the CPA implementer are as follows:

Name of the CPA implementer		
Contact details	Address	
	e-mail	
	Tel	
	FAX	

A.4.2. Duration of the small-scale CPA:

A.4.2.1. Starting date of the small-scale CPA:

Date Moth, Year

A.4.2.2. Expected operational lifetime of the small-scale CPA:

10 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:

Date Moth, Year or the date of inclusion of the CPA, whichever is later

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

10years

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

The estimated emission reduction of the CPA is shown as below:

Year	Estimation of annual emission reductions (tonnes of CO_2e)
Total number of crediting years	
Annual average over the crediting period	

A.4.5. Public funding of the CPA:

No public funding is utilized in the CPA.

A.4.6. Information to confirm that the proposed small-scale CPA is not a de-bundled component

According to "Guidelines on Assessment of Debundling for SSC Project Activities (ver. 03)",[3] it is specified that

> *If each of the independent subsystems/measures (e.g., biogas digesters, residential solar energy systems, kerosene or incandescent lighting replacements) included in one or more CDM project activities is no greater than 1% of the small scale thresholds defined by the applied methodology and the subsystems/measures are indicated in the PDDs to be each implemented at or in multiple locations (e.g., installed at or in multiple homes) then these CDM project activities are exempted*

[3] http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf.

from performing a de-bundling check, i.e., considered as being not a de-bundled component of a large scale activity.

So far, annual emission reduction from an bus installed with the device is estimated as less than __ ton CO_2e per a bus in average for the proposed SSC-CPA. The __ ton CO_2e per system is far less than the threshold mentioned above (600 ton CO_2e per year) for exemption of de-bundling check. Therefore, any CPA of the PoA is exempted from performing de-bundling check.

A.4.7. Confirmation that small-scale CPA is neither registered as an individual CDM project activity or is part of another Registered PoA:

The idling stop CDM project is not registered nor submitted to the validation process as an individual CDM project activity or as a part of registered PoA at present in China.

SECTION B. Eligibility of small-scale CPA and Estimation of emissions reductions

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

Energy Efficiency Promoting Program using Idling Stop Devices for Public Buses in Shandong, China.

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

The proposed CPA complies with all of the eligibility criteria that are described in A.4.2.2. of CDM-SSC-PoA-DD. The justifications are given as follows:

1) Installations of the post-fit type idling stop devices to in-use public buses in Shandon province. Installation of Idling Stop devices in new vehicles only if it can be demonstrated that at the time of new vehicle acquisition there are no vehicles, of a type similar to those in the baseline or project activity, available for sale in the country of the project activity, that are sold with automatic Idling Stop devices installed as a standard feature.

   The CPA involves in-use public buses of _____ in Shandon province.

2) Vehicles used for public transportation, such as buses that are centrally owned and managed by a single entity and are driven by contractors or employees of the central entity.

   Buses in the CPA are centrally owned and managed by _____, a public bus company.

3) Vehicles using petrodiesel as fuel.

   All target buses uses perodiesel as fuel.

4) The bus company involved has no existing anti-idling policy

_____ have not been promoting manual Idling Stop and do not have any regulation to prohibit Idling.

5) The aggregate emission reductions of a single CPA may not exceed 60 ktCO2 equivalent annually.

The aggregated emission reduction is _____tCO_2/year at maximum.

6) Any bus installed with the device under the CPA does not belong to another CPA under this PoA, another registered CDM project activity or another CDM PoA.

The idling stop CDM project is not registered nor submitted to the validation process as an individual CDM project activity or as a part of registered PoA at present in China.

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

In line with E.5.1 of the SSC-PoA-DD, the additionality of the CPA is demonstrated as follows.

Step 1. Identification of alternative scenarios:

There are four (4) plausible alternative scenarios for the proposed project. These scenarios all comply with mandatory and regulations of China and Shandon province and the public bus companies.

Scenario 1: Continuation of current practice
Scenario 2: Implementation of manual idling stop by behavioural changes not using the post-fit type device
Scenario 3: Introduction of new buses with pre-installed idling stop device
Scenario 4: Implementation of the proposed project without CDM

Step 2. Barrier analysis:

Among four (4) barriers in the Attachment A to Appendix B of "The simplified modalities and procedures for small-scale CDM project activities", the proposed project faces the following barriers

Technological barriers:

____.

Barrier due to prevailing practice:

____.

From above considerations, there exist technological barrier and barrier due to prevailing practice.

Step 3. Evaluation of alternative scenarios

Each scenario identified in Step 1 was assessed as follows.

