T-VER Component Project Activities Design Document

Picture of project

Thailand Electric Logistic Programme

Programme of Activities Details	
Title of PoA	Thailand Electric Logistic Programme PoA04
Project participant	Thai EV Company Ltd
Project type	☐ Renewable energy of fossil fuel replacement ☐ Improvement of the efficiency of electricity and heat generation ☐ Use of public transportation system ✓ Use of electric vehicle ☐ Improvement of the efficiency of engine ☐ Improvement of the efficiency of energy consumption in building and factory and in household ☐ Use of natural refrigerant ☐ Use of clinker substitute ☐ Solid waste management ☐ Domestic wastewater management ☐ Methane recovery and utilization ☐ Industrial wastewater management ☐ Reduction, absorption and removal of greenhouse gases from the forestry and agriculture sectors ☐ Capture, storage, and/or utilization of greenhouse gas ☐ Other .....
Programme of Activities	The Mitigation Activity aims to replace common diesel trucks with introducing new battery electric trucks, excluding HEVs and PHEVs. It will cover up to 1,688 fleet vehicles from various channels, including direct purchase and open platforms, with an anticipated ITMO authorization of approximately 191,729 tCO2e by 2030.
Crediting Period of PoA	✓ 20 years <18 September 2025 – 18 September 2045>
T-VER Methodology	T-VER-P-METH-04-03 Switching from internal combustion engine vehicles to battery electric vehicle for freight transport Version 01

T-VER Tools *(if any)*	<tool code>
	<title of tool>
	<version>

T-VER Component Project Activity (CPA) Detail	
CPA No.	01
Title of CPA	Thailand Electric Logistic Programme of PoA04 – CPA01
Co-project participant	-
Project owner	Thai EV Company Ltd
Project location	Thailand
Coordinates of project location	15.8700° N, 100.9925° E
Project activity	The Mitigation Activity aims to introduce new battery electric trucks, excluding HEVs and PHEVs. It will cover up to 2 fleet vehicles from Thai EV's customers, with an anticipated ITMO authorization of approximately 92 tCO2e by 2030.
Project investment cost	5,230,000 THB
Estimated Greenhouse Gas Emission Reductions/Removals	15 tCO_2eq/y
Crediting period of CPA	✓ 5 years <18 September 2025 – 18 September 2030>

Details of report preparation		
Finish date	11 November 2025	
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Content

Part 1: Component Project Activity Information

1.1 Project Information

The transportation sector substantially contributes to the greenhouse gas emissions from the use of fossil fuel in internal combustion engine (ICE) vehicles, of which diesel consumption in ICE trucks account for a substantial proportion in Thailand. Consumption of diesel fuel account for nearly 43% of all petroleum fuel products in Thailand in 2024, mostly consumed by commercial vehicles. These vehicles are used to carry large capacity of cargo, leading to high fuel combustion and emissions generation compared to other vehicle categories, e.g, passenger vehicles, motorcycles, etc.

To tackle the emissions from trucks in Thailand's transport sector, the Thailand Electric Logistics Programme, developed by Thai EV Co., Ltd., implements mitigation activities to promote the adoption of electric vehicles (EVs) in Thailand, with a focus on battery electric vehicle (BEV) trucks and renewable energy-based charging stations. This initiative aims to transition the logistics industry from a business-as-usual path of reliance on conventional diesel-powered vehicles to a lower-carbon fleet. To achieve this, the programme seeks to introduce the new BEV trucks with technologies detailed in **Appendix 1 (Emission mitigation technology)**. While BEV trucks promise various advantages as compared to ICE trucks, their higher capital costs and other practical limitations have kept their penetration into the commercial truck market below 1% for the past three consecutive years. The programme demonstrates its additionality to the NDC, a mandatory requirement for Article 6.2 programme implementation. The demonstration ensures that the Mitigation Activity does not overlap with existing policies, incentives and other promotion measures of the Thai government, but is complementary and additional to the country's overall strategy to promote electric vehicles.

The Component Project Activity 1 (CPA1) aims to introduce various new BEV trucks, including 4-wheel, 6-wheel, 10-wheel, tractor unit, and other types of trucks such as non-road trucks. CPA 01 comprises 2 vehicles to participate in and generate GHG emission reduction units from 2025 to the end of 2030. By switching from ICE to BEV, all participating vehicles are expected to reduce emissions by 184 tCO_2e throughout the crediting period.

Emission reductions will be calculated using the Premium T-VER methodology (T-VER-P-METH-04-03 Version 01 – Switching from internal combustion engine vehicles to battery electric vehicle for freight transport) – and converted into Internationally Transferred Mitigation Outcomes (ITMOs) for transfer to Switzerland.

The programme allows both Thai EV's customers and other fleet operators, e.g. those who will purchase/lease EV trucks from other suppliers to join. During the implementation of the Mitigation Activity, all participating vehicles will be tracked and monitored for emissions reduction performance using a digital device operated by the project proponent. This includes monitoring of travelled distance and energy consumption for BEVs. The programme ensures the avoidance of double claiming through contractual agreement with truck owners. Once the quantified mitigation outcomes from the vehicles' emission reductions performance are verified and issued for transfer, the monetary benefits generated from the ITMO revenues will be monetized and allocated to participants.

Figure 1 Project Area

1.2 Project Boundary

The concept of introducing new BEV trucks into the programme's system boundary. The use of BEV trucks instead of ICE trucks is decided at the decision-making stage by fleet operators and can result in reduced emissions at the operational stage compared to the baseline scenario, where fossil fuels are consumed by ICE vehicles. The programme encourages fleet operators to acquire the new BEV trucks (through purchase or leasing) by leveraging incentives from the carbon finance mechanism. GHG emissions from the use of BEV trucks at the operational stage can be minimised to zero when the vehicles are powered entirely by renewable electricity produced by renewable energy generating units. Each BEV truck is powered by a high-efficiency electric drivetrain and lithium-ion battery system with a typical installed capacity ranging from 61 to greater than 423 kWh, depending on truck size and operational requirements.

The technology ensures zero tailpipe emissions and significantly lower maintenance requirements, with overall lifecycle emissions dependent on the electricity generation mix. When powered by renewable electricity, GHG emissions during operation can be reduced to nearly zero

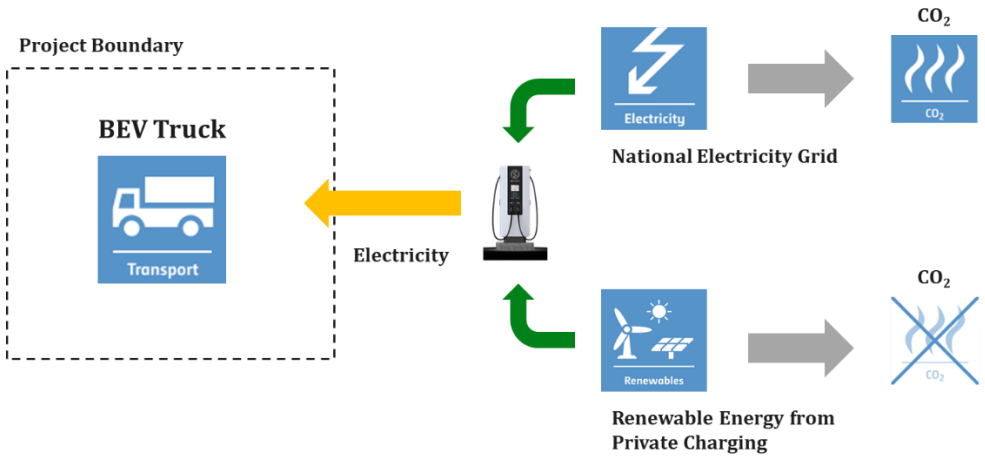


Figure 2 Project Boundary

1.3 Double counting

The project activity in this project used to registered or in the process of registering other carbon other international climate mitigation mechanisms such as Development Mechanism (CDM), Voluntary Carbon Standard (VCS), Gold Standard etc. or Renewable Energy Certificates (REC)

✓ No

☐ Yes

Project Title.....

Scheme.....

Crediting period that is issued.....

1.4 Additionality

Common Practice

The demonstration of common practice using the market penetration as detailed in CDM Tool 24[1] for technology or BEV truck is demonstrated under this mitigation activity. It is conducted before the commencement of the project. The penetration rate of the EV truck as of 2022 – 2024 is less than 1%. This is due to (1) EV trucks having low market competitiveness in Thailand, (2) support from climate finance and government is still lacking for logistic business, and (3) other barriers as outlined in Barrier Analysis. Hence, the mitigation activity qualifies as additional to common practice for this aspect.

Additionally, the common practice requirement, as specified by both FOEN/BAFU and the Premium T-VER guidelines, shares the same condition for demonstrating implemented projects. Therefore, Equation (1) is used to represent the common practice of the programme. The condition states that the proportion of projects similar to the mitigation activity must be greater than 0.2, and the difference in technology among them must be greater than 3.

$F = 1 - N_{diff} / N_{all}$ Equation [1]

Where:

F	= The proportion of project similar to the mitigation activity
N_{all}	= Projects similar to the mitigation activity applying for registration under the Premium T-VER
N_{diff}	= Projects similar to the mitigation activity with different technology applying for registration under the Premium T-VER

Currently, three electric vehicle development activities under Premium T-VER are registered (N_{all} = 3). They all involve electric buses for passenger transport, which differ in both applications and technology from the proposed BEV truck activity for freight services. As none of the identified projects meet the criteria for similarity—particularly in terms of service type and application area – the number of comparable projects (N_{all} – N_{diff}) is zero. Therefore, the proposed mitigation activity is not considered common practice and is thus deemed additional.

Barrier Analysis

The barrier analysis identifies obstacles to the implementation of programme within a defined system boundary. It outlines how this mitigation activity addresses key challenges related to the expansion of BEV trucks to support successful implementation. The main barriers are the lack of EV infrastructure, the limited range, and price of BEV trucks compared to ICE trucks, and the time required for charging.

One of the primary barriers to EV adoption is the availability of charging stations and service centres, key factors influencing fleet operators' decisions , . These vehicles have high energy demands due to their role in transporting large cargo volumes, with many fleets operating nearly 24 hours a day. However, charging infrastructure remains scarce. As of 2024, Thailand only had 3,429 public charging stations. This number has grown steadily from approximately 1,239 in 2022 and 2,658 in 2023, reflecting ongoing infrastructure development. To maintain operational continuity, fleet operators would need to install their own charging stations before deploying BEV trucks. This MA addresses the barrier by incentivizing the installation of solar-powered charging

stations, offering financial benefits through higher emission reductions and associated ITMO gains for fleet operators and asset owners.

The limited driving range of BEV trucks remains a key consideration for fleet operators, particularly for long-haul logistics operations. Unlike ICE trucks, which refuel quickly, BEV trucks face constraints such as battery capacity, load weight, route conditions, and extended charging durations. While this Mitigation Activity does not directly improve the driving range or charging speed, it incentivizes the deployment of heavy vehicle charging stations, especially along strategic long-range logistics routes, partially addressing infrastructure-related limitations by improving access to reliable and cost-effective charging in more areas. Concurrent technological advancements in charging systems further complement these measures by gradually reducing operational barriers associated with BEV adoption in long-haul transportation.

Financial Additionality

In the current state of vehicle market in Thailand, ICE trucks used for commercial purposes have been available for more than a century, while BEV trucks have only recently been introduced, on a limited scale from 2020 onwards. BEV trucks are at a significant disadvantage when compared to conventional trucks with diesel ICE technology, in terms of price and availability. Within the same category of vehicles, ICE trucks are approximately 50% cheaper compared to EV trucks with similar capabilities, as shown in Error! Reference source not found.. Additionally, while local manufacturing of BEV passenger vehicles has been expanding in Thailand, BEV trucks assembly capacity is still limited. For BEV trucks, Thailand therefore relies mainly on imports, which is another factor contributing to the high price and low market competitiveness of BEV trucks. Nonetheless, this circumstance can be changed through the promotion of BEV trucks and financial support for fleet operators. Initiatives such as the Thailand Electric Logistic Programme can enhance market competition, leading to lower cost of ownership of BEV trucks for fleet operators.

