test

June 2023

Transport Ministry

Prepared By

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Executive Summary

Report Name:	test
Sector(s):	Transport
Year(s):	2010,2019,2020,2021,2023,2034

Table 1: Summary of the assessments of climate actions in Transport sector

Aggregated Actions	Specific Climate Actions	Year	Type	Emission Reduction (tCO_2e)	MAC (tCO_2e/USD)
25% trucks and buses using CNG by 2030	5 diesel powered trucks convered to CNG in 2023	2023	GHG Ex-ante	184	N/A
30% trucks and buses using CNG by 2040	Shift fossil fuel freight vehicle-(YY0001) to CNG	2023	GHG Ex-ante	184	N/A
Generic enabling activities	Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030	2023	GHG Ex-post	565180	N/A
Generic enabling activities	Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030	2023	GHG Ex-post	701146	N/A
Generic enabling activities	Test Project Pasan	2019	GHG Ex-post	292640	N/A
Introduce taxes and other instruments to promote public transport	Introduce cordon pricing for Colombo Metropolitan	2023	GHG Ex-post	23	N/A
NDC	Shift passengers from motor cars to buses in Sri Lanka	2034	MAC Ex-post	1292	472
NDC	Introduction of new electric buses in Colomobo Distric	2020	GHG Ex-post	338681	N/A
NDC	Redesign the route of bus from Colombo to Kandy	2021	GHG Ex-post	null	N/A
Promote public passenger transport	Shifting from petrol cars to diesel bus	2010	GHG Ex-post	452	N/A
Promote public passenger transport	Shifting from petrol cars to diesel bus	2010	MAC Ex-post	452	-295

Figure 1 illustrates the status of achieving emissions reduction targets of Transport sector of Sri Lanka. The expected emission reduction of the Transport sector by 2030 year is 140 $MtCO_2e$ conditionally, and 153 $MtCO_2e$ unconditionally. Mitigation actions implemented by year 2030 were able to reduce Transport sector emissions from 1898122 tCO2e.

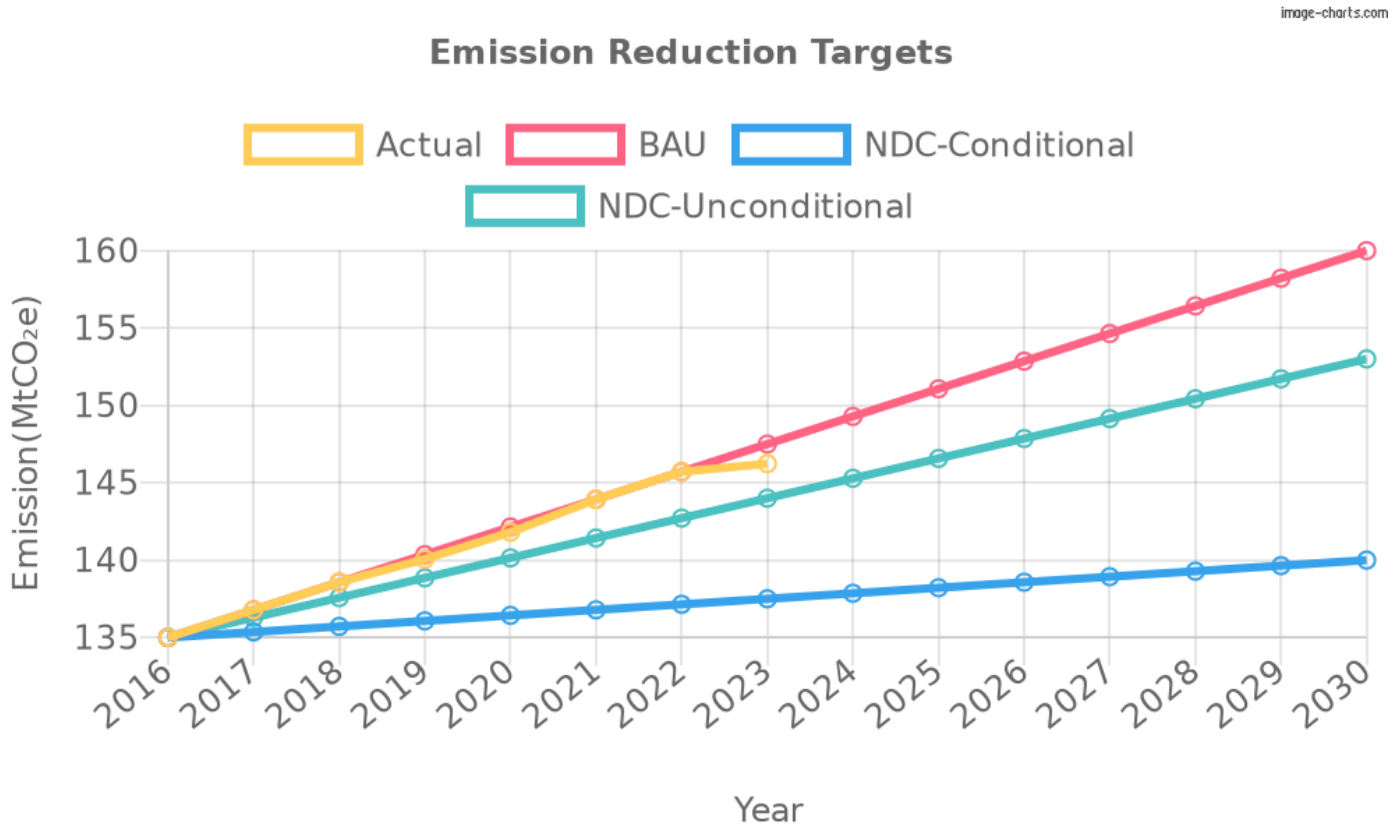

Figure 1 Emissions reduction of Transport sector of Sri Lanka

Note: Only the emission reductions of Climate Actions calculated Ex-post using the tool are reflected in the Actual Emissions curve

