

## 5002 Monitoring Report of Bangkok E-bus Program

Monitoring period from 01.01.2024 to 31.12.2024

Document version:	1.1
Date:	16 December 2025
Monitoring period (cycle)	3 <sup>rd</sup> monitoring period
Requested emission reductions <sup>1</sup>	29,301 tonnes of CO <sub>2</sub> e <sub>q</sub> from 01.01.2024 – 31.12.2024
Account name and account number in the host country's registry	Thailand Voluntary Emission Reduction Program: T-VER 1. PoA 01: Bangkok Metropolitan Area E-Bus Zone 1 and 2 version 4 (registered with T-VER as PoA no. 333)  2. PoA 02: Bangkok Metropolitan Area E-Bus Zone 3 and 4 version 4 (registered with T-VER as PoA no. 334)
Account name and account number in the Emissions Trading Registry (EHR) <sup>2</sup>	Stiftung Klimaschutz & CO <sub>2</sub> -Kompensation KliK Account Number: CH-100-1096-0
Date Qualification decision	Date of registration as compensation project abroad with The Federal Office for the Environment (FOEN), Switzerland is 27 February 2023  Date of registration PoA 01 and PoA 02 under T-VER is 28 March 2023
Date or dates of revalidation(s)	N/A
Crediting period (current)	01.01.2024 – 31.12.2024
Date and version of the valid project/program description	MADD: Operation of e-buses on privately owned, scheduled public bus routes in the Bangkok Metropolitan area by Energy Absolute version 5.3  PoA-DD: 1. PoA 01: Bangkok Metropolitan Area E-Bus Zone 1 and 2 version 4 (registered with T-VER as PoA no. 333)  2. PoA 02: Bangkok Metropolitan Area E-Bus Zone 3 and 4 version 4 (registered with T-VER as PoA no. 334)
Date and versions of the applicable legal bases	Federal Act of 23 December 2011 on the Reduction of CO <sub>2</sub> Emissions (CO <sub>2</sub> Act, SR 641.71) <sup>3</sup> and the Ordinance of 30 November 2012 on the Reduction of CO <sub>2</sub> Emissions (CO <sub>2</sub> Ordinance, SR 641.711) <sup>4</sup> , status as of 1 May 2025. <sup>5</sup>
Applicant (company) <sup>6</sup>	Energy Absolute Public Company Ltd.
Name, first name	Mr. Mongkol Kijlerdphon

<sup>1</sup> In the following, the term "emission reduction" is also understood to mean the increased storage of carbon. For reasons of better readability, both concepts are not mentioned unless a distinction is explicitly necessary.

<sup>2</sup> Certificates are issued to this account, cf. Art. 13 para. 1 CO<sub>2</sub> -Ordinance.

<sup>3</sup> <https://www.fedlex.admin.ch/eli/cc/2012/855/en>

<sup>4</sup> <https://www.fedlex.admin.ch/eli/cc/2012/856/en>

<sup>5</sup> <https://www.bafu.admin.ch/dam/en/sd-web/hWse-MQz5810/co2-kompensation-projekte-und-programme.pdf>

<sup>6</sup> Note: Should the applicant change during the course of the project, this must be communicated to the FOEN in writing.

## Monitoring report of projects/programs to reduce emissions and increase sink performance

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# Monitoring report of projects/programs to reduce emissions and increase sink performance

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Monitoring report of projects/programs to reduce emissions and increase sink performance

## 1 Formal information

### 1.1 Adjustments in the report compared to the project/program description or earlier monitoring reports

Were there any changes compared to the project/program description?

Yes

No

Have there been any changes since the last monitoring report?

Yes

No

Monitoring report in which adaptation took place	Chapter in which the adaptation took place	Description of the adaptation
1. Monitoring (from 01.01.2023 to 31.12.2023)	<u>MADD</u> Chapter 1.2.2 Table 2  Annex 1 part A1.2 Table A2	The specification of Li-ion battery capacity has changed from $\geq 150$ kWh for each e-bus within the program to $\geq 120$ kWh. This is due to an implementation assessment during the operation showing that a battery with the capacity of 120 kWh is sufficient to operate on the bus routes that are not long distance. Hence, the Program operator considers it to be appropriate to execute this change.  The modified specification of battery capacity has been notified and accepted by T-VER registries.
2. Monitoring (from 01.01.2023 to 31.12.2023)	<u>MADD</u>  Chapter 3.1.1 Table 6	Roles and responsibility of Charging station operator:  The charging station network is managed by Energy Mahanakorn Co., Ltd. (EA Anywhere Brand). However, at the bus terminal station, Thai Smile Bus has signed a service agreement contract with Auto Bus Service Co., Ltd. to operate and service each of the charging stations. Auto Bus is also responsible for data collection of the e-buses' electricity consumption at each bus terminal.
3. Monitoring (from 01.01.2023 to 31.12.2023)	<u>MADD</u>  Annex 1 part A1.2 Table A3 and A4  <u>Monitoring Report (1.10.2022 – 31.12.2022)</u> Table 7 and 8	The locations of e-bus terminals for some bus routes have been revised from the MADD/Monitoring Report (1.10.2022 – 31.12.2022) due to the appropriateness and readiness of each bus terminal. Refer to Table 7 and 8 of this monitoring report for further details.

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Monitoring report in which adaptation took place	Chapter in which the adaptation took place	Description of the adaptation
4. Monitoring (from 01.01.2023 to 31.12.2023)	<u>MADD</u>  Annex 1 part A3.2 Table A16	<p>1. The electricity bill from the charging station does not reflect the electricity consumption for each operational bus route. Since the electricity bill only reflects the electricity consumption of the e-bus terminal stations, it is not possible to differentiate the electricity consumption into different bus routes. Hence, only recorded data of electricity consumption and electricity invoice from Energy Mahanakorn (EMN) shall be used.</p> <p>2. The average Specific Fuel Consumption (SFC) of NGV buses is based on the data collected from available NGV buses operating on 35 routes during this monitoring period, a reduction from 37 routes indicated in the MADD</p>
5. Monitoring (from 01.01.2023 to 31.12.2023)	<u>MADD</u> Section 1.2.3 Table 2	The entity in Thailand responsible for authorising international carbon credit transfers has changed from the Office of Natural Resources and Environmental Policy and Planning (ONEP) to the Department of Climate Change and Environment (DCCE).
6. Monitoring (from 01.01.2024 to 31.12.2024)	<u>MADD</u>  Annex 1 part A1.5	<p>As of the current monitoring period, a substantial fleet of 1,781 electric vehicle (EV) buses are fully operational in the existing route within the project's scope.</p> <p>A core component of this project's environmental impact is the systematic replacement of older, high-polluting internal combustion engine (ICE) buses with their electric counterparts. 981 ICE buses have been meticulously verified. This replacement has been verified based on official records of vehicle deregistration provided by the relevant transport authority, which serves as objective evidence of the permanent decommissioning and removal of ICE buses from operation. Project Overview and Operational Status</p>
7. Monitoring (from 01.01.2024 to 31.12.2024)	<u>MADD</u>  Annex 1 part A3.2 Table A16	<p>1. The current electricity billing system at the electric bus (e-bus) charging stations does not provide a breakdown of electricity usage by individual bus routes. This is because the electricity bills are generated based on the total consumption at each terminal station, without any disaggregation by the buses or routes that utilize the facility. As a result, it is not feasible to attribute electricity consumption to specific operational routes using the billing data alone.</p> <p>Consequently, for the purpose of analyzing or monitoring energy usage per route, reliance must be placed on the recorded electricity consumption data and corresponding invoices provided by Energy Mahanakorn (EMN). These datasets are currently the only available sources that can support an estimation or approximation of electricity usage associated with different bus routes, although they may still lack route-specific granularity.</p> <p>2. The average Specific Fuel Consumption (SFC) of NGV buses is based on the data collected from available NGV buses operating on 35 routes from Oct 2022 to Jan 2024 during this monitoring period, a reduction from 37 routes indicated in the MADD.</p>

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Monitoring report in which adaptation took place	Chapter in which the adaptation took place	Description of the adaptation
8. Monitoring (from 01.01.2024 to 31.12.2024)	<p><u>MADD</u></p> <p>Annex 1 part A1.2 Table A3 and A4</p> <p><u>Monitoring Report (1.10.2023 – 31.12.2023)</u></p> <p>Table 7 and 8</p>	The locations of e-bus terminals for some bus routes have been revised from the MADD/ Monitoring Report (1.10.2022 – 31.12.2022) due to the appropriateness and readiness of each bus terminal. Refer to Table 7 and 8 of this monitoring report for further details.

### 1.2 FARs that apply to this monitoring report

FAR 01
There was no evidence detailing your approach or procedures for managing degraded batteries
<p>Applicant's response (23 July 2025)</p> <p>The Bangkok E-Bus project has been in operation for only 2–3 years, while the power battery system warranty from the manufacturer lasts for 7 years. and to date, no significant battery degradation issues have been identified.</p>
FAR 02
There was no evidence of the disposal and management of de-registered vehicles from both the Smart Bus merger (221 vehicles) and other minor mergers (160 vehicles).
<p>Applicant's response (23 July 2025)</p> <p>According to the transportation regulations set by Thailand's Department of Land Transport (DLT), a vehicle that has been officially de-registered from the national transportation system is no longer legally allowed to operate</p>
FAR 03
There was no evidence of GPS calibration records, a calibration plan, or maintenance plan for GPS devices
<p>Applicant's response (23 July 2025)</p> <p>The project has only been in operation for 2–3 years; therefore, calibration is not yet required.</p>

## 2 Details of the project/program

### 2.1 Description of the project/program

The Bangkok E-Bus Program (“the Program”) operates on the public transport routes of Thailand. The Program was developed by the Energy Absolute Public Company Limited (“EA”) that develops business operations using biodiesel, then moves to renewable energy power plants and businesses that involve other technologies. They strive to meet future energy demand by placing great importance on clean energy, safety, and environmentally friendly operations.

The Program has enhanced the capability for developing public transportation projects in Thailand and for contributing to a low-carbon society. Thus, the project replaced Thailand’s conventional mode of public transport of internal combustion engine vehicles (ICEVs) by the adoption of electric vehicles (EVs). As a result, it will also consequently reduce the energy consumption of, and GHG emissions from, public transport.

In this regard, the company has cooperated with bus service providers licensed by the Department of Land Transport (DLT) to replace the ICE buses with electric buses (e-buses). During this monitoring period from 01.01.2024 to 31.12.2024, one participating bus operator, namely Thai Smile Bus Co., Ltd. (“TSB”), acted as the focal point for data collection, in cooperation with other private bus companies that have mutually signed agreement contracts with TSB. The project covers the management and operation of bus routes operated by TSB in the Bangkok Metropolitan area, which was divided into four zones by the DLT in 2019. The DLT has categorised the bus routes in relation to the zones in which they operate, starting with 1-xx, 2-xx, S-xx<sup>7</sup>, 3-xx and 4-xx. This categorization is shown in Figure 1, and route S-xx is considered in the same group as routes 1-xx and 2-xx. The Program comprises e-buses and its licensed bus routes in group activities based on the purchase date and operating date in line with the allocation plan of e-bus operators.

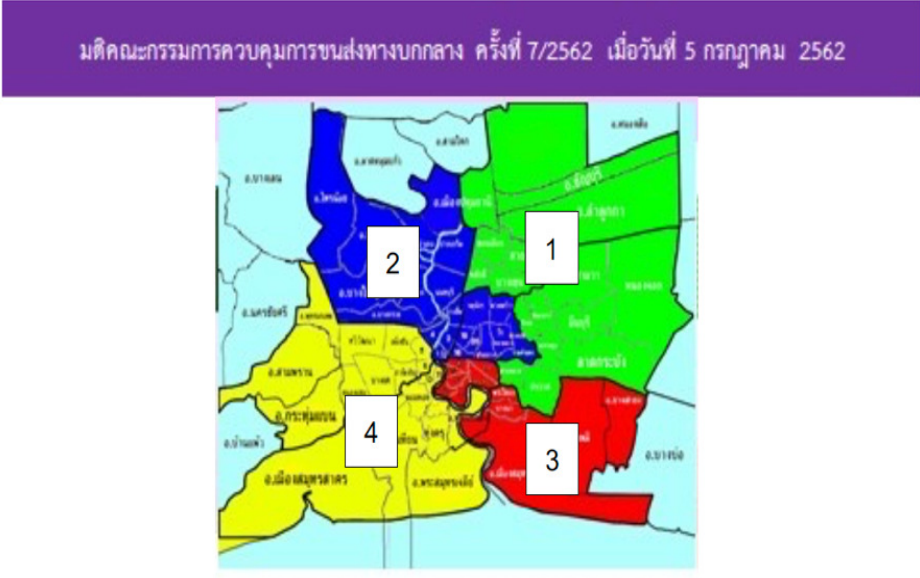


Figure 1: Zoning areas of the Bangkok Metropolitan area<sup>8</sup>

Table 1 provides key milestones of the Program since the first purchase agreement of the e-buses until the approval and registration of the Program under the T-VER standard. These milestones demonstrate the timeline of program implementation alongside the approval Mitigation Activity Design Document: MADD version 5.3 (“MADD”).

<sup>7</sup> S-xx are the bus routes going to Suvarnabhumi international airport which is included in PoA 01.  
<sup>8</sup> Source: Resolutions of the Meeting of Central Land Transport Control Board No. 7/2019 on 7 July 2019

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**Table 1: Project Timeline after MADD validation**

Date	Event	References/evidence
29.09.2022	Submission of validated MADD to FOEN	Hard copy of validated MADD to FOEN via post
01.10.2022	Data has been monitored and collected	Data collection from TSB (bus operator)
25.10.2022	FOEN review and feedback	First round of comments from FOEN: "5002-Kommunikation_mit_PE-24-10-22_22-25-26"
05.12.2022	MADD approved	Authorisation statement by FOEN for the approval of MADD; ref: Annex 1
08.02.2023	Thailand's Letter of Authorization (LoA) issuance	LoA document no. 1006.4/2810 issued by Office of Natural Resources and Environmental Policy and Planning (ONEP); ref: Reference 1
27.02.2023	Switzerland's LoA issuance and MADD registration with The Federal Office for the Environment (FOEN)	Authorisation statement <sup>9</sup>
28.03.2023	PoAs and CPAs officially registered with T-VER	Registration of PoA 01 <sup>10</sup> and PoA 02 <sup>11</sup> including the first CPA of each PoA under T-VER standard
25.07.2023	Registration of 9 additional CPAs	Registration of CPA-DD under PoA 01 and PoA 02 under T-VER standard
02-04.08.2023	On-site Verification at e-bus terminal sites for the Monitoring Period 1 (MP1) from 01.10.2022 to 31.12.2022	On-site Verification Plan for MP1
27.08.2023	Submission of Verification Report	Verification Report template Version v3.0, by Bureau Veritas Certification (Thailand)
05.09.2023	Technical Evaluation for Monitoring Report (MR) for Oct 1, 2022 to Dec 31, 2022 by TGO subcommittee completed	
06.10.2023	Technical Evaluation for Monitoring Report for Oct 1, 2022 to Dec 31, 2022 by FOEN completed	Letter of confirmation from FOEN dated October 6, 2023
22.11.2023	Letter of Positive Examination issued by Department of Climate Change and Environment (DCCE)	DCCE Letter No.0804/3910

<sup>9</sup> <https://share.dma.swiss/s/n77TtCjno4CdNbX>

<sup>10</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3602-bangkok-metropolitan-area-e-bus-zone-1-and-2.html>

<sup>11</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3605-bangkok-metropolitan-area-e-bus-zone-3-and-4.html>

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Date	Event	References/evidence
28.11.2023	Verification for MP1 approved by TGO	The TGO Board meeting X/2566 is held on 28 November 2023.
29.11.2023	EA submitted a request for T-VER credit cancelation to TGO	EA requested letter: EA6611/029LT
15.12.2023	MP1 ITMOs Transfer completed	

In this monitoring period, the Bangkok E-Bus Program covers the operation and management of 2,056 e-buses operated on 122 approved passenger transport licensed bus routes by the DLT in the Bangkok Metropolitan area during the Program's crediting period (1 Jan 2024 – 31 Dec 2024).