Scenario 1: Continuation of current practice

____.

Scenario 2: Implementation of manual idling stop by behavioural changes not using the post-fit type device

____.

Scenario 3: Introduction of new buses with pre-installed idling stop device

____.

Scenario 4: Implementation of the proposed project without CDM

____.

From the above analysis, the baseline scenario is identified as Scenario 1, continuation of current practice. As elaborated in Step 2, the proposed project faces technological barrier and barrier due to prevailing practice. Therefore, the proposed project is considered as additional.

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

The project boundary includes roads where the buses installed with the devices will be driven. In the table below, all sources of the baseline and the project activity are listed.

Table 1 Sources and gases included in the baseline and the project activity

	Source	Gas	Included?	Justification / Explanation
Baseline emissions	Emissions at idling	CO_2	Yes	Major emission source.
		CH_4	No	Not significant. Excluded for simplification and conservativeness
		N_2O	No	Not significant. Excluded for simplification and conservativeness
Project emissions	Emissions at re-starting the engine	CO_2	Yes	Major emission source.
		CH_4	No	Not significant. Excluded for simplification
		N_2O	No	Not significant. Excluded for simplification

The geographical boundary of the CPA is shown in Figure 1. It is obvious that the CPA,____City, is within the geographical boundary of the PoA, Shandon province.

B.5. Emission reductions:

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

Data / Parameter:	BIF
Data unit:	-
Description:	Baseline Idling Stop Factor
Source of data used:	The methodology
Value applied:	0.95
Justification of the choice of data or description of measurement methods and procedures actually applied :	The default value provided in the methodology is chosen for SSC-CPAs.
Any comment:	-

Data / Parameter:	FCR_i
Data unit:	litres/second
Description:	Fuel Consumption Rate at Idling condition of baseline vehicle *i*
Source of data used:	Measurements
Value applied:	0.000556 (2 litters per hour) is used for ex-ante calculations of this version of CPA-DD.
Justification of the choice of data or description of measurement methods and procedures actually applied :	The figure is based on the direct measurements of sample buses. Ex ante field tests will be implemented at ____. (Entire measurement or sample measurement are planned to be implemented before the validation starts.)
Any comment:	-

Data / Parameter:	D_j
Data unit:	kg/liter
Description:	Density of fuel j
Source of data used:	The Energy Statistics Working Group Meeting report of International Energy Agency
Value applied:	0.8397 for diesel oil
Justification of the choice of data or description of measurement methods and procedures actually applied :	International value prepared by International Energy Agency. http://www.iea.org/Textbase/work/2004/eswg/22_Oil%20Densities.pdf.
Any comment:	-

Data / Parameter:	NCV_j
Data unit:	MJ/t
Description:	Net calorific value of fuel j
Source of data used:	China Energy Statistical Yearbook 2007
Value applied:	42,652 MJ/t for diesel oil
Justification of the choice of data or description of measurement methods and procedures actually applied :	National official value. 42,652 kJ/kg for diesel oil.
Any comment:	-

Data / Parameter:	$EF_{CO2,j}$
Data unit:	tCO_2/MJ
Description:	CO_2 emission factor of fuel j
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Chapter 1: Introduction, Table 1.4
Value applied:	$72.6*10^{-6}$ for diesel oil
Justification of the choice of data or description of measurement methods and procedures actually applied :	IPCC default value (lower value of 95% CI). 72,600 $kgCO_2/TJ$ for diesel oil.
Any comment:	-

Data / Parameter:	ST_i
Data unit:	seconds/Idling Stop
Description:	Start-up compensation time
Source of data used:	The methodology
Value applied:	10
Justification of the choice of data or description of measurement methods and procedures actually applied :	The default value provided in the methodology.
Any comment:	-

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

(I) Baseline emissions

Annual baseline emissions are the summation of the annual cumulative Idling Stop period times the baseline emission factor for each vehicle, multiplied by a Baseline Idling Stop default Factor or *BIF* (i.e. the estimated percentage of vehicles that in the baseline would manually turn off their engines.).

$$BE_1 = \sum_i \left(BEF_i \times CIP_{i,1} \times 10^{-6} \right) \times BIF \quad (1)$$

$$=$$

Where:

BE_1	Total baseline emissions in the year 1 (tCO_2/year)
$CIP_{i,y}$	Cumulative Idling Stop period for all vehicles of type *i* in the year 1 (= seconds/year)
BIF	Baseline Idling Stop Factor (The default value of 0.95)
BEF_i	Baseline Emission Factor when Idling for vehicle type *i* (gCO_2/second)