NDC

Sri Lanka_Renewabale

Sri Lanka_Renewabale ClimateSI Test by Private to Benefits from using renewable energy. Action includes Test Renewable energy Solar_1. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will . In addition, mitigation action has various sustainable development benefits such as null and null

Test 12345

Test 12345 MOE by International to test. Action includes Test. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Test SCA for testing

Test SCA for testing Ministry of Education by Government to null. Action includes This is for test purposes.. The geographical boundary of the project includes Central, Kandy, Gampola. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Test 123

Test 123 MoT by Government to null. Action includes g. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Redesign the route of bus from Colombo to Kandy

Redesign the route of bus from Colombo to Kandy Ministry of Transport by Government to null. Action includes Redesign the route of bus from Colombo to Kandy. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will Redesign and add infrastructures to the current route. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Redesign the route of bus from Colombo to Kandy

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A

Boundary elements	Description
Temporal Boundary	2022 - 2021
Transport subsector	Passenger
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2020
Assessment year(s)	2021
Methodology	JICA_Modal Shift (Passenger)

Baseline Scenario

asd

Table Data required to assess baseline emissions of Redesign the route of bus from Colombo to Kandy

Key indicators	Unit
Average occupation rate of transport mode - Petrol-car	passenger/vehicle
Share of passengers by transport mode - Petrol-car	%
CO_2 emission factor - Petrol	t-CO_2/MWh
Net calorific value - Petrol	TJ/t
CO_2 emission factor of transport mode - Petrol-car	t-CO_2/km
Fuel consumption rate of transportation mode - Petrol-car	t/km

Baseline emissions attributed to the Redesign the route of bus from Colombo to Kandy are given in Table.

Table Baseline emissions of Redesign the route of bus from Colombo to Kandy

Year	Emissions (MtCO2e)
2021	-

Project Scenario

Table: Data required to assess project emissions of Redesign the route of bus from Colombo to Kandy

Key indicators	Unit
No of passenger transported by the project per year - Common	passenger/y
Average trip distance of the passenger of the project activity in year y - Common	km
CO_2 emission factor - Diesel	t-CO_2/MWh
Net calorific value - Diesel	TJ/t
Fuel consumption - Diesel-bus	t/y
Fuel consumption rate of transportation mode - Diesel-bus	t/km

Direct project emissions attributed to the Redesign the route of bus from Colombo to Kandy are given in Table 6.

Table: Direct project emissions attributed to Redesign the route of bus from Colombo to Kandy

Year	Emissions (MtCO2e)
2021	-

Install digital tachograph systems in freight vehicles and/or commercial passenger vehicles

Install digital tachograph systems in freight vehicles and/or commercial passenger vehicles Ministry of Transport by Government to null. Action includes Install digital tachograph systems or another device that monitors vehicle and driver performance and provides real-time feedback to drivers in freight vehicles and/or commercial passenger vehicles.. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Displacement of more-GHG-intensive fossil fuel for combustion in vehicles and/or stationary installations

Displacement of more-GHG-intensive fossil fuel for combustion in vehicles and/or stationary installations Sri lanka sustainable energy authority by Government to Emission reduction. Action includes Displacement of more-GHG-intensive fossil fuel for combustion in vehicles and/or stationary installations. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will Reduce air pollution. In addition, mitigation action has various sustainable development benefits such as SDG 13 and SDG 11

Introduction of new electric buses in Colomobo Distric

Introduction of new electric buses in Colomobo Distric ClimateSI by Government to null. Action includes Introduction of new electric buses. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Introduction of new electric buses in Colomobo Distric

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2022 - 2020
Transport subsector	Passenger and Freight
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2016
Assessment year(s)	2020
Methodology	AMS-iii-C - Emission reductions by electric and hybrid vehicles

Baseline Scenario

Diesel Bus

Table Data required to assess baseline emissions of Introduction of new electric buses in Colomobo Distric

Key indicators	Unit
Total distance - Common	km
Specific fuel consumption - Diesel-Lorry	g/km
Number of operational vehicles - Diesel-Lorry	N/A
Technology improvement factor - Common	N/A
Total distance - Common	km
Technology improvement factor - Common	N/A
CO2 emission factor - Diesel	gCO2/J
Net calorific value - Diesel	J/g

Baseline emissions attributed to the Introduction of new electric buses in Colomobo Districare given in Table.

Table Baseline emissions of Introduction of new electric buses in Colomobo Distric

Year	Emissions (MtCO2e)
2020	339033

Project Scenario

Electric Buses

Table: Data required to assess project emissions of Introduction of new electric buses in Colomobo Distric

Key indicators	Unit
Number of operational vehicles - Electricity-Lorry	N/A
Specific fuel consumption - Electricity-Lorry	g/km
Average technical transmission and distribution losses - Electricity-Lorry	%
Total distance - Common	km
Total distance - Common	km
CO2 emission factor - Electricity	kgCO2/kwh

Direct project emissions attributed to the Introduction of new electric buses in Colomobo Distric are given in Table 6.

Table: Direct project emissions attributed to Introduction of new electric buses in Colomobo Distric

Year	Emissions (MtCO2e)
2020	352

Emissions estimated for 2020 are summarized in Table 9. According to the table, Introduction of new electric buses in Colomobo Distric reduce 338681 tCO2e in the 2020.

Table Emissions reduction due to Introduction of new electric buses in Colomobo Distric

Scenario	2020 Emissions (MtCO2)
Baseline emissions	339033
Project emissions	352
Lekage reductions	N/A
Emission reductions	338681

Shift passengers from motor cars to buses in Sri Lanka

Shift passengers from motor cars to buses in Sri Lanka Acceed Lanka by Private to Objective 1. Action includes Shift passengers from motor cars to buses in Sri Lanka. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will N/A. In addition, mitigation action has various sustainable development benefits such as N/A and N/A

Cost of climate action

The marginal abatement cost (MAC), in general, measures the cost of reducing one more unit of pollution. Table 10 indicates the MAC of Shift passengers from motor cars to buses in Sri Lanka.