**Table 2: Number of registered e-buses with DLT and e-buses in operation**

PoA/CPA		Registered with DLT		In Operation	
		routes	e-buses (vehicle)	routes	e-buses (vehicle)
PoA1	CPA1	5	158	5	156
	CPA2	18	166	18	162
	CPA3	18	239	18	238
	CPA4	11	197	11	196
	CPA5	7	94	7	94
<b>Total PoA 1</b>		<b>59</b>	<b>854</b>	<b>59</b>	<b>846</b>
PoA2	CPA1	3	75	3	74
	CPA2	14	249	14	248
	CPA3	12	182	12	176
	CPA4	13	238	13	236
	CPA5	10	249	10	249
	CPA6	11	209	11	214
<b>Total PoA 2</b>		<b>63</b>	<b>1202</b>	<b>63</b>	<b>1197</b>
<b>Total</b>		<b>112</b>	<b>2,056</b>	<b>112</b>	<b>2,043</b>

The electric bus (e-bus) program significantly expanded its fleet, growing from 1,905 vehicles on January 1, 2024, to 2,056 by December 31, 2024. The phased integration of these new e-buses is carefully managed due to manufacturing lead times, system and operational testing, and staff training. Despite these complexities, the program successfully met the minimum operational e-bus threshold, demonstrating efficient transition of registered vehicles into active service and highlighting its commitment to operational targets and sustainable urban transportation.

The implementation period for e-buses on each route is consistent with the CPA inclusion approach, grouping CPAs by the e-buses' timely registration with the DLT, and adhering to the CPA inclusion criteria in Table 4. Operationally, TSB (the bus operator) has contracted Auto Bus Service Co., Ltd. for bus maintenance and power consumption data collection. This differs from the MADD, which indicated Energy Mahanakorn would be responsible for e-bus data collection and charging services. Based on monitoring data from January 1, 2024, to December 31, 2024, the Program's emissions reduction is calculated at 29,301 tCO<sub>2</sub>, attributed to fuel-switching in public transport and a modal shift from private vehicles/other public transportation modes to e-buses.

The emissions reduction shall be verified and considered as the internationally transferred mitigation outcomes (ITMOs) in compliance with the bilateral agreement between the Thai Government and Switzerland. The process of ITMOs transfer shall be in line with "Offsetting CO<sub>2</sub> emissions: projects and programmes"<sup>12</sup>, by FOEN and "Thailand's Authorization and Recognition of International Transfer Process" by TGO<sup>13</sup>.

<sup>12</sup> Source: <https://www.bafu.admin.ch/dam/en/sd-web/hWse-MQz5810/co2-kompensation-projekte-und-programme.pdf>

<sup>13</sup> Source: <https://ercst.org/document/thailands-authorisation-and-recognition-of-international-transfer-process/>

## 2.2 Implementation of the project/program

### 2.2.1 Temporal aspects

Could the project/program be implemented in terms of start of implementation, start of impact and start of monitoring as foreseen in the project/program description?

- Yes  
 No

**Table 3: Program implementation timeline**

Dates	Date according to project/program description	Date Effective implementation	Remarks on deviations
Start of implementation	15 June 2022	15 June 2022	No deviation from the MADD
Start of operation	1 October 2022	20 August 2022 <sup>14</sup>	The start of operation considered a pilot phase where some of the bus routes were selected – i.e., routes 2-38
Start monitoring for MP1 (01.10.2022-31.12.0222)	1 October 2022	1 October 2022	No deviation from the MADD
Start monitoring for MP2 (01.01.2023-31.12.2023)	1 January 2023	1 January 2023	No deviation from the MADD
Start monitoring for MP3 (01.01.2024-31.12.2024)	1 January 2024	1 January 2024	No deviation from the MADD

### 2.2.2 Content aspects: Projects in the program and fulfillment of the admission criteria

The Bangkok E-Bus Program is implemented under the T-VER standard, which aims to encourage domestic greenhouse gas (GHG) emission reductions along with the co-benefits report. Under this standard, the program has been developed as Program of activity (PoA) – a T-VER PoA – that would allow for greater scalability. However, the T-VER PoA has a maximum allowance of 60,000 tCO<sub>2</sub>/year per PoA. Correspondingly, the program was developed to allow for greater mitigation potential while also separating the structure of the Bangkok E-Bus Program into two separate zones – Zone 1 and 2, and Zone 3 and 4. All included CPAs shall comply with the eligibility criteria of the Program, which is aligned with the T-VER standard, as indicated in the MADD. The two T-VER PoAs were developed and registered with T-VER registry as follows:

1. T-VER PoA 01<sup>15</sup>: titled “The Bangkok Metropolitan Area E-Bus Zone 1 and 2 (ver.4)”;
2. T-VER PoA 02: titled “The Bangkok Metropolitan Area E-Bus Zone 3 and 4 (ver.4)”.

In compliance with the eligibility criteria stated in the MADD, each CPA has been checked for eligibility criteria fulfilment. Every CPA included in this monitoring period has fulfilled the inclusion criteria, with supporting evidence for each criterion illustrated in Table 4.

<sup>14</sup> Information provided by Thai Smile Bus (Bus operator)

<sup>15</sup> PoA1 includes bus routes S-xx

**Table 4: Eligibility criteria under the T-VER standard for CPA inclusion for all CPAs**

#	Eligibility criterion - Category	Eligibility criterion - Required condition	Criteria Check	Supporting evidence for inclusion	Fulfillment of the inclusion criteria
1	<p>The type of vehicles under any CPAs shall:</p> <p>1. Not be modified from the existing conventional ICEV</p> <p>2. Be 100% battery EV</p> <p>3. Have documented measures in place in case the vehicles require a new rechargeable battery, to ensure that vehicle owners have access to replacement batteries of comparable quality</p> <p>4. Not use the replaced vehicles in the project's boundary or other area</p> <p><i>Ref: T-VER-METH-TM-05 Version 03, T-VER-METH-TM-06 Version 03</i></p>	<p>1. Vehicles used in the project activities are not modified ICEVs</p> <p>2. Vehicles used in the project activities are all powered by electricity</p> <p>3. Project developer demonstrates the cycle of battery replacement or recycling</p> <p>4. The developer ensures that the replaced vehicles will not be used in any area</p>	<p>1. No vehicles were powered by internal combustion engine (ICE)</p> <p>2. All vehicles used in the project activities are all powered by electricity</p> <p>3. Project developer demonstrates the cycle of battery replacement or recycling</p> <p>4. No replaced vehicle has been used in any area</p>	<p>1. E-bus purchase agreement; ref: Reference 2</p> <p>2. Technical specifications of e-buses in the Program; ref: Reference 4</p> <p>3. Electronic waste management service agreement contract between EA and Amita (battery recycling company). The recycling or replacement of batteries is not relevant to this monitoring period as they have not reached their end of life yet; ref: Reference 5</p> <p>4. Evidence of salvage and replacement ICE bus; Reference 3</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
2	<p>Vehicle specifications included in CPA shall consider the following parameters:</p>	<p>E-bus specifications included in the Program shall consider the following parameters:</p>	<p>1. All buses are Standard 2 and/or Standard 3</p> <p>2. Battery capacity of the bus is 120–302 kWh</p>	<p>1. Technical requirements of e-buses in the Program; ref: Reference 4 and Bus registration; ref: Annex 6</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

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#	Eligibility criterion - Category	Eligibility criterion - Required condition	Criteria Check	Supporting evidence for inclusion	Fulfillment of the inclusion criteria
	1. meet standard vehicle according to the DLT 2. battery capacity  <i>Ref: MADD</i>	1. Standard 2 (air-conditioned bus class 2) and/or Standard 3 (normal bus) 2. battery capacity ≥150 kWh	Note: The battery capacity of buses included in the Program has changed from ≥150 kWh to 120–302 kWh	2. Notification letter regarding the change in the Program's description, which was acknowledged by TGO; ref: Annex 3	
3	Public bus routes under the CPA shall comply with national laws and regulations  <i>Ref: MADD</i>	All routes in the project activities must be approved by the DLT	All routes are operated according to the licenses approved by DLT	The approved passenger transport licenses by DLT of the included bus routes in this monitoring report; ref: Annex 2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4	The CPA boundary is within the geographic territory of Bangkok Metropolitan area  <i>Ref: MADD</i>	All routes are in Bangkok Metropolitan area shown in Figure 1	All routes are in Bangkok Metropolitan area	The approved passenger transport licenses by DLT of the included bus routes in this monitoring report; ref: Annex 2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5	Each CPA shall be categorised by its area of operation	All routes are in Bangkok Metropolitan area shown in Figure 1	All routes are in Bangkok Metropolitan area	The approved passenger transport licenses by DLT of the included bus routes in this monitoring report; ref: Annex 2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6	The emission reductions shall not exceed the limit stipulated under the T-VER standard criteria  <i>Ref: Table 1 of the scheme and Regulation of the Greenhouse Gas Management Organization on Criteria for</i>	One PoA shall not exceed 60,000 tCO <sub>2</sub> e/year after combining all CPAs under the same PoA  The ex-ante calculation shall not exceed 20,000 tCO <sub>2</sub> e/year per CPA	The emission reduction of each CPA and cumulatively in each PoA have not exceeded the T-VER criteria	Ex-post calculation based on implementation of e-buses; ref: <i>MP3 - Ex-Post-bangkok-e-bus_16122025</i> file for ex-post calculation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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#	Eligibility criterion - Category	Eligibility criterion - Required condition	Criteria Check	Supporting evidence for inclusion	Fulfillment of the inclusion criteria
	<i>Considering Voluntary Greenhouse Gas Reduction Projects According to Thailand Standard (T-VER) B.E. 2022, announced on 25 January 2022</i>				
7	Ownership of emission reduction / mitigation outcomes units issued  <i>Ref: MADD</i>	Contractual agreement between EA and the bus operator indicating that the mitigation outcomes generated under the Bangkok E-Bus Program will be owned by EA	The contractual agreement	Contractual agreement between EA and the bus operator; ref: Reference 6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8	EA shall demonstrate that double counting of emission reductions will not occur, i.e., by monitoring data from each specific vehicle  <i>Ref: MADD</i>	The Bangkok E-Bus Program mitigation activity does not and will not lead to double counting of emission reductions, since it does not and will not claim emission reductions as: <ul style="list-style-type: none"> <li>• a standalone project activity; OR</li> <li>• as part of a bundled/grouped project activity; OR</li> <li>• as another registered PoA; OR</li> </ul> as a project activity under another emission reduction crediting scheme (e.g., voluntary	The Program did not claim the emission reduction in any other form of project activities	Contractual agreement between EA and the bus operator; ref: Reference 6  Note: TSB has no right to manage the carbon credits generated by this program	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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#	Eligibility criterion - Category	Eligibility criterion - Required condition	Criteria Check	Supporting evidence for inclusion	Fulfillment of the inclusion criteria
		carbon markets) during the same crediting period			
9	<p>All CPAs shall have a crediting period not exceeding T-VER PoA duration</p> <p><i>Ref: Table 1 of the scheme and Regulation of the Greenhouse Gas Management Organization on Criteria for Considering Voluntary Greenhouse Gas Reduction Projects According to Thailand Standard (T-VER) B.E. 2022, announced on 25 January 2022</i></p>	The crediting period shall follow the T-VER standard for which a PoA has a 14-year period and a CPA has a 7-year period, with 1 time renewal	<p>The crediting period of this project followed the T-VER standard, currently in its first monitoring period of the first crediting period</p> <p>Crediting period of PoA1 and PoA2: 01.10.2022 – 30.09.2036 (14 years)</p>	<p>Registration of date of CPA-DD included in this monitoring period; ref: Reference 7, where for the first crediting period each CPA registered within the crediting period of PoA:</p> <p><u>PoA1<sup>16</sup>:</u></p> <p>CPA1: 01.10.2022 – 30.09.2029</p> <p>CPA2: 01.10.2022 – 30.09.2029</p> <p>CPA3: 25.11.2022 – 24.11.2029</p> <p>CPA4: 22.02.2023 – 21.02.2030</p> <p>CPA5: 29.03.2023 – 28.03.2030</p> <p><u>PoA2<sup>17</sup>:</u></p> <p>CPA1: 01.10.2022 – 30.09.2029</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

<sup>16</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3602-bangkok-metropolitan-area-e-bus-zone-1-and-2.html>

<sup>17</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3605-bangkok-metropolitan-area-e-bus-zone-3-and-4.html>

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#	Eligibility criterion - Category	Eligibility criterion - Required condition	Criteria Check	Supporting evidence for inclusion	Fulfillment of the inclusion criteria
				CPA2: 01.10.2022 – 30.09.2029  CPA3: 03.11.2022 – 02.11.2029  CPA4: 15.12.2022 – 14.12.2029  CPA5: 12.01.2023 – 11.01.2030  CPA6: 15.02.2023 – 14.02.2030	
10	Data collection shall be shared between EA and the bus operator  <i>Ref: MADD</i>	Bus operator shall provide monitoring data to EA and the Program Coordinating and Managing Entity (CME)	Bus operator has provided monitoring data to EA and CME	Raw data provided by EA to CME for the relevant parameters used for calculation; ref: Reference 9, Reference 11, and Reference 12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
11	Demonstration of additionality	Additionality shall be demonstrated at CPA level	All CPAs have passed the additionality when registering for CPA-DD under the T-VER standard	Additionality demonstration of each registered CPA-DD of PoA1 <sup>18</sup> and PoA2 <sup>19</sup> under T-VER registry	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

<sup>18</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3602-bangkok-metropolitan-area-e-bus-zone-1-and-2.html>

<sup>19</sup> Source: <https://ghgreduction.tgo.or.th/th/tver-database-and-statistics/programme-of-activities/item/3605-bangkok-metropolitan-area-e-bus-zone-3-and-4.html>

CPAs that pass the eligibility criteria in Table 4 are included in this monitoring period. Detail of each bus route included in each CPA with number of registered e-buses with DLT by December 2024 are illustrated in Table 5 for PoA 01 and Table 6 for PoA 02.

**Table 5: Details of e-bus routes and the number of e-buses included in T-VER PoA 01: Bangkok Metropolitan area e-bus Zones 1 and 2**

No.	E-Bus Routes Name	E-bus Routes Identified Number	Number of E-Buses Registered with DLT	First date of E-Bus registration
<b>CPA 1: The Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>				
1	Min Buri - Victory Monument	1-37	32	21/10/2022
2	Siam Park - Klongtoey	1-39	39	6/10/2022
3	Ministry of Public Health - Priest Hospital	2-15	29	27/10/2022
4	Happy Land - Memorial Bridge Pier	2-38	53	17/8/2022
5	Minburi - Suvarnabhumi airport	S4	5	22/12/2022
<b>CPA 2: The Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>				
1	Rangsit - Hua Lamphong station (Tollway)	1-2E	18	29/9/2022
2	Bangkhen - Phahon Yothin Road - Hua Lamphong station	1-3	18	14/9/2022
3	Thammasat University Rangsit Campus - Bangkhen	1-4	10	19/10/2022
4	Romkhao Housing - Happy Land	1-41	19	21/10/2022
5	Numkrai Industrial Estate - Min Buri	1-47	5	14/11/2022
6	KMITL - Happy Land	1-49	7	22/11/2022
7	Loop Minburi - Khubon Road - Hathairat Road	1-52	6	7/10/2022
8	KMITL - Victory Monument	1-56	11	22/11/2022
9	Siam Park - Lam Luk Ka Khlong 12	1-58	6	9/11/2022
10	Siam Park Bus Depot - Ua-Athorn Sangkasantisuk	1-59	6	9/11/2022
11	Ua-Athorn Sangkasantisuk - Min Buri	1-61	5	27/9/2022
12	Min Buri - Ministry of Commerce	1-62	5	22/11/2022
13	Patthawikorn - Rama VIII Park	1-63	7	25/11/2022
14	Loop Min Buri - Lat Krabang Industrial Estate	1-71	6	22/11/2022
15	Ua-Athorn Latkrabang 2 - Rom Klao	1-73	5	22/11/2022
16	Min Buri - Klongtoey (Additional line)	1-77	5	14/11/2022
17	Khlong Chan Housing - Tha Tian	2-42	20	21/9/2022
18	Loop Bang Sue BTS Station - Kasetsart University	2-17	7	27/10/2022
<b>CPA 3: The Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>				
1	Government Complex - Khlong Luang	1-31	5	19/12/2022
2	Bangkhen -Talat Phlu BTS Station (Tollway)	1-32E	6	19/12/2022
3	Bangkhen - Bangsue Grand Station	1-33	6	22/12/2022
4	Loop Safari World - Nuuan Jan	1-64	5	30/11/2022
5	Loop Bua Khao - Min Buri	1-76	5	25/11/2022
6	Thammasat University Rangsit Campus - Thammasat University Tha Prachan Campus	1-9E	11	22/12/2022
7	Ministry of Public Health - Sanam Luang	2-11	15	8/12/2022
8	Talat Tha It - Victory Monument	2-3	34	19/12/2022
9	Tha It - Ramkhamhaeng University (Tollway)	2-18E	7	25/11/2022
10	Thanam Nonthaburi - Thanon Tok	2-22	10	19/12/2022
11	Muang Thong Thani - Bang Wa BTS Station	2-27	5	19/12/2022