Table 1 Example of ICEV and BEV Trucks Comparison

Model	Loading (Tons)	ICEV Price (THB)	BEV Price (THB)
Cargo truck 4W (4.4 – 4.5 tons)	2 – 2.5	1,136,000	1,650,000
Cargo truck 6W (6.5 – 10 tons)	4.4 – 4.5	1,146,000	2,419,000
Cargo truck 6W (9.5 – 10 tons)	6.25 – 6.8	1,511,000	3,245,000
Tractor-trailer (50.5 tons)	15 – 42	3,700,000	4,950,000 – 5,885,000
Mining truck (70-90 tons)	55-63	7,000,000	11,000,000

This mitigation activity demonstrates its financially viability through an investment analysis, following re-quirements from FOEN, Article 6.2 rules, and Premium T-VER guidelines. To demonstrate the MA's financial viability, the MA's IRR is used as the financial indicator. An analysis of the programme IRR is integrated with the benchmark and sensitivity analysis below.

For benchmarks analysis, the minimum lending rate (MLR) of 6.90%, obtained from the Bank of Thailand as an average of major banks' rates, is used as a baseline of capital cost for the analysis in implementing the programme. This rate reflects the minimum financing cost that a programme developer would typically face in market. The corporate tax rate obtained from the Revenue Department of Thailand is at 20%.

The sensitivity analysis was conducted to illustrate the financial viability of the MA under various conditions in case the programme faces an unforeseen circumstance impacting its implementation. The sensitivity analysis consists of scenarios where revenue, capital expenditure (CAPEX) and operating expenses (OPEX) vary between -10% and +10% of their reference values.

The investment analysis took into consideration 8,337 participating EV trucks throughout the crediting period. These inputs are used as benchmark data for comparing the MA with other transportation-related MAs, referring to the CDM TOOL27 (Methodological tool: Investment analysis) version 14.0 and national-level data.

As described below in Sections 4.3.1, 4.3.2, 4.3.3, and 4.3.4, for Thai EV and project participants (logistic ser-vice providers, asset leasing providers, and participants to the open platform), it is evident that each project does not generate sufficient returns to be considered financially attractive without the incentive provided by carbon revenues. The use of this benchmark helps support the fact that the financial additionality claim remains robust.

Investment analysis of the programme proponent (Thai EV)

The activity owner's equity is used to fund the development of the digital MRV system for BEV trucks, to monitor and track the generated MOs during the implementation phase. It also covers upfront payments for participants who choose the lump sum discount model. Investing in digital MRV, implementation of the MA and system administration are crucial activities to implement successfully the Mitigation Activity. Therefore, CAPEX and OPEX associated with these activities, and revenue from ITMOs are analysed in the financial assessment.

The assessment of Thai EV is conducted by comparing the project IRR with the benchmark MLR. CAPEX primarily pertains to the development of digital devices. A digital device will be installed in each BEV truck participating in the MA as hardware, while the embedded software is developed to manage data during the operation phase of BEV trucks – except for some circumstances which the participants choose to use their own MRV devices.

Project scenario with the revenue from emissions reduction units

Error! Reference source not found. 2 lists input values for the project scenario with the revenue from emissions reduction units (or ITMOs), including CAPEX, OPEX and other revenues. These encompass hardware, software, monitoring, reporting, MO issuance costs and revenue from carbon finance.

Table 2 Input values for project investment analysis of the programme proponent with carbon finance

Description	Value (THB)	References
Total investment cost (THB)	(94,173,008)	Historical data of development cost

Total operating activity cost (THB)	(180,480,109)	Estimated from fixed cost, semi-fixed cost, management cost
Scenario 1: 30% total expected revenue (THB/year)	94,500,241	Estimated revenue from ITMOs
Scenario 2: 25% total expected revenue (THB/year)	78,750,201	Estimated revenue from ITMOs
Scenario 3: 20% total expected revenue (THB/year)	63,000,160	Estimated revenue from ITMOs

The investment analysis for the MA with carbon finance as depicted in **Table 3** has been analysed with a ±10% variation to assess the impact on MA IRR under the 3 scenarios, with different benefit sharing. The results indicate that the MA IRR is -23.53% in scenario 1, 3.72% in scenario 2 and 25.83% in scenario 3. Therefore, only the IRR for scenario 3 is significantly higher than the 6.9% of benchmark when including the revenue from ITMOs.

Table 3 Benchmark analysis of project investment of the programme proponent with carbon finance

Scenario 1 (20% benefit sharing)	**-10%**	**0**	**+10%**	**Benchmark (MLR)**
Revenue with ITMOs	-40.36%	-23.53%	-9.05%	6.90%
CAPEX	-18.93%	-23.53%	-27.83%	
Scenario 2 (25 % benefit sharing)	**-10%**	**0**	**+10%**	
Revenue with ITMOs	-12.49%	3.72%	17.97%	
CAPEX	8.55%	3.72%	-0.85%	

Scenario 3 (30 % benefit sharing)	**-10%**	**0**	**+10%**	
Revenue with ITMOs	9.62%	25.83%	40.35%	
CAPEX	30.84%	25.83%	21.07%	

Consequently, the MA investment analysis using financial indicators – IRR and MLR – demonstrates that the MA is financially viable under Scenario 3 (30 % benefit sharing) provided that the ITMO revenue is available and sufficient to support the implementation. The underlying cost assumptions used in the analysis are based on current labour cost and MRV development, as well as operational costs gathered from industry benchmarks and stakeholder inputs. These values are calculated in the financial analysis and reflect a conservative estimate of real-world conditions. It is important to note that, as of the time of this assessment, there are no existing or planned government subsidies or financial incentives for electric trucks in Thailand. This confirms that the viability of the MA relies heavily on carbon finance, without which the MA would not yield a sufficient return to justify the investment. Therefore, carbon finance is a critical enabler in making the investment feasible for the programme proponent.

Investment analysis of the project participants: logistic service providers (Group A)

The assessment of the logistic operator model is conducted by comparing the IRR of the programme with the benchmark MLR. CAPEX primarily applies to the acquisition of different types of vehicles, while the revenues are calculated from the logistic service fees per day. To assess the viability of the mitigation activity on different types of vehicles, we analysed the return on investment per unit assumption. Furthermore, the carbon finance is incorporated into two options where the participants receive ITMOs benefits as a revenue or a discount (Option 1 and 2, described under Section 4.2). Additionally, the programme has been analysed with a ±10% variation to assess the impact on programme IRR under different scenarios which is depicted in Annex 4.

Scenario 1: Programme scenario without revenue from emissions reduction units

The investment cost covers the cost of each e-truck. Operating costs encompass expenses for tax, insurance, driver cost, administrative costs, maintenance costs, and electricity consumption costs. The participant's revenue is generated from the logistic service fee received per day of operation multiplied by the number of operating days (Detailed inputs are available in the calculation file, Assumption and Comparison sheet: THAI EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

Table 4 Benchmark analysis of programme investment without ITMO revenue (Group A)

Without ITMO revenue						**Benchmark (MLR)**
Description	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	**Mining**	
IRR	3.42%	5.01%	2.98%	1.65%	4.31%	6.90%

(Please see THAI EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. xlsx)

The investment analysis for the programme without the support from ITMOs as depicted in **Table 4** indicates that the programme IRR is 3.42% for 4-wheel truck, 5.01% for 6-wheel truck, 2.985% for 10-wheel truck, 1.65% for Tractor truck, and 4.31% for mining truck which falls below the benchmark value of 6.9%.

Scenario 2: scenario with revenue from emissions reduction units

For this scenario, we detail the two options offered to the participants: 1) a performance-based cash payment or 2) an upfront lump sum discount to cover operators' upfront cost.

Scenario 2: scenario with revenue from emissions reduction units (performance-based cash payment)

ITMOs distributed as performance-based cash payment reflects an increase in revenue, while CAPEX and OPEX remain unchanged. The analysis of ITMO payments considers three benefit-sharing scenarios: 70% (scenario 1), 75% (scenario 2), and 80% (scenario 3), as described above. (Detailed inputs are available in the calculation file, comparison sheet: THAI

EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

The investment analysis for the programme with ITMO revenue as depicted in **Table 5** indicates that the programme IRR varies by different type of trucks and scenario. and mining trucks are the most financially viable and attractive compared to other types of vehicles. However, if they receive financial support from ITMOs, other types of vehicles demonstrate higher returns, and are considerably more appealing.

Table 5 Benchmark analysis of programme investment of project participants with ITMO revenue (Group A)

Performance-based cash payment (70% benefit sharing)						**Benchmark (MLR)**
Description	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	**Mining**	
IRR	5.49%	5.51%	3.26%	1.90%	7.21%	6.90%
Performance-based cash payment (75% benefit sharing)						
IRR	5.65%	5.55%	3.29%	1.92%	7.43%	
Performance-based cash payment (80% benefit sharing)						
IRR	5.80%	5.59%	3.31%	1.94%	7.65%	

(Please see THAI EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. xlsx)

Scenario 2: scenario with revenue from emissions reduction units (upfront lump sum discount)

Input values for programme scenario with emission reduction revenue shows the same level of revenue and OPEX and a decrease in CAPEX. (Detailed inputs are available in the calculation file, comparison sheet: THAI EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

The investment analysis for the programme with ITMO revenue as depicted in **Table 6** indicates that the programme IRR varies by different type of trucks and scenario**:** similar to the scenario where performance-based cash payments are offered, mining trucks are the only vehicle types passing the benchmark MLR, signifying that they are the most financially viable vehicle types. Nevertheless, other vehicle types show a higher return if they benefit from ITMO revenue.

Table 6 Benchmark analysis of programme investment of project participants with ITMO revenue (Group A)

Upfront lump sum discount (70% benefit sharing)						**Benchmark (MLR)**
Vehicle Type	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	**Mining**	
IRR	5.20%	5.45%	5.42%	1.84%	6.95%	
Upfront lump sum discount (75% benefit sharing)						
IRR	5.34%	5.48%	5.44%	1.86%	7.17%	6.90%
Upfront lump sum discount (80% benefit sharing)						
IRR	5.48%	5.51%	5.45%	1.87%	7.39%	

(Please see THAI EV_Calculation_ERM_Shared 70. xlsx , THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. xlsx)

Sensitivity analysis of scenario with revenue from emissions reduction units (performance-based cash payment and upfront lump sum discount)

Annex 4 displays Group A's sensitivity analysis of performance-based cash payment and upfront lump sum discount across three benefit sharing scenarios (70%, 75%, and 80%), examining how -10%, 0%, and +10% performance changes affect Revenue, CAPEX, and OPEX for different business groups. The results are as follows:

- **Performance-based cash payment:** The analysis shows that positive performance changes consistently drive higher revenues and expenses across all segments, while the Mining segment demonstrates the strongest overall performance metrics. Across scenarios, the impact patterns remain relatively

stable, indicating that changing benefit sharing percentages has minimal effect on the sensitivity relationships.

- **Upfront lump sum discount:** The results demonstrate that negative discount changes (-10%) consistently produce the highest revenue and expense figures, while positive discount changes (+10%) lead to lower or even negative revenue growth in some segments. The Mining segment again shows the strongest performance with revenues ranging from 4-12%, and the sensitivity patterns remain largely stable across the three benefit sharing scenarios.

In conclusion, the investment analysis of participating fleets highlights the critical role of carbon finance in implementing this MA. All vehicle types demonstrate that carbon finance ensures programme financial viability, uplifting overall financial performance as indicated by the higher returns on investment and shorter payback period.

Investment analysis of project participants: asset leasing providers (Group B)

The assessment of the asset leasing provider model is conducted by comparing the programme IRR with the benchmark MLR. CAPEX applies to the acquisition of different types of vehicles, while the revenues are calculated from the leasing fee per month. To assess the viability of the MA on different types of vehicles, we analysed the return on investment on per unit assumption. Furthermore, the carbon finance is incorporated into two types of options where the participant received ITMOs benefit as a revenue or a discount. To note that mining e-truck is excluded from the investment analysis since leasing mining truck to the customer is not a business practice in the industry. Additionally, the programme has been analysed with a ±10% variation to assess the impact on programme IRR under different scenarios, which is depicted in Annex 4

Scenario 1: scenario without the revenue from emissions reduction units

The investment cost covers the cost of each e-truck. Operating costs encompass expenses for tax, insurance, driver cost, administrative costs, maintenance costs. The participant's revenue is generated from the logistic service fee received per day of operation multiplied by the number of operating days. (Detailed inputs are available in the calculation file, Assumption and Comparison sheet: THAI EV_Calculation_ERM_Shared 70. xlsx, THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

Table 7 Benchmark analysis of programme investment without ITMO revenue (Group B)

Without ITMO revenue					Benchmark (MLR)
Description	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	
IRR	2.99%	3.62%	3.24%	4.07%	6.90%

Scenario 2: scenario with the revenue from emissions reduction units

For this programme scenario, we detail the two options offered to the participants: 1) a performance-based cash payment or 2) an upfront lump sum discount to cover operators' upfront cost.