Table 10 MAC of the Shift passengers from motor cars to buses in Sri Lanka

Year	MAC (USD/tCO2e)
2020	472

Shift passenger from motor cars to 170 buses in Colombo

Shift passenger from motor cars to 170 buses in Colombo Ministry of Public Transport by Private to null. Action includes Description. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will Reduce traffic congestion, reduce air pollution, increase the average speed of transport modes, and reduce private automobiles . In addition, mitigation action has various sustainable development benefits such as Goal 11 sustainable cities, and communities and Goal 13 climate actions, Goal 5 gender equity

Establishment of 20 vehicle inspection centers

Establishment of 20 vehicle inspection centers Ministry of Public Works and Transport by Government to Improve vehicle efficiency by inspections . Action includes Introduce new inspection centers to improve efficiency of vehicles . The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will Reduce traffic congestion, reduce air pollution, increase the average speed of transport modes, . In addition, mitigation action has various sustainable development benefits such as Goal 11 sustainable cities, and communities and Goal 13 climate actions, Goal 5 gender equity

25% trucks and buses using CNG by 2030

Test 1234

Test 1234 MoT by Government to asda. Action includes asd. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

ppp-test

ppp-test test by Government to ssssss. Action includes sssssssssss. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

kasulTest

kasulTest kasulTest by Government to kasulTest. Action includes kasulTest. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will kasulTest. In addition, mitigation action has various sustainable development benefits such as kasulTest and kasulTest

5 diesel powered trucks convered to CNG in 2023

5 diesel powered trucks convered to CNG in 2023 Ministry of Industry by Government to 5 diesel powered trucks convered to CNG in 2023. Action includes 5 diesel powered trucks convered to CNG in 2023. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of 5 diesel powered trucks convered to CNG in 2023

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2023 - 2030
Transport subsector	Not specified
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-ante
Base Year	2023
Assessment year(s)	2023
Methodology	ICAT methodology for cordon pricing

Baseline Scenario

Diesel powered trucks

Table Data required to assess baseline emissions of 5 diesel powered trucks convered to CNG in 2023

Key indicators	Unit
Total annual distance - Diesel-Truck - YY0001	km
Total annual tonnes of goods transported - Diesel-Truck - YY0001	tons
The annual average distance of transportation per tonnes of freight - Diesel-Truck - YY0001	km

Key indicators	Unit
Fuel efficiency - Diesel-Truck - YY0001	fuel/km
CO2 emission factor - Diesel	t-CO2/TJ
Net calorific value - Diesel	TJ/t

Baseline emissions attributed to the 5 diesel powered trucks convered to CNG in 2023 are given in Table.

Table Baseline emissions of 5 diesel powered trucks convered to CNG in 2023

Year	Emissions (MtCO2e)
2023	770

Project Scenario

CNG powered trucks

Table: Data required to assess project emissions of 5 diesel powered trucks convered to CNG in 2023

Key indicators	Unit
Fuel efficiency - CNG-Truck - YY0001	fuel/km
Total annual tonnes of goods transported - CNG-Truck - YY0001	tons
Total annual distance - CNG-Truck - YY0001	km
The annual average distance of transportation per tonnes of freight - CNG-Truck - YY0001	km
Net calorific value - CNG	TJ/t
CO2 emission factor - CNG	t-CO2/TJ
Consumption of fuel - CNG-Truck - YY0001	t/y

Direct project emissions attributed to the 5 diesel powered trucks convered to CNG in 2023 are given in Table 6.

Table: Direct project emissions attributed to 5 diesel powered trucks convered to CNG in 2023

Year	Emissions (MtCO2e)
2023	586

Emissions estimated for 2023 are summarized in Table 9. According to the table, 5 diesel powered trucks convered to CNG in 2023 reduce 184 tCO2e in the 2023.

Table Emissions reduction due to 5 diesel powered trucks convered to CNG in 2023

Scenario	2023 Emissions (MtCO2)
Baseline emissions	770
Project emissions	586
Lekage reductions	N/A
Emission reductions	184

Projection of GHG Emissions

GHG emissions attributed to the 5 diesel powered trucks convered to CNG in 2023 are projected to undefined considering the 2023 based on the Gross Domestic Production (GDP). Figure 3 illustrates the BAU and project emissions of the 5 diesel powered trucks convered to CNG in 2023.