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No.	E-Bus Routes Name	E-bus Routes Identified Number	Number of E-Buses Registered with DLT	First date of E-Bus registration
12	Loop Samsen Railway Station - Din Daeng	2-34	7	22/12/2022
13	Rangsit - Siam Park - Suvarnabhumi airport (Tollway)	S3	18	22/12/2022
14	Happy Land - Suvarnabhumi airport	S5	10	22/12/2022
15	Bangkok Bus Terminal (Chatuchak) - Suvarnabhumi airport (Tollway)	S6	10	19/12/2022
16	Tha It - Ramkhamhaeng University	2-13	30	19/1/2023
17	Rangsit - Victory Monument	1-5	13	22/2/2023
18	Rangsit - Bang Rak (Toll)	1-18E	42	9/2/2023
<b>CPA 4: The Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>				
1	Siam Park - Bang Rak	1-45	26	22/2/2023
2	Rajamangala University of Technology - Priest Hospital	1-24E	36	30/3/2023
3	Government Complex - Khlong Tun	1-13	10	27/4/2023
4	Minburi - Hua Lamphong	1-44	25	29/3/2023
5	Bangkhon - Viphawadee Road - Hua Lamphong	1-1	11	19/5/2023
6	Rangsit - Raminthra Road - Suvarnabhumi Airport (Toll)	S2	10	19/5/2023
7	Ua-Athorn Klong 3 - Victory Monument	1-17	20	30/3/2023
8	Lak Si - Bangkok Bus Terminal (South)	1-23	20	28/4/2023
9	Talat Bang Bua Thong - Banglamphu	2-19	9	27/4/2023
10	Pakkret Pier – Minburi	1-15	19	22/3/2023
11	Pakkret Pier – Bangkok Bus Terminal (Chatuchak)	1-6	11	28/6/2023
<b>CPA 5: The Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>				
1	Prachaniwet 3 - Thewet	2-35	14	29/3/2023
2	Thanam Nonthaburi - Pattanakarn	2-26	16	19/5/2023
3	Pak Nam Temple Nonthaburi - Bangkok Bus Station South (Phra Pin Klao)	2-4	18	28/4/2023
4	Happy Land - Bangkok Bus Terminal (Chatuchak)	2-48	10	31/5/2023
5	Suvarnabhumi airport (Tollway) - Thonburi Housing	S7	5	19/5/2023
6	Pakkret Pier – Bangkok Bus Terminal (Chatuchak)	2-16	24	12/6/2023
7	Wat Prangkhanluang - Bangkaen	2-8	7	22/3/2023
<b>Total Routes in PoA 01: Bangkok Metropolitan Area E-Bus Zone 1 and 2</b>		<b>59</b>	<b>Total 854 E-buses</b>	

**Table 6: Details of e-bus routes and the number of e-buses included in T-VER PoA 02: Bangkok Metropolitan area e-bus Zones 3 and 4**

No.	E-Bus Routes Name	E-bus Routes Identified Number	Number of Buses Registered with DLT	First date of E-Bus registration
<b>CPA 1: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Rama 3 - Bangkok Bus Terminal (Chatuchak)	3-45	25	19/12/2022
2	Phra Pradaeng Pier - Bang Lamphu	4-15	30	5/9/2022
3	Taling Chan Circle - Thonburi	4-41	20	8/12/2022
<b>CPA 2: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Paknam - Memorial Bridge Pier	3-1	27	19/10/2022
2	Paknam - Lat Krabang Industrial Estate (Tollway)	3-25E	11	27/9/2022
3	Pu Chao Saming Phrai - Memorial Bridge Pier (Tollway)	3-2E	10	21/10/2022
4	Hua Mak - Sao Ching Cha	3-53	5	21/9/2022
5	Samaedam - Victory Monument (Tollway)	4-23E	62	29/9/2022
6	Bang Khun Thian - Happy Land (Tollway)	4-27E	12	23/8/2022
7	Samaedam - Victory Monument	4-28	12	7/10/2022
8	Phra Pradaeng - Victory Monument	4-3	15	5/9/2022
9	Phutthamonthon Sai 5 Road - Tha Ratcha Woradit	4-45	40	14/9/2022
10	Boromarajonani - Bangkok Bus Terminal (Chatuchak)	4-49	10	2/11/2022
11	Loop Bangkok Bus Terminal (South) - Phet Kasem Road	4-52	17	2/11/2022
12	Boromarajonani - Bangkok Bus Terminal (Eastern)	4-53	13	2/11/2022
13	KMUTT - Prachauthit - Talat Phlu BTS Station	4-17	5	27/9/2022
14	Thonburi Housing - Phra Pradaeng	4-34	10	27/9/2022
<b>CPA 3: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Bang Phli Housing - Udom Suk BTS Station	3-14	17	9/12/2022
2	Rama 3 - Tha Tian	3-35	17	2/12/2022
3	Bangkok Port (Khlong Toei) - Phasi Charoen Port	3-36	10	14/11/2022
4	Pu Chao Saming Phrai - Siam Park	3-27	14	25/11/2022
5	Samrong - Siam Park	3-32	6	25/11/2022
6	Loop Rama 3 - Hua Lamphong	3-52	7	2/12/2022
7	Tha Phasi Charoen - Victory Monument	3-54	5	30/11/2022
8	Sala Ya Train Station - National Stadium BTS Station	4-55	15	9/11/2022
9	Sala Ya Station - Victory Monument	4-61	31	4/11/2022
10	Suksanari Wittaya School - Hua Lam Phong	4-36	21	3/11/2022
11	Samaedam - Bangkok Bus Terminal (Chatuchak) (Tollway)	4-29E	25	30/11/2022
12	Boromarajonani - Krung Thon Buri BTS Station	4-56	9	14/11/2022
13	Suanpak - Thanon Tok	4-68	5	9/12/2022
<b>CPA 4: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Thailand Cultural Center - Sanam Chai BTS Station	3-37	26	22/12/2022
2	Thanon Tok - Si Yan	3-39	17	15/12/2022
3	Rama IX Park - National Stadium Station	3-3	14	22/12/2022
4	Samrong - Government Complex (Tollway)	3-23E	7	15/12/2022

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No.	E-Bus Routes Name	E-bus Routes Identified Number	Number of Buses Registered with DLT	First date of E-Bus registration
5	Bangkok Port (Khlong Toei) - Victory Monument	3-44	7	22/12/2022
6	Bangkok Port (Khlong Toei) - Rama 7	3-55	5	22/12/2022
7	Bangna - Lat Krabang Industrial Estate (Tollway)	3-34	5	15/12/2022
8	Rai Khing temple - Krung Thon Buri BTS Station	4-46	60	19/12/2022
9	Omyai - Victory Monument (Tollway)	4-54E	25	19/12/2022
10	Sala Ya Train Station - Ministry of Commerce	4-67	6	19/12/2022
11	Sam Rong - Bangkok Bus Station (South)	3-13	18	12/1/2023
12	Ramkhamhaeng University (Bangna Campus) - Victory Monument	3-8	20	12/1/2023
13	Ua-Athorn Salaya - Sanam Luang	4-51	28	12/1/2023
<b>CPA 5: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Suksanari School - Thewet	4-11	24	12/1/2023
2	Loop Thonburi Housing - Bangkhae	4-25	55	19/1/2023
3	Bang Phli Housing - Ekamai BTS Station	3-15	18	25/1/2023
4	Thonburi Housing - Bang Lamphu	4-8	9	25/1/2023
5	Samutsakorn - Ban Khaek Intersection	4-21	23	25/1/2023
6	Krung Thon Bridge Loop - Bang Lam Phu	4-40	17	25/1/2023
7	Wor Por Or Village - Suan Luang Rama 8	4-44	12	25/1/2023
8	Omyai - Tha Ratcha Woradit	4-50	26	9/2/2023
9	Ramkhamhaeng University (Bangna Campus) - Tha Chang	3-11	31	12/1/2023
10	Phra Pradaeng Pier - Bang Lamphu	4-1	34	15/2/2023
<b>CPA 6: The Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>				
1	Bangkok Bus Station (South) - Chandrakasem Rajabhat University	4-38	40	23/3/2023
2	Bangkok Bus Station (South) - Bangkok Bus Station (Ekamai)	4-39	55	23/3/2023
3	Ua-Athorn Salaya - Tanon Tok	4-63	29	15/2/2023
4	Kalpapruek - Samsen Train Station	4-37	10	27/4/2023
5	Bangkok Bus Station (South) - Rajamangala University of Technology (Bangkok Campus)	4-47	10	27/4/2023
6	Patumkongka School Samutprakan - Bangkok Bus Station (Ekamai)	3-6	22	23/3/2023
7	Phra Pradaeng - Thonburi BTS Station	4-16	10	22/2/2023
8	BTS Talat Phu Loop - Victory Monument	4-19	12	27/4/2023
9	Thonburi Housing - Lumpini MRT	4-26	10	22/2/2023
10	Sao Ching Cha - Tha Phra	4-10	11	22/3/2023
<b>Total Routes in PoA 02: Bangkok Metropolitan Area E-Bus Zone 3 and 4</b>		<b>63</b>	<b>Total 1,202 E-buses</b>	

## 2.3 Location and system boundary

Was the project or program implemented at the site according to the project/program description?

Not relevant because it concerns projects of a program and this was not specified in the program description

Yes

No

The boundary of the Program, which is the Bangkok Metropolitan area, remains the same. In the implementation, the terminal stations of each bus route are subject to change due to the appropriateness and readiness of each terminal. The terminal stations for each bus route are identified by the bus operator, TSB, and the charging stations on each bus route are grouped by relative distance of the location of bus routes to the bus terminals. Details and locations of each bus route grouped by CPAs are illustrated in Table 7 and Table 8.

**Table 7: Locations of e-bus terminals / charging stations of routes included in CPAs under T-VER PoA 01: Bangkok Metropolitan area e-bus Zones 1 and 2**

E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
<b>CPA 1</b>			
1-37	Min Buri - Victory Monument	Bueng kum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-39	Siam Park - Klongtoey		
2-38	Happy Land - Memorial Bridge Pier	Ramkhamh aeng 74	13°46'05.8", 100°39'46.6" <a href="https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6">https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6</a>
2-15	Ministry of Public Health - Priest Hospital	Liang Mueang Nonthaburi	13°52'24.9", 100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>
S-4	Minburi - Suvarnabhumi airport	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
<b>CPA 2</b>			
1-2E	Rangsit - Hua Lamphong station (Tollway)	Rangsit Bangpoon	13°59'48.4" , 100°34'56.0" <a href="https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV A">https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV A</a>
1-3	Bangkhen - Phahon Yothin Road - Hua Lamphong station	Rangsit Bangpoon	13°59'48.4" , 100°34'56.0" <a href="https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV A">https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV A</a>
1-4	Thammasat University Rangsit Campus - Bangkhen	Rangsit 200 Years	13° 59' 46.21943", 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
1-41	Romklao Housing - Happy Land	Buengkum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-47	Numkrai Industrial Estate - Min Buri	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-49	KMITL - Happy Land	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-52	Loop Minburi - Khubon Road - Hathairat Road	Buengkum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-56	KMITL - Victory Monument	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-58	Siam Park - Lam Luk Ka Khlong 12	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>

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E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
1-59	Siam Park Bus Depot - Ua-Athorn Sangkasantisuk	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-61	Ua-Athorn Sangkasantisuk - Min Buri	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-62	Min Buri - Ministry of Commerce	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-63	Patthawikorn - Rama VIII Park	Buengkum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-71	Loop Min Buri - Lat Krabang Industrial Estate	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-73	Ua-Athorn Latkrabang 2 - Rom Klao	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
1-77	Min Buri - Klongtoey	Minburi - Nong Chok	13°48'33.5", 100°49'55.8" <a href="https://goo.gl/maps/dz5TGZGzytYK2Mfq9">https://goo.gl/maps/dz5TGZGzytYK2Mfq9</a>
2-42	Khlong Chan Housing - Tha Tian	Ramkhamhaeng 74	13°46'05.8", 100°39'46.6" <a href="https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6">https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6</a>
2-17	Loop Bang Sue BTS Station - Kasetsart University	Liang Mueang Nonthaburi	13°52'24.9", 100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>
<b>CPA 3</b>			
1-18E	Rangsit – Bangrak (Tollway)	Rangsit 200 Years	13° 59' 46.21943", 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
1-31	Government Complex - Khlong Luang	Rangsit Klong 6	14°04'49.3", 100°43'49.4" <a href="https://maps.app.goo.gl/gecYurvwxyCfhpN7">https://maps.app.goo.gl/gecYurvwxyCfhpN7</a>
1-32E	Bangkhen -Talat Phlu BTS Station (Tollway)	Kalpapruet	13°42'39.3", 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NygbP3kWi7">https://maps.app.goo.gl/YGFk4n5NygbP3kWi7</a>
1-33	Bangkhen - Bangsue Grand Station	Liang Mueang Nonthaburi	13°52'24.9", 100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>
1-5	Rangsit – Victory Monument	Rangsit Bangpoon	13°59'48.4", 100°34'56.0" <a href="https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV_A">https://maps.app.goo.gl/Vu7KFWiyyVxiSVPV_A</a>
1-64	Loop Safari World - Nuuan Jan	Buengkum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-76	Loop Bua Khao - Min Buri	Buengkum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-9E	Thammasat University Rangsit Campus - Thammasat University Tha Prachan Campus	Rangsit 200 Years	13° 59' 46.21943", 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
2-11	Ministry of Public Health - Sanam Luang	Liang Mueang Nonthaburi	13°52'24.9", 100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>
2-13	Tha It - Ramkhamhaeng University	Tha It	13°53'24.6", 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>

Monitoring report of projects/programs to reduce emissions and increase sink performance

E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
2-3	Talat Tha It - Victory Monument	Tha It	13°53'24.6", 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>
2-18E	Tha It - Ramkhamhaeng University (Tollway)	Tha It	13°53'24.6", 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>
2-22	Thanam Nonthaburi - Thanon Tok	Liang Mueang Nonthaburi	13°52'24.9", 100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>
2-27	Muang Thong Thani - Bang Wa BTS Station	Tha It	13°53'24.6", 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>
2-34	Loop Samsen Railway Station - Din Daeng	Ramkhamhaeng 74	13°46'05.8", 100°39'46.6" <a href="https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6">https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6</a>
S3	Rangsit - Siam Park - Suvarnabhumi airport (Tollway)	Rangsit 200 Years	13° 59' 46.21943", 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
S5	Happy Land - Suvarnabhumi airport	Ramkhamhaeng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
S6	Bangkok Bus Terminal (Chatuchak) - Suvarnabhumi airport (Tollway)	Ramkhamhaeng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
<b>CPA 4</b>			
1-1	Bangkhen-Vibhavadi Rangsit- Hua Lamphong	Rangsit 200 Years	13° 59' 46.21943", 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
1-13	Government Complex - Khlong Tun	Bueng kum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-15	Pak Kret Pier - Min Buri	<i>Pak Kret</i>	13°55'15.1" , 100°31'00.7" <a href="https://maps.app.goo.gl/BLU9WF1aNmZrvxKUA">https://maps.app.goo.gl/BLU9WF1aNmZrvxKUA</a>
1-17	Ua-Athorn Klong 3 - Victory Monument	Rangsit Klong 6	14°04'49.3" , 100°43'49.4" <a href="https://maps.app.goo.gl/gecYurvwxyuCfhpN7">https://maps.app.goo.gl/gecYurvwxyuCfhpN7</a>
1-23	Lak Si - Bangkok Bus Terminal (South)	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
1-24E	Rajamangala University of Technology - Priest Hospital	Rangsit Klong 6	14°04'49.3" , 100°43'49.4" <a href="https://maps.app.goo.gl/gecYurvwxyuCfhpN7">https://maps.app.goo.gl/gecYurvwxyuCfhpN7</a>
1-44	Minburi - Hua Lamphong	Bueng kum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-45	Siam Park - Bang Rak	Bueng kum	13° 47' 16.03625", 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
1-6	Pak Kret Pier - Bangkok Bus Terminal (Chatuchak)	<i>Pak Kret</i>	13°55'15.1" , 100°31'00.7" <a href="https://maps.app.goo.gl/BLU9WF1aNmZrvxKUA">https://maps.app.goo.gl/BLU9WF1aNmZrvxKUA</a>

Monitoring report of projects/programs to reduce emissions and increase sink performance