Scenario 2: scenario with the revenue from emissions reduction units (performance-based cash payment)

ITMOs distributed as performance-based cash payment reflects an increase in revenue, while CAPEX and OPEX remain unchanged. The analysis of ITMO payments considers three benefit-sharing scenarios: 70% (scenario 1), 75% (scenario 2), and 80% (scenario 3), as described above. (Detailed inputs are available in the calculation file, IRR fleet (ITMOs) sheet: THAI EV_Calculation_ERM_Shared 70. xlsx, THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

The investment analysis for the programme with ITMO revenue as depicted in **Table 8** indicates that the programme IRR varies by different type of trucks and scenario: the 4-wheel, 6-wheel, 10-wheel, and Tractor vehicle types consistently show IRRs that remain below the benchmark**.** Although they are not passing the benchmark, the ITMOs improve their returns. Notably, the 10-wheel category presents negative IRRs in all scenarios. From the analysis it would take 13-14 years to break even. This implies that, with in a 15-year time frame, the 10W trucks does not generate enough cash flow to cover the initial investment, due to high operating costs and insufficient revenue generation relative to the upfront capital required.

Table 8 Benchmark analysis of programme investment with ITMO revenue (Group B)

Performance-based cash payment (70% benefit sharing)					**Benchmark (MLR)**
Vehicle Type	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	
IRR	5.19%	4.12%	-0.25%	4.36%	6.90%
Performance-based cash payment (75% benefit sharing)					
IRR	5.36%	4.15%	-0.23%	4.38%	
Performance-based cash payment (80% benefit sharing)					
IRR	5.52%	4.19%	-0.20%	4.40%	

Scenario 2: scenario with the revenue from emissions reduction units (upfront lump sum discount)

Input values for scenario with ITMO revenue shows the same level of revenue and OPEX, and a decrease in CAPEX. (Detailed inputs are available in the calculation file, Comparison and IRR fleet (ITMOs) sheet : THAI EV_Calculation_ERM_Shared 70. xlsx, THAI EV_Calculation_ERM_Shared 75. Xlsx, THAI EV_Calculation_ERM_Shared 80. Xlsx).

The investment analysis for the programme with ITMO revenue as depicted in **Table 9** indicates that the programme IRR varies by different type of trucks and scenario:

Similar to the performance-based cash payment scenario, the 4-wheel, 6-wheel, 10-wheel, and Tractor vehicle types consistently show IRRs below the benchmark. While these vehicles don't pass the benchmark, ITMOs do improve their returns. Notably, the 10-wheel category presents negative IRRs across all scenarios Similar to the performance-based cash payment case, this scenario suffers from high operating expenses and low revenue generation relative to the initial investment cost.

Table 9 Benchmark analysis of programme investment with ITMO revenue (Group B)

Upfront lump sum discount (70% benefit sharing)					**Benchmark (MLR)**
Description	**4-wheel**	**6-wheel**	**10-wheel**	**Tractor**	
IRR	4.86%	4.03%	-0.34%	4.31%	6.90%

Upfront lump sum discount (75% benefit sharing)				
IRR	5.01%	4.06%	-0.33%	4.33%
Upfront lump sum discount (80% benefit sharing)				
IRR	5.16%	4.09%	-0.31%	4.35%

Sensitivity analysis of scenario with revenue from emissions reduction units (performance-based cash payment and upfront lump sum discount)

Annex 4 demonstrates sensitivity analysis for Group B: Asset leasing provider across three benefit sharing scenarios, examining how -10%, 0%, and +10% variations affect Revenue, CAPEX, and OPEX for different vehicle categories (4W, 6W, 10W) and Tractor.

- **Performance-based cash payment:** The analysis shows that negative variations (-10%) generally yield higher revenues, while positive variations (+10%) often result in negative revenue growth, with the 10W segment displaying notably weaker performance including negative baseline revenues in some scenarios. Tractor demonstrates the most stable and positive performance across all variations, with revenues consistently ranging from approximately 3-7% and positive OPEX growth regardless of the sensitivity scenario.
- **Upfront lump sum discount:** The results demonstrate that negative discount variations (-10%) consistently produce higher revenues across all segments, while positive variations (+10%) lead to negative revenue growth in most cases, with the 10W segment showing particularly weak performance including negative baseline revenues. Tractor maintains the strongest performance with revenues ranging from approximately 3-7% at baseline, though it also experiences negative revenue growth under the +10% discount scenario across all benefit sharing levels.

In conclusion, the investment analysis of participating fleets highlights the critical role of carbon finance in implementing this MA. Most vehicle types demonstrate that carbon finance ensures programme financial viability, uplifting overall financial performance as indicated by the higher returns on investment and shorter pay-back periods. The only exception is the 10-wheel truck, which still shows a negative IRR even with ITMOs included. However, even in this scenario,

carbon finance improves the overall IRR compared to the baseline without ITMO support. Importantly, given this is structured as a comprehensive programme rather than individual projects, the positive returns generated by other participating vehicle types can effectively compensate for the 10-wheel truck's negative IRR, thereby ensuring the overall financial viability and success of the entire Mitigation Action.

Investment analysis of project participants: Open platform

The investment analysis of participants under the open platform is demonstrated together with the investment analysis of logistic service providers and asset leasing providers, as it is assumed that the open platform participants are a combination of these two groups. The key difference is that open participants purchase vehicles from other dealerships. The model therefore hypothesizes that open platform participants have similar business models to both groups under the direct sales approach. The open platform logistic providers would have the same CAPEX, OPEX and revenue structure as their counterparts in direct sales approach, and the same assumption would apply to asset leasing providers. Since open platform participants do not purchase EVs through Thai EV, they will only receive payment via Option 1 (performance-based payment), not Option 2 (lump sum discount), under the same conditions applied to Groups A and B.

1.5 Crediting period

Project start date: 18 September 2025

✔ 5 years

☐ 15 years

☐ others .....years

1.6 Compliance with Premium T-VER PoA project development criteria

Criteria	Explanation
CPA applies the same T-VER methodology as the proposed Programme of Activities.	Each CPA under PoA04 applies an identical applicable methodology, referring to T-VER-P-METH-04-03 Version 01 and its conditions as outlined in **Section 2.1**
CPA is the same project type as the proposed Programme of Activities.	Each CPA is designed for introducing new BEV trucks by replacing ICE truck in the geographical boundary of Thailand
The total amount of expected GHG emission reductions/removals of all CPA shall not be 60,000 tCO2eq/year.	The GHG emission reductions of PoA04 are expected to be not over 60,000 tCO_2eq/year, after combining all CPAs
The size of each CPA shall be a micro-scale project.	Each CPA is designed with limiting the emission reduction no more 20,000 tCO_2eq/year
The addition of CPA have to occur within the timeframe of the registered PoA.	Each CPA shall be added and implemented within the crediting period and validity timeframe of the registered PoA

Part 2 T-VER Methodology

2.1 T-VER Methodology and Tools

No.	Methodology Code	Version	Title of methodology/tool
1	T-VER-P-METH-04-03	01	Switching from internal combustion engine vehicles to battery electric vehicle for freight transport

2.2 Project Conditions

The Thailand Electric Logistics Program under PoA04/CPA01 is designed to introduce the use of new BEV trucks, targeting over 2 vehicles nationwide. Participating vehicles can include those supplied by Thai EV, as well as vehicles from other suppliers joining Thai EV's open platform these fleets, the PoA04 of MA expects to achieve 92 tCO2e emission reductions by end of 2030. Eligible participants in this programme encompass all logistics businesses, including those who directly purchase vehicles from Thai EV and who join Thai EV's open platform. These consist of individuals, SMEs, enterprises – operating licensed EV trucks and open platform (a mixed representative group of other logistic service providers and asset leasing operators).

To quantify emissions reduction performance, Article 6.2 mechanism allows parties to select the registry and methodology for the programme based on mutual agreement. In this context, Thailand has introduced a domestic methodology developed by TGO as the protocol for quantifying emissions reductions until 2030. The methodology was analysed to ensure compatibility with the most suitable criteria and conditions of the programme.

The programme relates to a technological shift from ICE to BEV, while the objective in both scenarios remain the same, serving load transportation and logistics purposes. The applicable methodology for the programme must be associated with travelled distance and energy consumption tracking, as outlined in **Section** Error! Reference source not found.. This approach captures the difference in emissions generation resulting from the vehicle technology switch. As a result, T-VER-P-METH-04-03 Version 01 – Switching from internal combustion engine vehicles to battery electric vehicle for freight transport has been adopted for use in the Mitigation Activity.

The compatibility between Mitigation Activity and methodology is required to be demonstrated in ensuring the Mitigation Activity is eligible. In this case, all conditions are analysed to demonstrate the project eligibility of Mitigation Activity as detailed below.

Code: T-VER-P-METH-04-03	
Version: 01	
Methodology/tool: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport)	
Project Conditions	**Justification/Explanation**
Internal combustion engine vehicles (Baseline vehicle) and battery electric vehicles (Project activity) must be of the same type	The project has set the baseline and project vehicle to ensure the type of vehicle are the same. The use of baseline and project vehicles under the implementation is considered based on the vehicle category as defined by the Department of Land Transportation (DLT).
BEVs must have a maximum load difference of not more than 20 percent compared to baseline vehicle	The comparable vehicles between baseline and project are the same vehicle category which are categorized as a truck under Land Transport Act B.E. 2522[2] of Department of Land Transportation. Moreover, the technical specification will not differ by ±20% of maximum load difference of each comparable fleet. That ensures that both vehicles are reasonably comparable.
Electric vehicle conversion (a modification of internal combustion engines vehicle with battery electric vehicles) must comply with the law (Motor Vehicle Act/ Land Transport Act)	Not relevant (Mitigation Activity fully allows only brand new EV trucks as the project vehicles.)
Battery electric vehicle must be able to monitor the electricity consumption for charging and the travel distance	BEV truck operated with installed device (telemetric box) to track monitoring data, including the electricity consumption from the charging station and travelled distance of each vehicle.
The project owner or the project developer which uses a battery electric vehicle must demonstrate guidelines for managing damaged or end-of-life batteries	The end-of-life management of batteries is addressed through a guideline that outlines procedures for handling damaged or end-of-life batteries
Types of motor vehicles must comply with the law (Motor Vehicle Act/Land Transport Act/ Mineral Act) by the types that fall within the scope of: • 4- wheel vehicles such as sedans, • pickup trucks, • taxis, • vans, etc.	• Participating vehicles are classified as “Trucks” under the Land Transport Act B.E. 2522 (1979). • Special-purpose trucks, such as those used in mining operations, must adhere to the requirements of the Mineral Act B.E. 2560 (2017).

Code: T-VER-P-METH-04-03	
Version: 01	
Methodology/tool: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport)	
Project Conditions	**Justification/Explanation**
• Motorcycle • Motor tricycle (Tuk Tuk) • Bus • Truck Mining truck	Other BEV trucks operating within closed-service areas (i.e. non-public roads), are subject to applicable Thai laws and regulations relevant to their specific use.
The electricity supplied using RE to charging stations under the project boundary must be tracked and separated from the electricity grid.	This Mitigation Activity offers two charging options that impact emissions quantification: electricity from the national grid (public and private charging stations) and electricity from renewable sources (private charging station). For renewable sources, a telematics box is installed to monitor RE consumption by tracking relevant devices during vehicle charging, to accurately record its usage.
ICE vehicles (Baseline vehicle) are able to replace the vehicles outside project boundary which are the longest service life in the vehicle registration system of the Department of Land Transport. Project developer must demonstrate information or documents to verify the deregistration for ICE vehicles with the longest service life from the system, such as engine deregistration, etc.	The MA considers ICE trucks that are being retired (deregistered) from the database of DLT as the baseline scenario. It applied to the MA in replacing ICE trucks with new BEV trucks.

2.3 Relevant information for calculating greenhouse gas emissions

Relevant greenhouse gas sources for calculation

Emission Source	Type of Greenhouse Gas	Detail of activity
Baseline Emission		
Fossil fuel use	CO_2	Fossil fuel used for internal combustion vehicle at use phase
Project Emission		
Electricity consumption	CO_2	Electricity consumed by battery electric vehicles in the use phase using national electricity grid generated from fossil fuel
Leakage Emission		
The project has no leakage emission outside the project boundary		

Part 3 Calculation of emission reductions

In quantifying the emissions reduction arising from baseline and project emissions, the applicable methodology, as mentioned in **Section** Error! Reference source not found., is selected for the calculation. The methodology includes the calculations detailed in Equations under each table or calculating emissions reductions resulting from both the baseline and project scenarios.