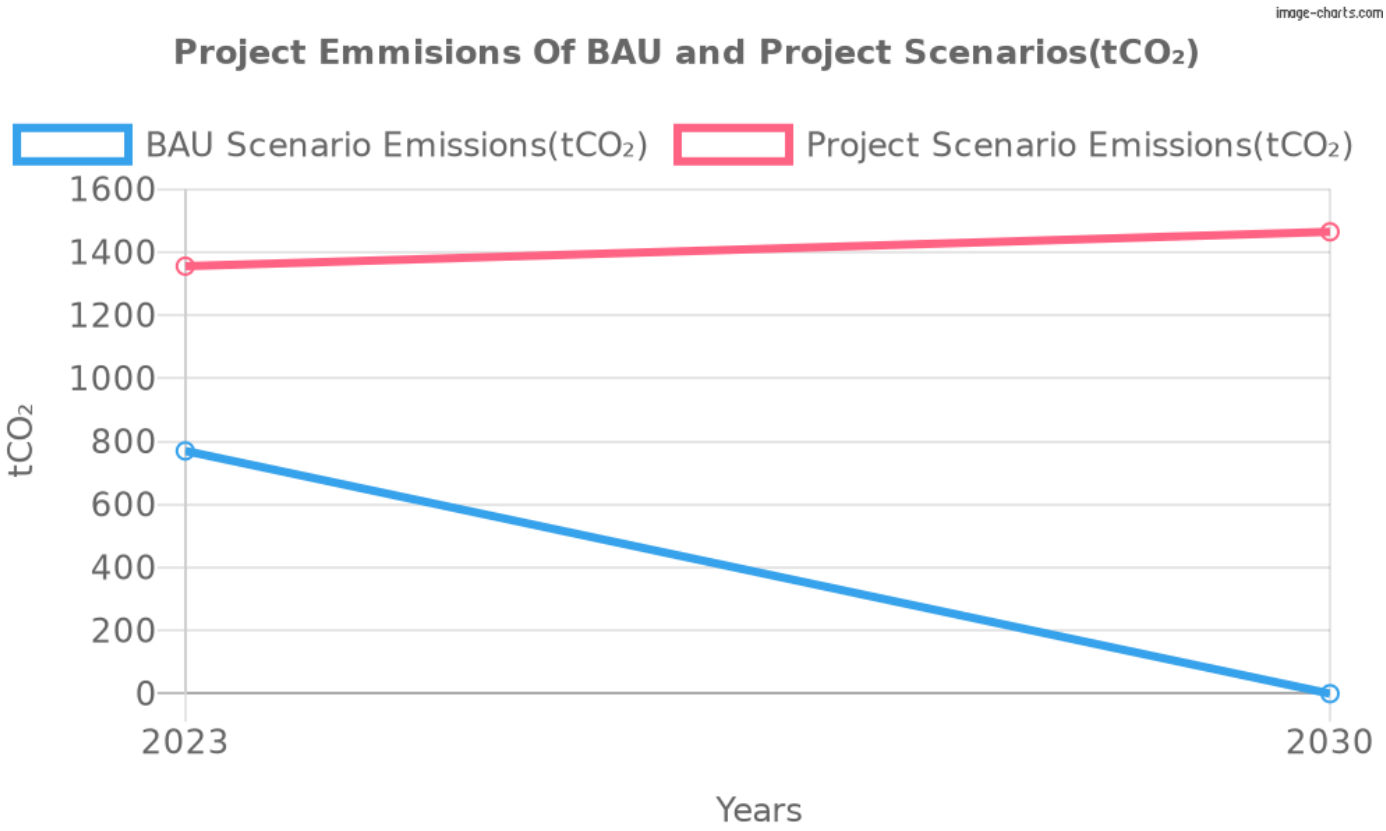

Figure 3: BAU and project emissions of 5 diesel powered trucks convered to CNG in 2023

Test CA report 2

Test CA report 2 Ministry of Finance by Government to Objective is this. Action includes test data. The geographical boundary of the project includes Test NL 1, Test NL 2, Test NL 3. Adopted It is expected that the project will Test outcoome. In addition, mitigation action has various sustainable development benefits such as SDB and ISDB list

am-90

am-90 test by Government to test. Action includes test. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

pradeep-test

pradeep-test test by Government to null. Action includes null. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

testinggggggg

testinggggggg test by Government to fhfjfj. Action includes vhghjghj. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Sri Lanka

Sri Lanka test by Government to dddwd. Action includes null. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Introduce taxes and other instruments to promote public transport

Introduce distance based charges to Katunayaka to Colombo road

Introduce distance based charges to Katunayaka to Colombo road Ministry of Transport by Government to Emission reduction. Action includes Introduce distance based charges to Katunayaka to Colombo road. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

Introduce cordon pricing for Colombo Metropolitan

Introduce cordon pricing for Colombo Metropolitan Ministry of Transport by Government to Emission reduction. Action includes Introduce cordon pricing for Colombo Metropolitan. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Introduce cordon pricing for Colombo Metropolitan

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2022 - 2023
Transport subsector	Not specified
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2022
Assessment year(s)	2023
Methodology	ICAT methodology for cordon pricing

Baseline Scenario

Without

Table Data required to assess baseline emissions of Introduce cordon pricing for Colombo Metropolitan

Key indicators	Unit
Density of Diesel - Diesel	Kg/m3
Specific fuel consumption - Diesel-Other	L per VKT
Vehicle kilometres travelled - Diesel-Other	VKT
Vehicle travel reduction percentage - Diesel-Other	%
Net calorific value of Diesel - Diesel	TJ/t
CO2 emission factor of Diesel - Diesel	t-CO2/TJ

Baseline emissions attributed to the Introduce cordon pricing for Colombo Metropolitan are given in Table.

Table Baseline emissions of Introduce cordon pricing for Colombo Metropolitan

Year	Emissions (MtCO2e)
2023	29

Project Scenario

With

Table: Data required to assess project emissions of Introduce cordon pricing for Colombo Metropolitan

Key indicators	Unit

Direct project emissions attributed to the Introduce cordon pricing for Colombo Metropolitan are given in Table 6.

Table: Direct project emissions attributed to Introduce cordon pricing for Colombo Metropolitan

Year	Emissions (MtCO2e)
2023	6

Emissions estimated for 2023 are summarized in Table 9. According to the table, Introduce cordon pricing for Colombo Metropolitan reduce 23 tCO2e in the 2023.

Table Emissions reduction due to Introduce cordon pricing for Colombo Metropolitan

Scenario	2023 Emissions (MtCO2)
Baseline emissions	29
Project emissions	6
Lekage reductions	N/A
Emission reductions	23

Generic enabling activities

Test SCA for purpose

Test SCA for purpose Ministry of Education by Government to null. Action includes This is for SCA testing. The geographical boundary of the project includes Central, Kandy, Gampola. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Implement a national fuel levy (5%) on gasoline and diesel cars by 2025

Implement a national fuel levy (5%) on gasoline and diesel cars by 2025 Ministry of Transport by Government to Implement a national fuel levy (5%) on gasoline and diesel cars by 2025. Action includes Implement a national fuel levy (5%) on gasoline and diesel cars by 2025. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

Implement a national fuel levy (5%) on gasoline cars by 2025

Implement a national fuel levy (5%) on gasoline cars by 2025 Ministry of Transport by Government to Emission reduction. Action includes Implement a national fuel levy (5%) on gasoline cars by 2025. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