E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
2-19	Talat Bang Bua Thong - Banglamphu	Tha It	13°53'24.6" , 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>
S2	Rangsit - Raminthra Road - Suvarnabhumi Airport (Toll)	Rangsit 200 Years	13° 59' 46.21943" , 100° 36' 9.76107" <a href="https://maps.app.goo.gl/6fNJutW1A7X4wtoL6">https://maps.app.goo.gl/6fNJutW1A7X4wtoL6</a>
CPA 5			
2-4	Pak Nam Temple Nonthaburi - Bangkok Bus Station South (Phra Pin Klao)	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
2-26	Thanam Nonthaburi - Pattanakarn	Tha It	13°53'24.6" , 100°27'37.2" <a href="https://maps.app.goo.gl/mJYs8RvHu9DSmE65A">https://maps.app.goo.gl/mJYs8RvHu9DSmE65A</a>
2-35	Prachaniwet 3 - Thewet	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
2-48	Happy Land - Bangkok Bus Terminal (Chatuchak)	Bueng kum	13° 47' 16.03625" , 100° 40' 39.55512" <a href="https://maps.app.goo.gl/BhbGh9tokovn3X7c9">https://maps.app.goo.gl/BhbGh9tokovn3X7c9</a>
2-16	Pak Kret Pier -Bangkok Bus Terminal (Chatuchak)	Pak Kret	13°55'15.1" , 100°31'00.7" <a href="https://maps.app.goo.gl/BLU9WF1aNmZRvxKUA">https://maps.app.goo.gl/BLU9WF1aNmZRvxKUA</a>
2-8	Prang laung Temple - Bang Khen	Pak Kret	13°55'15.1" , 100°31'00.7" <a href="https://maps.app.goo.gl/BLU9WF1aNmZRvxKUA">https://maps.app.goo.gl/BLU9WF1aNmZRvxKUA</a>
S7	Suvarnabhumi airport (Tollway) - Thonburi Housing	Thonburi Housing	13°39'01.4" , 100°25'09.2" <a href="https://maps.app.goo.gl/egKqUayqgAdAPA8X8">https://maps.app.goo.gl/egKqUayqgAdAPA8X8</a>



Figure 2: Example pictures of bus station in PoA 01 'Bueng Kum E-bus station and the charging station'

**Table 8: Location of e-bus terminals / charging stations of routes included in CPAs under T-VER PoA 02: Bangkok Metropolitan area e-bus Zones 3 and 4**

E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
CPA 1			
3-45	Rama 3 - Bangkok Bus Terminal (Chatuchak)	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
4-15	Phra Pradaeng Pier - Bang Lamphu		
4-41	Taling Chan Circle - Thonburi	Pran Nok	13°45'16.9" , 100°25'23.9" <a href="https://goo.gl/maps/aA5ZWbVjbCXn6wkT6">https://goo.gl/maps/aA5ZWbVjbCXn6wkT6</a>
CPA 2			
3-1	Paknam - Memorial Bridge Pier	Pak Nam	13° 36' 57.48788", 100° 35' 36.13858" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
3-25E	Paknam - Lat Krabang Industrial Estate (Tollway)	Pak Nam	13° 36' 57.48788", 100° 35' 36.13858" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
3-2E	Pu Chao Saming Phrai - Memorial Bridge Pier (Tollway)	Pak Nam	13° 36' 57.48788", 100° 35' 36.13858" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
3-53	Hua Mak - Sao Ching Cha	Ramkhamhaeng 74	13°46'05.8" , 100°39'46.6" <a href="https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6">https://maps.app.goo.gl/xSG6c4ocJXaq6HqU6</a>
4-23E	Samaedam - Victory Monument (Tollway)	Saem Dam	13° 37' 32.34797", 100° 26' 19.6248" <a href="https://maps.app.goo.gl/9NTr5BjJkLrquWhw6">https://maps.app.goo.gl/9NTr5BjJkLrquWhw6</a>
4-27E	Bang Khun Thian - Happy Land (Tollway)	Saem Dam	13° 37' 32.34797", 100° 26' 19.6248" <a href="https://maps.app.goo.gl/9NTr5BjJkLrquWhw6">https://maps.app.goo.gl/9NTr5BjJkLrquWhw6</a>
4-28	Samaedam - Victory Monument	Saem Dam	13° 37' 32.34797", 100° 26' 19.6248" <a href="https://maps.app.goo.gl/9NTr5BjJkLrquWhw6">https://maps.app.goo.gl/9NTr5BjJkLrquWhw6</a>
4-3	Phra Pradaeng - Victory Monument	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
4-45	Phutthamonthon Sai 5 Road - Tha Ratcha Woradit	Wat Rai Khing	13° 45' 17.4722", 100° 17' 7.67889" <a href="https://maps.app.goo.gl/VR4C4dwa67rPFZKz6">https://maps.app.goo.gl/VR4C4dwa67rPFZKz6</a>
4-49	Boromarajonani - Bangkok Bus Terminal (Chatuchak)	<i>Taling Chan</i>	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
4-52	Loop Bangkok Bus Terminal (South) - Phet Kasem Road	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-53	Boromarajonani - Bangkok Bus Terminal (Eastern)	Talingchan	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
4-17	KMUTT - Prachauthit - Talat Phlu BTS Station	Kalpapruerk	13°42'39.3" , 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NygbP3kWi7">https://maps.app.goo.gl/YGFk4n5NygbP3kWi7</a>
4-34	Thonburi Housing - Phra Pradaeng	Saem Dam	13° 37' 32.34797", 100° 26' 19.6248" <a href="https://maps.app.goo.gl/9NTr5BjJkLrquWhw6">https://maps.app.goo.gl/9NTr5BjJkLrquWhw6</a>
CPA 3			
3-14	Bang Phli Housing - Udom Suk BTS Station	Bangpli	13°33'24.8" , 100°45'49.1" <a href="https://maps.app.goo.gl/1W7WUqwWjBA227FDA">https://maps.app.goo.gl/1W7WUqwWjBA227FDA</a>
3-35	Rama 3 - Tha Tian	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
3-36	Bangkok Port (Khlung Toei) - Phasi Charoen Port	Kalpapruerk	13°42'39.3" , 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NygbP3kWi7">https://maps.app.goo.gl/YGFk4n5NygbP3kWi7</a>

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E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
3-27	Pu Chao Saming Phrai - Siam Park	Pak Nam	13° 36' 57.48788", 100° 35' 36.13858" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
3-32	Samrong - Siam Park	Ramkhamheng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
3-52	Loop Rama 3 - Hua Lamphong	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
3-54	Tha Phasi Charoen - Victory Monument	Kalpapruerk	13°42'39.3" , 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NyqbP3kWi7">https://maps.app.goo.gl/YGFk4n5NyqbP3kWi7</a>
4-55	Sala Ya Train Station - National Stadium BTS Station	Salaya	13°48'19.1" , 100°16'11.2" <a href="https://maps.app.goo.gl/xRXaDLNLoBgPGS498">https://maps.app.goo.gl/xRXaDLNLoBgPGS498</a>
4-61	Sala Ya Station - Victory Monument	Wat Rai Khing	13° 45' 17.4722", 100° 17' 7.67889" <a href="https://maps.app.goo.gl/VR4C4dwa67rPFZKz6">https://maps.app.goo.gl/VR4C4dwa67rPFZKz6</a>
4-36	Suksanari Wittaya School - Hua Lam Phong	Ekachai	13°34'35.1" , 100°18'36.3" <a href="https://goo.gl/maps/uyAF4RmGyLUQTMJv6">https://goo.gl/maps/uyAF4RmGyLUQTMJv6</a>
4-29E	Samaedam - Bangkok Bus Terminal (Chatuchak) (Tollway)	Saem Dam	13° 37' 32.34797", 100° 26' 19.6248" <a href="https://maps.app.goo.gl/9NTr5BjJkLrguWhw6">https://maps.app.goo.gl/9NTr5BjJkLrguWhw6</a>
4-56	Boromarajonani - Krung Thon Buri BTS Station	Talingchan	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
4-68	Suanpak - Thanon Tok	Talingchan	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
CPA 4			
3-37	Thailand Cultural Center - Sanam Chai BTS Station	Talingchan	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
3-39	Thanon Tok - Si Yan	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
3-3	Rama IX Park - National Stadium Station	Ramkhamheng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
3-23E	Samrong - Government Complex (Tollway)	<i>Pak Nam</i>	13°36'56.8" , 100°35'33.5" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
3-44	Bangkok Port (Khlong Toei) - Victory Monument	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
3-55	Bangkok Port (Khlong Toei) - Rama 7	Talingchan	13°46'54.5" , 100°23'30.9" <a href="https://maps.app.goo.gl/UvBWbnC9rodcQilH9">https://maps.app.goo.gl/UvBWbnC9rodcQilH9</a>
3-34	Bangna - Lat Krabang Industrial Estate	Ramkhamheng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
4-46	Rai Khing temple - Krung Thon Buri BTS Station	Wat Rai Khing	13° 45' 17.4722", 100° 17' 7.67889" <a href="https://maps.app.goo.gl/VR4C4dwa67rPFZKz6">https://maps.app.goo.gl/VR4C4dwa67rPFZKz6</a>
4-54E	Omyai - Victory Monument (Tollway)	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-67	Sala Ya Train Station - Ministry of Commerce	Liang Mueang Nonthaburi	13°52'24.9",100°29'37.5" <a href="https://maps.app.goo.gl/FCQQnif1wD2Nspfi7">https://maps.app.goo.gl/FCQQnif1wD2Nspfi7</a>

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E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
4-51	Ua-Athorn Salaya - Sanam Luang	Salaya	13°48'19.1" , 100°16'11.2" <a href="https://maps.app.goo.gl/xRXaDLNLoBgPGS498">https://maps.app.goo.gl/xRXaDLNLoBgPGS498</a>
3-8	Ramkhamhaeng University (Bangna Campus) - Victory Monument	Ramkhamhaeng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
3-13	Sam Rong - Bangkok Bus Station (South)	Pak Nam	13°36'56.8" , 100°35'33.5" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
<b>CPA 5</b>			
3-11	Ramkhamhaeng University (Bangna Campus) - Tha Chang	Ramkhamhaeng University 2	13° 40' 23.9196", 100° 41' 28.212" <a href="https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7">https://maps.app.goo.gl/6KbrtWe9Kqq1WCzc7</a>
3-15	Bang Phli Housing - Ekamai BTS Station	Bangpli	13°33'24.8" , 100°45'49.1" <a href="https://maps.app.goo.gl/1W7WUqwWjBA227FDA">https://maps.app.goo.gl/1W7WUqwWjBA227FDA</a>
4-1	Phra Pradaeng Pier - Bang Lamphu	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
4-8	Thonburi Housing - Bang Lamphu	Thonburi Housing	13°39'01.4" , 100°25'09.2" <a href="https://maps.app.goo.gl/egKqUayqgAdAPA8X8">https://maps.app.goo.gl/egKqUayqgAdAPA8X8</a>
4-11	Suksanari School - Thewet	Ekachai	13°34'35.1" , 100°18'36.3" <a href="https://goo.gl/maps/uyAF4RmGyLUQTMJv6">https://goo.gl/maps/uyAF4RmGyLUQTMJv6</a>
4-21	Samutsakorn - Ban Khaek Intersection	Ekachai	13°34'35.1" , 100°18'36.3" <a href="https://goo.gl/maps/uyAF4RmGyLUQTMJv6">https://goo.gl/maps/uyAF4RmGyLUQTMJv6</a>
4-25	Loop Thonburi Housing - Bangkhae	Thonburi Housing	13°39'01.4" , 100°25'09.2" <a href="https://maps.app.goo.gl/egKqUayqgAdAPA8X8">https://maps.app.goo.gl/egKqUayqgAdAPA8X8</a>
4-40	Krung Thon Bridge Loop - Bang Lam Phu	Pran Nok	13°45'16.9" , 100°25'23.9" <a href="https://goo.gl/maps/aA5ZWbVjbCXn6wkT6">https://goo.gl/maps/aA5ZWbVjbCXn6wkT6</a>
4-44	Wor Por Or Village - Suan Luang Rama 8	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-50	Omyai - Tha Ratcha Woradit	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
<b>CPA 6</b>			
3-6	Patumkongka School Samutprakan - Bangkok Bus Station (Ekamai)	Pak Nam	13°36'56.8" , 100°35'33.5" <a href="https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7">https://maps.app.goo.gl/ULdi1RrLWk2uGvwf7</a>
4-10	Sao Ching Cha - Tha Phra	Kalpapruerk	13°42'39.3" , 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NygbP3kWi7">https://maps.app.goo.gl/YGFk4n5NygbP3kWi7</a>
4-16	Phra Pradaeng - Thonburi BTS Station	<i>Rat Burana</i>	13°40'41.9" , 100°30'40.3" <a href="https://maps.app.goo.gl/Btqz278RZdijzP6U8">https://maps.app.goo.gl/Btqz278RZdijzP6U8</a>
4-19	BTS Talat Phu Loop - Victory Monument	Kalpapruerk	13°42'39.3" , 100°27'28.8" <a href="https://maps.app.goo.gl/YGFk4n5NygbP3kWi7">https://maps.app.goo.gl/YGFk4n5NygbP3kWi7</a>
4-26	Thonburi Housing - Lumphini MRT	Thonburi Housing	13°39'01.4" , 100°25'09.2" <a href="https://maps.app.goo.gl/egKqUayqgAdAPA8X8">https://maps.app.goo.gl/egKqUayqgAdAPA8X8</a>

Monitoring report of projects/programs to reduce emissions and increase sink performance

E-bus Routes Identified Number	E-Bus Routes Name	Name of e-bus terminals	GPS coordinate location
4-37	Kalpapruek - Samsen Train Station	Kalpapruek	13° 39' 1.90485", 100° 25' 7.9758" <a href="https://goo.gl/maps/Nm48XjHhJQhFaAzF9">https://goo.gl/maps/Nm48XjHhJQhFaAzF9</a>
4-38	Bangkok Bus Station (South) - Chandrakasem Rajabhat University	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-39	Bangkok Bus Station (South) - Bangkok Bus Station (Ekamai)	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-47	Bangkok Bus Station (South) - Rajamangala University of Technology (Bangkok Campus)	Sai Tai Mai	13°47'24.2" , 100°25'30.6" <a href="https://maps.app.goo.gl/596pLGFtpFwF8mZc9">https://maps.app.goo.gl/596pLGFtpFwF8mZc9</a>
4-63	Ua-Athorn Salaya - Tanon Tok	Salaya	13°48'19.1" , 100°16'11.2" <a href="https://maps.app.goo.gl/xRXaDLNLoBgPGS498">https://maps.app.goo.gl/xRXaDLNLoBgPGS498</a>



**Figure 3: Example pictures of bus station in PoA 02 'Phra Padaeng E-bus station and the charging station'**

Does the system boundary of the implemented project/program and the projects of the program correspond to that in the project/program description?

- Yes  
 No

## 2.4 Technology used

If further (not first) monitoring period: Does the implemented project/programme technically correspond to the project/programme according to the last monitoring report?

- Yes  
 No

## 2.5 Salvage and Replacement of Existing Fleet

The Bangkok E-Bus Program involves the planned replacement of old internal combustion engine buses (“old ICE buses”) with electric buses (EVs) across existing public transport routes in the Bangkok Metropolitan Area. The program encompasses replacing older ICE buses on a one-to-one basis (“The replacement”). This ensures a direct and transparent transition to zero-emission electric transport, significantly reducing greenhouse gas emissions and improving urban air quality.

During this monitoring period, 1,781 EV buses are operating on an existing route. 981 buses are targeted for salvage and replacement based on documented evidence of deregistration. The deregistration records, officially issued by the Department of Land Transport (DLT), constitute verifiable and authoritative proof that the corresponding ICE buses have been withdrawn from service and are no longer legally permitted to operate (see Reference 3). The process of collecting evidence of deregistration from the Department of Land Transport (DLT) is currently on track to meet the replacement. A formal claim for the replacement of these old ICE buses will be submitted in the future, aligned with the program’s monitoring, reporting, and verification (MRV) procedures.

The decommissioning of old ICE buses is managed through formal salvage purchase agreements, which govern the removal and disposal process. These agreements explicitly prohibit the reuse or re-entry of salvaged old ICE buses into service—either within the project area or elsewhere. This non-reuse condition is critical to prevent the risk of double-counting emission reductions and to ensure the environmental integrity of the program.

If old ICE buses were reintroduced into operation, their emissions would have to be accounted for, thereby, the enforcement of a policy that prohibits re-entry into service through formal vehicle deregistration serves as a mechanism to ensure that the greenhouse gas (GHG) emission reductions resulting from the use of electric buses in the project are real, measurable, verifiable, and genuinely additional.

This rigorous salvage and replacement approach, coupled with transparent reporting and strict adherence to climate project standards, supports Thailand’s broader climate commitments. It also promotes a more sustainable and cleaner public transport system for the Bangkok Metropolitan Area.