The emissions of baseline scenario under CPA01 are calculated using equations in **Section 3.1** Similarly, the project scenario emissions are calculated using Equations in **Section 3.2** The parameters required for these calculations include specific fuel consumption (SFC_i) of each vehicle, net calorific value ($NCV_{BL,l}$) of each specific energy type, emission factor ($EF_{CO2,Diesel}$) of fuel consumption, constant value of technology improvement (IR), electricity consumption ($EC_{PJ,y}$) of project vehicle, specific electricity consumption ($SEC_{PJ,km,i,y}$), percentage of transmission and distribution loss (TDL_y), and emissions factor of national electricity grid mixed (EF_{elec}).

3.1 Calculation of baseline emission

Code: T-VER-P-METH-04-03

Version: 01

Methodology/tools: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport

Equation:

Approach 1: $BE_{Total} = \sum EF_{BL,km,i} \times DD_{i,y} \times N_{i,y} \times 10^{-6} \times ADJ$

Approach 2: $BE_{Total} = \sum EF_{BL,km,i} \times EC_{PJ,y} / SEC_{PJ,km,i,y} \times ADJ$

Parameter	Meaning	Ref	Value	Unit
BE_y	Baseline emission in year y	Calculation	Based on calculation Eq.2	tCO_2
$EF_{BL,km,l}$	Emission factor for baseline vehicle category	TGO announcement	Vehicle 1: 514.10 Vehicle 2: 694.32	gCO_2/km
$EF_{grid,y}$	Grid emission factor in year y	TGO announcement	0.4371	tCO_2/MWh
SFC_i	Specific fuel consumption	Available public data	Vehicle 1: 0.2 Vehicle 2: 0.27	l/km

Code: T-VER-P-METH-04-03

Version: 01

Methodology/tools: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport

Equation:

Approach 1: $BE_{Total} = \sum EF_{BL,km,i} \times DD_{i,y} \times N_{i,y} \times 10^{-6} \times ADJ$

Approach 2: $BE_{Total} = \sum EF_{BL,km,i} \times EC_{PJ,y} / SEC_{PJ,km,i,y} \times ADJ$

Parameter	Meaning	Ref	Value	Unit
$SEC_{PJ,km,i,y}$	Specific electricity consumption	Monitoring data	Vehicle 1: 0.28 Vehicle 2: 0.7	kWh/km
$NCV_{BL,I}$	Net calorific value	TGO announcement	43,000	j/g
$EC_{PJ,y}$	Electricity consumption	Monitoring data	Vehicle 1: 8,820 Vehicle 2: 44,100	kWh
$DD_{i,y}$	Annual average distance travelled by project vehicle category i in the year y	Monitoring data	Vehicle 1: 31,500 Vehicle 2: 31,500	km
$N_{i,y}$	Number of operational project vehicles in category i in year y	Monitoring data	2	Unit
ADJ	Constant value for adjustment downward	T-VER-P-METH-04-03	0.9	-
IR	Technology improvement factor for baseline vehicle in year t	T-VER-P-METH-04-03	0.99	-
t	Year counter for the annual improvement	Year counter	1-5	Year

3.2 Calculation of project emission

Code: T-VER-P-METH-04-03

Version: 01

Methodology/tools: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport

Equation:

Approach 1: $PE_{Total} = \sum EC_{i,y} \times EF_{Elec,y}$

Approach 2: $PE_{Total} = \sum EF_{PJ,km,I,y} \times EC_{PJ,I,y} / SEC_{PJ,km,i,y}$ **or** $\sum EF_{PJ,km,I,y} \times DD_{i,y} \times N_{i,y}$

Parameter	Meaning	Ref	Value	Unit
PE_y	Project emission in year y	Calculation	Based on calculation	tCO_2
$EF_{PJ,km,i,y}$	Emission factor of project emission	Calculation	Vehicle 1: 0.000124 Vehicle 2: 0.000311	tCO_2/km
$EF_{grid,y}$	Grid emission factor in year y	TGO announcement	0.4371	tCO_2/MWh
SFC_i	Specific fuel consumption	Available Public Data	Vehicle 1: 0.2 Vehicle 2: 0.27	l/km
$SEC_{PJ,km,i,y}$	Specific electricity consumption	Monitoring data	Vehicle 1: 0.28 Vehicle 2: 0.7	kWh/km
$EC_{PJ,y}$	Electricity consumption	Monitoring	Vehicle 1: 8,820 Vehicle 2: 44,100	kWh
$DD_{i,y}$	Annual average distance travelled by project vehicle category i in the year y	Monitoring Data	Vehicle 1: 31,500 Vehicle 2: 31,500	km
$N_{i,y}$	Number of operational project vehicles in category i in year y	Monitoring Data	2	Unit

3.3 Calculation of Leakage Emission

According to FOEN guidelines: "'Leakage' means a change in emissions outside the system boundary which cannot be directly attributed to the project but can nevertheless be traced back to it. The impact of leakage on the level of emissions can be both positive (additional emission reductions) and negative (additional emissions). These changes in the level of emissions must be quantified and included in the calculation of emission reductions if they are produced domestically."

The retirement of Baseline Vehicles (ICE vehicles) is required as a measure to prevent carbon emissions leakage outside the project boundary. This is to prevent ICE trucks that are displaced by BEV trucks from being used elsewhere. Given the small number of participating vehicles, estimated at 2 in proportion to the overall truck fleet within Thailand of approximately 1.25 million as of 2023, this impact is negligible. Nevertheless, leakage risks will be directly addressed by verifying that an equivalent number of ICE trucks are retired (deregistered) in Thailand. This demonstration will be based on vehicle deregistration statistics from the database of Thailand's DLT. If at any stage it is determined that fewer ICE trucks are deregistered than new BEV trucks deployed, additional mitigation measures or adjustments will be implemented to safeguard the environmental integrity of the Mitigation Activity.

3.4 Summary of greenhouse gas emissions

Code: T-VER-P-METH-04-03			
Methodology: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport			
Parameter	**meaning**	**Value**	**Unit**
ER_y	$ER_{Total} = BE_{Total} - PE_{Total}$	Based on calculation	tCO_2e
BE_y	**Approach 1:** $BE_{Total} = \sum EF_{BL,km,i} \times DD_{i,y} \times N_{i,y} \times 10^{-6} \times ADJ$ **Approach 2:** $BE_{Total} = \sum EF_{BL,km,i} \times EC_{PJ,y} / SEC_{PJ,km,i,y} \times ADJ$	Based on calculation in Section 3.1	tCO_2e

Code: T-VER-P-METH-04-03			
Methodology: Switching from internal combustion engine vehicles to battery electric vehicle for freight transport			
Parameter	**meaning**	**Value**	**Unit**
PE_y	**Approach 1:** $PE_{Total} = \sum EC_{i,y} \times EF_{Elec,y}$ **Approach 2:** $PE_{Total} = \sum EF_{PJ,km,l,y} \times EC_{PJ,l,y} / SEC_{PJ,km,i,y}$ **or** $\sum EF_{PJ,km,l,y} \times DD_{i,y} \times N_{i,y}$	Based on calculation in Section 3.2	tCO_2e
LE_y	No leakage calculation is required.	-	tCO_2e

3.5 Summary of estimated greenhouse gas emission reductions

Year	**d/m/y – d/m/y**	**Baseline Emission**	**Project Emission**	**Leakage Emission**	**Emission Reduction**
1	18 Sep 25 – 18 Sep 26	26.12	10.76	-	15.36
2	19 Sep 26 – 18 Sep 27	26.12	10.76	-	15.36
3	19 Sep 27 – 18 Sep 28	26.12	10.76	-	15.36
4	19 Jan 28 – 18 Sep 29	26.12	10.76	-	15.36
5	19 Jan 29 – 18 Sep 30	26.12	10.76	-	15.36
Total (tCO_2eq)		**156**	**64**	-	**92**
Average (tCO_2e/y)		**26.12**	**10.76**	-	**15.36**

Part 4 Monitoring Plan of Project

4.1 Monitoring Plan

Thai EV has assigned REEV X to be responsible for acquiring data related to the monitoring parameters specified in **Section 4.3** and the monitoring flow outlined in **Figure 2**. The monitoring data will be delivered to Thai EV for the development of the monitoring report. This data will be tracked and collected through MRV devices — the Telemetric Box and an external MRV device — before being transferred to REEV X for consolidation. The external MRV device will be

examined by REEV X, as detailed in **Figure 6** to ensure its capability to monitor the parameters required for emission reduction quantification.

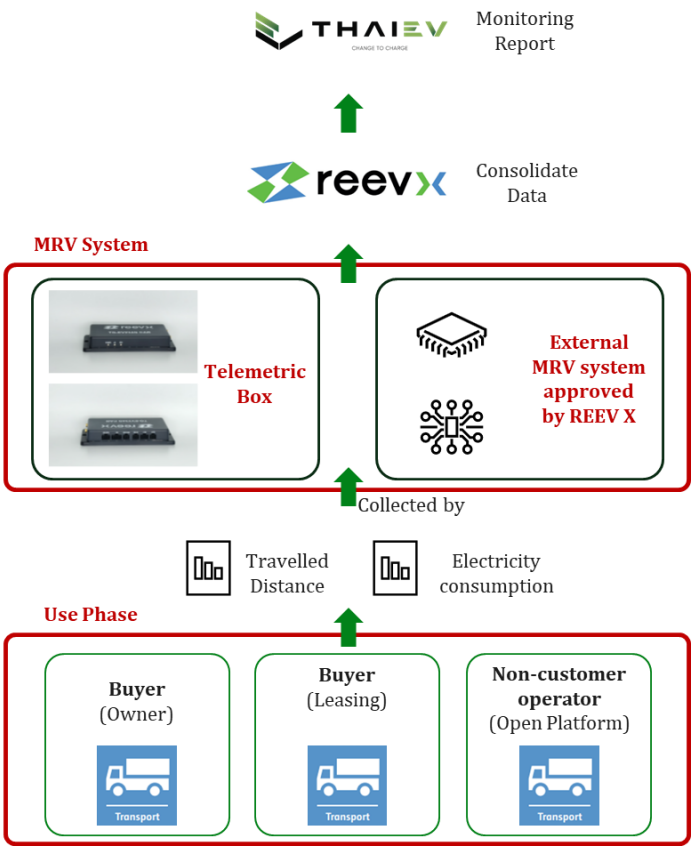


Figure 3 Structure of MRV System and Data Flow for Monitoring BEV Truck

The technology used for tracking and monitoring of Mitigation Activity is the telemetric box, developed by REEV X Co., Ltd. This digital device facilitates data acquisition, particularly for monitoring parameters as listed in **Section 4.3**. Travelled distance and electricity consumption are two crucial monitoring parameters tracked and collected from all participating vehicles under the programme for GHG emissions reduction quantification.

The digital MRV used in the programme has been developed based on a 15-minute monitoring interval to measure electricity consumption as shown in **Figure 4**. The use of 15-minute monitoring interval is standard practice by the major Thai electricity retail authorities (Metropolitan Electricity Authority and Provincial Electricity Authority). It enhances the granularity of energy usage throughout the monitoring period. The system tracks the electricity generated by the solar system for every 15-minute period, aligning with the 15-minute tracking period of electricity charged by

the vehicles. This implies all generated electricity amount that is tracked will be accounted for as electricity consumption.

As for RE consumed by the programme vehicles, the energy output is monitored through the inverter that is connected to the solar power system. To ensure accurate tracking, energy consumed by the fleet is further recorded at the charging station and charger to verify that solar-generated electricity is used at a specific time. Additionally, the telemetric box communicates with the charging station to log the electricity charged.