Passenger modal shift from private vehicle to train

Passenger modal shift from private vehicle to train Ministry of Transport by Government to Emission reduction. Action includes Emission reduction. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

unfccc-90

unfccc-90 test by Government to ssssss. Action includes sssssss. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030 Ministry of Transport by Government to Emission reduction. Action includes Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2022 - 2023
Transport subsector	Not specified
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2022
Assessment year(s)	2023
Methodology	ICAT methodology for fuel subsidy removal and increased fuel tax or levy _Approach B (top-down

	energy-use data_Gasoline & Diesel)

Baseline Scenario

Without

Table Data required to assess baseline emissions of Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Key indicators	Unit
Net calorific value - Diesel	TJ/t
CO2 emission factor - Diesel	t-CO2/TJ
Net calorific value - Petrol	TJ/t
CO2 emission factor - Petrol	t-CO2/TJ
Total Diesel used for ground transport (Gg) - Diesel	Gg
Total Petrol used for ground transport (Gg) - Petrol	Gg

Baseline emissions attributed to the Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030 are given in Table.

Table Baseline emissions of Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Year	Emissions (MtCO2e)
2023	49620521

Project Scenario

With

Table: Data required to assess project emissions of Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Key indicators	Unit
Relative fuel price increase - Petrol	%
Relative fuel price increase - Diesel	%
Diesel own-price elasticity - Diesel	N/A
Petrol own-price elasticity - Petrol	N/A

Direct project emissions attributed to the Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030 are given in Table 6.

Table: Direct project emissions attributed to Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Year	Emissions (MtCO2e)
2023	48919376

Emissions estimated for 2023 are summarized in Table 9. According to the table, Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030 reduce 701146 tCO2e in the 2023.

Table Emissions reduction due to Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Scenario	2023 Emissions (MtCO2)
Baseline emissions	49620521
Project emissions	48919376
Lekage reductions	N/A
Emission reductions	701146

Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030 Ministry of Environment by Government to Emission reduction. Action includes Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2022 - 2023
Transport subsector	Not specified
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2022
Assessment year(s)	2023
Methodology	ICAT methodology for fuel subsidy removal and increased fuel tax or levy Approach A (top-down energy-use data_Fuel mix)

Baseline Scenario

Without

Table Data required to assess baseline emissions of Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Key indicators	Unit
Share of fuel - Petrol	%
Total fuel used for ground transport(Fuel mix) - Common	TJ
CO2 emission factor - Petrol	t-CO2/TJ
Share of fuel type - Diesel	%
CO2 emission factor - Diesel	t-CO2/TJ

Baseline emissions attributed to the Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030 are given in Table.

Table Baseline emissions of Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Year	Emissions (MtCO2e)
2023	56069400

Project Scenario

With

Table: Data required to assess project emissions of Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Key indicators	Unit
Fuel mix own - price elasticity - Fuel Mix	N/A
Relative fuel mix price increase - Fuel Mix	%

Direct project emissions attributed to the Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030 are given in Table 6.

Table: Direct project emissions attributed to Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Year	Emissions (MtCO2e)
2023	55504220

Emissions estimated for 2023 are summarized in Table 9. According to the table, Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030 reduce 565180 tCO2e in the 2023.

Table Emissions reduction due to Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Scenario	2023 Emissions (MtCO2)
Baseline emissions	56069400
Project emissions	55504220
Lekage reductions	N/A
Emission reductions	565180

Promote public passenger transport

Shifting from petrol cars to diesel bus

Shifting from petrol cars to diesel bus Ministry of Environment by Government to null. Action includes Shifting from petrol cars to diesel bus. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Shifting from petrol cars to diesel bus

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2017 - 2010
Transport subsector	Passenger
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-post
Base Year	2020
Assessment year(s)	2010
Methodology	JICA_Modal Shift (Passenger)

Baseline Scenario

Test

Table Data required to assess baseline emissions of Shifting from petrol cars to diesel bus

Key indicators	Unit
Average occupation rate of transport mode - Petrol-car	passenger/vehicle
Share of passengers by transport mode - Petrol-car	%
CO_2 emission factor - Petrol	t-CO_2/MWh
Net calorific value - Petrol	TJ/t
CO_2 emission factor of transport mode - Petrol-car	t-CO_2/km
Fuel consumption rate of transportation mode - Petrol-car	t/km

Baseline emissions attributed to the Shifting from petrol cars to diesel bus are given in Table.

Table Baseline emissions of Shifting from petrol cars to diesel bus

Year	Emissions (MtCO2e)
2010	1225

Project Scenario

Project

Table: Data required to assess project emissions of Shifting from petrol cars to diesel bus

Key indicators	Unit
No of passenger transported by the project per year - Common	passenger/y
Average trip distance of the passenger of the project activity in year y - Common	km
CO_2 emission factor - Diesel	t-CO_2/MWh
Net calorific value - Diesel	TJ/t
Fuel consumption - Diesel-bus	t/y
Fuel consumption rate of transportation mode - Diesel-bus	t/km

Direct project emissions attributed to the Shifting from petrol cars to diesel bus are given in Table 6.

Table: Direct project emissions attributed to Shifting from petrol cars to diesel bus

Year	Emissions (MtCO2e)
2010	773

Emissions estimated for 2010 are summarized in Table 9. According to the table, Shifting from petrol cars to diesel bus reduce 452 tCO2e in the 2010.

Table Emissions reduction due to Shifting from petrol cars to diesel bus

Scenario	2010 Emissions (MtCO2)
Baseline emissions	1225
Project emissions	773
Lekage reductions	N/A
Emission reductions	452

Cost of climate action

The marginal abatement cost (MAC), in general, measures the cost of reducing one more unit of pollution. Table 10 indicates the MAC of Shifting from petrol cars to diesel bus.