Since the replacement of internal combustion engine (ICE) buses with electric buses (e-buses) has not followed a uniform replacement pattern in terms of service characteristics, a proportioned method has been applied to accurately estimate and attribute the impacts associated with this transition. This approach ensures that changes in operational characteristics, service coverage, and emissions are appropriately scaled to reflect the actual ratio of e-buses introduced relative to the number of ICE buses replaced. As a result, the calculated benefits, including emissions reductions and fuel savings, more reliably capture the reality of the deployment and provide a sound basis for monitoring and verification.

Monitoring report of projects/programs to reduce emissions and increase sink performance

Table 9 : the number of bus routes and e-buses (Existing Route / New Route / Total)

PoA/CPA		No. of Routes	Existing Route (After proportioned)	New Route	Total
PoA1	CPA1	5	86	0	86
	CPA2	18	48	75	123
	CPA3	18	95	66	161
	CPA4	11	108	0	108
	CPA5	7	52	0	52
<b>Total PoA 1</b>		<b>59</b>	<b>388</b>	<b>141</b>	<b>529</b>
PoA2	CPA1	3	41	0	41
	CPA2	14	126	20	146
	CPA3	13	61	71	132
	CPA4	13	113	30	143
	CPA5	10	137	0	137
	CPA6	10	115	0	115
<b>Total PoA 2</b>		<b>63</b>	<b>593</b>	<b>121</b>	<b>714</b>
		<b>122</b>	<b>981</b>	<b>262</b>	<b>1243</b>

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### **3 Differentiation from climate or energy policy instruments and avoidance of double counting**

This project is implemented under the Paris Agreement 6.2 scheme. It is in line with the bilateral agreement between Switzerland and Thailand. Hence, aside from transferring ITMOs generated from this Program, there is no other subsidy to this Program.

#### **3.1 Grants**

If further (not first after validation) monitoring period: Do the grants received, as well as non-repayable cash benefits, for which a breakdown of impact is necessary, correspond to the information in the last monitoring report?

This program does not receive any grants or non-payable cash benefits from any counterparty.

- Not relevant
- Yes
- No

#### **3.2 Distinction from companies that are exempt from the CO<sub>2</sub> levy**

If further (not first after validation) monitoring report: Does the delineation to companies exempt from CO<sub>2</sub> tax match the delineation presented in the last monitoring report?

This section is not relevant as the Bangkok E-Bus Program is an abroad program that is implemented in Thailand.

- Not relevant
- Yes
- No

#### **3.3 Double counting due to other compensation for ecological added value**

If further (not first after validation) monitoring period: Do the facts regarding double counting of emission reductions correspond to the presentation in the last monitoring report?

- Not relevant
- Yes
- No

If further (not first after validation) monitoring period: Are the measures to avoid double counting due to other compensation of the ecological added value according to the last monitoring report implemented?

- Not relevant
- Yes
- No

## 4 Implementation monitoring

### 4.1 Detection method and data collection

If further (not first after validation) monitoring period: Does the applied detection method correspond to the method described in the last monitoring report, if necessary also with regard to scientific monitoring?

Yes

No

### 4.2 Formulas for calculating the ex-post emission reductions achieved

If further (not first after validation) monitoring period: Do the formulas for calculating the achieved emission reductions correspond to the method described in the last monitoring report?

Yes

No

## 4.3 Parameters and data collection

### 4.3.1 Fixed parameters

Fixed parameter: $NCV_{NGV}$	Detail
Parameter description	Net calorific value of natural gas vehicle (NGV)
Value	36.67
Unit	MJ/kg
Data source	<p>Energy statistics report from the Department of Alternative Energy Development and Efficiency, Ministry of Energy</p> <p>From Energy Statistics of Thailand 2025  <a href="https://www.eppo.go.th/index.php/th/information/services/ct-menu-item-56">https://www.eppo.go.th/index.php/th/information/services/ct-menu-item-56</a></p> <p><math>NCV_{NGV (dry)} = 1.02 \text{ MJ/scf}</math></p> <p>NGV consumption (dated April 18, 2023) –  <a href="https://www.eppo.go.th/index.php/th/petroleum/gas/ngv/ngv-unit">https://www.eppo.go.th/index.php/th/petroleum/gas/ngv/ngv-unit</a></p> <p>NGV conversion = 27.81873313 tonne/mmscf</p>

Fixed parameter: $EF_{CO_2,x}$	Detail
Parameter description	Emission factor of NGV
Value	0.05610
Unit	kgCO <sub>2</sub> /MJ
Data source	Table 1.4 2006 IPCC Guidelines for National GHG Inventories

## Monitoring report of projects/programs to reduce emissions and increase sink performance

<b>Fixed parameter:</b> $FC_{BL,i,NGV}$	Detail
Parameter description	Quantity of fuel consumption of the NGV of the ICEV in the public transport system on route <i>i</i> in the baseline
Measured value and unit	23,699,963.3 kg <sub>NGV</sub> in this monitoring period
Data source / document	Calculated by multiplying (i) the specific fuel consumption <sup>20</sup> (unit fuel/distance) of the monitoring data for at least 3 months continuously and backdated for at most 2 years after replacement by an EV, (ii) the number of operating vehicles, and (iii) total distance travelled per year per vehicle. Refer to Reference 8 for the source of calculated data.

<b>Fixed parameter:</b> $L_{BL,i}$	Detail
Parameter description	Annual distance (round trip) on route ' <i>i</i> ' in the baseline scenario.
Measured value and unit	Total distance of 43,984,962.8 km in this monitoring period
Data source / document	This shall be equal to $L_{PJ,i,y}$ since the project is a 1:1 replacement, as mentioned in the registered MADD.

<b>Fixed parameter:</b> $N_{BL,i}$	Detail
Parameter description	Number of ICEV on route ' <i>i</i> ' in the baseline situation.
Measured value and unit	Total operation of 1,243 vehicles in this monitoring period
Data source / document	This shall be equal to $N_{PJ,i,y}$ since the project is calculated based on the proportioned data.

<b>Fixed parameter:</b> $PKM_{BL,i}$	Detail
Parameter description	Calculated from the total number of passengers and the average distance travelled of passengers, or report of passengers' distance travelled data. Refer to Reference 14
Measured value and unit	Passenger-km/year
Data source / document	Initial sampling survey report from Thai smile bus which conducted based line study on 122 bus routes within the program from October 2021 – April 2022.

<sup>20</sup> Specific fuel consumption shall also be considered as a parameter that has to be monitored throughout the crediting period. The average data of specific fuel consumption in this monitoring period come from the collected data of existing NGV buses from 35 bus routes. The determination of the specific fuel consumption of baseline vehicles shall follow the methodology of AMS.III-C section 5.4.4 option (4): Using data from a control group of vehicles.

## Monitoring report of projects/programs to reduce emissions and increase sink performance

<b>Fixed parameter:</b> $EF_{PKM,x}$	Detail																				
Parameter description	Emission factor of the passenger travelled with vehicle 'x'																				
Measured value and unit	gCO <sub>2</sub> /passenger-km																				
Data source / document	<p>T-VER-METH-TM06 ver.03 calculated from the reference data from:</p> <ul style="list-style-type: none"> <li>• Department of Highways, 2008</li> <li>• Office of Transport Policy and Planning (OTP), 2020</li> <li>• Department of Land Transport, 2021</li> </ul> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Type of other vehicles used</th> <th>Emission factors (gCO<sub>2</sub>/passenger-km)</th> </tr> </thead> <tbody> <tr> <td>Motorbike</td> <td>43.06</td> </tr> <tr> <td>Private car</td> <td>127.10</td> </tr> <tr> <td>Taxi</td> <td>155.94</td> </tr> <tr> <td>Three wheels taxi</td> <td>105.53</td> </tr> <tr> <td>Minibus</td> <td>22.55</td> </tr> <tr> <td>Public van</td> <td>41.11</td> </tr> <tr> <td>Public bus</td> <td>11.2</td> </tr> <tr> <td>Passenger Ferry*</td> <td>15</td> </tr> <tr> <td>BTS/MRT**</td> <td>4.3</td> </tr> </tbody> </table> <p>* Reference data from IPCC-WG3-AR5 Chapter 8  **Reference data from BEM IMPACT Report 2022</p>	Type of other vehicles used	Emission factors (gCO <sub>2</sub> /passenger-km)	Motorbike	43.06	Private car	127.10	Taxi	155.94	Three wheels taxi	105.53	Minibus	22.55	Public van	41.11	Public bus	11.2	Passenger Ferry*	15	BTS/MRT**	4.3
Type of other vehicles used	Emission factors (gCO <sub>2</sub> /passenger-km)																				
Motorbike	43.06																				
Private car	127.10																				
Taxi	155.94																				
Three wheels taxi	105.53																				
Minibus	22.55																				
Public van	41.11																				
Public bus	11.2																				
Passenger Ferry*	15																				
BTS/MRT**	4.3																				

### 4.3.2 Dynamic Parameters and measured values

If further (not first after validation) monitoring period: Do the dynamic parameters for calculating the emission reductions correspond to those according to the last monitoring report?

- Yes  
 No

<b>Measured value / dynamic</b> $LP_{j,i,y}$	Detail
Parameter description	Annual distance of electric vehicles in route i year y.
Measured value and unit	Total distance of 43,984,962.8 km in this monitoring period
Data source / document	Record of monitored value of total distance travelled on a daily basis. Refer to Reference 8 and Reference 11 for annual distance value in route 'i'

<b>Measured value / dynamic</b> $NP_{j,i,y}$	Detail
Parameter description	Number of electric vehicles in route i year y.
Measured value and unit	Total operation of 1,243 vehicles in this monitoring period
Data source / document	Record of monitored value of number of electric vehicles on a daily basis. Refer to Reference 8 for number of vehicles in route 'i'

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<b>Measured value / dynamic</b> EC <sub>PJ,i,j,y</sub>	Detail
Parameter description	Annual electricity consumption for charging EV number j on route i during year y
Measured value and unit	Total electricity consumption of 58,431,499.1 kWh in this monitoring period
Data source / document	Data that shows the electricity consumption from EV charging, which shall be reported on a monthly basis. Refer to Reference 8 for electricity consumption for EV number 'j' on route 'i'

<b>Measured value / dynamic</b> EF <sub>EC,y</sub>	Detail
Parameter description	Grid Emission factor.
Measured value and unit	0.4857 tCO <sub>2</sub> /MWh
Data source / document	In the case of using electricity from the national grid system, EF <sub>EC,y</sub> shall refer to TGO's latest EF <sub>EC,y</sub> value for the monitoring period. Nonetheless, if there is not any supersede during the monitoring period, TGO's latest value for EF <sub>EC,y</sub> shall be referred to. The value is based on latest Emission Factor from TGO, published on September 27, 2023 ( <a href="https://ghgreduction.tgo.or.th/th/download-tver/120-tver-gwp-emission-factor.html">https://ghgreduction.tgo.or.th/th/download-tver/120-tver-gwp-emission-factor.html</a> )

Other Data Dynamic parameters stated in MADD section A3.2 monitoring plan

<b>Measured value / dynamic</b> NGV buses	Detail
Parameter description	Number of ICE buses in the public transport system of Bangkok and metropolitan area
Measured value and unit	5,707 ICE vehicles in Bangkok Metropolitan's public transportation system as of 31 Dec 2024 where most of the fuel types are Diesel, CNG, and CNG-Gasoline (a reduction from 6,689 ICE vehicles from the last monitoring period)
Data source / document	DLT Registration Record (Accumulated) by Fuel Type (as of December 31, 2024) from <a href="https://web.dlt.go.th/statistics/">https://web.dlt.go.th/statistics/</a>

<b>Measured value / dynamic</b> Operational license	Detail
Parameter description	Validity of passenger transport license monitored annually
Data source / document	Passenger transport license for each bus route refers to Annex 2, as example

<b>Measured value / dynamic</b> PKM <sub>PJ,i,j,y</sub>	Detail
Parameter description	Travelling distance of passengers riding on EVnumber 'j' on route 'i' of the public transportation system in year 'y.' Refer to Reference 15
Measured value and unit	Passenger-km/year
Data source / document	Collect the evidence of tickets sold and calculate travelling distance from the shortest distance on specific price range on monthly basis.

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<b>Measured value / dynamic</b> BSP <sub>x,y</sub>	Detail
Parameter description	Mode of transportation ratio of vehicle type 'x' of passenger who shift to EV for public transit in year 'y.' Refer to Reference 16
Measured value and unit	%
Data source / document	Survey of the passengers who use the EV for public transit. Refer to Reference 17 for details of survey and questionnaire form.

<b>Measured value / dynamic</b> IR <sub>i</sub>	Detail
Parameter description	Technology improvement factor for vehicle category i per year
Measured value and unit	Default value 0.99 in case of no available data from country specific data
Data source / document	UNFCCC-CDM-Tool 18 version 01

<b>Measured value / dynamic</b> SDG 8	Detail						
Parameter description	Number of employees of TSB as of December 2024						
Measured value and unit	<p>TSB employees in this Monitoring Period as of December 31, 2024</p> <table border="1"> <tr> <td>Male</td> <td>Female</td> <td>Underage</td> </tr> <tr> <td>2,446</td> <td>2,394</td> <td>0</td> </tr> </table> <p>Remark: Included 12 disabled employees</p>	Male	Female	Underage	2,446	2,394	0
Male	Female	Underage					
2,446	2,394	0					
Data source / document	Refer to Reference 10 : Thai Smile Bus Operational Report 2024						

<b>Measured value / dynamic</b> SDG 11	Detail																																							
Parameter description	Ambient annual PM <sub>x</sub> level in Bangkok Metropolitan																																							
Measured value and unit	<p>Average ambient air quality from 23 locations around Bangkok and Metropolitan area from January 2024 to December 2024. The information was retrieved and calculated from Thailand's pollution control department.</p> <table border="1"> <thead> <tr> <th>Month – 2024</th> <th>PM<sub>10</sub> (µg/m<sup>3</sup>)</th> <th>PM<sub>2.5</sub> (µg/m<sup>3</sup>)</th> </tr> </thead> <tbody> <tr><td>January</td><td>72.4</td><td>42.0</td></tr> <tr><td>February</td><td>53.9</td><td>30.9</td></tr> <tr><td>March</td><td>44.3</td><td>25.5</td></tr> <tr><td>April</td><td>46.6</td><td>26.1</td></tr> <tr><td>May</td><td>38.8</td><td>21.1</td></tr> <tr><td>June</td><td>27.3</td><td>13.0</td></tr> <tr><td>July</td><td>26.3</td><td>13.2</td></tr> <tr><td>August</td><td>26.3</td><td>13.3</td></tr> <tr><td>September</td><td>32.4</td><td>16.7</td></tr> <tr><td>October</td><td>40.9</td><td>21.0</td></tr> <tr><td>November</td><td>48.4</td><td>26.0</td></tr> <tr><td>December</td><td>62.7</td><td>33.7</td></tr> </tbody> </table> <p>Note: no tailpipe emission from E-Bus in the program.</p>	Month – 2024	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	January	72.4	42.0	February	53.9	30.9	March	44.3	25.5	April	46.6	26.1	May	38.8	21.1	June	27.3	13.0	July	26.3	13.2	August	26.3	13.3	September	32.4	16.7	October	40.9	21.0	November	48.4	26.0	December	62.7	33.7
Month – 2024	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )																																						
January	72.4	42.0																																						
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July	26.3	13.2																																						
August	26.3	13.3																																						
September	32.4	16.7																																						
October	40.9	21.0																																						
November	48.4	26.0																																						
December	62.7	33.7																																						
Data source / document	<a href="http://air4thai.pcd.go.th/webV3/#/History">http://air4thai.pcd.go.th/webV3/#/History</a>																																							

## Monitoring report of projects/programs to reduce emissions and increase sink performance

<b>Measured value / dynamic SDG 13</b>	Detail
Parameter description	Quantity of emission reduction in this monitoring period (01.01.2024 – 31.12.2024)
Measured value and unit	29,301 tCO <sub>2</sub> e
Data source / document	MP3 - Ex-Post-bangkok-e-bus_16122025 file

### 4.3.3 Plausibility check of dynamic parameters or measured values

If further (not first after validation) monitoring period: Was the plausibility check carried out in the same way as according to the last monitoring report?

Yes

No

A plausibility check is carried out for fundamental dynamic parameters as indicated in the following tables.