The Baseline Emission Factor when Idling (BEF_i) for each type of project vehicle *i* is determined as:

$$BEF_i = FCR_i \times D_j \times NCV_j \times EF_{CO2\,j} \times 10^3 \quad (2)$$

$$=$$

Where:

j	Fuel type for vehicle type i, determined from engine specifications
FCR_i	Fuel Consumption Rate at Idling condition of baseline vehicle *i* (litres/second) ("Option (1): Measurement of all project vehicles" will be chosen. 0.000556 (2 litters per hour) is used for ex-ante calculations of this version of CPA-DD.)
D_j	Density of fuel *j* (kg/litre), determined from national or international values (Density of diesel: 0.8397 kg/l)
NCV_j	Net Calorific Value of fuel *j* (MJ/t), determined from reliable local or national data shall be used. IPCC default values (lower value of 95% CI) shall be used only when country or project specific data are not available or demonstrably difficult to obtain. Values shall be updated if national values or IPCC values change (Net calorific value of diesel: 42,652 kJ/kg (42,652 MJ/t))
$EF_{CO2\,j}$	CO_2 emission factor of fuel *j* (tCO_2/MJ), determined from reliable local or national data shall be used. IPCC default values (lower value of 95% CI) shall be used only when country or project specific data are not available or demonstrably difficult to obtain. Values shall be updated if national values or IPCC values change (CO_2 emission factor of diesel: 72,600 $kgCO_2$/TJ ($72.6*10^{-6}$ tCO_2/MJ))

(II) Project emissions

Project emissions are the emissions from fuel consumed in restarting the engine immediately after each Idling Stop.

$$PE_1 = \sum_i \left(NT_{i,1} \times PEF_i \times 10^{-6} \right) \quad (3)$$

=

Where:

PE_1	Total project emissions in the year 1 (tCO_2/year)
$NT_{i,1}$	Total number of Idling Stops of all vehicles of type *i* in the year 1 (= times/year)
PEF_i	Project Emission Factor per Idling Stop for vehicle type *i* (= 14.46 gCO_2/time)

Project Emission Factor per Idling Stop (PEF_i) is calculated according to the equation below:

$$PEF_i = BEF_i \times ST_i \quad (4)$$

=

Where:

ST_i	Start-up compensation time. Idling Stop period in seconds to compensate for fuel consumed in restarting the engine after each Idling Stop (seconds/Idling Stop) (The default value of 10 seconds)

(III) Leakages

As per the methodology AMS.III.AP./Ver.1, no leakage calculation is required.

(IV) Emission reductions

The amount of emission reductions ER_y in year y is given by

$$ER_1 = BE_1 - PE_1 \quad (5)$$

=

Where:

ER_y	Emission reductions in year *y* (tCO_2e)

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

Year	Estimation of project activity emissions (tonnes of CO_2 e)	Estimation of baseline emissions (tonnes of CO_2 e)	Estimation of leakage (tonnes of CO_2 e)	Estimation of overall emission reductions (tonnes of CO_2 e)
			0	
			0	
			0	
			0	
			0	
			0	
			0	
			0	
			0	
			0	
Total (tonnes of CO_2 e)			0	

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

B.6.1. Description of the monitoring plan:

1) The role of ____.

The following table shows the role of ____.

Table 2 The role of ___.

Monitoring management	- Implement and manage monitoring of CPAs
Data collection and reporting	- Implement data collection of the CPA - Prepare daily and monthly report - Check data quality and collection procedures regularly
Data storage and management	- Collect memory cards. - Implement data management of CPA. - Store and maintain records.
Quality assurance	- Undertake regular maintenance of the devices - Receive necessary training for operation of the system and quality assurance of monitoring data

2) Monitored data

Data / Parameter:	$CIP_{i,y}$
Data unit:	seconds/year

Description:	Cumulative Idling Period of all vehicles of type *i* in year *y*
Source of data to be used:	Electronically recorded to the idling stop device, ECO STARTER
Value of data applied for the purpose of calculating expected emission reductions in section B.5	____.
Description of measurement methods and procedures to be applied:	Signals of vehicle speed and engine on/off will be electronically collected by the post-fit type idling stop device (ECO STARTER), and each idling stop time will be calculated automatically. Data will be collected monthly and the cumulative idling period is calculated by summing up each idling stop time in a year. Only vehicle stoppages up to a maximum of 3 minutes qualify under this definition and longer duration stoppages (e.g. at the depot, or fueling stops) are excluded.
QA/QC procedures to be applied:	Data will be collected using a software every month and will be stored for crediting period and an additional 2 years.
Any comment:	-

Data / Parameter:	$NT_{i,y}$
Data unit:	times/year
Description:	Total number of times of Idling Stop of vehicle *i* in the year *y*
Source of data to be used:	Electronically recorded to the idling stop device, ECO STARTER
Value of data applied for the purpose of calculating expected emission reductions in section B.5	____.
Description of measurement methods and procedures to be applied:	Signals of vehicle speed and engine on/off will be electronically collected by the post-fit type idling stop device (ECO STARTER), and number of idling stop will be counted automatically. Data will be collected monthly and total number of times of Idling Stop is calculated by summing up monthly data.
QA/QC procedures to be applied:	Data will be collected using reliable software every month and will be stored for crediting period and an additional 2 years.
Any comment:	Annually

Data / Parameter:	Information regarding the project vehicles installing the Idling Stop devices, i.e. fuel types, vehicle types, engine displacements, engine model year, with or without air conditioner
Data unit:	-
Description:	-
Source of data to be used:	Bus ledger of ____.
Value of data applied	-

for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	Necessary information shall be collected and aggregated in a database.
QA/QC procedures to be applied:	-
Any comment:	Annually monitored.