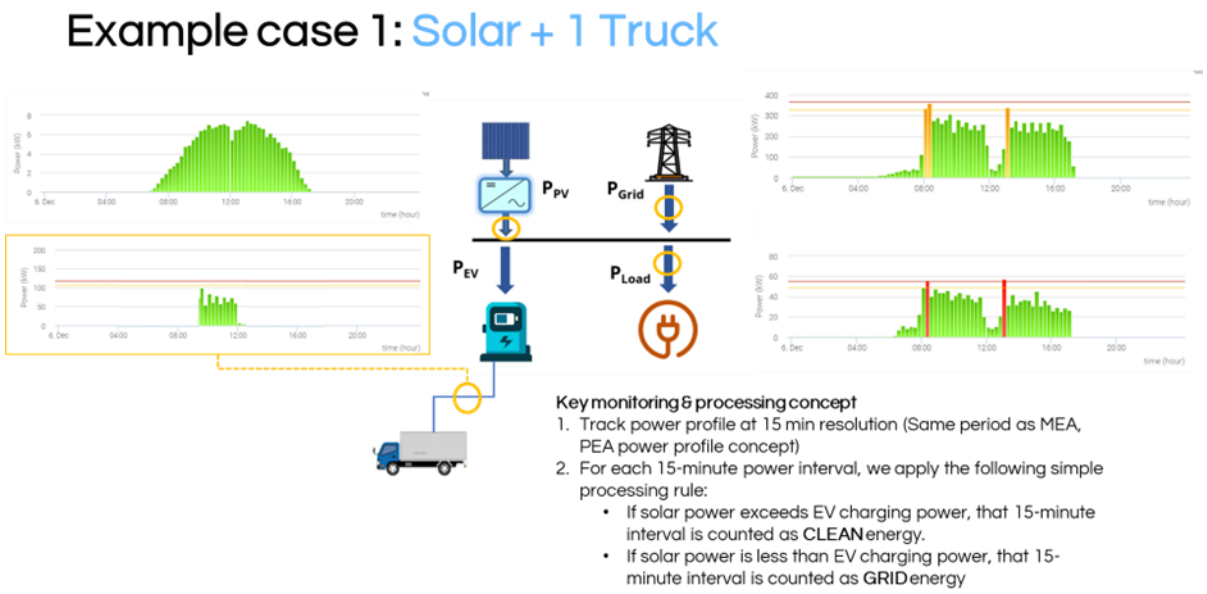


Figure 4 Key Monitoring and Processing Concept

The same concept also applies in the case where multiple BEVs are at the charging station (as depicted in **Figure 5**), based on the conservative principle, if the energy consumption during certain time is higher than the electricity generated from solar, the system is designed to not calculate the emissions reduction using the electricity from renewable sources. It will instead classify this entire amount being charged to the vehicle as grid electricity, applying the regular grid emission factor.

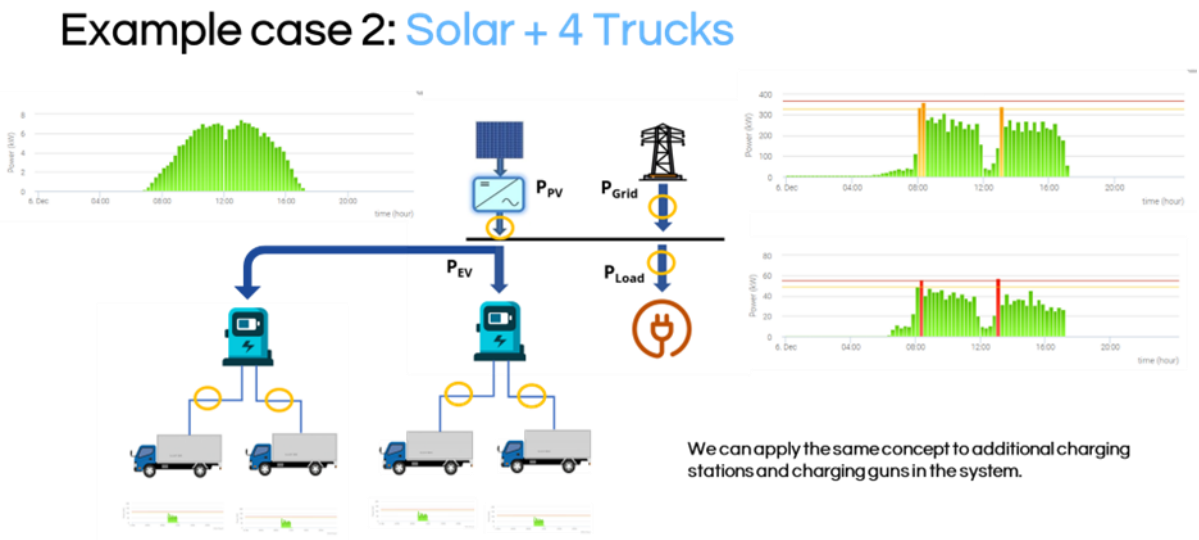


Figure 5 Key Monitoring and Processing Concept for Multiple Chargers

Another potential leakage concerns the charging of EV trucks with solar electricity that could be considered removing some clean electricity from other potential users, and thus increasing their reliance on grid electricity. The programme will consider solar-equipped charging stations that sell excess generated electricity back to the national grid as completely relying on the national grid and apply the regular grid emission factor. This approach prevents double claiming and ensures the environmental integrity of the MO. Note that as of publication, selling solar-electricity back into the grid is still very uncommon in Thailand and requires special permissions.

Additionally, as the program allows participants beyond Thai EV customers to join, the MRV system for those open channels is imperative for examination and demonstration to ensure that all monitoring parameters can be tracked and reported to REEV X (**Figure 6**).

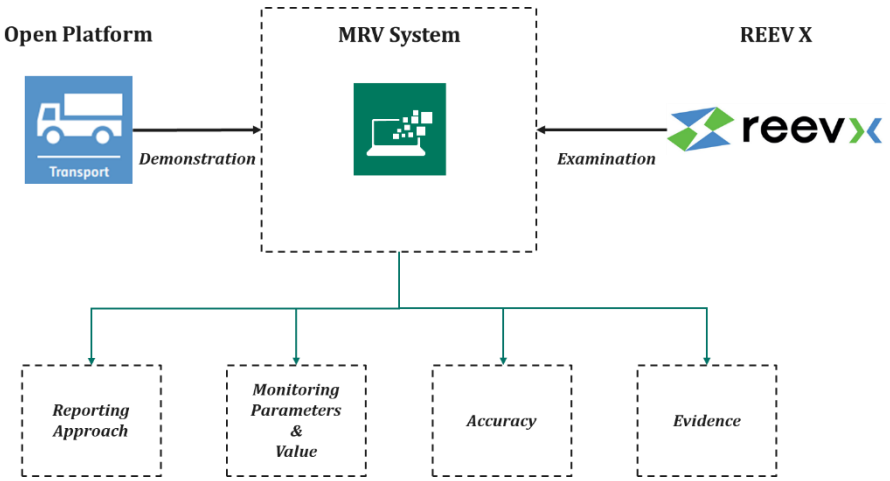


Figure 6 MRV System Approach of Open Platform

4.2 Parameters not monitored

Parameter	$NCV_{BL,I}$
Value applied	43,000
Unit	j/g
Meaning	Net calorific value (NCV) of fossil fuel in baseline scenario from applied methodology.
Source of data	The NCV of diesel specified in methodology that is originally derived from Thailand Greenhouse Gas Management Organization (TGO), Greenhouse Gas Reduction Calculation Document. The NCV is calculated with the conversion factor of biodiesel from Department of Energy Business.

Parameter	$EF_{CO2,Diesel}$
Value applied	0.0000741
Unit	gCO_2/j
Meaning	Emission factor of diesel consumed by baseline vehicle category i
Source of data	The emission factor of diesel B7 based on emission factor of diesel that is originally derived from the Intergovernmental Panel on Climate Change (IPCC), table 1.4 Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories National GHG Inventories.[3]

4.3 Monitored Parameters

Parameter	$EC_{PJ,I,y}$
Unit	kWh

Meaning	Electricity consumed by the Project Vehicle of type i in year y (kWh)
Source of data	Direct measurement, via an installed digital device, i.e. telemetric box, in each vehicle
Description of measurement methods and procedures to be applied	To measure the electricity consumption of each vehicle, the data is tracked from the travelled distance in kWh/km. As per data/parameter table 2 in T-VER-P-METH-04-03 version 01, the data under the Mitigation Activity uses the telemetric box to monitor the electricity consumption. This is outlined in **Section 3.1**
Frequency of monitoring/recording	Measured continuously

Parameter	$SEC_{PJ,km,i,y}$
Unit	kWh/km
Meaning	Specific electricity consumption by Project Vehicle category i per km in year y in urban conditions (kWh/km)
Source of data	Direct measurement
Description of measurement methods and procedures to be applied	The data used to determine each vehicle's specific fuel consumption is based on electricity consumption per distance travelled, tracked by the telemetric box

Frequency of monitoring/recording	Measured continuously

Parameter	$EF_{Elec,y}$
Unit	$kgCO_2/kWh$
Meaning	Emission factor for electricity generation/consumption in year y
Source of data	Thailand Greenhouse Gas Management Organization (TGO) Source: https://ghgreduction.tgo.or.th/th/download-tver/120-tver-gwp-emission-factor/3377-emission-factor-30-2565.html
Description of measurement methods and procedures to be applied	As per data/parameter table 3 in T-VER-P-METH-04-01 version 01, the emission factor of electricity grid is derived from the latest TGO' s emission factor value. *TGO is Thailand's official organisation directly responsible for driving Thailand to low carbon economy through promotion of low carbon projects. TGO publishes Thailand grid emission factor periodically for GHGs accounting purposes. The value of 0.4371 $kgCO_2/kWh$ will apply and be monitored annually.* In the case of electricity consumption from a RE source, the PE is equal to zero. This infers that the emission factor from RE is equal to zero (Annex 3: Monitoring Approach).
Frequency of monitoring/recording	Annually or use the latest data regularly that is updated by TGO

Parameter	TDL_y
Unit	Percentage (%)
Meaning	Average technical transmission and distribution losses for providing electricity in the year y
Source of data	Electricity Generating Authority of Thailand (EGAT) https://www.egat.co.th/home/en/wp-content/uploads/2022/07/EGAT_SR2021_EN-20220718.pdf
Description of measurement methods and procedures to be applied	As per data/parameter table 9 in T-VER-P-METH-04-03 version 01, option 1 (use measurement report in the case of information on the amount of electricity released from the producer and the amount of electricity received by the consumer) is applied. In the grouped project context implemented in Thailand, EGAT provides the value annually.
Frequency of monitoring/recording	Annually update by Electricity Generating Authority of Thailand (EGAT)

Parameter	$N_{i,y}$
Unit	-
Meaning	Number of Project Vehicles in operation in year y
Source of data	The registered number of participating vehicles in the programme recorded by project proponent

Description of measurement methods and procedures to be applied	Annual sales records or official data on registered project vehicles cross-checked against the results from a representative sample survey vehicles to determine the percentage of vehicles in use
Frequency of monitoring/recording	-

Parameter	$DD_{i,y}$
Unit	km
Meaning	Annual average distance driven by Project Vehicle i in year y (km/yr)
Source of data	Monitored data of participating vehicles in the programme recorded by project proponent
Description of measurement methods and procedures to be applied	Measure the annual average distance driven by the Project Vehicles through monitoring of all vehicles
Frequency of monitoring/recording	-

Part 5 Local Stakeholder Consultation

5.1 Stakeholders consultation process

According to TGO's Local stakeholder consultation guidelines, the activity owner must obtain the approval of the relevant stakeholders, in order to ensure the success of the programme's implementation. Thai EV organised a local stakeholder consultation in October 2024.

The process included identifying relevant stakeholders, planning the session and preparing materials, inviting participants to join, providing comprehensive project details and collecting their feedback. The details are de-scribed below (see "Report on the Results of the Stakeholder Consultation on the Thailand Electric Logistics Programme", Annex 6).

Stakeholder identification and engagement Thai EV invited relevant government agencies, international organizations, and other stakeholders. The participant list is available to the Validating and Verifying Body (VVB) and the Thai/Swiss governments upon request.

5.2 Summary of comments from stakeholders.

The activity owner streamlined registration using an online registration form (Google Form) and ensured meeting attendees were well-informed by proactively sharing essential programme details (activities, scope, and developer information) through electronic documents accessible ten days along with invitations to join the consultation. Participants could easily download these materials via a link embedded in the registration QR code. The consultation event was also published on the Thai EV Facebook page on September 27 and October 7, 2024, aiming for wide participation and feedback.