Table 10 MAC of the Shifting from petrol cars to diesel bus

Year	MAC (USD/tCO2e)
2010	-295

Shift passengers from motor cars to 50 buses in Kandy

Shift passengers from motor cars to 50 buses in Kandy Sri Lanka Sustainable Energy Authority by Government to Shift passengers from motor cars to 50 buses in Kandy. Action includes Shift passengers from motor cars to 50 buses in Kandy. The geographical boundary of the project includes null, null, null. Implemented It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Shift passengers from motor cars to 50 buses in Colombo

Shift passengers from motor cars to 50 buses in Colombo Ministry of Transport by Government to Test. Action includes Introduce 50 new buses to Colombo city for inter-city transportation . The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Shift passenger from private vehicles to public vehicles

Shift passenger from private vehicles to public vehicles Ministry of transport by Government to emission reduction. Action includes Emission reduction. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will . In addition, mitigation action has various sustainable development benefits such as and

Colombo surburban railway system

Colombo surburban railway system Ministry of Environment by Government to Mitigation. Action includes Colombo suburban area. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will Emission reduction. In addition, mitigation action has various sustainable development benefits such as null and null

Shift passengers from private vehicles to 170 public buses in Colombo

Shift passengers from private vehicles to 170 public buses in Colombo Ministry of Transport by Government to Reduce the traffic congestion Reduce GHG emissions . Action includes Introducing 170 buses (40 seated) in the Colombo municipal council. The geographical boundary of the project includes Western, Colombo, Colombo. Implemented It is expected that the project will Reduce the traffic congestion Reduce GHG emissions . In addition, mitigation action has various sustainable development benefits such as null and null

Shift passengers from private vehicles to 170 public buses in Sri Lanka

Shift passengers from private vehicles to 170 public buses in Sri Lanka Ministry of Transport by Government to Promote public transportation Reduce traffic congestion Reduce GHG emissions. Action includes null. The geographical boundary of the project includes null, null, Colombo. Implemented It is expected that the project will Reduce the transportation cost of the public Reduce traffic congestion and reduce travelling time . In addition, mitigation action has various sustainable development benefits such as null and null

Shift passengers from motor cars to 50 buses in Kandy

Shift passengers from motor cars to 50 buses in Kandy Ministry Of Finance by Private to Improve the modal share of the public buses, reduce the traffic congestion. Action includes Shift passengers from motor cars to 50 buses in Kandy. The geographical boundary of the project includes Central, Kandy, Kandy. Planned It is expected that the project will Reduce traffic congestion, reduce air pollution, increase the average speed of transport modes, and reduce private automobiles. In addition, mitigation action has various sustainable development benefits such as Goal 11 sustainable cities, and communities and Goal 13 climate actions, Goal 5 gender equity

Shift passengers from private vehicles to public buses

Shift passengers from private vehicles to public buses Ministry of Transport by Government to Objective. Action includes In the colombo city. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

30% trucks and buses using CNG by 2040

KHtest

KHtest asdas by Government to axdasd. Action includes test. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Test CA

Test CA Ministry of Finance by Government to null. Action includes test. The geographical boundary of the project includes null, null, null. Adopted It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

Passenger Shift from multiple modes (Motor car, Motor bike) to multiple mode (Bus, Van)

Passenger Shift from multiple modes (Motor car, Motor bike) to multiple mode (Bus, Van) Ministry of Transport by Government to improve public transportation. Action includes improve public transportation. The geographical boundary of the project includes Western, Colombo, Battaramulla. Planned It is expected that the project will emission reduction. In addition, mitigation action has various sustainable development benefits such as Climate change and Climate change - Goal 13

Shift fossil fuel freight vehicle-(YY0001) to CNG

Shift fossil fuel freight vehicle-(YY0001) to CNG Ministry of Industry by Government to reduce the emissions. Action includes Reduce the emissions. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will null. In addition, mitigation action has various sustainable development benefits such as null and null

GHG impact assessment

System boundary

Table System boundary of the GHG impact assessment of Shift fossil fuel freight vehicle-(YY0001) to CNG

Boundary elements	Description
Geographic Boundary	N/A, N/A, N/A
Temporal Boundary	2022 - 2023
Transport subsector	Frieght

Boundary elements	Description
Upstream/downstream	No
GHGs Included	Only CO2

Measurement

Assessment Approach	Ex-ante
Base Year	2022
Assessment year(s)	2023
Methodology	AMS-III.S - Introduction of low-emission vehicles/technologies to commercial vehicle fleets (Freight)

Baseline Scenario

Fossil fuel used truck

Table Data required to assess baseline emissions of Shift fossil fuel freight vehicle-(YY0001) to CNG

Key indicators	Unit
Fuel efficiency - Diesel-Truck - AB Route	fuel/km
CO2 emission factor - Diesel	t-CO2/TJ
Net calorific value - Diesel	TJ/t
The annual average distance of transportation per tonnes of freight - Diesel-Truck - AB Route	km
Total annual tonnes of goods transported - Diesel-Truck - AB Route	tons
Total annual distance - Diesel-Truck - AB Route	km

Baseline emissions attributed to the Shift fossil fuel freight vehicle-(YY0001) to CNG are given in Table.

Table Baseline emissions of Shift fossil fuel freight vehicle-(YY0001) to CNG

Year	Emissions (MtCO2e)
2023	770

Project Scenario

CNG used trucks

Table: Data required to assess project emissions of Shift fossil fuel freight vehicle-(YY0001) to CNG

Key indicators	Unit
Fuel efficiency - CNG-Truck - AB Route	fuel/km
Total annual tonnes of goods transported - CNG-Truck - AB Route	tons
Net calorific value - CNG	TJ/t
CO2 emission factor - CNG	t-CO2/TJ
Total annual distance - CNG-Truck - AB Route	km
The annual average distance of transportation per tonnes of freight - CNG-Truck - AB Route	km
Consumption of fuel - CNG-Truck - AB Route	t/y

Direct project emissions attributed to the Shift fossil fuel freight vehicle-(YY0001) to CNG are given in Table 6.