3) The outline of the monitoring by the CPA

The followings are outline of monitoring plan based on the methodology applied. The monitoring structure for the project activity is shown below.

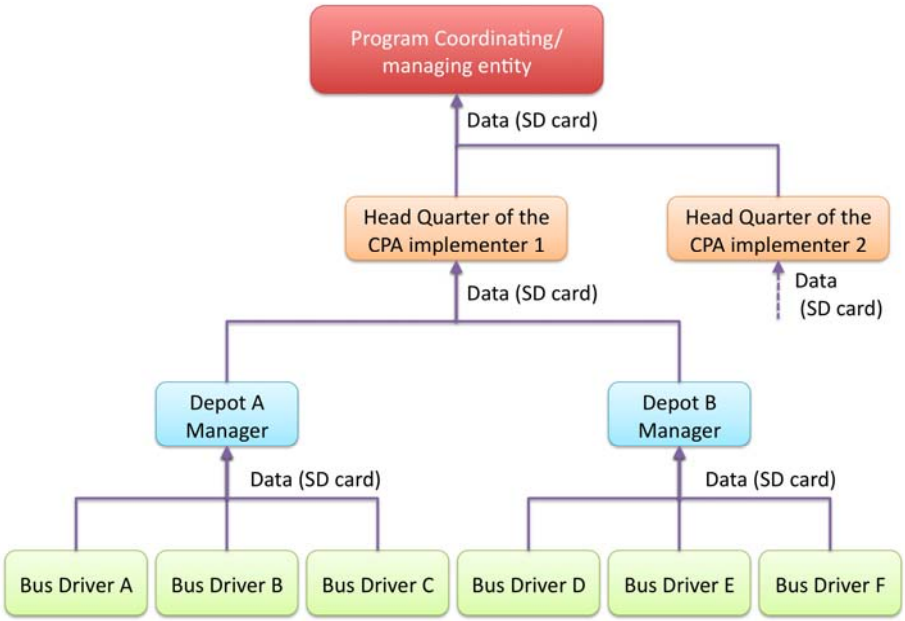

Figure 2 The monitoring structure of the CPA

The data of each monitoring parameter is recorded to the SD card to be installed to the idling-stop device. The following items will be recorded.

i) Elapsed time in second from ignition key “On”.
ii) Driving status: 1;Engine On 2;Velocity non-Zero 3;Velocity Zero 4;Engine Off
iii) Total number of starting starter motor.

The bus driver will collect the SD card and pass it to the depot manager. The head quarter of the ____will collect these SD card (or copied data) from each depot manager. The head quarter will send these collected data to the program coordinating/managing entity. These data collection will be done monthly. The head quarter of the CPA implementer will also copy, store and maintain theses data.

The Idling Stop devices installed in the vehicles shall be subjected to regular maintenance and calibration as per the manufacturer's recommendation to ensure appropriate performance. After installing the Idling Stop devices, the devices should be subjected to an operational check, including a test drive, according to an appropriate check sheet to ensure proper operation. The driving data shall be recorded by a data logger and be protected such that it cannot be modified artificially. The logged data should be analyzed at least monthly to check for any irregular data by comparing it with previous data or data from other vehicles.

In order to ensure that the output values are reliable and not manipulated, the Idling Stop periods and Idling Stop frequencies recorded by the electronic devices shall be cross checked with another measurement method, such as manual on-board measurement. This cross check should be done once a year for a sample of project vehicles.

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.

Environmental Analysis is done at SSC-CPA level.

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

Elaborated in each specific CPA-DD.

C.3. Please state whether 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:

Elaborated in each specific CPA-DD.

SECTION D. Stakeholders' comments

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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.

Local stakeholder comments are invited at the CPA level.

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

Elaborated in each specific CPA-DD.

D.3. Summary of the comments received:

Elaborated in each specific CPA-DD.

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

Elaborated in each specific CPA-DD.

Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE SMALL-SCALE 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

The PoA does not utilize any public funding.

Annex 3

BASELINE INFORMATION

Annex 4

MONITORING INFORMATION

Please refer B.6.1.