The event was a mix between in-person attendees (nine attendees) and online format (21 via Microsoft Teams and up to 1,500 viewers via Facebook Live) to maximize engagement. The two-hour consultation included a joint presentation of key programme details by the activity owner, the introduction of a platform for feedback, and post-meeting satisfaction and evaluation questionnaires. Thai EV's team particularly focused on receiving inputs from all stakeholder groups to ensure inclusivity of this consultation. Feedback and concerns are integrated in **Section 5.3.**

Stakeholders	No. of people	Percentage (%)

Private company (Onsite + Online MS)	30	1.96
Others (Online FB live)	1,500	98.04
Total	1,530	100

5.3 Corrective actions for issues identified in section 5.2

Stakeholders' concerns	Implementation by Thai EV
Benefit Sharing: Participants raised concerns regarding financial benefits by participating in this MA. As these interests require individual discussion, specific details have not been disclosed in this session.	Thai EV has taken into consideration these concerns and incorporated them into the benefit-sharing plan and agreement, adhering to principles of fairness and transparency.
Data privacy concerns: A potential concern raised by participants involves the installation of telematics boxes and the potential exposure of personal vehicle usage data, such as travel routes and times. This may lead to apprehension regarding tracking and the unauthorized use of their data.	The agreement with project participants is designed to ensure the protection of personal information from the digital MRV system. This includes designing and communicating mechanisms for preventing data breaches and establishing incident reporting protocols for any data security concerns or risks.
Concerns about sharing and requesting information: Participants voiced uncertainty about who would access telematics box data and the extent of that access. They also raised concerns about requests for irrelevant data and the potential misuse of information beyond energy consumption monitoring and reporting.	
Concerns about MRV tools alignment. Project participants who currently possess or are developing their own MRV tools might express concerns that the mandatory installation of telematics boxes will restrict their options. These participants may also be uncertain about the potential for their internally developed tools to serve as a substitute for the provided telematics boxes, or the necessary steps required for their tools to be accepted and utilized comparably to the project's MRV approach.	To address telematics box substitution, the programme proponent embed specific provisions within participant agreements. This includes defining alternative monitoring and reporting methodologies for equivalent equipment, ensuring comparable data quality and reporting capabilities to the program's telematics box, and securing TGO/FOEN acceptance. The proponent will also refine participation conditions and establish clear communication and reporting protocols for GHG emission reduction results from participants using their own monitoring methods.
Participants were concerned about the type of vehicles participating in the project. A question has been raised regarding the eligibility of other commercial vehicles used in goods transport, such as forklifts, for programme participation.	Eligibility criteria for vehicles participating in the project have been defined, including specific examples of both eligible and ineligible vehicle types.
Renewable energy: participants raised concerns about whether renewable energy can be used and counted for vehicles registered under the programme.	The programme proponent will establish and communicate clear guidelines on clean energy usage and its associated accounting regulations and principles. This will enable project participants

	to accurately calculate GHG emission reductions from their use of renewable energy vehicles.

Appendix 1: Sensitivity analysis (IRR)

The following tables present the detailed results of the investment analysis described in Section Financial Additionality, listing the project IRR for each vehicle type under the baseline scenario, as well as ±10% variations in revenue, CAPEX, and OPEX.

BAU	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	11.96%	5.09%	-3.99%
CAPEX	3.71%	5.09%	6.70%
OPEX	-1.88%	5.09%	10.70%
6W			
Revenue	10.88%	6.38%	1.14%
CAPEX	4.93%	6.38%	8.06%
OPEX	2.95%	6.38%	9.48%
10W			
Revenue	10.12%	5.17%	-0.78%
CAPEX	3.79%	5.17%	6.78%
OPEX	1.04%	5.17%	8.80%
Trailer			
Revenue	8.66%	3.72%	-2.36%
CAPEX	2.40%	3.72%	5.25%
OPEX	-0.58%	3.72%	7.42%
Mining			
Revenue	8.54%	5.38%	1.87%
CAPEX	3.99%	5.38%	7.01%
OPEX	3.52%	5.38%	7.14%

Group B: Asset leasing provider			
4W			
Revenue	7.32%	1.05%	-7.80%
CAPEX	-0.16%	1.05%	2.44%
OPEX	-5.80%	1.05%	6.27%
6W			
Revenue	5.73%	1.52%	-3.63%
CAPEX	0.29%	1.52%	2.94%
OPEX	-2.00%	1.52%	4.58%
10W			
Revenue	2.87%	-0.99%	-5.79%

CAPEX	-2.123%	-0.99%	0.31%
OPEX	-4.27%	-0.99%	1.83%
Trailer			
Revenue	6.65%	3.12%	-0.98%
CAPEX	1.82%	3.12%	4.62%
OPEX	0.62%	3.12%	5.39%

Performance-based cash payment			
Scenario 1 (70% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.17%	7.27%	-1.76%
CAPEX	5.68%	7.27%	9.13%
OPEX	0.32%	7.27%	12.91%
6W			
Revenue	11.37%	6.87%	1.63%
CAPEX	5.38%	6.87%	8.60%
OPEX	3.43%	6.87%	9.97%
10W			
Revenue	10.44%	5.49%	-0.46%
CAPEX	4.08%	5.49%	7.14%
OPEX	1.36%	5.49%	9.13%
Trailer			
Revenue	8.94%	4.00%	-2.07%
CAPEX	2.65%	4.00%	5.57%
OPEX	-0.30%	4.00%	7.71%
Mining			
Revenue	11.42%	8.26%	4.74%
CAPEX	6.59%	8.26%	10.22%
OPEX	6.39%	8.26%	10.02%

Group B: Asset leasing provider			
4W			
Revenue	9.50%	3.23%	-5.49%
CAPEX	1.82%	3.23%	4.87%
OPEX	-3.54%	3.23%	8.45%
6W			
Revenue	6.22%	2.01%	-3.13%
CAPEX	0.74%	2.01%	3.48%
OPEX	-1.51%	2.01%	5.07%
10W			

Revenue	3.19%	-0.67%	-5.46%
CAPEX	-1.83%	-0.67%	0.67%
OPEX	-3.95%	-0.67%	2.15%
Trailer			
Revenue	6.93%	3.40%	-0.69%
CAPEX	2.08%	3.40%	4.93%
OPEX	0.91%	3.40%	5.68%

Scenario 2 (75% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.33%	7.43%	-1.59%
CAPEX	5.83%	7.43%	9.31%
OPEX	0.49%	7.43%	13.07%
6W			
Revenue	11.41%	6.90%	1.66%
CAPEX	5.41%	6.90%	8.64%
OPEX	3.47%	6.90%	10.01%
10W			
Revenue	10.47%	5.52%	-0.44%
CAPEX	4.10%	5.52%	7.17%
OPEX	1.38%	5.52%	9.15%
Trailer			
Revenue	8.97%	4.02%	-2.05%
CAPEX	2.67%	4.02%	5.59%
OPEX	-0.26%	4.02%	7.73%
Mining			
Revenue	11.64%	8.48%	4.96%
CAPEX	6.78%	8.48%	10.47%
OPEX	6.61%	8.48%	10.24%

Group B: Asset leasing provider			
4W			
Revenue	9.66%	3.39%	-5.32%
CAPEX	1.96%	3.39%	5.05%
OPEX	-3.37%	3.39%	8.61%
6W			
Revenue	6.25%	2.04%	-3.10%
CAPEX	0.77%	2.04%	3.52%
OPEX	-1.48%	2.04%	5.11%
10W			

Revenue	3.21%	-0.65%	-5.43%
CAPEX	-1.81%	-0.65%	0.69%
OPEX	-3.92%	-0.65%	2.17%
Trailer			
Revenue	6.95%	3.42%	-0.67%
CAPEX	2.10%	3.42%	4.96%
OPEX	0.93%	3.42%	5.70%

Scenario 3 (80% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.50%	7.59%	-1.42%
CAPEX	5.97%	7.59%	9.49%
OPEX	0.66%	7.59%	13.23%
6W			
Revenue	11.44%	6.94%	1.70%
CAPEX	5.44%	6.94%	8.68%
OPEX	3.50%	6.94%	10.04%
10W			
Revenue	10.49%	5.54%	-0.41%
CAPEX	4.12%	5.54%	7.19%
OPEX	1.40%	5.54%	9.17%
Trailer			
Revenue	8.99%	4.04%	-2.03%
CAPEX	2.69%	4.04%	5.61%
OPEX	-0.26%	4.04%	7.75%
Mining			
Revenue	11.86%	8.69%	5.18%
CAPEX	6.98%	8.69%	10.71%
OPEX	6.83%	8.69%	10.46%

Group B: Asset leasing provider			
4W			
Revenue	9.82%	3.55%	-5.14%
CAPEX	2.11%	3.55%	5.23%
OPEX	-3.20%	3.55%	8.77%
6W			
Revenue	6.29%	2.08%	-3.06%
CAPEX	0.80%	2.08%	3.56%
OPEX	-1.44%	2.08%	5.14%
10W			

Revenue	3.24%	-0.62%	-5.41%
CAPEX	-1.79%	-0.62%	0.72%
OPEX	-3.90%	-0.62%	2.19%
Trailer			
Revenue	6.98%	3.44%	-0.65%
CAPEX	2.12%	3.44%	4.98%
OPEX	0.95%	3.44%	5.72%

Upfront lump sum discount			
Scenario 1 (70% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.48%	7.08%	-2.54%
CAPEX	5.41%	7.08%	9.06%
OPEX	-0.32%	7.08%	13.12%
6W			
Revenue	11.39%	6.82%	1.51%
CAPEX	5.32%	6.82%	8.58%
OPEX	3.34%	6.82%	9.97%
10W			
Revenue	10.45%	5.45%	-0.55%
CAPEX	4.03%	5.45%	7.11%
OPEX	1.28%	5.45%	9.12%
Trailer			
Revenue	8.94%	3.95%	-2.17%
CAPEX	2.60%	3.95%	5.52%
OPEX	-0.38%	3.95%	7.69%
Mining			
Revenue	11.56%	8.09%	4.26%
CAPEX	6.30%	8.09%	10.25%
OPEX	6.05%	8.09%	10.03%

Group B: Asset leasing provider			
4W			
Revenue	9.47%	2.77%	-6.52%
CAPEX	1.33%	2.77%	4.48%
OPEX	-4.43%	2.77%	8.34%
6W			
Revenue	6.17%	1.90%	-3.31%
CAPEX	0.62%	1.90%	3.38%
OPEX	-1.67%	1.90%	5.00%

10W			
Revenue	3.13%	-0.76%	-5.59%
CAPEX	-1.92%	-0.76%	0.57%
OPEX	-4.07%	-0.76%	2.08%
Trailer			
Revenue	6.91%	3.35%	-0.78%
CAPEX	2.02%	3.35%	4.89%
OPEX	0.83%	3.35%	5.64%

Scenario 2 (75% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.68%	7.24%	-2.42%
CAPEX	5.55%	7.24%	9.25%
OPEX	-0.19%	7.24%	13.31%
6W			
Revenue	11.43%	6.85%	1.54%
CAPEX	5.35%	6.85%	8.62%
OPEX	3.37%	6.85%	10.01%
10W			
Revenue	10.47%	5.47%	-0.54%
CAPEX	4.05%	5.47%	7.14%
OPEX	1.30%	5.47%	9.14%
Trailer			
Revenue	8.96%	3.97%	-2.15%
CAPEX	2.62%	3.97%	5.54%
OPEX	-0.36%	3.97%	7.71%
Mining			
Revenue	11.82%	8.32%	4.45%
CAPEX	6.49%	8.32%	10.52%
OPEX	6.26%	8.32%	10.27%

Group B: Asset leasing provider			
4W			
Revenue	9.64%	2.91%	-6.42%
CAPEX	1.44%	2.91%	4.64%
OPEX	-4.32%	2.91%	8.50%
6W			
Revenue	6.20%	1.93%	-3.29%
CAPEX	0.65%	1.93%	3.41%
OPEX	-1.64%	1.93%	5.03%

10W			
Revenue	3.15%	-0.75%	-5.58%
CAPEX	-1.91%	-0.75%	0.59%
OPEX	-4.05%	-0.75%	2.09%
Trailer			
Revenue	6.93%	3.36%	-0.76%
CAPEX	2.04%	3.36%	4.91%
OPEX	0.85%	3.36%	5.66%

Scenario 3 (80% benefit sharing)	**-10%**	**0**	**+10%**
Group A: Logistic service provider			
4W			
Revenue	14.89%	7.40%	-2.31%
CAPEX	5.68%	7.40%	9.45%
OPEX	-0.07%	7.40%	13.51%
6W			
Revenue	11.47%	6.89%	1.56%
CAPEX	5.37%	6.89%	8.66%
OPEX	3.40%	6.89%	10.04%
10W			
Revenue	10.49%	5.49%	-0.52%
CAPEX	4.06%	5.49%	7.16%
OPEX	1.31%	5.49%	9.16%
Trailer			
Revenue	8.98%	3.99%	-2.14%
CAPEX	2.63%	3.99%	5.56%
OPEX	-0.35%	3.99%	7.73%
Mining			
Revenue	12.07%	8.55%	4.65%
CAPEX	6.68%	8.55%	10.80%
OPEX	6.47%	8.55%	10.51%

Group B: Asset leasing provider			
4W			
Revenue	9.81%	3.04%	-6.32%
CAPEX	1.56%	3.04%	4.80%
OPEX	-4.22%	3.04%	8.67%
6W			
Revenue	6.23%	1.95%	-3.26%
CAPEX	0.67%	1.95%	3.45%
OPEX	-1.62%	1.95%	5.06%

10W			
Revenue	3.16%	-0.73%	-5.57%
CAPEX	-1.90%	-0.73%	0.61%
OPEX	-4.04%	-0.73%	2.11%
Trailer			
Revenue	6.95%	3.38%	-0.75%
CAPEX	2.05%	3.38%	4.93%
OPEX	0.86%	3.38%	5.68%

Appendix 2: Stakeholder Consultation Summary Report for the Project

Thai EV Co., Ltd., the programme proponent, together with ERM-Siam, conducted a Stakeholder Consultation Meeting regarding the Thailand Electric Logistics Programme.