Table: Direct project emissions attributed to Shift fossil fuel freight vehicle-(YY0001) to CNG

Year	Emissions (MtCO2e)
2023	586

Emissions estimated for 2023 are summarized in Table 9. According to the table, Shift fossil fuel freight vehicle-(YY0001) to CNG reduce 184 tCO2e in the 2023.

Table Emissions reduction due to Shift fossil fuel freight vehicle-(YY0001) to CNG

Scenario	2023 Emissions (MtCO2)
Baseline emissions	770
Project emissions	586
Lekage reductions	N/A
Emission reductions	184

Projection of GHG Emissions

GHG emissions attributed to the Shift fossil fuel freight vehicle-(YY0001) to CNG are projected to undefined considering the 2023 based on the Population Growth (POP). Figure 3 illustrates the BAU and project emissions of the Shift fossil fuel freight vehicle-(YY0001) to CNG.

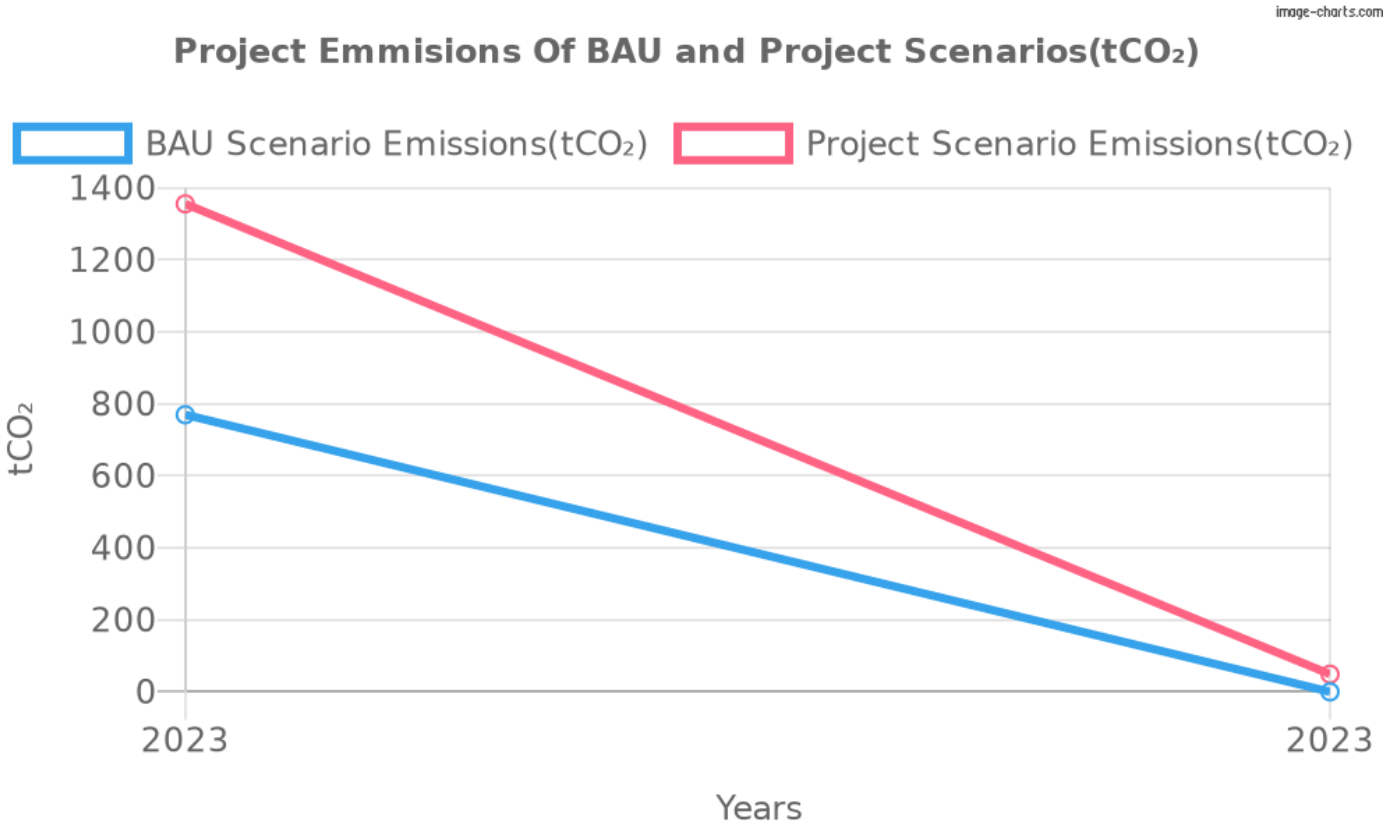

Figure 3: BAU and project emissions of Shift fossil fuel freight vehicle-(YY0001) to CNG

Switch back to rail from road transport

shift in transportation of cargo from road transportation to water or rail transportation

shift in transportation of cargo from road transportation to water or rail transportation ClimateSI by Private to 1. shift in transportation of cargo from road transportation to water or rail transportation. Action includes shift in transportation of cargo from road transportation to water or rail transportation. The geographical boundary of the project includes null, null, null. Planned It is expected that the project will . In addition, mitigation action has various sustainable development benefits such as null and null

Activity data

Redesign the route of bus from Colombo to Kandy

Parameter	Unit	2021
Average occupation rate of transport mode - Petrol-car	passenger/vehicle	1.5
Share of passengers by transport mode - Petrol-car	%	29
CO_2 emission factor - Petrol	t-CO_2/MWh	
Net calorific value - Petrol	TJ/t	

Parameter	Unit	2021
No of passenger transported by the project per year - Common	passenger/y	4423456
Average trip distance of the passenger of the project activity in year y - Common	km	10
CO_2 emission factor - Diesel	t-CO_2/MWh	
Net calorific value - Diesel	TJ/t	
CO_2 emission factor of transport mode - Petrol-car	t-CO_2/km	0.00016
Fuel consumption - Diesel-bus	t/y	278