<b>Parameters for plausibility check</b>	LBL <sub>i,y</sub>
Parameter description	Annual distance of Electric Vehicles in route i year y.
Value	43,984,962.8
Unit	km/this monitoring period
Data source	GPS data of distance travelled on a daily basis refers to Reference 11 for GPS exported data
Parameter plausibilised with this parameter	N/A

<b>Parameters for plausibility check</b>	EC <sub>PJ,i,j,y</sub>
Parameter description	Annual electricity consumption for charging EV number j on route i in the operating year y.
Value	58,431,499.1
Unit	kWh in this monitoring period
Data source	Data that shows the electricity consumption from EV charging, which shall be reported on a monthly basis. Refers to Reference 8 for electricity consumption data recorded.
Parameter plausibilised with this parameter	N/A

## Monitoring report of projects/programs to reduce emissions and increase sink performance

<b>Parameters for plausibility check</b>	$FC_{BL,i,NGV}$
Parameter description	Quantity of Fuel consumption of the NGV of the ICEV in the public transport system on route i in the baseline
Value	23,699,963.3
Unit	kgNGV/year
Data source	Calculated by multiplying (i) the specific fuel consumption <sup>21</sup> (unit fuel/ distance) of the monitoring data for at least 3 months continuously and backdated for at most 2 years after replacement by an EV, (ii) the number of existing vehicles, and (iii) the average total distance travelled per year per vehicle.
Parameter plausibilised with this parameter	$SFC_{NGV,y}$ derived from average NGV fuel consumption based on data from the 35 bus routes that are still in operation with NGV buses in this monitoring period. The determination of the $SFC_{i,y}$ parameter complied with specific fuel consumption determination according to CDM-AMS-III.C version 16, paragraphs 37 and 38. Refers to Reference 9 for fuel consumption of the existing NGV bus.

Are all the parameters listed under 4.3.1 and 4.3.2 plausible?

- Yes  
 No

### Parameters Justification:

$L_{BL,i,y}$ : is cross-checked with the mileage record that is manually recorded in the logbook by the bus driver on a daily basis. An example of mileage logbook can be found Annex 4

$EC_{PJ,i,j,y}$  is cross-checked with the electricity data that is manually recorded on a daily basis. An example of electricity consumption logbook can be found in Reference 12

$FC_{BL,i,NGV}$  is calculated from average  $SFC_{NGV,y}$  data, which is calculated from the recorded distance travelled and kg NGV consumption of available NGV buses, to identify the baseline emissions of the Program refers to Reference 9.

### 4.3.4 Examination of influencing factors

Does the situation of the influencing factors of the implemented project/program correspond to that in the project/program description?

- Examination not foreseen  
 Yes  
 No

<sup>21</sup> Specific fuel consumption shall also be considered as a parameter that has to be monitored throughout the crediting period. The average data of specific fuel consumption in this monitoring period come from the collected data of existing NGV buses from 35 bus routes. The determination of the specific fuel consumption of baseline vehicle shall follow the methodology of AMS.III-C section 5.4.4 option (4): Using data from a control group of vehicles.

Monitoring report of projects/programs to reduce emissions and increase sink performance

<b>Influencing factor</b>	Number of operating E-buses
Description of the influencing factor	Number of Electric Vehicles in route i year y.
Impact on project emissions or the emissions of the projects in the program or the reference development	The project emission was expected to vary from the ex-ante as described in the MADD due to the difference in number of e-buses operating during this monitoring period. The number of e-buses operating proportionally reflects upon the overall energy consumption from the charging activity in this program. Hence, the higher number of e-buses operating, the higher the project emission in the program.
Development of the influencing factor during the present monitoring period	During this monitoring period, the number of operating e-buses exceeded expectations outlined in the MADD, which had projected 1,913 e-buses in operation by June 2023. The actual number of operating e-buses reached 2,043, demonstrating a significant increase beyond initial estimates. This growth reflects favorable conditions, improved implementation strategies, and increased adoption of e-buses, contributing to the overall expansion of sustainable transportation
Data source, references	GPS data and logbook of monthly operation schedule of each bus terminal. Refers to Reference 11 and Annex 4 for example of GPS interface and mileage logbook

<b>Influencing factor</b>	Evidence of salvage and replacement buses
Description of the influencing factor	Number of Electric Vehicles in route i year y.
Impact on project emissions or the emissions of the projects in the program or the reference development	During the monitoring period, it was observed that only 981 internal combustion engine (ICE) buses were counted as salvage and replacement, while 1,781 electric buses (e-buses) were in existing route of the operation. This mismatch indicates that not all operating e-buses could be directly linked to decommissioned ICE buses, which is essential for justifying emission reductions under the one-to-one replacement principle.
Development of the influencing factor during the present monitoring period	<p>A proportioned data approach was applied, whereby emissions reductions and baseline emissions were adjusted according to the ratio of salvage and replacement buses to total e-buses in operation. This ensured that only the eligible portion of emission reductions was credited, in line with conservative and transparent accounting principles.</p> <p>To address this, a route-level proportional allocation approach was implemented. Specifically, the proportion of salvage and replacement ICE buses relative to operating e-buses was calculated for each individual bus route and applied accordingly in the calculation.</p> <p>Furthermore, while electricity consumption data was still only available at the terminal (charging station) level, the route-level proportional allocation helped improve the accuracy of emissions accounting by aligning the credited reductions more closely with the operational realities and the salvage-and-replacement status on a per-route basis.</p>
Data source, references	Calculation <i>MP3 - Ex-Post-bangkok-e-bus_16122025</i> file

## Monitoring report of projects/programs to reduce emissions and increase sink performance

Value in project/program description	Effective value	Justification/assessment of the deviation
1,913 vehicles (from MADD)	1,243 vehicles that passed QA/QC criteria were considered for Emission Reduction Calculation. (2,043 e-buses were in operation during this monitoring period)	<p>The exclusion of 800 vehicles is due to various factors, including data inconsistencies, technical malfunctions, and non-compliance with monitoring standards.</p> <p>Furthermore, sufficient evidence was not available to demonstrate that some ICE buses had been decommissioned, salvaged, and replaced prior to their official replacement dates; therefore, these vehicles were excluded to ensure conservative and credible claims.</p> <p>This adjustment ensures the accuracy and reliability of reported emission reductions, in line with established verification protocols. Despite this minor discrepancy, the total number of operating e-buses remains significantly higher than the initial projection of 1,913. This increase highlights the accelerated deployment of e-buses and reflects the broader adoption of sustainable transport solutions, reinforcing commitments to reducing urban emissions and enhancing environmental sustainability."</p>
Description of why and how the reference development was adjusted		
The adjustment to the number of operating e-buses depends on the demand for buses on specific routes, which could differ from the MADD where the number of buses was estimated from the minimum number that are needed to comply with the passenger transport license.		

### 4.4 Special features of monitoring

Special features of monitoring are not relevant to this Program.

### 4.5 Scientific monitoring

If the project/program has introduced scientific monitoring, has this reduced the uncertainty in the quantification of emission reductions to such an extent that scientific monitoring could be discontinued?

- Yes  
 No  
 The project/programme does not provide scientific support

#### 4.6 Carbon storage projects

In the case of a carbon storage project/programme, is it proven that the storage will remain in biological (authorised only in Switzerland) or geological carbon sinks for a minimum period of 30 years? This also means that there have been no changes in the project/program that could affect carbon storage or even lead to a reversal of carbon storage.

- Yes
- No
- The project/program does not include carbon storage

#### 4.7 Process and management structure, responsibilities

If further (not first after validation) monitoring period: Do the established process and management structures correspond to the structures defined in the last monitoring report?

- Yes
- No

#### Responsibilities

If further (not first after validation) monitoring period: Are the responsibilities for data collection, quality assurance and data archiving fulfilled as defined in the last monitoring report?

- Yes
- No

#### 4.8 Program structure

If further (not first after validation) monitoring period: Is the programme structure (e.g. infrastructure for managing data on individual projects) unchanged from the structure presented in the last monitoring report?

- Yes
- No

If further (not first after validation) monitoring period: Is the process for the new projects to be included in the programme unchanged from the process described in the last monitoring report?

- Yes
- No

## 5 Ex-post calculation of eligible emission reductions

### 5.1 Calculation of the achieved emission reductions

#### Emission reduction calculation from 01.01.2024 to 31.12.2024

In this monitoring period, the emission reduction from fuel-switching and modal shift activity are considered. Hence, the emission reduction formula is as follows:

$$ER_{total,y} = BE_{total,y} - PE_{total,y} - LE_{total,y} \quad \text{Formula [1]}$$

where,

$ER_{total,y}$	= Overall emission reduction in year y (tCO <sub>2</sub> / year).
$BE_{total,y}$	= Total baseline emissions in year y (tCO <sub>2</sub> / year).
$PE_{total,y}$	= Total project emissions in year y (tCO <sub>2</sub> / year)
$LE_{total,y}$	= Total Leakage in year y (tCO <sub>2</sub> /year)

#### Baseline emissions from fuel switch

$$BE_{FF,y} = \sum_i \sum_x [(FC_{BL,i,x} \times NCV_x \times EF_{CO_2,x}) \times ADJ_{i,y}] \times 10^{-9} \quad \text{Formula [2]}$$

where,

$BE_{FF,y}$	= Total baseline emissions in year y (tCO <sub>2</sub> /year)
$FC_{BL,i,x}$	= Quantity of fossil fuel consumption type x of the ICEV in the public transport system on route i in the baseline (unit/year)
$NCV_x$	= Net calorific value of fossil fuel type x
$EF_{CO_2,x}$	= Emission factor of fossil fuel type x
$ADJ_{i,y}$	= Correction factor for route i in year y

The baseline emissions for fuel switching also consider the technology improvement factor. In the context of emission reduction calculations for the transportation sector in Thailand, TGO realised the importance of the technology improvement factor, hence considering technological improvement at the default rate of 1% annually using the default factor from CDM-AMS.III-C. Moreover, if there are new NGV buses included in the Bangkok public transportation system, the Program plans to monitor these new buses (and their fuel consumption) to monitor the fuel consumption rate on a yearly basis to see if it changes from the baseline emission assumption data and how it impacts the overall baseline emission.

whereby  $ADJ_{i,y}$  is calculated as:

$$ADJ_{i,y} = (N_{PJ,i,y} \times L_{PJ,i,y}) / (N_{BL,i} \times L_{BL,i}) \quad \text{Formula [3]}$$

where,

$ADJ_{i,y}$	= Correction factor for route i during year y
$N_{PJ,i,y}$	= Number of EVs on route i during year y
$L_{PJ,i,y}$	= Average annual distance of EVs on route i during year y
$N_{BL,i}$	= Number of ICEVs on route i in the baseline situation
$L_{BL,i}$	= Annual distance (round trip) on route i in the baseline scenario

Regarding the  $ADJ_{i,y}$  parameter, as indicated in the MADD a service extension could occur in the baseline, since there is space for new buses to be included before reaching the maximum number of buses as per the passenger transport license. Also as mentioned, the ADJ is the correction factor for when there are more e-buses put into operation than envisaged in the baseline. The higher number of e-buses would be treated as e-buses operating on new routes where, if no e-buses were in operation, the bus operator would fill the routes with NGV buses. It infers that the higher number of e-bus replaces the NGV buses. The Program only considers NGV buses for conservativeness (since there is no regulation on fuel type of bus) of the baseline calculation. Hence, the correction factor of this program shall remain as 1 as it is a 1:1 replacement.

## Monitoring report of projects/programs to reduce emissions and increase sink performance

### Baseline emissions from modal shift

$$BE_{\text{Shift},y} = \sum_i [CT_{\text{BL},i,y} \times \sum_j (PKM_{\text{PJ},i,j,y} - PKM_{\text{BL},i})] \times 10^{-6} \quad \text{Formula [4]}$$

where,

- $BE_{\text{Shift},y}$  = Baseline emissions per vehicle in year y (tCO<sub>2</sub>/year)
- $CT_{\text{BL},i,y}$  = Emission factor per passenger-km travelled on route 'i' as baseline scenario in year 'y' (gCO<sub>2</sub>/passenger-km)
- $PKM_{\text{PJ},i,j,y}$  = Travelling distance of passengers riding on EV number 'j' on route 'i' of the public transportation system in year 'y' (passenger-km/year)
- $PKM_{\text{BL},i}$  = Travelling distance of passengers who already use the public transport on route 'i' as their means for transportation in the baseline (passenger-km/year)

whereby  $CT_{\text{BL},y}$  is calculated as:

$$CT_{\text{BL},i,y} = \sum_x (BSP_{x,y} \times EF_{\text{PKM},x}) / \sum BSP_{x,y} \quad \text{Formula [5]}$$

where,

- $CT_{\text{BL},i,y}$  = Emission factor per passenger-km travelled on route 'i' as baseline scenario in year 'y'
- $BSP_{x,y}$  = Mode of transportation ratio of vehicle type 'x' of passengers who shift to EV for public transit in year 'y'
- $EF_{\text{PKM},x}$  = Emission factor of the passenger travelled with vehicle 'x'

### Project emissions from fuel switch

$$PE_{\text{FF},y} = \sum_i \sum_j (EC_{\text{PJ},i,j,y} - EC_{\text{RE},\text{PJ},i,j,y}) \times EF_{\text{EC},y} \times 10^{-3} \quad \text{Formula [6]}$$

- $PE_{\text{FF},y}$  = Total project emissions in year y (tCO<sub>2</sub>/year)
- $EC_{\text{PJ},i,j,y}$  = Annual electricity consumption for charging EV number j on route i during year y
- $EC_{\text{RE},\text{PJ},i,j,y}$  = Annual electricity consumption from renewable energy sources for the charging of the project's EV number j on route i during year y
- $EF_{\text{EC},y}$  = Grid emission factor

### Project emissions from modal shift

Since the activity emission is the same to T-VER-METH-TM-05 ver.03 as stated in the annotation of the methodology, the project emission shall not be considered. Hence,  $PE_{\text{Shift},y} = 0$ . In other words, the project emission from modal shift activity is already accounted in the project emission from fuel switch

### Leakage emissions from fuel switch

No relating activity (replaced vehicles shall not be used within the project's boundary and other areas)

### Leakage emissions from modal shift

Leakage emission shall be considered only the CO<sub>2</sub> emission from the change in load factor of passengers in the public transportation system. This includes the reduction of other public transport vehicle on the road, taxi, and road congestion as the consequence of modal shift from other mode of transportation to EV for transit. In accordance with the T-VER-METH-TM-06 version 03, the project developer is allowed to use the default factor to estimate the leakage emissions from the mitigation activity, which equal to 2.64% of baseline emissions

$$LE_{\text{Shift},y} = 2.64\% \times BE_{\text{Shift},y} \quad \text{Formula [7]}$$

## 5.2 Impact distribution

This Program does not receive any grants or non-payable cash benefits from any counterparty, aside from revenue from carbon credits. Hence, impact distribution is not relevant to the Program.

## 5.3 Overview

The applicant requests the issuance of the following certificates:

Calendar year	<i>Achieved</i> emission reductions <i>without</i> impact splitting in t CO <sub>2</sub> eq	<i>Creditable</i> emission reductions <i>with</i> impact distribution in tCO <sub>2</sub> eq
2024 from 01.01.2024 – 31.12.2024	29,301 tCO <sub>2</sub> (18,916 tCO <sub>2</sub> from TM-05 methodology and 10,385 tCO <sub>2</sub> from TM-06 methodology)	N/A

## 6 Emission reductions and significant changes

Were there any significant changes during the monitoring period that affected the economic analysis, the emission reductions achieved or the technique or technology used?

Yes

No

### 6.1 Comparison of ex-post achieved and ex-ante expected emission reductions

Calendar year	Planned Component of implementation (CPAs)	Ex-post emission reductions achieved without impact splitting in tCO <sub>2</sub> eq	Ex-ante expected emission reductions without impact splitting in tCO <sub>2</sub> eq	Deviation and justification / assessment (detailed if the deviation is >20%)
<b>PoA 01</b>				The ex-post emission reduction falls significantly short of the ex-ante estimates in all CPAs. This is primarily due to several factors: 1. Only 1,243 buses were included in the emission reduction calculations, compared to 2,043 buses assumed to be operational. This discrepancy arises because evidences of deregistration were identified for 981 buses from existing routes and 262 buses from new routes. 2. There are fewer operational e-buses than anticipated during the monitoring period in some routes. 3. On some routes, measured values of key monitoring parameters, such as distance travelled, electricity consumption, or both, were incomplete or insufficient. These data were therefore excluded during the QA/QC process, which reduced the volume of data available for emission reduction calculations
2024 from 01.01.2024 – 31.12.2024	CPA 1	2,380	3,334	
	CPA 2	1,785	6,177	
	CPA 3	3,649	8,990	
	CPA 4	1,893	11,031	
	CPA 5	1,046	4,880	
<b>PoA 02</b>				
2024 from 01.01.2024 – 31.12.2024	CPA 1	547	2,020	
	CPA 2	6,483	7,561	
	CPA 3	3,831	7,607	
	CPA 4	3,887	7,554	
	CPA 5	2,029	12,145	
	CPA 6	1,771	9,490	
<b>Total</b>		<b>29,301</b>	<b>78,769</b>	

The deviation mainly resulted from deregistration evidence which affected the overall operating data (distance, fuel consumption and power consumption) of e-buses in this monitoring period. Additionally, several monitoring data points such as distance, electricity consumption, and %BSP from the survey were excluded from the ER calculation following QA/QC processes. These processes involved verifying the EV operation data, ensuring that both distance (km/month) and electricity consumption (kWh/month) were recorded.

Furthermore, the operational distance had to meet a minimum threshold of 14 km per day. Power consumption was also assessed for reasonableness by comparing recorded energy consumption with the manufacturer's specifications (0.7–1.2 kWh/km). Any data below 0.7 kWh/km were removed and not considered in the ER calculation.

## Monitoring report of projects/programs to reduce emissions and increase sink performance

For the BSP results obtained from the survey, the confidence and precision levels were evaluated to confirm that the sample size met the 95/10 confidence/precision level requirement. Only results meeting this criterion were included in the ER calculation.

### **6.2 Comparison of costs and revenues**

Capital expenditures (CAPEX) show slight differences compared to the ex-ante estimate (2.3% for PoA1 and 8.9% for PoA2). This is because the major CAPEX in this program is the e-bus cost, and there is no difference in the unit price of e-buses compared to the ex-ante estimate. The total number of e-buses purchased as of December 31, 2024, is 2,056 units, which exceeds the ex-ante estimate of 1,913 units.

Operating expenses (OPEX) are less than the ex-ante estimate (-0.3% for PoA1 and -13.8% for PoA2) primarily due to the higher number of operating e-buses in both PoAs compared to the ex-ante estimate.

The revenue from e-buses in this monitoring period is significantly lower than the ex-ante estimates (-44.5% for PoA1 and -36.2% for PoA2). The main reason for this deviation is that, although the number of operating e-buses is higher than the ex-ante estimate (4.4% for PoA1 and 8.5% for PoA2), the actual revenue from both bus tickets and advertising was lower than anticipated. Advertising revenue specifically fell short of the ex-ante estimate by 28%, which is an improvement compared to the previous monitoring period, where the shortfall was 63%.

The summary of financial details of the program during the monitoring period from 01.01.2024 to 31.12.2024 is provided in Reference 18.

### **6.3 Comparison of planned and deployed technology and techniques**

The deployed technology specification is slightly different from the MADD, where the specification of battery capacity is about 150 kWh at a minimum. However, due to an implementation assessment during the operation, it was found that a battery with a capacity of 120 kWh is sufficient to operate on routes that are not long distance. This change does not have any impact on the amount of GHG emissions because the amount of electricity charged only depends on the electricity consumption for each trip. The higher battery capacity will only affect the charging frequency of the e-bus but not the overall power consumption.

## **7 Others**

None.

## 8 Communication on the application and signatures

The applicant consents to the Secretariat communicating and exchanging documents on this application with the following parties:

Project developer	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Verification agency	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Location canton	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

### 8.1. Declaration of consent to the publication of the documents

The Federal Office for the Environment FOEN may publish application documents while maintaining commercial and manufacturing secrecy (Art. 14 CO<sub>2</sub> Ordinance).

The applicant agrees on behalf of all persons concerned to the publication of the following documents relating to the domestic emission reduction project ("offset project") on the website of the Federal Office for the Environment FOEN:


<p>Consent to publication</p> <p><input checked="" type="checkbox"/> I agree to the publication of this document (this monitoring report). The document does not contain any trade or manufacturing secrets of my own or of third parties. I confirm that I have contacted the third parties concerned and that, from their point of view, no trade or manufacturing secrets are contained in this document. I consent to the publication of my contact details.</p> <p><input type="checkbox"/> I agree to the publication of a partially redacted version of this document which respects the commercial or manufacturing secrecy of all persons concerned. I confirm that I have contacted the third parties concerned and have made the redactions with their consent. The third parties concerned consent to the publication of the partially redacted version. This version for publication can be found in the annex A1.</p>
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Document	Version	Date	Testing laboratory & client
Verification report (incl. checklist)	1.2	16.09.2025	Bureau Veritas Certification (Thailand) Limited (on behalf of the Energy Absolute Company Limited)

<p>Consent to publication</p> <p><input checked="" type="checkbox"/> I agree to the publication of the document. The document contains neither my own trade or manufacturing secrets nor those of third parties. I confirm that I have contacted the third parties concerned and that, from their point of view, no trade or manufacturing secrets are contained in this document.</p> <p><input type="checkbox"/> I agree to the publication of a partially redacted version of the document which respects the commercial or manufacturing secrecy of all persons concerned. I confirm that I have contacted the third parties concerned and have made the redactions with their consent. The third parties concerned consent to the publication of the partially redacted version. This version for publication can be found in the annex A2.</p>
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**8.2. Signatures**

The applicant undertakes to provide truthful information. Intentionally false information will be prosecuted.

Place, date	Name, function and signature of the applicant
Bangkok, December 18, 2025	 Mongkol Kijlerdphon Vice President - Climate Change Strategy & Sustainability Energy Absolute Public Company Limited

## Table of abbreviations

CME	Program Coordinating and Managing Entity
CCME	Carbon Coordinating and Managing Entity Co., Ltd.
CPA	Component project activity
DCCE	Department of Climate Change and Environment
DLT	Department of Land Transportation (Thailand)
EA	Energy Absolute Public Company Limited
EVs	Electric Vehicles
FOEN	Federal Office for the Environment
GHG	greenhouse gas
ICE	internal combustion engine
ICEV	internal combustion engine vehicles
ITMOs	International Transferred Mitigation Outcomes
LoA	Letter of Authorization
MADD	Mitigation Activity Design Document
MP	Monitoring Period
NGV	Natural Gas Vehicle
ONEP	Office of Natural Resources and Environmental Policy and Planning
PoA	Program of Activities
T-VER	Thailand Voluntary Emission Reduction Program
TGO	Thailand Greenhouse Gas Management Organisation

## **9 Annex**

Annex 1– Authorisation statement by FOEN for MADD approval

Annex 2 – Example of DLT approved passenger transport license

Annex 3 – Letter of acknowledgement by TGO to the use of battery capacity 120 kWh in the project

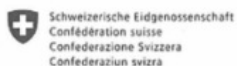
Annex 4 – Example of Mileage logbook

Annex 5 – TSB's management structure corresponds to the e-buses data monitoring

Annex 6 – Example of bus registration license

Annex 7– List of Reference

Annex 1– Authorisation statement from FOEN for MADD approval



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Federal Department of the Environment, Transport,  
Energy and Communications DETEC  
Federal Office for the Environment FOEN

**AUTHORIZATION STATEMENT  
BY THE FEDERAL OFFICE FOR THE ENVIRONMENT  
OF THE SWISS CONFEDERATION**

Authorization statement reference number: 5002, 2023

Acting as the authorized entity of the Swiss Government, the Federal Office for the Environment (FOEN)<sup>1</sup> hereby authorizes per Article 6.3 of the *Paris Agreement* and per Article 5.1 of the *Implementing Agreement between the Swiss Confederation and the Kingdom of Thailand* signed on 24<sup>th</sup> June 2022 (hereafter referred to as the *Implementing Agreement*) the international transfer and use of Internationally Transferred Mitigation Outcomes (ITMOs) specified in this statement. The provisions of the *Implementing Agreement* apply.

- I. **Date of authorization (date of signature of this authorization statement):** 27.02.2023
- II. **Entity authorized (to transfer):** Energy Absolute Public Company Ltd, Bangkok
- III. **ITMO uses authorized:** ITMOs are authorized for use towards NDC, as specified in the authorization statement by the Ministry of Natural Resources and Environment of the Kingdom of Thailand (MONRE).
- IV. **Definition of first transfer:** The first transfer, triggering corresponding adjustments by the host Party is defined by the recognition of the occurred international transfer of an ITMO under the *Implementing Agreement* (Article 8).
- V. **Authorized mitigation activity:** "Bangkok e-bus Program" (project ID number 5002) as determined below and in the annexed Mitigation Activity Design Document (MADD). Applied standards and baseline methodologies as well as requirements for monitoring and verification, including for contributions to sustainable development, apply as specified in the MADD.  
**Total cumulative maximum amount of Mitigation Outcomes for which international transfer and use is authorized:** 500'000 of t CO<sub>2</sub>eq
- VI. **Authorized crediting period:** 1 October 2022 – 31 December 2030
- VII. **NDC period(s) during which the Internationally Transferred Mitigation Outcomes (ITMOs) are authorized for use, as appropriate:** 2021 – 2030
- VIII. **Corresponding Authorization from MONRE<sup>2</sup>, where applicable:**  
<https://www.onep.go.th/letter-of-authorization/>

<sup>1</sup> According to Article 13.2 of the *Implementing Agreement*.

<sup>2</sup> According to Article 13.1 of the *Implementing Agreement*.

Federal Office for the Environment FOEN  
Compensation Office  
3003 Bern  
Tel. +41 58 46 538 15  
carbonoffset@bafu.admin.ch  
<https://www.bafu.admin.ch/emission-reduction-certificates>



BAFU-0-4EB03401076

- IX. **The following method for corresponding adjustment will be applied by the Swiss Confederation pursuant to 2/CMA.3 paragraph 7 of the Annex (Art 6.2 guidance):** trajectory approach as defined in paragraph 7.a.i for the single year target of Switzerland's NDC (minus 50 percent in 2030 compared to 1990) and 7.b for the multi-year target of Switzerland's NDC (minus 35 percent over the period 2021-30 compared to 1990)

In accordance with Article 1.3 of the *Implementing Agreement*, this Authorization Statement guarantees the recognition of the international transfer of Mitigation Outcomes specified in this Statement, pending fulfillment of positive examination statements pursuant to Article 7 of the *Implementing Agreement* issued by FOEN and MONRE.

Pursuant to Article 5.4 of the *Implementing Agreement*, this Authorization Statement enters into force thirty calendar days after its date of signature. In case of issuance of a statement of inconsistency by MONRE during this period of thirty calendar days, this Authorization Statement remains invalid pursuant to Article 5.4 of the *Implementing Agreement*.

Pursuant to Article 5.5 of the *Implementing Agreement* this Authorization Statement may be updated or changed. Such changes or updates can only be made upon request of the entity authorized to transfer. Updates or changes of Authorization Statements become valid within 30 calendar days after their date of issuance, unless the other Party to the *Implementing Agreement* issues a notification of inconsistency per Article 5.4 of the *Implementing Agreement*.

The authorization statement is signed by Reto Burkard, head of climate division of FOEN.

Reto Burkard  
Head of climate division

Issuing authority:  
Federal Office for the Environment  
Wobentalstrasse 68  
3003 Bern  
Switzerland  
carbonoffset@bafu.admin.ch

Annex: MADD " Bangkok e-bus Program" (project ID number 5002)

Monitoring report of projects/programs to reduce emissions and increase sink performance

Annex 2 – Example of DLT approved passenger transport license

ขส.บ. 12 ก.



**ใบอนุญาตประกอบกรขนส่งประจำทาง  
ด้วยรถที่ใช้ในการขนส่งผู้โดยสาร**

ใบอนุญาตที่ กก.59/2565

นายทะเบียนออกใบอนุญาตให้ บริษัท ไทย สมายล์ บัส จำกัด  
 สำนักงานชื่อ บริษัทไทย สมายล์ บัส จำกัด  
 อยู่เลขที่ 41/327 ถนนกัลปพฤกษ์  
 แขวงบางแค เขตบางแค จังหวัดกรุงเทพมหานคร  
 มีสิทธิประกอบกรขนส่งประจำทาง ในเส้นทางหมวด 1 สายที่ 3-36  
 ท่าเรือคลองเตย - ท่าเรือภาษีเจริญ  
 ใบอนุญาตฉบับนี้มีอายุ 7 ปี นับตั้งแต่วันที่ 25 เดือน เมษายน พ.ศ. 2565  
 ถึงวันที่ 24 เดือน เมษายน พ.ศ. 2572  
 โดยให้ปฏิบัติตามกฎหมายและเงื่อนไขที่นายทะเบียนกำหนดตามมาตรา 31 แห่งพระราชบัญญัติ  
 การขนส่งทางบก พ.ศ. 2522 ในใบอนุญาตนี้

ให้ไว้ ณ วันที่ 25 เดือน เมษายน พ.ศ. 2565



(นางชัชวราภรณ์ ใจดวงนิ่ม)  
 ผู้อำนวยการสำนักงานการขนส่งผู้โดยสาร  
 ศาครารแทน นายพงษ์พัฒน์ บัญชามาศ



เลขที่ 57- 0005681



(นางสาววรรณี บุญนิลย์)  
 หชก.

ตารางเลขที่ ๑/๐๑๖๔/๒๕๖๔

ตารางการเดินทางโดยสารประจำทางในเขตกรุงเทพมหานครและจังหวัดที่มีเส้นทางต่อเนื่อง  
 หมวด ๑ สายที่ ๓-๓๖ ชื่อเส้นทาง ท่าเรือคลองเตย -ท่าเรือภาษีเจริญ  
 โดยอนุมัติคณะกรรมการควบคุมการขนส่งทางบกกลาง ในการประชุมครั้งที่ ๘/๒๕๖๔ เมื่อวันที่ ๖ ตุลาคม ๒๕๖๔

ช่วงการเดินทาง	ระยะทาง (กม.)	จำนวนเที่ยวการเดินทางขึ้นต่อวัน (เที่ยว) ตั้งแต่เวลา ๐๕.๐๐น.ถึงเวลา ๒๒.๐๐ น.			จำนวนรถ (คัน)
		ไป	กลับ	รวม	
ท่าเรือคลองเตย - ท่าเรือภาษีเจริญ	๑๔	๒๐	๒๐	๔๐	๑๐ - ๒๘

- หมายเหตุ ๑. ลักษณะรถมาตรฐาน ๒ (รถโดยสารปรับอากาศชั้น ๒) และหรือ  
 รถมาตรฐาน ๓ (รถโดยสารธรรมดา)  
 ๒. ยกเลิกตารางการเดินทางเดิมและให้ใช้ตารางนี้แทน

เอกสารนี้เป็นเงื่อนไขใบอนุญาต  
 ตามมาตรา ๓๑. (๑) (1)  
 แห่ง พ.ร.บ.การขนส่งทางบก พ.ศ.๒๕๖๒

ตรวจสอบถูกต้องแล้ว

bv  
 (นางบุศรา สมใจคิด)  
 นักวิชาการขนส่งชำนาญการ  
 ๘ ตุลาคม ๒๕๖๔  
 สำนักงานขนส่งผู้โดยสาร  
 กรมการขนส่งทางบก

Annex 3 - Letter of acknowledgement by TGO to the use of battery capacity 120 kWh  
in the project



องค์การบริหารจัดการก๊าซเรือนกระจก (องค์การมหาชน)  
THAILAND GREENHOUSE GAS MANAGEMENT ORGANIZATION (PUBLIC ORGANIZATION)  
ศูนย์ราชการ อาคารรัฐประศาสนภักดี ชั้น ๙ เลขที่ ๑๒๐ ถนนแจ้งวัฒนะ นนทบุรี กรุงเทพฯ ๑๑๒๐๐ โทร. ๐ ๒๖๔๕ ๐๓๖๐ โทรสาร ๐ ๒๖๔๓ ๘๔๐๐  
The Government Complex, Rattthaprasanabhakti Bldg., 9<sup>th</sup> Fl., 120 Chaengwattana Rd., Laksi, Bangkok 10210, Thailand  
Tel +66 2141 9790 Fax +66 2143 8400 www.tgo.or.th

ที่ อบก ๒๕๖๖.๐๔/๕๖๔

๑๖ พฤษภาคม ๒๕๖๖

เรื่อง รับทราบการแจ้งเปลี่ยนแปลงรายละเอียดโครงการ

เรียน กรรมการผู้จัดการบริษัท บริหารโครงการคาร์บอน จำกัด

อ้างอิง หนังสือบริษัท บริหารโครงการคาร์บอน จำกัด ที่ ๔๐๖๑/๐๐๕๒๓ ลงวันที่ ๘ พฤษภาคม ๒๕๖๖

ตามหนังสือที่อ้างถึงบริษัท บริหารโครงการคาร์บอน จำกัด ได้ขอแจ้งการเปลี่ยนแปลงรายละเอียดโครงการลดก๊าซเรือนกระจกภาคสมัครใจตามมาตรฐานของประเทศไทยแบบมาตรฐาน (Standard T-VER) ชื่อ “โครงการรถโดยสารไฟฟ้า กรุงเทพมหานครและปริมณฑล โซน ๑ และ ๒ (Bangkok Metropolitan Area E-Bus Zone 1 and 2)” และ “โครงการรถโดยสารไฟฟ้า กรุงเทพมหานครและปริมณฑล โซน ๓ และ ๔ (Bangkok Metropolitan Area E-Bus Zone 3 and 4)” ซึ่งได้รับการขึ้นทะเบียนเป็นโครงการ T-VER เมื่อวันที่ ๒๘ กุมภาพันธ์ ๒๕๖๖ และต่อมาได้มีการเปลี่ยนแปลงรายละเอียดโครงการ ความละเอียดแจ้งแล้ว นั้น

องค์การบริหารจัดการก๊าซเรือนกระจก (องค์การมหาชน) หรือ อบก. รับทราบการแจ้งการเปลี่ยนแปลงรายละเอียดการปรับขนาดของความจุแบตเตอรี่จากเดิมที่ระบุความจุเท่ากับหรือมากกว่า 150 kWh เป็นความจุเท่ากับหรือมากกว่า 120 kWh ทั้งนี้ อบก. จะมีการติดตามประเมินผลโครงการประจำปีในโอกาสต่อไป

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(นายเกียรติชาย ไมตรีวงษ์)

ผู้อำนวยการองค์การบริหารจัดการก๊าซเรือนกระจก

สำนักรับรองคาร์บอนเครดิต


โทรศัพท์ ๐ ๒๑๔๑ ๔๘๔๖

โทรสาร ๐ ๒๑๔๓ ๘๔๐๔

“TGOร่วมสร้างไทย โปร่งใส ไร้ทุจริต”

Monitoring report of projects/programs to reduce emissions and increase sink performance

Annex 4 – Example of Mileage logbook



บริษัท ออโต้บัส เซอร์วิส จำกัด ( AUTO BUS SERVICE CO.,LTD. )  
 41/251 ถนนกัลปพฤกษ์ แขวงบางแค เขตบางแค กรุงเทพฯ 10160 (สำนักงานใหญ่)  
 โทร : 02-404-3383-5 ทะเบียนนิติบุคคลเลขที่ 0105564150740

พ.ศ. 2566  
 69x2 = 126

ใบรายการตรวจเช็คสภาพรถบัสไฟฟ้าโดยสารประจำทางสาย : 1-31 วันที่ : 9-1-66

ทะเบียนรถ : 16-6845 เบอร์รถ : 2 ไมล์รถ : 244.4 SOC : 39%

ชื่อพร. : อภินพ ชื่อพร. : อภินพ ผู้ตรวจเช็ค : อภินพ

หัวข้อ	ลำดับ	รายการตรวจเช็ค			ผลการตรวจ		หมายเหตุ
					ปกติ	ผิดปกติ	
ภายในตัวรถ	1	เบาะนั่งผู้โดยสาร - เบาะคนขับ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		○ คราบและสกปรก	○ สีขาด/เป็นรู	○ คราบฝุ่นดำ			
	2	ผ้าปูเบาะโดยสาร	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		○ ขาด/เป็นรู	○ ตัวสกปรก	○ เหม็นอับ			
	3	ราวเหล็ก - เสาค้ำ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		○ แดง/หัก	○ ตัวสกปรก	○ สนิม			
	4	กระจกภายใน (คราบฝุ่น, สกปรก)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		○ รอยร้าว/แตก	○ ตัวสกปรก	○ คราบฝุ่นดำ			
	5	เพดานรถ - ขอบหน้าต่าง (ความสะอาด, คราบฝุ่นสิ่งสกปรก)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		○ ผนังรถ - หลังรถ (แถวขอกกระจก ความสะอาดเรียบร้อย)					
6	พื้นรถ - บราวตัวรถ (ฝุ่น, ขยะ, คราบสิ่งสกปรก)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
7	ถังดับเพลิง + คีย์อนุกรมรถ	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
			มี	ไม่มี			
8	สภาพหลังคา	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
			มีรูรั่ว/สนิม	ไม่มีรูรั่ว			
9	ระบบปรับอากาศ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
			พัดลมแอร์ไม่ทำงาน	น้ำยาแอร์รั่ว			
10	หลอดไฟในรถ - ไฟป้าย	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
			สว่าง	ไม่สว่าง			
ภายนอก - ระบบไฟฟ้า	1	โคจรรอบตัวถังของรถ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
			รอยบุบ/แตก	สีหลุด/ร่อน			
			อื่นๆ รน	ระบุจำนวนแผล			
	2	กระจุกรอยตัวรถ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		กระจุจกล้อมรอบข้าง	อื่นๆ รน	ระบุจำนวนแผล			
	3	ระบบช่วงล่างและระบบถุงลม	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
			ถุงลมรั่ว/แตก, ใช้คว่ำซีม	สวิตช์ระบบไฟฟ้าชำรุด			
			ระดับจาระบีในถังเติมต่ำ	อื่นๆ รน			
	4	พวงมาลัยเพาเวอร์	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
			สายน้ำมันเพาเวอร์รั่วซีม	ปรับน้ำมันเพาเวอร์ชำรุด			
	5	ระบบไฟเลี้ยวซ้าย - ขวา	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
			ติด	ไม่ติด/ชำรุด			
	6	ระบบไฟหน้า - ไฟหรี่/ไฟเบรคหลัง	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
		ติด	ไม่ติด/ชำรุด				
7	ระดับน้ำหล่อเย็นแบตเตอรี่	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		ระดับน้ำปกติ	ระดับน้ำต่ำกว่าปกติ				
8	ระดับน้ำหล่อเย็นมอเตอร์	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		ระดับน้ำปกติ	ระดับน้ำต่ำกว่าปกติ				
9	ระบบบังคับนำหน	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		ติด/เปิดได้ดี	ไม่ติด/ชำรุดค้าง				
10	ประตูเปิดรับผู้โดยสาร, ประตูคนขับ	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		ติด/เปิดได้ดี	ไม่ติด/ชำรุดค้าง				
11	ประตูทางออกฉุกเฉิน	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		ติด/เปิดได้ดี	ไม่ติด/ชำรุดค้าง				
12	ยางล้อรถทั้ง 6 เส้น	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
		เสื่อมสภาพ	แตก/เป็นริ้วซีม				
		พองซีได้	อื่นๆ รน				
13	ลมยางล้อทั้ง 6 เส้น แรงดันลมยาง (110-130PSI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>		
หน้าปัด	1	ตรวจสอบจอหน้าปัดคนขับ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
	2	ตรวจสอบแรงดันไฟฟ้า 24 V	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
	3	ตรวจสอบการแจ้งเตือนความผิดปกติของระบบ (Error Code)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
	4	ตรวจสอบสัญญาณเบรคมืออัตโนมัติปกติ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	
	5	ตรวจสอบวันเวลาและเลขไมล์รถ และป้ายไฟ LED สายรถมณี	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	

รอยดำนินรถโดยสาร ดังนี้

1 \_\_\_\_\_ 2 \_\_\_\_\_

3 \_\_\_\_\_ 4 \_\_\_\_\_

หมายเหตุ อื่นๆ : \_\_\_\_\_

ลงชื่อ : อภินพ ผู้ตรวจสอบ

(นายมนตรี สิริบริรักษ์/นายอภิชาติ จรัสพรเลิศสิน)

วันที่ : 101 อ.ค. 2566

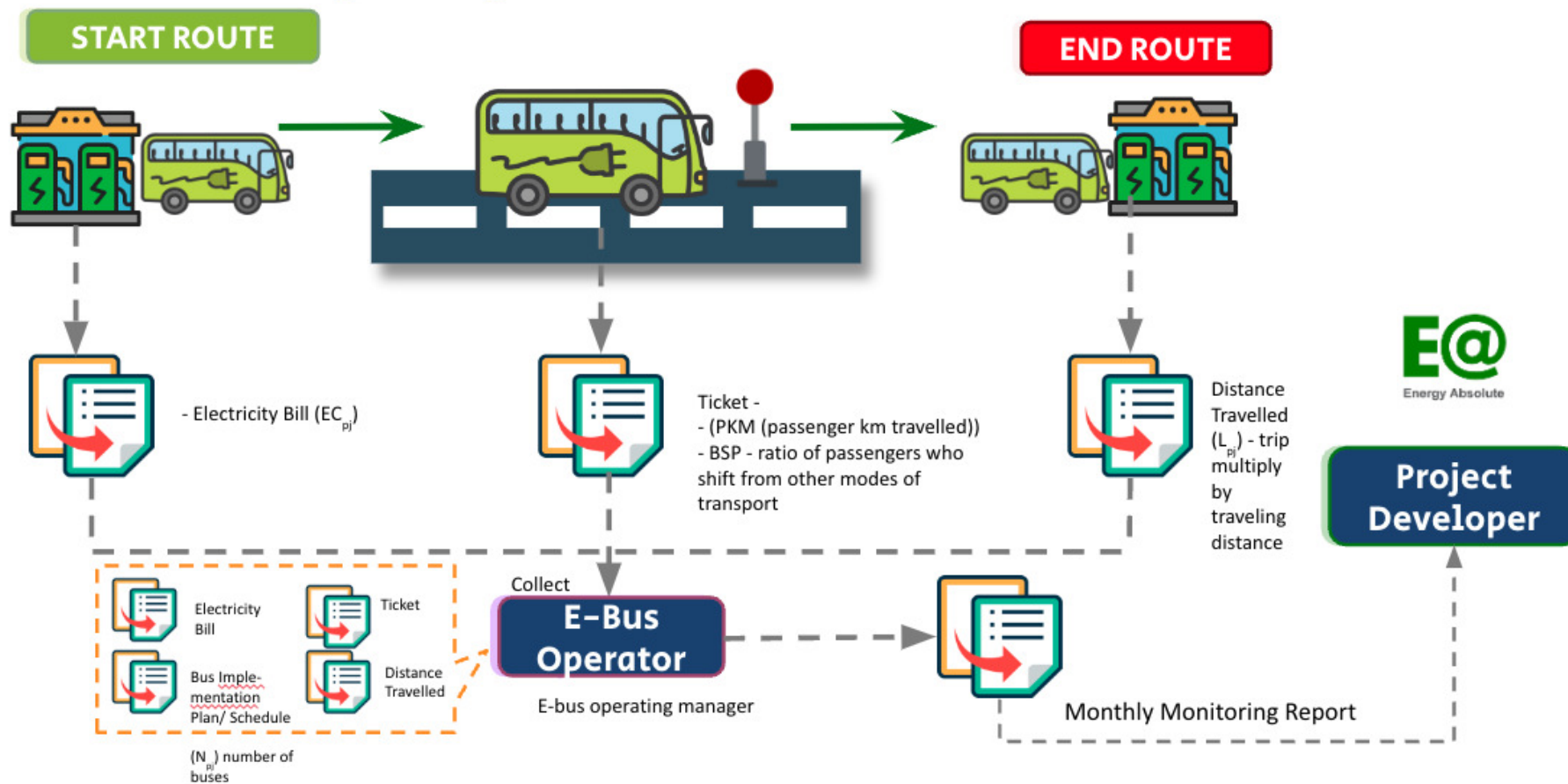
ลงชื่อ : อภินพ ผู้จัดการ

วันที่ : 9/1/66

MTM-ABS-FM-08 (02)

Annex 5 – TSB’s management structure corresponds to the e-buses data monitoring

# Monitoring diagram



Annex 6 – Example of bus registration license

**สขพ.2**

**รายการจดทะเบียน**

วันจดทะเบียน **14 พฤศจิกายน 2565** เลขทะเบียน **16-6566** จังหวัด **กรุงเทพมหานคร**  
 ชนิดเชื้อเพลิง **ไฟฟ้า** ประเภท **รถโดยสารประจำทาง**  
 ลักษณะ/มาตรฐาน **ม.2 (ข)** ยี่ห้อรถ **MINE**  
 แบบ/รุ่น **XML6115JEV** สี **น้ำเงิน**  
 เลขตัวรถ **HRSBCEHONZM00393** อยู่ที่ **หน้าขวา**  
 ยี่ห้อเครื่องยนต์ **PRESTOLITE** เลขเครื่องยนต์ **DPPC750009** อยู่ที่ **ขม่อมเตอร์**  
 จำนวน **สูบ 210.7** แรงม้า **155** กิโลวัตต์ **2** เฟลา **4** ล้อ **ยาง 6** เส้น  
 น้ำหนักรถ **11125** กก. จำนวนผู้โดยสารนั่ง **31** คน ยืน **28** คน  
 น้ำหนักบรรทุกหรือน้ำหนักลงเตลา **17300** กก.

**รถคันนี้ต้องไปตรวจสภาพครั้งที่ 2**  
**ช่วงวันที่ 1-30 เมษายน ของทุกปี**

**เจ้าของรถ**

ลำดับที่ **1** วัน เดือน ปี ที่ครอบครอง **14 พฤศจิกายน 2565**  
 ผู้ประกอบการขนส่ง **บริษัท ไทย สมายล์ บัส จำกัด**  
 หนังสือสำคัญแสดงการจดทะเบียน/บัตรประจำตัวรถที่ **0105563084972** สัญชาติ **ไทย**  
 ที่อยู่ **41/327 ถ.กัลปพฤกษ์ แขวงบางแค เขตบางแค จ.กรุงเทพมหานคร**  
 ประกอบการขนส่งประเภท **รถโดยสารประจำทาง** ใบอนุญาตเลขที่ **กท.59/2565**  
 วันสิ้นสุดอายุใบอนุญาต **24 เมษายน 2572** มีสิทธิครอบครองและใช้รถโดย **เจ้าชื่อ**  
 ผู้ถือกรรมสิทธิ์ **บริษัท เอเชีย อีโพล จำกัด**  
 ที่อยู่ **518 ซอยที่ 5 ถ.รัชดาภิเษก แขวงสามเสนนอก เขตห้วยขวาง จ.กรุงเทพมหานคร**

ลงชื่อ \_\_\_\_\_ ลงชื่อ \_\_\_\_\_  
 ( \_\_\_\_\_ ) ( \_\_\_\_\_ )  
 ผู้ประกอบการขนส่ง เจ้าของรถ

ลงชื่อ \_\_\_\_\_ ลงชื่อ \_\_\_\_\_  
 ( \_\_\_\_\_ ) ( \_\_\_\_\_ )  
**นางสาวกมลวรรณ สวัสดิ์** (นางวรรณ วัฒนศิริ)  
 (เจ้าพนักงานขนส่งชำนาญงาน) เจ้าหน้าที่ผู้บันทึกข้อมูล นายทะเบียน

**รายการเสียภาษี**

วันเสียภาษี	ใบเสร็จรับเงิน เลขที่คุม/เลขที่	งวดภาษี	อัตราภาษี บาท/สต.	เงินเพิ่ม บาท/สต.	วันสิ้น อายุภาษี	ลงชื่อ เจ้าหน้าที่	ลงชื่อ นายทะเบียน
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**รายการเสียภาษี**

วันเสียภาษี	ใบเสร็จรับเงิน เลขที่คุม/เลขที่	งวดภาษี	อัตราภาษี บาท/สต.	เงินเพิ่ม บาท/สต.	วันสิ้น อายุภาษี	ลงชื่อ เจ้าหน้าที่	ลงชื่อ นายทะเบียน
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หมายเหตุ สามารถนำรถมาตรวจสภาพและชำระภาษีล่วงหน้าก่อนวันสิ้นอายุภาษีได้ไม่เกิน 3 เดือน

Annex 7 – List of References

- Reference 1 : Letter of Authorization
- Reference 2 : Purchase orders of e-buses
- Reference 3 : NGV bus salvage purchase agreement and deregistration licenses
- Reference 4 : Technical specifications of e-buses
- Reference 5 : Electronic service agreement contract between EA and Amita
- Reference 6 : Contract agreement between EA and the bus operator (TSB)
- Reference 7 : Proof of CPAs registration under T-VER standard
- Reference 8 : Monitoring data provided by bus operation (TSB)
- Reference 9 : Average specific fuel consumption calculation
- Reference 10 : Thai Smile Bus Operational Report 2024
- Reference 11 : GPS exported data
- Reference 12 : Electricity Consumption data and logbook
- Reference 13 : Data collection for electricity consumption procedure
- Reference 14 : Passenger Kilometer from Baseline Study
- Reference 15 : Passenger Kilometer in 2024
- Reference 16 : Mode of transportation ratio of vehicle type 'x' of passenger who shift to EV for public transit in 2024
- Reference 17 : Details of survey and questionnaire form
- Reference 18 : Summary of Financial details for PoA1 and PoA2 during Monitoring period: 1.01.2024 to 31.12.2024