Thai EV Co., Ltd. has submitted a request for the development of a Premium T-VER advanced standard project, along with a Modality of Communication (MoC) – reference number MoC-0033 – to Thailand Greenhouse Gas Management Organization (Public Organization) (TGO).

The activity owner has now completed the stakeholder consultation meeting. Held in a mixed format on October 8, 2024, this meeting involved key stakeholders participating on-site at Thai EV Co., Ltd.'s meeting room, with others joining online. Its purpose was to present project conditions and benefits to stakeholders within its implementation scope and to foster feedback. Concerns were raised, and potential solutions discussed, to in-form the project implementation plan.

The meeting adhered to the procedures outlined in the "Manual for Participatory and Listening Process for Projects to be Registered as Voluntary Greenhouse Gas Reduction Projects under the Thai Voluntary Emission Reduction Program (T-VER), Year 2023," specifically following the process illustrated in

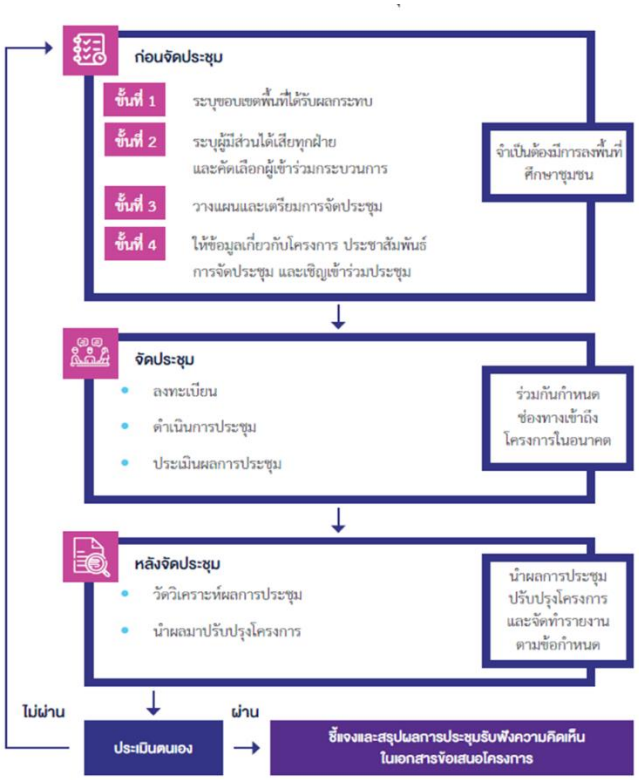


Figure 7 Stakeholder consultation process according to Premium T-VER guidelines

Pre-meeting arrangement procedure

Type of projects

Thailand Logistic Programme by Thai EV Co., Ltd. is a project in the category of electric vehicles under Premium T-VER.

Scale of the projects

The project is considered large-scale, with a projected carbon dioxide reduction exceeding 16,000 tons.

Project location

The mitigation activity is implemented within geographical boundaries of Thailand. Because the programme proponent targets logistic fleet owners throughout the country, the programme area is not limited to one location.

Information on areas and communities that may be affected Identification of stakeholders

The activity owner has specified the project's scope as Thailand, as it aims to support entrepreneurs across the country. The project developer and the consultant have compiled a list of stakeholders, encompassing both direct and indirect parties, and distinguishing between relevant and irrelevant entities. This also includes relevant government agencies, international organizations, and other stakeholders. The participant list is available to the Validating and Verifying Body (VVB) and the Thai/Swiss governments upon request.

Meeting procedure

Pre-meeting preparation: providing project information, publicity, and invitation to meetings

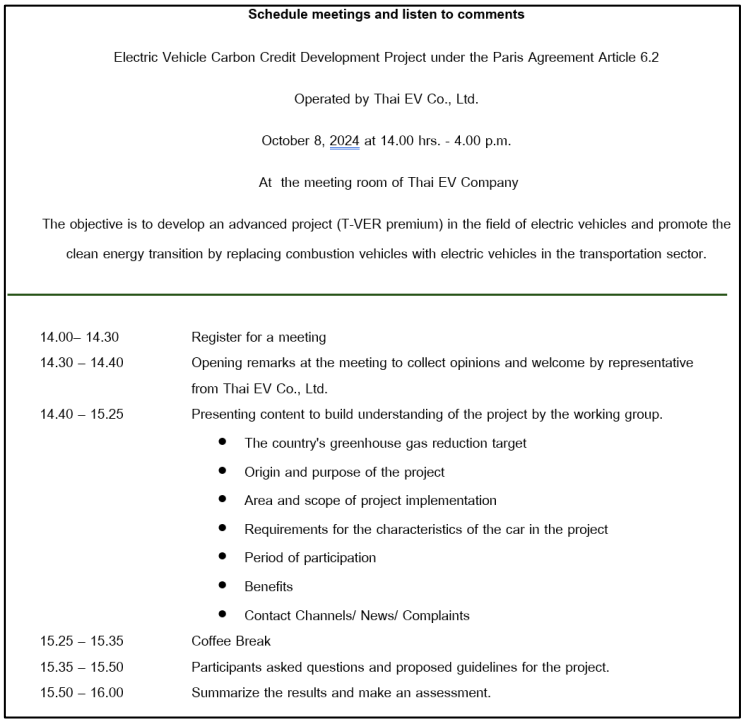
The activity owner facilitated registration through a Google Form and proactively shared relevant infor-mation with meeting participants. This information, detailing project activities, scope, and developer details, was made available ten days before the consultation via electronic meeting documents. Participants could download these materials using a link embedded in the registration QR code form. Additionally, the consulta-tion was publicized on the Thai EV Facebook page on September 27 and October 7, 2024, to encourage broad participation and feedback on the MA.

Planning and preparation process for meetings

The activity owner determined that a mixed-format approach (both in-person and online participation) was the most effective method for a broad stakeholder engagement. To ensure inclusivity, the working group implemented a process to monitor and solicit feedback from all stakeholder groups regarding the suitability and ease of participation in the chosen format, underscoring the MA's commitment to stakeholder involvement as a core principle. The meeting, which lasted for two hours and was also livestreamed on the Thai EV Face-book page, provided an opportunity for wider participation from interested groups. Furthermore, participants received a reminder email one day prior to the meeting date for confirmation. Detailed meeting information is presented in **Table 10**, and the meeting agenda can be found in **Figure 8**.

Table 10 Detail of date, time, and venue of the meeting

Date	Time	Place
8 October 2024	14.00 – 16.00 hrs.	Meeting Room, Thai EV Co., Ltd.



Schedule meetings and listen to comments

Electric Vehicle Carbon Credit Development Project under the Paris Agreement Article 6.2

Operated by Thai EV Co., Ltd.

October 8, 2024 at 14.00 hrs. - 4.00 p.m.

At the meeting room of Thai EV Company

The objective is to develop an advanced project (T-VER premium) in the field of electric vehicles and promote the clean energy transition by replacing combustion vehicles with electric vehicles in the transportation sector.

14.00– 14.30	Register for a meeting
14.30 – 14.40	Opening remarks at the meeting to collect opinions and welcome by representative from Thai EV Co., Ltd.
14.40 – 15.25	Presenting content to build understanding of the project by the working group. • The country's greenhouse gas reduction target • Origin and purpose of the project • Area and scope of project implementation • Requirements for the characteristics of the car in the project • Period of participation • Benefits • Contact Channels/ News/ Complaints
15.25 – 15.35	Coffee Break
15.35 – 15.50	Participants asked questions and proposed guidelines for the project.
15.50 – 16.00	Summarize the results and make an assessment.

Figure 8 Meeting agenda

Meeting

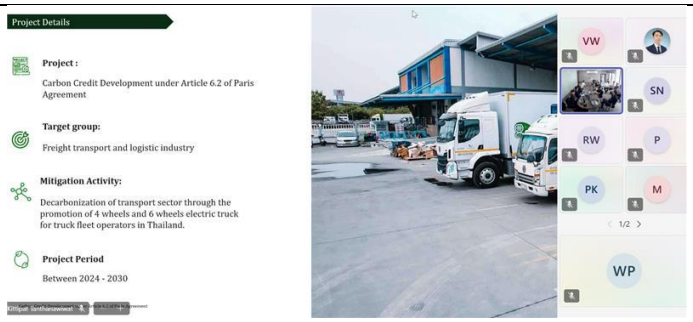
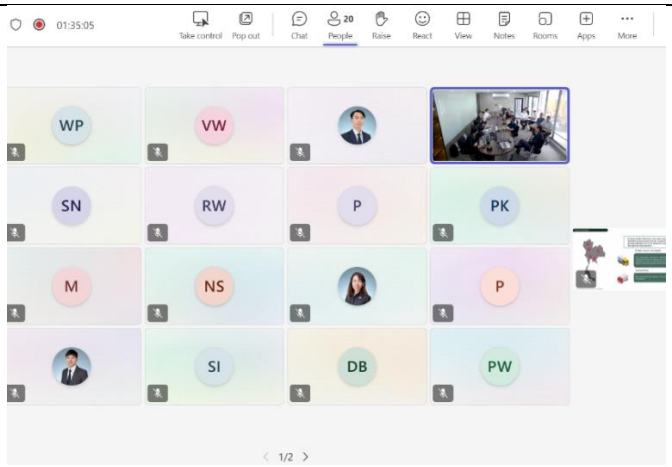
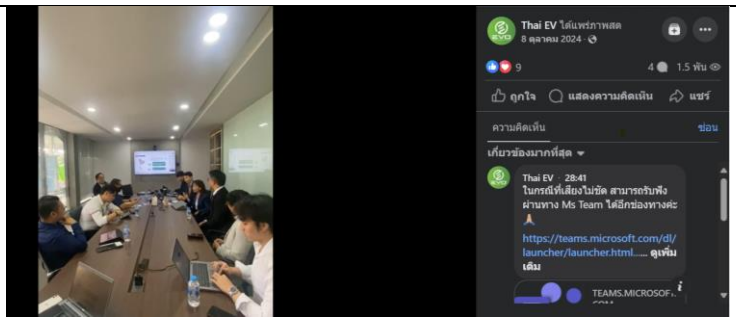
On the day of the consultation meeting, the programme proponent ensured the venue and necessary equipment were ready and established designated registration points for participants. The presentation, jointly led by the activity owner and the advisory board, covered key aspects such as the project's objectives, nature, conditions, developer information, stakeholder identification, and anticipated benefits.

The session also provided a platform for stakeholders to voice their opinions, concerns, and suggestions regarding the MA. Additionally, participant satisfaction with the event organization and project evaluation were assessed through a questionnaire administered at the end of the meeting.

The outcomes of this consultation, including photographic documentation (**Table 11**) and the list of attendees, are detailed in Annex 5.8. A total of 9 stakeholders attended the meeting in person,

with an additional 21 participants joining via Microsoft Teams, and up to 1,500 individuals viewing the proceedings through Facebook Live broadcast.

Table 11 Stakeholder consultation session

Description	Image
Photos of the meeting at Thai EV Co., Ltd.	
Online content presentation	
Online content presentation	
Broadcast via Facebook live	

Furthermore, the programme proponent prepared comprehensive documents and materials for the consultation meeting, including:

- A PowerPoint presentation: This outlined key meeting content, such as the project's objectives, scope, stakeholder identification, benefits, and conditions.
- Electronic documents (PowerPoint): These digital materials present essential information, including the project's purpose, scope, stakeholder identification, benefits, and conditions.
- An awareness and satisfaction assessment form: a Google Form was accessible via a QR code to gather feedback on MA understanding and meeting satisfaction. The form was divided into three parts: 1) Part 1: general information, 2) Part 2: content of the programme, and 3) Part 3: satisfaction towards session.

Summary of the participants' feedback

Concerns and suggestions from participants

The programme proponent collected and summarized the concerns about the programme, and integrated them into an implementation plan.