Introduction of new electric buses in Colomobo Distric

Parameter	Unit	2020			
Total distance - Common	km	4050323	45050323	51200	51200
Specific fuel consumption - Diesel-Lorry	g/km	265.44			
Number of operational vehicles - Diesel-Lorry		9			
Technology improvement factor - Common		0.99	0.99		
CO2 emission factor - Diesel	gCO2/J	0.00074			
Net calorific value - Diesel	J/g	4300			
Number of operational vehicles - Electricity-Lorry		9			
Specific fuel consumption - Electricity-Lorry	g/km	1.23			
Average technical transmission and distribution losses - Electricity-Lorry	%	8.45			
CO2 emission factor - Electricity	kgCO2/kwh	0.5684			

Shift passengers from motor cars to buses in Sri Lanka

Parameter	Unit	2034
Project Scenario Annual O&M	$	543270
Discount Rate	%	
Reduction	tCo2e	1292
Baseline Scenario Total Investment	$	150000
Baseline Scenario Annual O&M	$	
Baseline Scenario Project Life	years	15
Baseline Scenario Other Annual Cost	$	0
Baseline Scenario Annual Fuel	$	
Project Scenario Total Investment	$	250000
Project Scenario Other Annual Cost	$	24300
Project Scenario Project Life	years	3
Project Scenario Annual Fuel	$	

5 diesel powered trucks convered to CNG in 2023

Parameter	Unit	2023
Fuel efficiency - CNG-Truck - YY0001	fuel/km	0.005865057
The annual average distance of transportation per tonnes of freight - Diesel-Truck - YY0001	km	0.7488
Total annual tonnes of goods transported - CNG-Truck - YY0001	tons	50000
Fuel efficiency - Diesel-Truck - YY0001	fuel/km	0.0068
CO2 emission factor - Diesel	t-CO2/TJ	75.243
Net calorific value - Diesel	TJ/t	0.043
Total annual distance - CNG-Truck - YY0001	km	35000
Net calorific value - CNG	TJ/t	0.048

Parameter	Unit	2023
CO2 emission factor - CNG	t-CO2/TJ	59.471

Introduce cordon pricing for Colombo Metropolitan

Parameter	Unit	2023
Density of Diesel - Diesel	Kg/m3	835
Specific fuel consumption - Diesel-Other	L per VKT	0.5
Vehicle kilometres travelled - Diesel-Other	VKT	21538400
Vehicle travel reduction percentage - Diesel-Other	%	20
Net calorific value of Diesel - Diesel	TJ/t	0.043
CO2 emission factor of Diesel - Diesel	t-CO2/TJ	74.1

Implement national fuel levy on gasoline (5%) and diesel (4%) by 2030

Parameter	Unit	2023
Relative fuel price increase - Petrol	%	5
Net calorific value - Diesel	TJ/t	0.043
CO2 emission factor - Diesel	t-CO2/TJ	74.1
Net calorific value - Petrol	TJ/t	0.0443
CO2 emission factor - Petrol	t-CO2/TJ	69.3
Relative fuel price increase - Diesel	%	4
Total Diesel used for ground transport (Gg) - Diesel	Gg	8000
Total Petrol used for ground transport (Gg) - Petrol	Gg	7860
Diesel own-price elasticity - Diesel		-0.38
Petrol own-price elasticity - Petrol		-0.26

Implement a national fuel levy (4.2%) on gasoline and diesel cars by 2030

Parameter	Unit	2023
Share of fuel - Petrol	%	50
Total fuel used for ground transport(Fuel mix) - Common	TJ	782000
Fuel mix own - price elasticity - Fuel Mix		-0.24
CO2 emission factor - Petrol	t-CO2/TJ	69.3
Share of fuel type - Diesel	%	50
CO2 emission factor - Diesel	t-CO2/TJ	74.1
Relative fuel mix price increase - Fuel Mix	%	4.2

Shifting from petrol cars to diesel bus

Parameter	Unit	2010
Average occupation rate of transport mode - Petrol-car	passenger/vehicle	1.5
Share of passengers by transport mode - Petrol-car	%	26
CO_2 emission factor - Petrol	t-CO_2/MWh	
Net calorific value - Petrol	TJ/t	
No of passenger transported by the project per year - Common	passenger/y	4418271
Average trip distance of the passenger of the project activity in year y - Common	km	10
CO_2 emission factor - Diesel	t-CO_2/MWh	
Net calorific value - Diesel	TJ/t	
CO_2 emission factor of transport mode - Petrol-car	t-CO_2/km	0.00016

Parameter	Unit	2010
Fuel consumption - Diesel-bus	t/y	242.7

Parameter	Unit	2010
Discount Rate	%	
Reduction	tCo2e	452
Baseline Scenario Total Investment	$	1000000
Baseline Scenario Annual O&M	$	
Baseline Scenario Other Annual Cost	$	2000
Baseline Scenario Project Life	years	15
Baseline Scenario Annual Fuel	$	
Project Scenario Total Investment	$	100000
Project Scenario Annual O&M	$	
Project Scenario Other Annual Cost	$	4300
Project Scenario Project Life	years	15
Project Scenario Annual Fuel	$	

Shift fossil fuel freight vehicle-(YY0001) to CNG

Parameter	Unit	2023
Fuel efficiency - CNG-Truck - AB Route	fuel/km	0.005865
Fuel efficiency - Diesel-Truck - AB Route	fuel/km	0.0068
CO2 emission factor - Diesel	t-CO2/TJ	75.243
Net calorific value - Diesel	TJ/t	0.043
Projection Year POP 2023	population	50000
Total annual tonnes of goods transported - CNG-Truck - AB Route	tons	50000
Net calorific value - CNG	TJ/t	0.048
CO2 emission factor - CNG	t-CO2/TJ	59.471
The annual average distance of transportation per tonnes of freight - Diesel-Truck - AB Route	km	0.748844
Projection Base Year 2023	population	600000
Total annual distance - CNG-Truck - AB Route	km	35000