Concerns	**Implementation of the results of the meeting**
Benefit sharing: Participants raised concerns regarding the financial benefits of program participation. As these interests require individual discussion, specific details were not disclosed during this session.	The programme proponent will consider these concerns and incorporate them into the benefit-sharing plan and agreement, adhering to principles of fairness and transparency.
Data privacy concerns: A potential concern raised by participants involves the installation of telemetric boxes and the potential exposure of personal vehicle usage data, such as travel routes and times. This may	The programme proponent will address concerns regarding telematics box installation by incorporating provisions into agreements with project participants to ensure personal information protection. This includes designing and

lead to apprehension regarding tracking and the unauthorized use of their data.	communicating mechanisms for preventing data breaches and establishing incident reporting protocols for any data security risks or incidents.
Concerns about sharing and requesting information: Uncertainty among participants exists regarding the entities with whom data collected by the telemetric boxes will be shared and the extent of information access these entities will possess. Participants also expressed potential concerns about requests for irrelevant or unnecessary data and the possibility of information being used for purposes beyond monitoring and reporting energy consumption.	
Concerns about MRV tools alignment: project participants with existing or developing Measurement, Reporting, and Verification (MRV) tools may be concerned that mandatory telematics box installation will limit their options. They might also be uncertain about whether their internal tools can substitute for the telematics boxes provided, or what steps are needed for their tools to be accepted and used comparably to the project's MRV approach.	The programme proponent embedded stringent provisions in participant agreements to address Telematic box substitution. This involves mandating alternative monitoring and reporting methodologies for equivalent equipment, ensuring any substituted technology delivers comparable or superior data quality and reporting capabilities to the program's standard telematics box. Additionally, the proponent will streamline participation conditions and formalize robust communication and reporting protocols for GHG emission reductions from participants using their own monitoring methods.
Participants are concerned about the type of vehicles participating in the project. This inquiry stems from the programme proponent's current focus on features tailored to trucks. Consequently, a question has been raised regarding the eligibility of other commercial vehicles used in goods transport, such as forklifts, for project participation.	The programme proponent will clearly define and communicate the eligibility criteria for vehicles participating in the project, including specific examples of both eligible and ineligible vehicle types.
Participants have raised concerns regarding renewable energy permits for vehicles registered within the project.	The programme proponent will establish and communicate clear guidelines on clean energy usage and the associated accounting regulations and principles. This will enable project participants to accurately calculate greenhouse gas emission reductions resulting from their use of renewable energy vehicles.

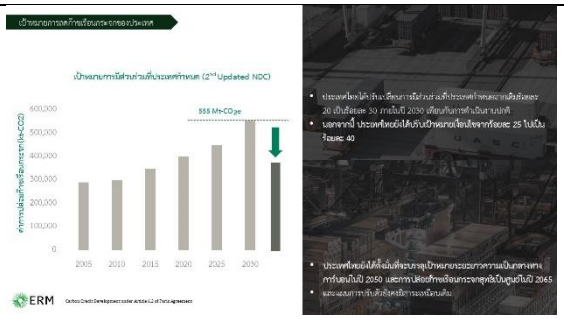
Summary of satisfaction scores from the participants

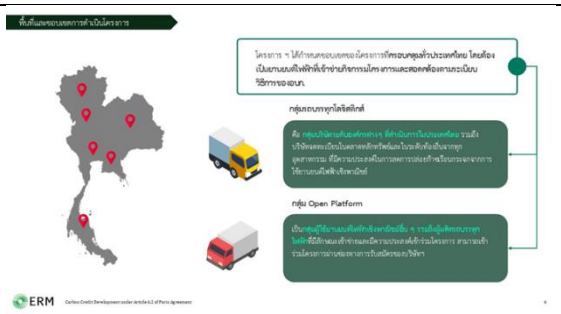
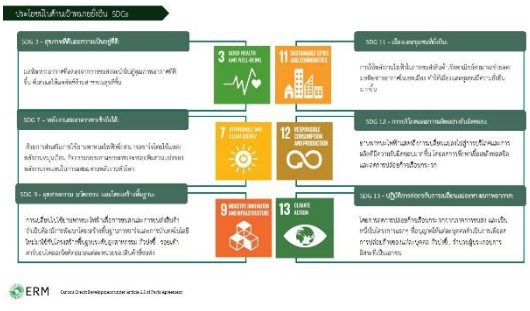
Satisfaction with the consultation meeting was rated from moderate to good by participants who completed the assessment, with the highest satisfaction regarding the meeting duration. Positive feedback also high-lighted the availability of media and equipment, along with the opportunities for participants to fully express their opinions and raise concerns on project-related issues. The content of the developer's presentation and the meeting venue were evaluated at a moderate level of satisfaction.

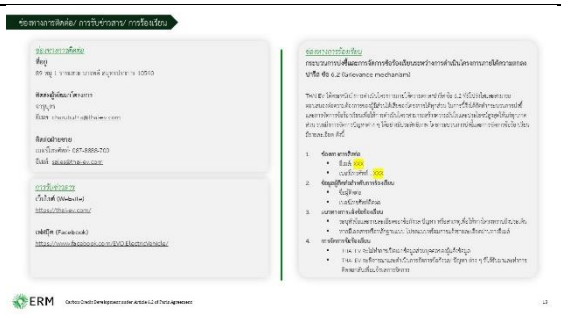
Question	Average satisfaction score out of 5
The content of the meeting is consistent with the objectives of the project.	3.33
The session is beneficial.	3.67
The meeting provided an opportunity for participants to express their opinions.	4
The project developer can explain the essence of the project completely and comprehensively.	3.67
The project developer and the speaker can answer questions clearly and completely.	3.67
The venue is suitable for the meeting.	3.33
Various equipment, media or online meeting rooms are ready and stable.	4
The duration of the meeting is appropriate.	4.33

Meeting materials and presentation

Description	**Presentation slide**

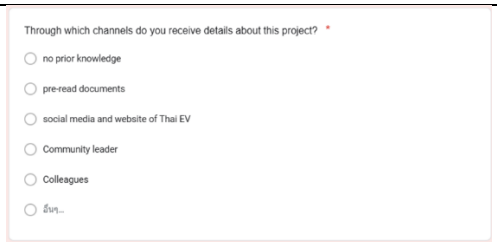
Cover page	
Agenda	
Introduction	
Programme details	
Objectives	

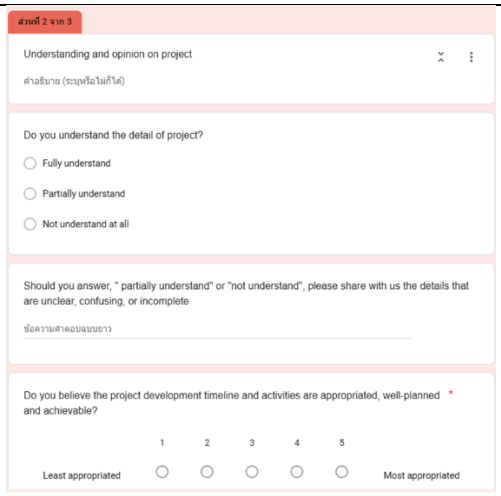
Geographical boundary	
Parties from developer side	
Benefits	
Environmental contribution of programme	
SDGs contributions	

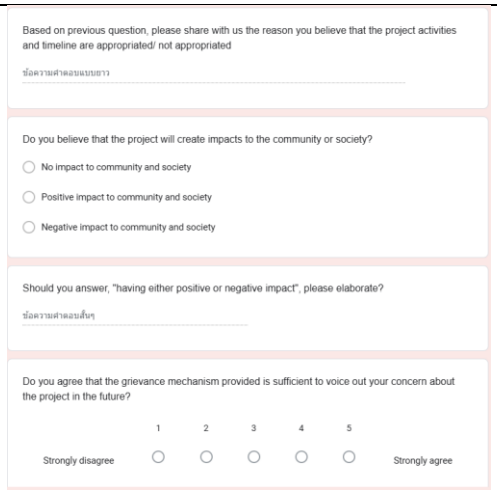
Contact channel	
Surveys	

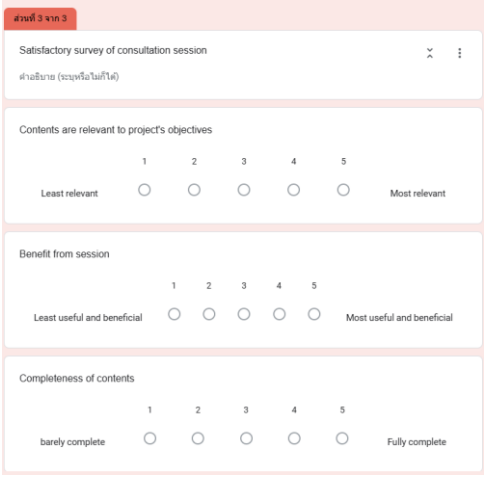
Opinion and satisfaction questionnaire

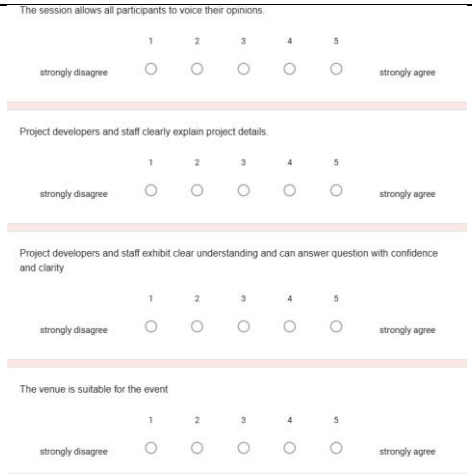
Questionnaire

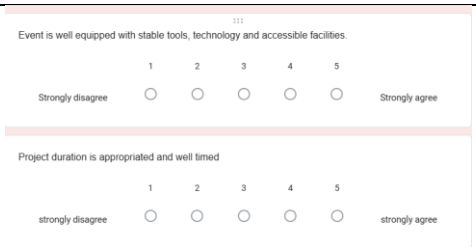



ส่วนที่ 2 จาก 3
Understanding and opinion on project
คำอธิบาย (ระบุหรือไม่ก็ได้)
Do you understand the detail of project?
Fully understand
Partially understand
Not understand at all
Should you answer, " partially understand" or "not understand", please share with us the details that are unclear, confusing, or incomplete
ข้อความคำตอบแบบยาว
Do you believe the project development timeline and activities are appropriated, well-planned and achievable? *
1 2 3 4 5
Least appropriated
Most appropriated


Based on previous question, please share with us the reason you believe that the project activities and timeline are appropriated/ not appropriated
ข้อความคำตอบแบบยาว
Do you believe that the project will create impacts to the community or society?
No impact to community and society
Positive impact to community and society
Negative impact to community and society
Should you answer, "having either positive or negative impact", please elaborate?
ข้อความคำตอบสั้นๆ
Do you agree that the grievance mechanism provided is sufficient to voice out your concern about the project in the future?
1 2 3 4 5
Strongly disagree
Strongly agree


ส่วนที่ 3 จาก 3
Satisfactory survey of consultation session
คำอธิบาย (ระบุหรือไม่ก็ได้)
Contents are relevant to project's objectives
1 2 3 4 5
Least relevant
Most relevant
Benefit from session
1 2 3 4 5
Least useful and beneficial
Most useful and beneficial
Completeness of contents
1 2 3 4 5
barely complete
Fully complete


The session allows all participants to voice their opinions.
1 2 3 4 5
strongly disagree
strongly agree
Project developers and staff clearly explain project details.
1 2 3 4 5
strongly disagree
strongly agree
Project developers and staff exhibit clear understanding and can answer question with confidence and clarity
1 2 3 4 5
strongly disagree
strongly agree
The venue is suitable for the event
1 2 3 4 5
strongly disagree
strongly agree


Event is well equipped with stable tools, technology and accessible facilities.
1 2 3 4 5
Strongly disagree
Strongly agree
Project duration is appropriated and well timed
1 2 3 4 5
strongly disagree
strongly agree

Appendix 3

Supporting documents/evidence

Revision History			
Version	**Revisions No.**	**Effective Date**	**List of revision**
2.1	2	15 November 2024	Revised logo Added additional items to Part 1, including the crediting period and the conformity with the Premium T-VER programme-based project development criteria. Revised the table of Summary of estimated greenhouse gas emission reductions
1	-	10 January 2023 – 14 May 2025	-

[1] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf

[2] https://www.dlt-inspection.info/dlt/index.php?ref=inspection-work-truck&ref2=truck

[3] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf