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Policy Roadmap for E-Mobility in Solomon Islands

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The Policy Roadmap lays down the most relevant policies to create an enabling environment for electric vehicles in Solomon Islands and involved a robust stakeholder consultation process that was facilitated under the Chairmanship of Ministry of Mines, Energy and Rural Electrification. The stakeholders included key ministries that were included as a part of the project steering committee and also members from private sector, local community, academia and research institutions.

We are particularly grateful to the Project Steering Committee for providing their Guidance and support especially Mr John Korinihona for being the Chair. We would also like to thank Mr Hudson Kauhiona as CTCN (NDE) was instrumental in getting the CTCN TA.

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Foreword

It is an honour to present a foreword for Solomon Islands Policy Roadmap for Electric Mobility. The policy roadmap intends to guide the deployment and scale-up of electric vehicles. The policy roadmap proposes a coordinated approach to improving affordability of electric vehicles, creating charging infrastructure, building skills and capacity and minimising any environmental externalities.

The policy roadmap has been finalized through an in-depth and comprehensive review of the relevant policy measures, fiscal and non-fiscal, infrastructure challenges and extensive consultations with relevant stakeholders. The stakeholder consultations included vehicle manufactures and assemblers, transport operators and associations, users, institutions of Government, and academia, among others.

Generally, it is understood that different transport modes are critical catalysts for socio-economic development. Unfortunately, the carbon footprint of this crucial sector is huge, and without an urgent and coordinated approach, irreversible damage to the environment could occur. Advancements in technology and other sustainable mobility systems have given hope to the new millennia. Electric mobility presents excellent opportunities for countries to leapfrog and promote clean development pathways. Policy interventions are critical to the diffusion and scale-up of e-mobility. Some of the important policy instruments to promote EVs include taxation and infrastructure measures in addition to financial incentives and subsidies for purchasing and supporting imports, local assembly and retrofitting, and private sector partnerships.

Implementing this Policy Roadmap will require a review of existing legislation and the introduction of new ones to ensure policy coherence and relevance combined with developing and implementing a communication strategy to create awareness and build public confidence in electric mobility. It also requires the development of standards for electric vehicles and related charging infrastructure and components. These are pertinent issues that have been highlighted in the policy roadmap. The Ministry of Ministry of Mines, Energy and Rural Electrification will continue to work closely with the respective institutions and stakeholders to ensure policy coherence and implementation of the roadmap.

I wish to use this opportunity to acknowledge the efforts of the author team and the project steering committee members. My hearty gratitude extends to the Climate Technology Centre Network (CTCN) for providing the funding for this Technical Assistance.

Mr. Braddley Tovosia
Minister of Mines, Energy, and Rural Electrification

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Abbreviations

MCA	Multi Criteria Assessment
CAPEX	Capital Expenditure
OPEX	Operating Expenditure
2W	Two Wheeler
3W	Three Wheeler
4W	Four Wheeler (car)
LDV	Light Duty Vehicle
M&HDV	Medium and Heavy Duty vehicles
EV	Electric Vehicle
ICE	Internal Combustion Engine
%	Percentage
ICEV	Internal Combustion Engine Vehicle
E	Electric
MID	Ministry of Infrastructure Development
MMERE	Ministry of Mines, Energy and Rural Electrification
AC	Alternating current
DC	Direct current
EVSE	Electric Vehicle Supply Equipment
VAT	Value Added Tax
MOFT	Ministry of Finance and Treasury
FAME	Faster Adoption and Manufacturing of Electric Vehicles Scheme
TCO	Total Cost of Ownership
CBUs	Completely Built Units
CKDs	Completely Knocked Down Units
GST	Goods and Services Tax
CBSI	Central Bank of Solomon Islands
OEM	Original Equipment Manufacturer
SP	Solomon Power
RTO	Regional Transport Office
MLHS	Ministry of Lands, Housing and Survey
HCC	Honiara City Council
EU	European Union
PUC	Pollution Under Control
MECDM	Ministry of Environment, Climate Change, Disaster management and Meteorology
MCILI	Ministry of Commerce, Industry, Labour and Immigration
KEBs	Kenya Bureau of Standards
MWYCFA	Ministry of Women, Youth, Children and Family Affairs
BEE	Bureau of Energy Efficiency
ARAI	Automotive Research Association of India
SICCI	Solomon Islands Chamber of Commerce and Industry
BAU	Business and Usual

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1. Transport sector overview

Transport is an essential sector in the Solomon Islands, given the fact that there are so many islands and the need to exchange goods and services and interact between communities. A good quality and efficient transport is also required for the country's economic and social welfare.

The Government's vision for the transport sector (as stated in NTP 2011(ADB, 2010)) is *'An effective transport infrastructure and transport services to support sustained economic growth and social development in the Solomon Islands'.* Considering the future transport demand, the National Transport Plan for Solomon Islands has identified several areas for expansion. Among the essential expenditure, areas have identified road infrastructure (expansion, rehabilitation and maintenance) and lay importance on air and maritime infrastructure development. Thus, the spending on transport sector infrastructure will be concentrated on rehabilitation and maintenance of existing infrastructure while strategically providing new infrastructure.

The pressure on urban transport is evident, mainly due to the rapidly expanding urban areas in the Solomon Islands rapidly growing economy, at around 2.5% annually. This rapid urbanisation had led to additional movement of people and goods, increasing demand for transport services, and the trend is likely to continue in the future. Vehicular statistics projections presented in the policy framework report and it is estimated that by 2030 the Solomon Islands will have a significantly large number of cars used for personal use and as taxis. Apart from the passenger vehicles, there will also be many good vehicles given the need for goods movement. As urban areas expand, the need for public transport will also increase, especially there will be a need to introduce some larger buses that are practically absent from the current inventory. Small buses will still keep growing and will used in the newly expanding urban areas and locations where it will not be possible to reach using larger buses.

According to an Asian Development Bank report on the transport sector in the Solomon Islands (ADB, 2010), the Solomon Islands road network was 1875 sq. kilometres, of which only 6% (104 km) has a sealed surface. The rest of the road network is surfaced with gravel, coral or earth. As mentioned earlier, most roads, about 66% (1230 km) and almost all the sealed roads, are located within the islands of Guadalcanal and Malaita. The condition and maintenance of these roads, in general, are poor; however, the Ministry of Infrastructure and Development is responsible for road maintenance in the Solomon Islands and, since 2006, has overseen the rehabilitation of more than 923 km of the existing road network as per the ADB report on the Solomon Islands. The ownership of vehicles is closely linked with road infrastructures, as the locations with poor road infrastructure also have lower vehicle ownership.

The strategic road network in Honiara is restricted to a single road, the Kukum Highway. This road provides access to the main port and airport and acts as the main service road for much of the main business area. The single main road places significant pressure on several key locations in the town, including Mataniko Bridge, Old Mataniko Bridge and the Point Cruz junction. Many roads in residential and commercial areas are poorly constructed and poorly maintained, causing difficulties in accessing some parts of Honiara. Despite improvements to existing underpasses, pedestrian facilities, through footways and crossings do not allow free movement within the central business area.

Honiara is the main urban centre, capital, and economic centre of the Solomon Islands. Good transport infrastructure and services within Honiara are essential for achieving the country's economic objectives. The Honiara urban area has extended past the Council boundary, and

significant urban areas now lie within the jurisdiction of Guadalcanal Province. Even though, as stated earlier, Honiara has most of the paved roads in the Solomon Islands and likewise also have the highest vehicle ownership, the future development of urban transport will meet the needs of this expanded area. Urban Transport Services Public bus services provide an service along the main Kukum Highway, which is mainly in the form of minibuses. Most services are operated within Honiara; however, some services are provided with both east and from along the North Coast Road for approximately 40 km each. The Government regulates fares and licenses routes for the bus services. Licensed taxis provide services at negotiated fares, mostly within Honiara. Informal public transport is provided in other country areas, usually in open trucks without seats, as an accompaniment to freight transport. The availability of taxis is always generally good, the condition of the vehicles is variable, with many appearing to be un roadworthy. Such limited transport options is detrimental to women's mobility.

The land freight industry is almost entirely in the private sector. The MTWU maintains a fleet of vehicles for its own and general Government needs. There is no regulation of routes or rates for freight transport and no data on the freight task. The industry is dominated by company-owned vehicles, particularly in the Jogging and oil palm industries and the transport of fuel. Several operators provide freight vehicles for hire.

There are several institutions that are involved in transport planning, regulation and infrastructure provision. Ministry of Infrastructure Development among other things is responsible for infrastructure development, managing human resources, mechanical work support, management of vehicular fleet and their licencing and insurance. The National Transport Plan 2007-2026 set up the roles of different organisation with the transport sector as planning regulatory, and management roles as appropriate.

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2. Prioritization of vehicle categories for electrification

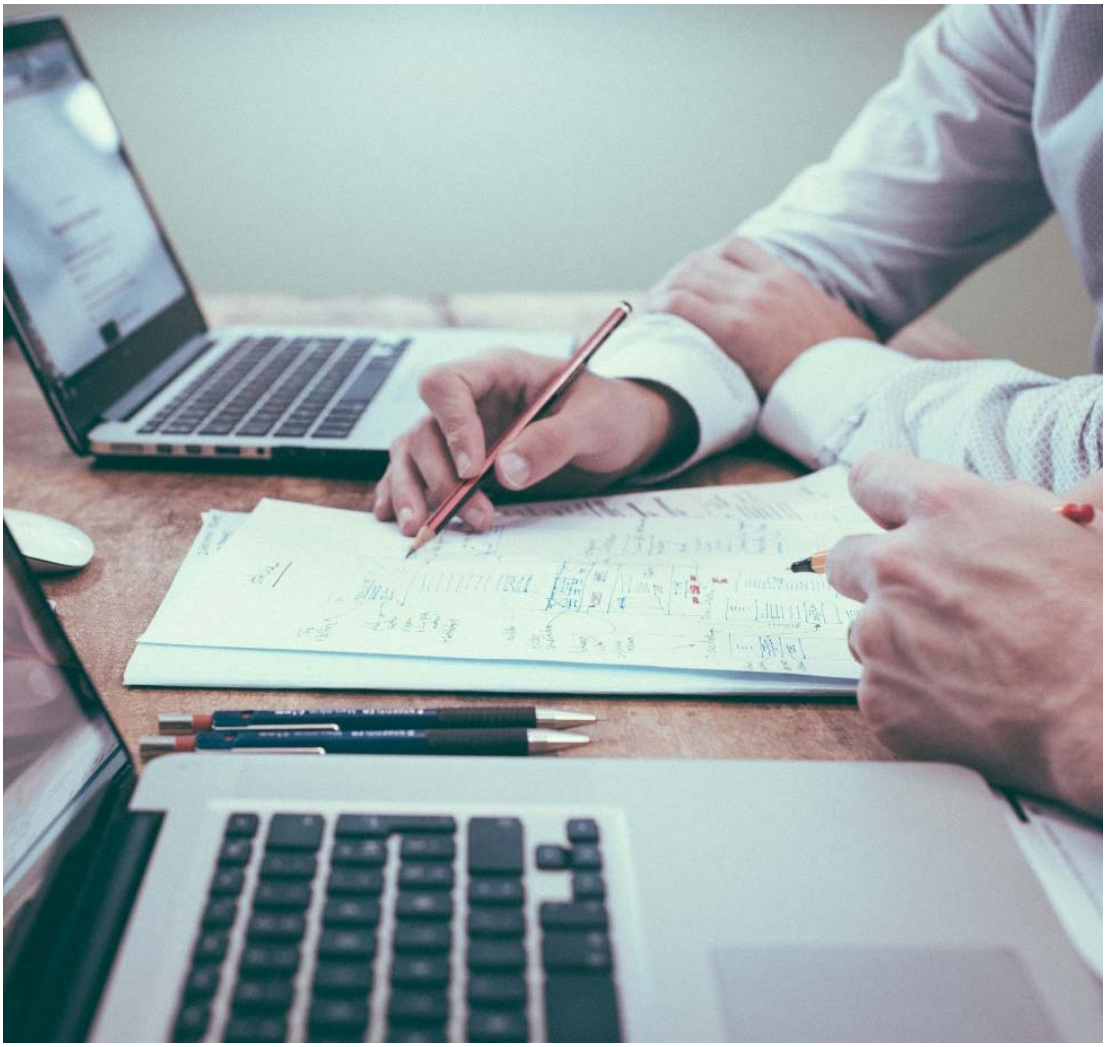
The EV Roadmap is based on a detailed assessment of what can be priorities for Electric Vehicles. This thorough assessment is available as a separate document titled “National Electric Mobility Policy and Market Readiness Framework for Solomon”.

Formulating electric mobility policy necessitates a range of methods and stakeholder consultations to address cost, benefit, and local context issues related to government budgets, policy scenarios and instruments, and support ecosystems that will promote public acceptance. The multi-criteria assessment (MCA) methodology was adopted for prioritizing EVs in the Solomon Islands. MCA is an analytical tool commonly used for decision-making process, including to rank options or to short-list and provide a scale of preference for a limited number of options. MCA allows the use of mixed methods, i.e. both quantitative and qualitative criteria. It entails a combination of criteria which are valued in both monetary and non-monetary terms. This involves the use of a full range of social, environmental, technical, institutional, economic, and financial criteria. In effect, MCA provides a structured framework for comparing mitigation technologies across multiple criteria. Importantly, given that MCA is a value-judgement based system, the framework was adopted to reflect a well-balanced judgement of all the relevant stakeholders and developed through a consultative process.

Table 2.1. Proposed EV Sales Target for Solomon Islands by 2035 (%)

Vehicle Category	Costs			Benefits						
	CAPEX	OPEX	Charging infra	Fuel Saving	Job Creation	Gender Equity	Air Pollution	GHG Emissions	Total Score	Rank
Passenger Transport										
Two Wheelers (2W)	1500	1499	1000	0	0	0	6	0	4005	6
Three Wheelers (3W)	1500	1500	867	10	250	0	6	12	4145	5
Cars - Personal	1339	1465	593	38	500	667	-	39	4640	4
Cars - Taxi	1329	1220	593	121	1000	333	144	125	4865	3
Buses (mini)	400	260	0	550	1250	1000	906	636	5002	2
Buses (standard)	0	0	0	912	1500	1000	906	1054	5372	1
Freight Transport										
Truck (LDV)	1416	349	0	603	1250	0	1	802	5421	1
Truck (M&HDV)	803	71	0	1000	1000	0	1	1500	5374	2

As can be seen from table 2.1 the analysis for passenger transport showed that Bus (standard) is ranked as the number one prioritised category for EV implementation in the country for passenger transport. This was followed by, bus (mini), four wheelers (taxi), three wheelers, two wheelers and four wheelers (personal). For the freight transport it was found that truck light duty was of the top priority in the country.



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3. Policy measures for e-mobility development in Solomon Islands

Stakeholders were consulted on barriers to the electrification of vehicles and enabling measures (policies) to overcome the barriers. Policy measures identified based on consultation were categorised as follows and included in the report “Solomon Islands’ National Electric Mobility Policy and Market Readiness Framework”.

1) **Economic and financial measures:** These include measures to address the economic and financial viability of EVs and access to available and affordable finance to buy an EV or retrofit an ICE vehicle
2) **Policy, regulatory and institutional measures:** These measures are needed to address existing policies or regulations, that may be unfavourable to EVs, as well as policies/regulations that can facilitate EVs penetration.
3) **Technical and infrastructural measures:** The introduction of new technologies often requires skilled personnel as well as infrastructure, and these measures help address these requirements.
4) **Awareness/information and promotional measures:** A lack of awareness and proper information often leads to apprehension about new technology. In most cases, stakeholders are not even aware of steps being taken to promote the technology in the country. These measures cater to this need for EV technology in this roadmap.
5) **Measures to address market barriers:** The vehicle value chain was specifically analysed to bring out barriers to EV penetration and measures to address them. Market barriers are a mix of barriers due to prevailing market conditions. Market measures, therefore, include a variety of measures to address the same.

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4. Policy roadmap for electrification of vehicles in Solomon Islands

4.1 Introduction

An EV Roadmap is an action plan with a focus on the pathways to achieve wide-scale EV deployment. For this, a set of policies are picked up from the policy framework for implementation. EV roadmap is defined here as an action plan including targets and policy measures, along with their implementation timelines, institutional responsibilities, and resource requirements. For each vehicle category, a draft roadmap was prepared which included quantification of targets as well as policies. A policy can be a subsidy for vehicle purchase or a reduction in customs duty, but it needs to be quantified; 20% of the cost of the vehicle as a subsidy for example. Stakeholders (government, semi-govt., private, academia and others) were provided with the necessary information to evaluate various policy measures.. For example, costs and benefits were presented to them for various levels of targets in each vehicle category. Benefits included socio-economic and environmental benefits such as GHG reductions, air pollution reduction etc. Each policy and its attributes; level, timeline, resource requirements and institutional responsibility were thereafter discussed by stakeholders and validated. This section presents the roadmap for various vehicle segments; an outcome of this exercise in terms of targets and policy measures selected by the key stakeholders. There was only one female who participated in the process, which indicates poor representation of women among transport stakeholders

4.2 Policy Roadmap framework

The following components were considered for the roadmap;

4.2.1 Targets

Ambition for the deployment of EVs is reflected in the targets. In the draft roadmap document, each target was defined in terms of costs and benefits so that stakeholders can make an informed choice. For each vehicle category, various levels of targets, along with their resource requirements and benefits over a period of time, were presented to stakeholders. The basis for selecting various levels of targets was also provided. It included relevance in the context of national policies, regional and global targets etc.

4.2.2 Policy measures for EV Roadmap

Potential Policy options identified in EV Policy and Market readiness framework; are further broken down into several components and measures in detail with specific actionable and timelines across different vehicle segments. The detailed policy measures were presented to the stakeholders and the roadmap reflects their inputs in terms of the need for various measures and their preferred level. For example, there are policy measures included in the Economic and Financial category in the Policy Framework document including reduction of import duty, purchase price subsidy, tax benefit, depreciation benefit (for businesses) and so on. Resources needed for implementation of a policy

vary with level such as % of subsidy to be provided for a vehicle segment; import duty reduction by specific % for specific time period (0 to 100%) and so on. The inputs on such levels were also given by the stakeholders and are included in the roadmap. The recommended measures in the roadmap fall into the following categories.

1) EV Targets: Targets are indicative of political commitment and therefore important to drive EV adoption. Targets are also the basis for the action plan for implementation and estimation as well as allocation of resources. Targets also motivate stakeholders, provide them direction, and help join forces and cooperate in achieving the common objective represented by targets.

2) Demand side policy measures:

a. Financial policy measures: These include various incentives and other financial support measures to make EVs competitive and attractive choice for end-users. The upfront price of EVs is high, becomes a significant barrier in the decision to purchase an EV despite low operating costs. Various measure such as tax incentives/exemptions, subsidies, access to finance, electricity tariff revision and others; proposed in the roadmap focus on boosting EV demand through lowering the purchase price and operational costs of EVs.

The overall purpose of the financial support is therefore to lower the EV buying price to achieve price parity with ICE vehicles and **make EV purchases attractive** for end-users. Several possible financial measures have been considered and a combination of preferred incentives can be used to achieve price parity with ICE vehicles. Measures such as leaving penalties, increased taxes on fuels and ICEVs are proposed to **discourage use of ICEVs** through increasing the purchase and operating price of ICEVs.

b. Non-Financial policy measures: These are focusing on making EVs easy to use, operate and creating awareness amongst users. This includes; measures such as distinction in registration process and other services such as preferential parking. Building city development codes to incorporate planning and appropriate spaces carved-out for EV Charging and parking for both public and private places; accommodating new technologies in city planning.

The suggested awareness measures intend to make users aware of EV technology, costs, benefits, safety, reliability, use and different schemes and policy dissemination from Central to Local level. Other set of measures for pollution control are proposed to influence user behaviour and discourage use of ICEVs. Strict enforcement would help reducing polluting ICEVs on road, generating revenue as well as shift user choice to EVs (and or cleaner odes of transport). Demand side measures could also look into the issue of equity.

3) Supply side Policy measures:

a. **Financial policy measures:** as EVs are comparatively new to Solomon Islands. An initial support is required to induce EV adoption including; incentives and subsidies for local assembly of EVs and their sub components (atleast for light duty vehicle segments). Overall purpose of supply side fiscal incentives is to enable local EV Market (EVs, components, spare-parts and related services) and strengthen supply chain.

EVs need charging facilitating which at public places apart from home and work place charging are useful to increase visibility. The proposed subsidies for public chargers would help faster uptake and build users' trust and faster EV adoption.

b. **Non-Financial policy measures:** These are combination of technical, regulatory, awareness, capacity building measures; proposed to create strong enabling environment for EVs in the market throughout the value chain. The technical measures include establishing quality and safety standards for the EVs to ensure that both imported EVs and their components as well as those manufactured in the country are of desired quality. Similarly, standards for charging equipment and guidelines for establishing and using charging infrastructure also fall in this category. It also includes battery usage and recycling guidelines and vehicle scrappage guidelines to ensure inefficient, polluting and unsafe vehicles are scrapped well in time. EVs use electricity and therefore closely interact with the grid. Widespread use therefore, requires planning for grid strengthening and expansion, including additional power production. Once EVs have been established, these can provide a regular source of revenue to the electricity producers. EVs can help use off-peak power, absorb renewable electricity and even provide power to the grid (through the vehicle to grid technology). All this requires policy measures for efficient grid management.

   Awareness raising is often needed whenever a new technology is introduced. This is to alleviate apprehensions about the technology and inform about its benefits as well as incentive schemes and other concessions provided to early users of the technology to disseminate it in the country.

   User requirements and unique eco-system that requires making changes/adjustments in the application of technology in a country. In the case of EVs, it can for example simply be the type of buses that are suitable for the terrain, which may require changes in design. R&D can help localization also, resulting in an increased share of local production and employment generation. Pilots are needed to familiarize stakeholders with EVs and their operations and can be driven through mandates to government departments for EV adoption. Pilots enhance visibility and hence help promote technologies. Capacity building includes skill development required to maintain and repair the EVs.

The policy measures provide special consideration for women through incentivizing them for EV Purchase, finance, awareness and upskilling. And additional distinction in financing rates, tax concessions is provided for women EV owners. The studies show that men tend to be the owners of private vehicle as compared to women. Such a policy would encourage women to come forward to own vehicles. With ownership women are more likely to use EVs for their own mobility. However, encouraging women's ownership of vehicles, it is one step towards their empowerment. In capacity building, reserving fixed seats for women for teaching and learning, researching would further increase the women participation in e-mobility. Ministry of Women to be involved in the training programme promotion.

4.2.3 Institutions responsible for the implementation of prioritized policy measures in the roadmap

Institutions and other actors required to implement the prioritized policy measures were identified in consultation with the stakeholders and included in the roadmap.

4.2.4 Scheduling of policy measures

Scheduling of a policy measure includes the timeline for implementation of the measure along with its level. For example, a subsidy could be decreased over a period of time. Inputs were obtained from stakeholders on the proposals for scheduling of policy measures and included in the roadmap.

4.2.5 Estimation of resources needed for policy measures

Costs to implement policy measures were estimated. However, the estimates primarily cover the cost of significant measures, for which data was available. Financial measures primarily seek to influence stakeholders' behaviour directly and it was possible to generate scenarios for that and include them in the roadmap.

4.2.6 Estimation of Benefits from EV adoption

Economic, Climate, Environmental, Social and other benefits form EV adoption (with given targets) were estimated. It covers the estimation of total required electricity for charging EVs, the air pollution reduction, GHG emission reduction, fuel savings; and overall savings possible through emission reduction and the fuel savings for given EV targets.

4.3 Policy roadmap for various vehicle categories

4.3.1 EV Targets

The proposed targets for EV adoption as a percentage of total sales of vehicles in each category and absolute numbers are indicated in Tables 6.1 and 6.2 respectively.

Table 4.1. Proposed EV Sales Target for Solomon Islands by 2035 (%)

Vehicle Category	Base Year (2020)	Short Term (2022-2025)	Medium Term (2026-2030)	Long Term (2031-2035)
Two-Wheeler	0.0%	20.0%	70.0%	100.0%
Three-Wheeler	0.0%	100.0%	100.0%	100.0%
Four-Wheeler Personal	0.0%	20.0%	30.0%	40.0%
Four-Wheeler Taxi	0.0%	20.0%	40.0%	60.0%
Bus (Mini)	0.0%	20.0%	50.0%	70.0%
Bus (Standard)	0.0%	20.0%	50.0%	70.0%
Truck (Light duty)	0.0%	5.0%	10.0%	15.0%
Truck (Medium and Heavy duty)	0.0%	5.0%	10.0%	15.0%
Overall sales target (%)	0.0%	15.7%	28.3%	35.6%
Overall EV mix (%)	0.0%	1.2%	5.3%	12.3%

Table 4.2. Proposed EV Sales Target for Solomon Islands by 2035 (Numbers)

Vehicle Category	Base Year (2020)	Short Term (2022-2025)	Medium Term (2026-2030)	Long Term (2031-2035)
Two-Wheeler	0	5	32	89
Three-Wheeler	0	37	53	58
Four-Wheeler Personal	0	285	975	2,064
Four-Wheeler Taxi	0	113	477	1,184
Bus (Mini)	0	13	65	161
Bus (Standard)	0	3	188	79
Truck (Light duty)	0	31	131	326
Truck (Medium and Heavy duty)	0	5	23	58
Total Sales	0	492	1,944	4,019

4.3.2 EV Public Charging infrastructure Targets

Deploying public charging stations/charging points is essential for EV adoption and building public confidence in EVs. For the indicated EV targets, Solomon Islands Government can consider deploying slow as well as fast chargers. The number of charging points required for EVs is shown in Table 6.3.

Table 4.3. Proposed EV Public Charging points by 2035 (Numbers)

Charger Type	Base Year (2020)	Short Term (2022-2025)	Medium Term (2026-2030)	Long Term (2031-2035)
Slow Chargers	0	19	100	191
Fast Chargers	0	41	200	389

4.3.3 EV Policy Roadmap to achieve the targets

The policy roadmaps is presented in Table 4.4. It should be noted that only targets and a few policies are specific to different vehicle categories. All other policies are common to all vehicle categories. Policies can be fine-tuned during the implementation stage depending on the specific requirements of a vehicle category.

Table 4.4 Policy roadmap for e-Mobility in Solomon Islands

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Targets					
Targets	**Clear Targets and timelines**	**Target setting for EVs penetration in new sales across different vehicle segments (2W, 3W, 4W, Bus, and Trucks) and time frame:** to drive EV adoption through strategic goals and allocate EV budget.	Set EV targets for different applications (2W, 3W, 4W, Bus and Truck) for yearly % EV sales in defined time frame (2022-2035) 1. **E-2 Wheeler:** 100% by 2035 2. **E-3 Wheeler:** 100% by 2035 3. **E-4 Wheeler Personal:** 40% by 2035 4. **E-4 Wheeler Taxi:** 60% by 2035 5. **E-Bus (mini):** 70% by 2035 6. **E-Bus (Standard/Midi):**70% by 2035 7. **E-Truck (Light duty):** 15% by 2035 8. **E-Truck (Medium & Heavy duty):**15% by 2035	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMERE)	**Synergy with National Policies:** • **NDC:** Solomon Islands has committed to reduce emissions by 12% below 2015 level by 2025 and 30% below 2015 level by 2030 **Global Example:** • **Rwanda- 30% -** motorcycle, 8% - car (including jeeps), 20% - buses, 25% - taxi and mini/microbuses • **India (2030) -** 70% commercial cars, 30% of private cars, 40% buses, 80% two-wheeler (2W) and three-wheeler (3W) sales

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		Target setting for public charging infrastructure (AC and DC) across different vehicle segments (2W, 3W, 4W, Bus and Truck) and time frame: to drive adoption of public charging for EV adoption through strategic goals and allocate EV budget	Set EV Public Charging infrastructure targets **940** Public charging points by 2035 (Numbers of chargers are calculated based on the number of chargers needed for the EV targets across 8 vehicle segments) Combination of Fast and Slow chargers: • 33% Fast Chargers • 67% Slow Chargers *(Government to encourage and set up pilot public charging stations to stimulate adoption. Exiting service/fuelling infrastructure can be one prominent location to set-up public charging infrastructure)*	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMERE)	**Global Example:** • **South Africa:** The public EVSE per EV ratio at the end of 2020 for the Netherlands was 0.22, meaning there were 2.2 public chargers per 10 EVs there • **China:** Already the country with the most electric vehicle (EV) charging stations in the world — over 1.2 million in 2019 — China is looking to add around 600,000 more
		Definition of right EV technologies: to scale and to bring-down the EV Prices	Extend Govt. incentives only for pure EVs. Hybrid and FCEVs to be included post technology maturity.	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMERE)	
		Prioritization of advanced battery systems: to drive EV adoption through	Extend Govt. incentives only for advanced battery chemistries including Lithium-ion based. Lead acid batteries to be discouraged.	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural	**Global Example** • **Rwanda:** Exemption on import, excise duties and zero-rated VAT on EVs, spare parts, batteries and charging station equipment.

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		strategic goals and allocate EV budget		Electrification (MMERE)	• **China:** Extended subsidies and incentives based on minimum technological requirement for different vehicle segments e.g., Bus – 250kWh Li-ion batteries
For Demand Side					
Financial incentives for users	**Lower Purchase Cost**	**Capital subsidy on purchase of EVs[1]:** to achieve price parity, make EV purchase attractive for end user and boost adoption	Encourage end-consumers for **EVs** adoption through right amount of Govt. capital subsidy on New EVs, those meeting quality and safety standards. The capital subsidy to be linked to battery size and vehicle performance and should be capped at two levels 1) Max. subsidy per EV 2) Max. number of EVs to be subsidised. This will allow certainty to government budget planning.	• Ministry of Finance and Treasury (MOFT)	**Global Example** • **India:** FAME II Purchase subsidy 20 % for 2W, 3W, 4W and 40% for Bus • The **Dutch** government subsidises used electric cars with 2,000 euros each (2022) • **Canada**: Government of Canada offers point-of-sale incentives of $2,500 to

[1] The capital subsidy is defined based on comparative TCO and Capital cost premium analysis for given eight vehicle segments;

- 2W,3W segments have already achieved TCO parity and are almost near to achieve Capital cost parity; for 3 wheelers premium is very low (refer to rationale ppt) which is achievable to bring in parity in short term.
- 4Wheelers (private and taxi) are likely to achieve parity in short term (both TCO and Capital cost)

Buses (Intracity-Intercity) and Truck (Medium & Heavy duty) are not achieving parity in medium or long term

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
			Battery subsidy can be close to today's battery pack price (230 USD/kWh). Maximum subsidy per EV can be defined by average battery size for most common use case. EV subsidy can be gradually phased-out over years as EV reaches ICEV price parity. Following proposed effective subsidy as percentage of price of New EVs: 1. **E-2 Wheeler:** No Subsidy 2. **E-3 Wheeler:** 6% from 2022-25; 6% from 2026-30; 0% from 2031 3. **E-4 Wheeler Personal:** 25% from 2022-25; 11% from 2026-30; 8% from 2031-35 4. **E-4 Wheeler Taxi:** 25% from 2022-25; 11% from 2026-30; 8% from 2031-35 5. **E-Bus (Mini):** 30% from 2022-25; 19% from 2026-30; 12% from 2031 6. **E-Bus (Standard/Midi):** 26% from 2022-25; 17% from 2026-30; 11% from 2031 7. **E-Truck (Light duty):** 11% from 2022-25; 5% from 2026-30; 2% from 2031-35 8. **E-Truck (Medium and Heavy duty):** 25% from 2022-25; 15% from 2026-30; 10% from 2031		$5,000 for consumers who buy or lease an EV

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
			Pre-owned EVs can be exempted from capital subsidy (but can be given GST deduction and registration benefits). Special consideration for women with additional 0.5% subsidy on EV purchase. Above proposed capital subsidy is one of the incentivising measures. For the vehicle segments 4 Wheelers (personal and Taxi), Buses (Mini/Midi/Standard) and Trucks (Medium and Heavy duty) there will be need of greater incentives to achieve cost parity/reduce purchase cost. This could be in the form of GST reduction/exemption over + Custom Duty reduction/exemption (if required) over and above subsidies (Refer Policy measure '**Reduction of taxation on EVs**') This subsidy also to be extended for completely knocked down (CKD) kits. Assembly of EVs to be encouraged for EV segments as it generates employment. (Refer Policy measure '**Exemption of import duties on EV sub-systems and raw materials**')		

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		Reduction of taxation on EVs[2]**:** to reduce EV prices considerably; help achieving price parity and make EV purchase attractive for end user and boost adoption	**Reduce GST** on New and Pre-owned EVs, and this can be gradually resumed similar to ICEs post price parity and market development as and when market prices of EVs/batteries reduced. For New / pre-owned EVs (CBUs – completely built units) let GST be reduced as follows; 1. **E-2 Wheeler:** No reduction/exemption in tax 2. **E-3 Wheeler:** No reduction/exemption in tax 3. **E-4 Wheeler Personal:** from current 19.05% to 3% from 2022-30; 19.05% from 3031 onwards (Normal) 4. **E-4 Wheeler Taxi:** from current 19.05% to 3% from 2022-30; 19.05% from 3031 onwards (Normal) 5. **E-Bus (Mini):** from current 19.05% to 0% from 2022-30; 19.05% from 3031 onwards (Normal)	• Ministry of Finance and Treasury (MOFT)	**Global Example:** • **Kenya:** National incentives in the form of reduced excise tax for EVs from 20 to 10% in 2019; ongoing further work to reduce taxation and to facilitate importation and registration**.** • Rwanda: Exemption on import, excise duties and zero-rated VAT on EVs, spare parts, batteries and charging station equipment. • China: Electric vehicles are exempted from purchase tax from January 1,2022 to December 31,2022

[2] Combination of Tax incentives (full or partial exemption) and or with subsidy has potential to achieve price parity for EVs (reference: rationale ppt) and requirement varies for different vehicle segments

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
			6. **E-Bus (Standard/Midi):** from current 19.05% to 0% from 2022-30; 19.05% from 3031 onwards (Normal) 7. **E-Truck (Light duty):** No reduction/exemption in tax 8. **E-Truck (Medium and Heavy duty):** from current 19.05% to 0% from 2022-35; 19.05% from 3035 onwards (Normal) For New/pre-owned EVs (CKDs – complete knocked down kits) let GST be reduced/exempted based on type of vehicles as per above categorisation. This to be reviewed in every 5 years. _____ **Reduce Custom Duty**[3] on New and Pre-owned EVs, and this can be gradually resumed similar to ICEs post price parity and market development as and when market prices of EVs/batteries reduced.		

[3] Custom duty is reduced/exempted where purchase cost parity is not achieved even after reducing GST

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
			For New / pre-owned EVs (CBUs – completely built units) let Custom Duty be reduced as follows; 1. **E-2 Wheeler:** as of current 10% (No reduction/exemption in tax) 2. **E-3 Wheeler:** as of current 10% (No reduction/exemption in tax) 3. **E-4 Wheeler Personal:** as of current 10% (No reduction/exemption in tax) 4. **E-4 Wheeler Taxi:** as of current 10% (No reduction/exemption in tax) 5. **E-Bus (Mini):** from current 15 % to 0% from 2022-35 (Exempt) 6. **E-Bus (Standard/Midi):** from current 15 % to 0% from 2022-35 (Exempt) 7. **E-Truck (Light duty):** as of current 15% (No reduction/exemption in tax) 8. **E-Truck (Medium and Heavy duty):** from current 15 % to 0% from 2022-35 (Exempt) Special consideration for women with additional 0.5% reduction in in GST and Custom duty (wherever tax is not exempted fully)		

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
		Exemption of vehicle registration charges on EVs: to make EVs attractive for end user and boost initial adoption	Exempt registration fees on New and Pre-owned EVs from 2022-35 to support initial market development and stimulate adoption. It can be resumed same as ICEVs from 2035 onwards after number of EV's are at par with ICE. The exemption in repeat taxes to be reviewed in year 2025 (after three years) based on level of EV adoption.	• Ministry of Infrastructure Development (MID) • Ministry of Finance and Treasury (MOFT)	
		Exemption of repeat taxes on EVs: make EV purchase attractive for end user and boost initial adoption	Exempt the repeat taxes including registration renewal and licensing on New and Pre-owned EVs from 2022-35 to support initial market development. It can be resumed same as ICEVs from 2035 onwards. The exemption in repeat taxes to be reviewed in year 2025 (after three years) based on level of EV adoption.	• Ministry of Finance and Treasury (MOFT)	
		Support for retrofit EVs: to repurposing ICEVs; enabling alternate option to EV purchase on comparatively lower prices than new EVs	Extend Pre-owned EV benefits also to ICEV retrofitted EVs from year 2022 (Provided that; retrofitted EVs comply with the EV standards)	• Ministry of Infrastructure Development (MID) • Ministry of Finance and Treasury (MOFT)	

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	Ease and lower cost of Financing	**Provision to encourage Banks to finance EVs both for Individual (B2C) and Fleet (B2B) ownership: to make EV purchase attractive for end user and boost adoption**	Develop mechanisms to allow easy and attractive retail (B2C) and commercial fleet (B2B) financing for EVs at differential reduced interest rates from banks (National banks, Private banks, NBFCs). This to include Individual end-users and commercial fleet operators. Direct banks to include EV financing into their priority sector lending portfolio. Additionally special consideration for women with differential of 0.5% in financing rates.	• Ministry of Finance and Treasury (MOFT) • Central Bank of Solomon Islands (CBSI)	**Global Example:** • **India:** potential financing measures identified are, priority-sector lending and interest-rate subvention, better partnerships between OEMs and financial institutions by providing product guarantees and warranties, developed and formal secondary market can improve the resale value of EVs and improve their bankability.
		Allowance of accelerated depreciation and/or appropriate tax holidays for EVs	Allow accelerated depreciation and/or tax holidays on investment in New EVs	• Ministry of Finance and Treasury (MOFT)	

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	Lower usage cost	**Improve facilitation by DISCOM for enabling smart EV Charging at homes and workplaces including RE integration:** To provide and improve accessibility to EV charging and promoting use of Renewable energy	Encourage home and work place charging through incentivising private users to set-up smart chargers at home and work places. Encourage end-users and incentivise to adopt solar roof tops for improved electricity access. Allow net metering for Solar roof tops. Extending/Bundling right fiscal incentives for solar rooftops and EV charging for residential and commercial users.	• Ministry of Mines, Energy and Rural Electrification (MMERE) • Solomon Power (SP)	**Global Example:** • **US:** Federal tax credits- o Commercial incentives on deployment of E charging station up to 30% (up to $30,000) o Residential incentive on single-family residential electric vehicle charging station installation up to 30% costs (up to $1,000)
Non-financial Incentives for users	**Convenience and Ease**	**Ease of process of registration, permits, transfers and ownership of EVs: to induce preferential shift towards EVs, distinguish new**	Establish single window clearance system for vehicle registration, licensing, permits, transfers (aligned with new and clear vehicle classification system[4]) for both Individual and Fleet ownership of EVs.	• Ministry of Infrastructure Development (MID) • Ministry of Finance and Treasury (MOFT)	**Global Example:** • **Rwanda**: Green license plate to allow preferential parking for EVs and free entry into any future congestion zones. Establish restricted zones

[4] Use case: Passenger- 2w, 3w, 4w, Bus; Goods- Trucks (light and heavy duty). Fuel type: Petrol, Diesel, CNG, Electric, Hybrid, Fuel cell and others. Technology: ICEVs- engine capacity; EVs- Motor power and battery capacity. Incorporating any other important parameter distinguishing different vehicle technologies

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		technology and improve ease of record keeping and any further transactions			where only green vehicles can have access • **India:** Currently, EVs are registered like other ICE vehicles at Regional Transport Offices (RTO) the zero emission vehicles are issued with green plates (for both private and commercial use)
		Provision of preferential parking access (provision of parking and charging zones for EVs): to induce preferential shift towards EVs, distinguish new technology	Provide preferential parking for EVs in allocated parking space. Plan for EV parking spaces with right public charging infrastructure (including payment mechanism for public charging).	• Ministry of Lands, Housing and Survey (MLHS) • Honiara City Council (HCC) • Ministry of Infrastructure Development (MID)	

Building & City Developme nt Codes	**Easy access to EV charging in new buildings and urban spaces**	**Revision and Redrafting of Building code and City Development code to incorporate EV charging infrastructure: to provide and improve accessibility to EV charging**	Revise/develop 'Building code' and 'City development code' for mandatory installation of EV charging infrastructure. Prepare guidelines on mandate for setting up EV charging infrastructure with minimum number of EV chargers installation and parking spaces allocation in new buildings and urban spaces.	• Ministry of Lands, Housing and Survey (MLHS) • Honiara City Council (HCC) • Ministry of Infrastructure Development (MID)	**Global Experience:** • **India:** The department of town and country planning under the ministry has issued guidelines to provide for electric vehicle charging infrastructure. Urban and Regional Development Plan Formulation and Implementation Guidelines, 2014. The guidelines on charging infrastructure mandate provisions in various buildings • **France**: o Residential- to pre-equip up to 75% of parking bays for any new/renewed MUD building with at least conducts for future charging infrastructure. o Commercial: to pre-equip up to 10% of parking bays for any new/renewed office/commercial building with at least conducts for future charging infrastructure.
Disincentive s on ICEVs	**Discou ragem**	**Increase of VAT on ICEVs[5]: to Discourage ICEVs**	Increase GST and Custom Duty on ICEVs.	• Ministry of Infrastructure Development (MID)	**Global Example:** • China: Ban on ICEs to discourage ICEVs

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
		use, phase-out low-performing ICEs from system	Increase in GST on ICEVs from current 19.05% to 21.05% for 2022-2025; 22.05% for 2026-2030; 23.05% for 2031-2035 Increase in Custom Duty on ICEVs; i) 2 Wheeler, 3 Wheler, 4 Wheeler (Personal and Taxi): from current 10% to 12% for 2022-2025; 14% for 2026-2030; 16% for 2031-2035 ii) Bus (mini/midi/standard) and Truck (light/medium/heavy duty): from current 15% to 17% for 2022-2025; 19% for 2026-2030; 21% for 2031-2035	• Ministry of Finance and Treasury (MOFT)	• **EU:** European UNIOS Has taken stand to phase-out ICEs
		Increase of taxes on petrol and diesel: to increase the operational cost of ICEVs and discourage ICEVs use	Increase taxes on fossil fuels to discourage ICEVs. Following proposed increment in fuel taxes: - GST increase by 1% every year till 2035	• Ministry of Finance and Treasury (MOFT)	

[5] Combination of Tax dis-incentives will lead to increase cost of ICEVs (both purchase and operational costs) and discourage their use; and help EVs achieving price parity (both TCO and purchase price) with ICEVs

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
		Mandatory periodic pollution test mechanism[6]:	Develop robust pollution measurement and control system with annual/periodic mandatory Pollution Test and Certificate (linked to vehicle age and emissions). Develop pollution control standards and guidelines and Implementation framework ensuring robust quality check mechanism; with clear distinctions in National and Local level actionable and responsibilities. Define penalties and pollution cess for ICEVs (to be paid yearly/quarterly)	• Ministry of Infrastructure Development (MID) • Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	**Global Example:** • India: Pollution Under Control (PUC) certification as one of the pre-requisites of operating ICEs on road. Vehicles more than 15 years ages has to undergo fitness test to continue running the vehicles on-road

[6] Align with on-going developments and disussions around pollution control mechanisms in Solomon Islands

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Consumer Awareness	**EV mass awareness programs**	**Awareness campaigns, drives and Training programs for end users to raise awareness and help reducing apprehension for EVs adoptions**	Design and conduct repeat public awareness programs on EVs benefits and available support from Govt and local ecosystem, targeting fleet and individual users. Leverage existing automotive dealer network to provision EV test rides, EV experience centres (equipped with range of EVs, charging infrastructure and prototypes) and promote EVs.	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMRE)	**Global Example:** • **Delhi, India**: mass awareness campaign recently launched (31st March 2022) by the government to sensitize residents about the benefits of switching to EVs to the environment as well as to make them aware of the incentives and infrastructure being developed under Delhi's EV policy
For Supply Side					

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Emission Standards	**Stricter Vehicle emission standards**	**Stricter Vehicle emission standards and enforcement for ICEVs (new vehicle/pre-owned, imported/local-built, new-entry/running-on-road, end-of-life): to discourage ICEVs use, phase-out low-performing ICEs from system**	Adopt and enforce stricter vehicle emission standards (leap to next generation vehicles with improved quality) for all ICEVs in the country, including: - Import/Local vehicles (New): comply with new Euro VI standards - Import/Local vehicles (pre-owned): comply with min. Euro IV standards - Import/Local vehicles (running-on-road): 1) If age > 10 years: annual pollution certification mandatory to comply with their built respective Euro II/ Euro III/ Euro IV standards 2) If age > 15 years: Scrappage incentive or higher annual pollution cess	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	**Global Example:** • **Rwanda:** Enforcement of existing emission standards to discourage the purchase of polluting vehicles • **Europe:** Europe has launched Euro6 standards since 2017 to shift to stricter emission norms and reduce pollution
	Stricter Fuel standards	**Stricter fuel standards for petrol, diesel and gas**	Adopt and strongly enforce stricter fossil fuel standards (for petrol, diesel, gas) complying with defined vehicle emission standards (Ex: Euro VI fuel standards for Euro VI vehicle standards)	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
EVs and Charging Infra Standards and Guidelines	**EVs Vehicle Classification**	**Vehicle classification system revision to differentiate EVs to distinguish new technology and improve ease of record keeping and any further transactions**	Revise existing vehicle classification system (adding EVs and other upcoming technologies/fuel types as separate classes) to rightly fit different types of EVs (and any other future vehicle technology). Classification of EVs to be based on battery energy capacity (kWh) and traction motor size (kW) as opposed to engine capacity (cc) for ICEVs.	• Ministry of Infrastructure Development (MID)	**Global Example:** • Rwanda: Green license plate issued for EVs • **India:** Currently, EVs are registered like other ICE vehicles at Regional Transport Offices (RTO) the zero emission vehicles are issued with green plates (for both private and commercial use). The battery capacity and other specifications are registered as part of registration process

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	EVs Quality and Safety standards	**Formulation of EVs Quality and Safety standards for safe import and local production:** to maintain and govern manufacturing, import, service quality of EVs, Charging Equipment, Batteries and other spare parts. Also, to ensure adopt standardised practices and safety across the country	Formulate standards and guidelines for both New and Pre-owned EVs to be eligible for Govt. incentives. International standards from UNECE, ICE and others can be appropriately adopted to govern high quality imports (through pre-shipment inspection certification) and local production. Adopt relevant global safety standards for different types of EVs (new, pre-owned and retrofits), advanced EV battery technologies, charging technologies, EVs and chargers' inter-connection and their inter-operability, chargers and grid inter-connection and communication, security against theft and end consumer communications including vehicle to Load/Home/Grid standards.	• Ministry of Commerce, Industry, Labour and Immigration (MCILI)	**Global Experience:** • **K**enya: Kenya Bureau of Standards (KEBS) have adopted EVs standards in 2019. Up until now, a total of 24 standards have been developed and adopted, covering specifications and testing procedures for safety aspects as well as performance and power consumption elements • China: EV Manufacturers are mandated to comply with design, development, production, after-sale services, and other capabilities of EVs and EVs

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	National standards for EV charging	**Clear definition of national standards for EV charging (AC and DC across vehicle segments and locations):** to ensure quality of products and adopt standardised EV Charging practices	Adopt and strongly enforce clear EV charging standards for both AC and DC chargers across vehicle segments and location (home/work and public charging). **Home/work charging:** Standard 3 pin AC plug for slow AC charging. Compact smart charger recommended for utility load and time of use (TOU) management. **Public charging:** Type-2 for AC charging (3.7/7.2/22 kW); CHAdeMO and/or CCS Combo 2 for DC charging given high mix of Europe and Japan imports (30/50/100 kW). The numbers, types, mix and tariffs of chargers can be left open for market forces to decide. **Battery Swapping and charging:** Allow innovations and deployments (at least for light duty vehicle segments such as 2W, 3W)	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • Ministry of Mines, Energy and Rural Electrification (MMRE)	should satisfy all technical standards and pass safety inspections before entering into the market
Financial Incentives for Dealer/Suppliers/OEMs (franchise)	**Lower EV production**	**Fiscal incentives on EVs** assembly **setup:** to encourage indigenous assembly of EVs, sub-systems	Encourage local assembly and of EVs, sub-system and components (at least for light duty vehicles such as 2w, 3w, 4w and their sub-systems) through attractive fiscal incentives to the industry in form of land/ electricity/ capital subsidy/ interest subsidy/	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • FIB • Ministry of Finance and Treasury (MOFT)	**Global Example:** • Rwanda: Electric vehicles, spare parts, batteries, and charging station equipment will all be exempted from import and excise duties. All

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		and components and develop EV market in country	tax subsidy etc. This to also include mining industry for raw materials use in EVs.		of these would also be treated as zero rated VAT products and will also be exempt from withholding tax • China**:** Each EV can receive between 1 and 3.4 credits (NEV) depending on its characteristics. Each OEM can achieve the target in several ways. since June 2020, "fuel-efficient passenger vehicle" bonuses can count towards the calculation of corporate NEV credits
		Exemption of import duties on EV sub-systems and raw materials	Reduce import duties on EVs raw materials (like cells), sub-systems (EV batteries, on-board and off-board chargers, motors etc.), CKD kits for and to be reviewed every 5 years (continue till local ecosystem is developed)	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • FIB • Ministry of Finance and Treasury (MOFT)	
Financial Incentives for Public and Fleet Charging	**Lower Capital cost to setup**	**Capital subsidy for all types of public charging stations (AC/DC, fixed/swap battery)7:** to encourage	Encourage private, public and utility companies set-up EV public charging stations and services and extend capital subsidy. Following proposed subsidy on public chargers (intra-city and inter-city):	• Ministry of Mines, Energy and Rural Electrification (MMRE) • Ministry of Infrastructure Development (MID)	**Global Example:** • Rwanda: Rent free land for charging stations on land owned by the government • Maharashtra, India: Commercial public EV

[7] Alternative to capital subsidy: Another option instead of giving capital subsidy for EV chargers can be to exempt them from GST and Custom Duty.

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Infrastructure		development of public charging infrastructure and improve visibility	• **AC chargers:** 50% till 2022-2025; 25% till 2026-2030; 0% from 2031 • **DC chargers:** 75% till 2022-2025; 25% till 2026-2030; 0% from 2031 **Battery Swapping stations (rural and urban):** battery and charger subsidy to be combined and extended to battery swapping stations. **Renewable integration:** with EV charging should be additionally incentivised through available renewable fiscal incentives (and also exempting wheeling charges).	• Ministry of Finance and Treasury (MOFT) • Solomon Power (SP)	charging stations for 2 wheelers, 3 wheelers, cars and buses are eligible for 25% capital subsidy on equipment/machinery (limited up to Rs. 10 lacs per station) for first 250 commercial public EV charging stations • **India:** FAME II subsidy for establishment of charging stations - INR. 1 Bn
		Low-cost land allotment on long lease for public charging: to enable lower cost of charging infrastructure set-up	Allocate Govt. land on low cost long lease for establishment of public charging infrastructure. Support ease of land identification and leasing procedures for the same.	• Ministry of Lands, Housing and Survey (MLHS) • Honiara City Council (HCC)	
		Incentives to DISCOMS and GAS/Oil stations to own and setup EV charging stations: to	Power distribution companies and GAS/Oil stations to be allowed to capitalise cost of setting and operating public charging stations (commercial).	• Ministry of Mines, Energy and Rural Electrification (MMERE)	

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		enable lower cost of charging infrastructure set-up			
	Lower Operations cost to run public charging stations	**Reduction of electricity cost through separate EV tariff for public charging:** to lower the operational cost of EVs and make them attractive as economic mode of transport for end-users	Build separate EV focused lower cost electricity tariff system for public charging stations as well as commercial EV fleet stations. The tariff system to reflect time-of-day (TOD) or time-of-use (TOU) to differentially charge peak and off-peak charging times. There can be exemption on demand charges (variable component of electricity tariff) for EVs in first 5 years for public charging stations.	• Ministry of Mines, Energy and Rural Electrification (MMERE) • Solomon Power (SP)	**Global Example:** • **Rwanda:** Electricity tariffs for charging stations to be capped at the industrial tariff. This means that charge point operators will be billed at close to USD 10 cents/kWh instead of close to 20 cents/kWh
EV Mandates for Govt. agencies	**EV Mandates for Govt. agencies**	**Mandate for Govt. agencies and offices to adopt EVs:** to induce demand in EV market, boost EV uptake through increasing their visibility	Mandate different Govt. departments and agencies to go for EVs procurement and/or leasing for their employees commute. This can be gradual increased to 100% in next 5 years. This can drive first demand for EVs and also make it higher visible. This can be started with pool (demand aggregation) vehicles and Public Service Commission buses which are used to commute government officers	• Ministry of Infrastructure Development (MID)	Global **Example:** • Recognising the importance of reducing carbon emission in the transportation sector, eight major nations – Canada, China, France, Japan, Norway, Sweden, the United Kingdom and the United States – signed a Government Fleet

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	Govt. entity driven EVs aggregation and bulk procurement	**Aggregation of EV demand and stimulating local supply:** to improve EVs visibility through bulk procurement, deployment and bring scale in EV adoption	Authorize appropriate Govt. agency to aggregate EV demands (from Govt. departments, fleet operators, corporate, others) and do bulk procurement of EVs with increasing local supplies at additional price discounts	• Ministry of Infrastructure Development (MID)	Declaration in November 2016. • Canada: Starting in the 2019-2020 fiscal year, 75% of new light-duty administrative fleet vehicle purchases will be zero-emission vehicles (ZEVs) or hybrid, with the objective that the government's administrative fleet comprises at least 80% ZEVs by 2030. Priority is to be given to purchasing ZEVs. • **India:** CESL Demand aggregation to deploy 5000+ buses in India for intracity and intercity public transport buses.

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Grid Management	**Charging Integration for Grid stability**	**Guidelines/ standards for Grid and Chargers interconnectivity and communications for overall grid stability, safety, and EV transaction:** to maintain and govern manufacturing, import, service quality of Charging infrastructure (EVSE, Grid infrastructure, charging protocols) to ensure adoption of standardised practices and EV charging safety across the country)	Develop guidelines for grid and charger interconnectivity for both private and public chargers and charging stations. This to include easier new connection or existing sanctioned load revision for setting up EV charging.	• Ministry of Mines, Energy and Rural Electrification (MMERE) • Solomon Power (SP)	**Global Example:** • **K**enya: Kenya Bureau of Standards (KEBS) have adopted EVs standards in 2019. Up until now, a total of 24 standards have been developed and adopted, covering specifications and testing procedures for safety aspects as well as performance and power consumption elements • India: India has developed own EV standards (IS) including the specifications of charging protocols pre-requisites for setting up charging infrastructure

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	Time-of-Use (TOU) Tariff system	**TOU tariff system for Grid load management:** to optimise the power utilisation and revenue generation from power distribution for EV charging	Introduce Time of Use (TOU) tariff system for EVs connection to allow differential tariffs for EV charging based on peak and non-peak power. This to be initiated with commercial EV charging stations, but with increased smart meter integration for homes and offices, to be extended for home/work charging as well.	• Ministry of Mines, Energy and Rural Electrification (MMERE) • Solomon Power (SP)	**Global Example:** • **India:** different state has issued different tariffs for domestic and commercial charging. Typically, higher charging tariffs for EV charging range from INR 4 to INR 7.7
	Improving Grid access in urban and rural	**Expansion of grid and off-grid infrastructure and power quality:** to provide and improve access to electricity and improve reliability and reduce dependency on imports and conventional source of power	Encourage expansion of grid infrastructure for reliable EV charging in urban and rural with right mix of grid, off-grid and smart-renewable integration. Target 100% connections and 24x7 power for all. • Drive Govt. and private investments in National Grid expansion • Encourage DRE/solar mini grids (by Govt. and Private players) to integrate EVs (including plug-in charging and swap batteries) for urban and rural use cases • Revise different electricity tariffs for healthy and faster power sector development	• Ministry of Mines, Energy and Rural Electrification (MMERE) • Solomon Power (SP)	**Synergy with National Policies:** • **National Renewable Energy Policy:** • **NDC:** **Global Example:** • **Zimbabwe:** The Renewable energy policy of Zimbabwe focuses on grid expansion and 100% access to electricity in Zimbabwe by 2035

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
Disposal, reuse and recycle	**Vehicle scrappage guidelines**	**Definition of National guidelines for vehicle scrappage:** to phase-out old, non-performing and polluting ICEs from national fleet	Define guidelines for Vehicle Scrappage. • **Commercial vehicles:** Scrap after 15 years of life, if do not pass fitness and emission tests. Additional green tax for vehicles greater than 15 years life. • **Passenger vehicles:** Scrap after 20 years of life, if do not pass fitness and emission tests. Introducing green tax for vehicles greater than 20 years life OR Increase vehicle registrations charges. Get additional incentive on EV purchase when ICEV scrapped Adopt Extended Producers Responsibility (EPR) by mandating OEMs to set-up collection centres and recycling facilities.	• Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) • Ministry of Infrastructure Development (MID)	**Global Example** • **India:** According to the new policy, commercial vehicles of >15 years and passenger vehicles of >20 years will have to be mandatorily scrapped if they do not pass the fitness and emission tests

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	Objective	Description and Rationale			
	Retrofit of ICEVs into EVs	**Allowance of ICEVs retrofit to EVs:** to phase-out old, non-performing and polluting ICEs from national fleet and re-use the existing ICE fleet	Allow retrofit of ICEVs to EVs following safety standards.	• Ministry of Infrastructure Development (MID)	**Global Example:** • Kenya: Kenya is attempting the conversion of CE buses to E-Buses • **India:** India has come up with Many small-scale start-ups which are now experimenting and have some successful retro fitment for small passenger transport vehicles such as 3 Wheelers, 2Wheelers as well as small commercial utility vehicles such as tempo travellers etc.

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	Battery re-use and recycle guidelines	**Outline environmental guidelines for battery re-use and recycle:** To ensure afterlife waste-management of battery, material recovery and reuse for sustainable supply chain of EV batteries	Develop guidelines covering collection, storage, transportation, re-use and recycle of used/waste batteries from EVs. - Collect 100 percent Lithium-Ion Batteries (LIBs) from EVs through Extended Producer's Responsibility (EPR) - Clearly define battery-value for reuse in the market and create a secondary market	• Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	**Global Example**: • **China:** o Chinese government has put the responsibility of battery recycling on the OEMs. o Mandate also states that, automakers set up a national network of service stations where car owners can discard or exchange old batteries. o Rules further obligate battery makers to standardize their products to facilitate end-of-life recovery
	Vehicle scrappage and Battery recycling facilities	**Capex subsidy for setting up vehicle scrappage and battery re-use/recycle facilities:** to enable reward mechanisms to make EVs purchase attractive; enable strong afterlife management of vehicles	Provide capital subsidy and other support (land, electricity, others) for setting up vehicle scrappage and battery re-use/recycling facilities.	• Ministry of Commerce, Industry, Labour and Immigration (MCILI) • Ministry of Finance and Treasury (MOFT) • Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
R&D, Pilots, Capacity Building	**National R&D Centres on EVs**	**Establishment of Industry-Academia EVs Centre of Excellence (COE):** to develop and build necessary skills, knowledge and training mechanism for adopting and operating EVs. Also, to facilitate necessary human resource and technology developments in automotive industry	Extend R&D grants and facilitate top National Academic Institutes to build Centre of Excellence (COE) driving research and development on various aspects of EVs and broader e-Mobility and low carbon transportation and energy. Integrate close industry participation for commercial R&D, patents, start-ups incubation and scalable deployments. Allow additional fiscal incentives to industry for R&D investments in EVs, and also investments in local EV start-ups. Leverage International connects and expertise to establish training, R&D Centres for knowledge building in Solomon Island.	• Ministry of Education & Human Resource Development (MEHRD) • Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMRE)	**Global Example:** • **India:** Under make in India initiative, the government has decided to fund up to 60% of the research and development (R&D) cost for developing indigenous low-cost electric technology that will help power two, three wheelers and commercial vehicles operating in public spaces

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
	EV Pilots and Deployment	**Support for EV pilots and Experimentation:** to support EV adoption at large, pilots will help understanding the technology including pros and cons, as well as system requirements for effective operation. Also, to help reducing apprehension about EVs	Establish one Govt. linked e-Mobility Accelerator which can actively coordinate academia and industry research with focus on training needs assessment in country, running pilots, developing different use cases viability and their scale-up. It will also facilitate fund raising from various Development agencies and coordinate between different Govt. departments (Leverage International connects and Expertise).	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMRE)	**Global Example:** • Rwanda: The government is planning to pilot the use of electric buses, while in Uganda, Kiira Motors wants to manufacture solar-powered buses • **India:** India has funded e-Bus pilots in different million plus cities in India such as Ahmedabad, Pune, Kolkata, Bangalore and others
	EVs Training and Capacity Building	**Setup EVs Training and Capacity Building ecosystem:** to develop and build necessary skills, knowledge and training mechanism for adopting and operating EVs. Also, to facilitate	Encourage Technical Universities/ Institutes to develop degree and vocational courses in EVs and broader e-Mobility. Raise National EV Skills Council to focus on EV/automotive skills development and certification across different roles in EV value chain, in close association with Industry and Academia. Facilitate EVs Training infrastructure through grant money and grow Regional Training Centres.	• Ministry of Education & Human Resource Development (MEHRD) • Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMRE)	**Global Example** • **India:** Several governments, semi-government organisations and institutions are providing special training programs on e-Mobility (short term and long-term training programs). E.g., Automotive Skill Development Council

Policy Elements			Solomon Island specific Policy Recommendation Policy Description	Responsible institutions and focal points	Remarks: Regional example | Global example | Synergy with National Policies)
Element	**Objective**	**Description and Rationale**			
		necessary human resource and technology developments in automotive industry	Reserve atleast 25% seats for women trainers and learners across the awareness and upskilling activities.	• Ministry of Women, Youth, Children and Family Affairs (MWYCFA)	(ASDC), Bureau of Energy Efficiency (BEE), Automotive Research Association of India (ARAI)
		Strengthen EV repairs and services across the nation	Develop guidelines for OEMs and Dealers to partner with local institutions and build strong training and certification skill programs to build local expertise with EVs assemble, innovate, repairs & services, retrofitting, driving, etc	• Ministry of Infrastructure Development (MID) • Ministry of Mines, Energy and Rural Electrification (MMRE) • Solomon Islands Chamber of Commerce & Industry (SICCI)	

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5. Roadmap Timeline

The proposed timeline for implementing various measures is given in Table 5.1 and Table 5.2

Table 5.1 EV Targets, Demand Side Measures and their timelines of implementation

Components	Short Term (2022-2025)				Medium Term (2026-2030)					Long Term (2031-2035)				
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
EV Targets	See **Table 4.1** and **Table 4.2**													
EV Chargers Targets	See Table 4.3													
Demand Side Measures														
EV Fiscal Measures														
1. Capital subsidy on EVs	Capital subsidy @ 0-30%				Capital subsidy @ 0-20%					Capital subsidy @ 0-15%				
2. Concessional taxes on EVs														
- GST	Reduce GST on EVs as per requirement for different vehicle segments (Refer Table 5.4)													
- Custom Duty	Reduce Custom Duty on EVs as per requirement for different vehicle segments (Refer Table 5.4)													
- Vehicle registration charges	EVs exempted till 2035 on all vehicle segments													
3. Capital subsidy on chargers	Capital subsidy for slow chargers (SC) @ 50% and fast chargers (FC) @ 75%				Capital subsidy for SC @ 30% and FC @ 30%					Capital subsidy for SC @ 20% and FC @ 20%				
EV Non-Fiscal Measures														
1. Ease the registration process	Yes													
2. Support the EV retrofit program	Yes													
3. Preferential access (streets, tourist places, etc.)	Yes													
4. Bank financing and accelerated depreciation	Include EV financing into the bank's priority sector lending portfolio. Allow accelerated depreciation on new EVs													

Components	Short Term (2022-2025)				Medium Term (2026-2030)					Long Term (2031-2035)				
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
5. Amendment of building and city development codes to provide charging facilities	Yes													
ICEV Fiscal Dis-Incentive Measures														
1. Tax increase on ICEVs														
- GST increase on ICEVs	Increase GST to 21.05%				Increase GST to 22.05%					Increase GST to 23.05%				
- Custom Duty increase on ICEVs	Increase Custom Duty to 12%				Increase Custom Duty to 14%					Increase Custom Duty to 16%				
- Fuel tax increase- custom duty	The yearly increase in customs duty on diesel and gasoline by 1%													
ICEV Non-Fiscal Dis-Incentive Measures														
1. Pollution test and certification	Mandatory periodic pollution test certification for all ICEVs													

Table 5.2 Supply Side Measures and their timelines of implementation

Components	Short Term (2022-2025)			Medium Term (2026-2030)						Long Term (2031-2035)				
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Supply Side Measures														
EV Fiscal Measures														
1. Reduce import duties on EV sub-systems	Applicable													
EV Non-Fiscal Measures														
1. Vehicle emission norms	Develop and enforce vehicle emission standards			Enforce emission norms						Enforce and upgrade emission norms				
2. Fuel emission norms														
3. Revision of vehicle classification system to include EVs	Develop	Enforce								Enforce and upgrade				
4. EV and charging infrastructure standards														
5. Charging infrastructure development														
- Low-cost land allotment for public charging	Applicable													
- Incentivise power distribution companies	Encourage power distribution companies to set up public charging infrastructure													
6. EV grid management	Expansion of grid and off-grid infrastructure and power quality									Expansion and maintenance of grid and off-grid infrastructure and power quality				
7. Tariff revision	Revise EV tariff (yearly) and allow TOU tariff													
8. EV pilots	Focus on intracity public transportation with 10 e-Buses													
9. EV retrofit allowance	Applicable													
10. EV repair and maintenance (R&M)	Strengthen R&M capacity for EVs across the country									Upgrade R&M capacity for EVs across the country				
11. Scrappage and disposal measures														
- Battery recycling	Develop standards and enforce									Enforce and upgrade				

Components	Short Term (2022-2025)			Medium Term (2026-2030)						Long Term (2031-2035)				
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
- Vehicles scrappage policy	Develop standards and enforce									Enforce and upgrade				
12. Awareness and skill development														
- EV training centres (national/regional COE8)	Setup EVs training and capacity building ecosystem			Develop and conduct training programs						Develop and conduct training programs for new clean technologies				
- EV awareness program for Government agencies	Yes													

8 COE: Centre of excellence

E-mobility policies in selected countries/regions are given in Table 5.3

Table 5.3 E-mobility policies in selected countries/ regions

Parameters	China	European Union	Japan	US	India
Demand Side					
Fiscal Incentives					
Vehicle Segment-wise Subsidy	✓	✓	✓	✓	✓
Registration Fees / Charges	✓	✓	✓	✓	✓
Tax exemption / concession	✓	✓	✓	✓	✓
Charging Infrastructure	✓	✓	✓	✓	✓
Non-Fiscal Measures					
Building code/bylaws	✓	✓		✓	✓
Supply Side					
Fiscal Incentives (Subsidies/ tax / fees)					
EV Manufacturers	✓	✓	✓		
Battery Manufacturers	✓	✓	✓	✓	✓
Charger Manufacturer	✓	✓	✓	✓	✓
Land related incentives	✓	✓	✓	✓	✓
Non-Fiscal Measures					
ZEV Mandates	✓	✓		✓	✓
Electricity Tariff and regulations	✓	✓	✓	✓	✓
Fuel Economy standards	✓	✓	✓	✓	✓
Battery Recycling and Re-use	✓	✓	✓	✓	✓
Capacity Building and Skill Development	✓	✓	✓	✓	✓

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6. Impacts of E-mobility adoption: Costs and Benefits

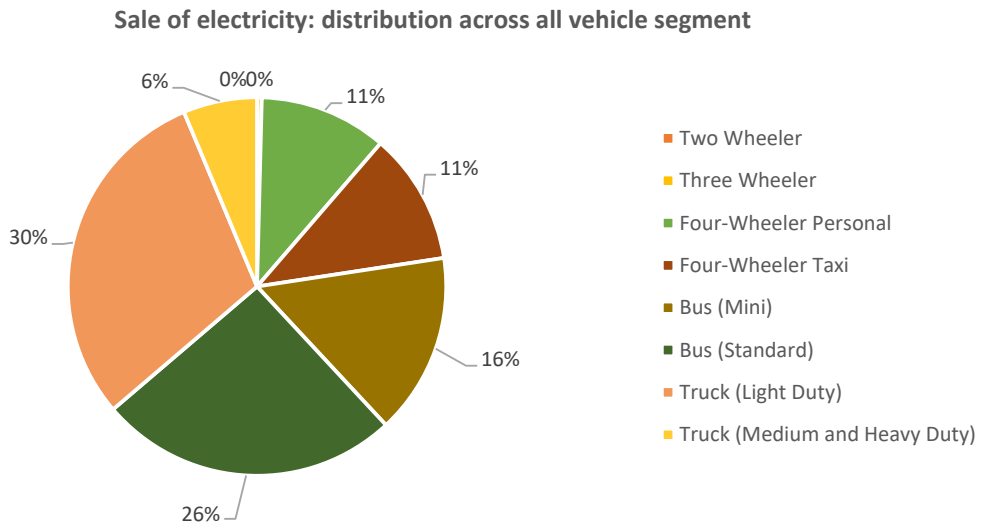
6.1 Resource requirement and cost to government for e-Bus adoption

Based on the policy measures and targets for EV adoption, the budget and electricity requirements have been estimated. The cost implications to the government for EV adoption are in terms of the capital subsidy provided for vehicle purchase and chargers installations, and expenditure on public awareness programs. The net impact of required resources, changes in taxes is captured and net cost-benefit is assessed below in Table 6.2.

6.1.1 Electricity requirement for EV Charging

The estimated overall electricity consumption from 2022 to 2030 is about 185 million units (Mn kWh). The electricity consumption by different vehicle segments is shown below in Figure 6.1.

Figure 6.1 Electricity consumption from the sale of electricity to EVs



6.1.2 EV Budget and Cost to Government

Rationale to EV Subsidy

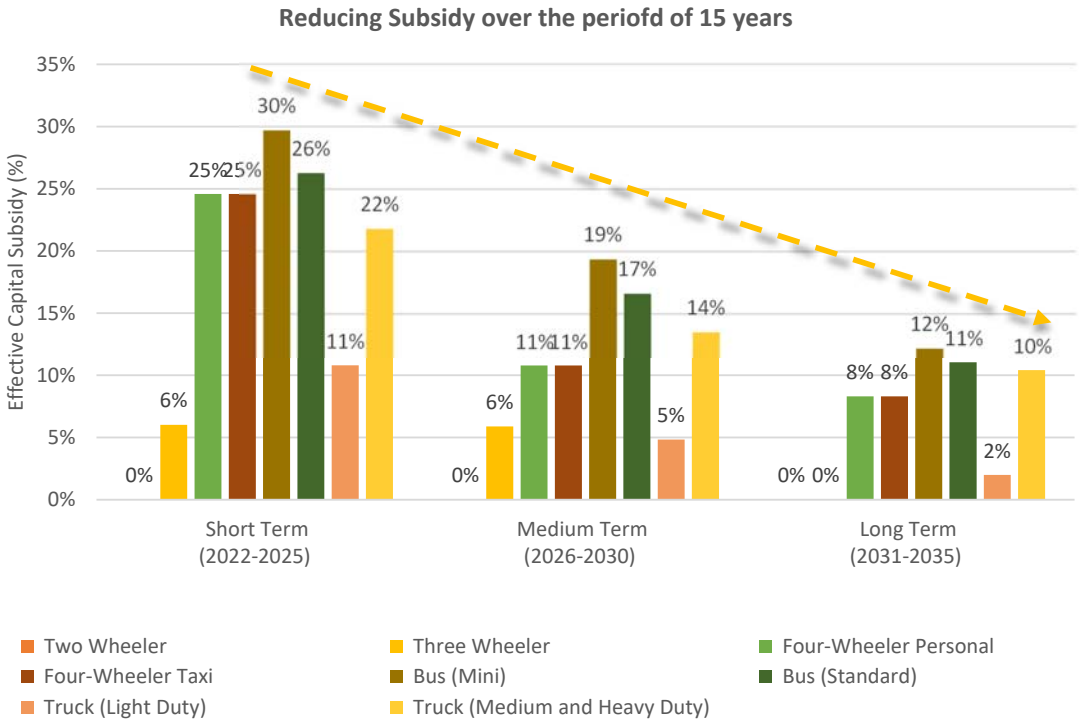
The capital subsidy requirement was calculated considering the current total cost of ownership (TCO) of various vehicles. Table 6.5 shows the current status of TCO advantage/ disadvantage of EVS for various vehicle segments and related subsidy requirements.

Table 6.1: EVs affordability and subsidy requirements

								
EV Segments	**Two Wheeler**	**Three Wheeler**	**Four Wheeler - Personal**	**Four Wheeler - Taxi**	**Bus – Mini**	**Bus - Standard**	**Truck (Light duty)**	**Truck (Medium-heavy duty)**
% TCO advantage over ICEVs*	-27%	8%	59%	10%	167%	241%	189%	253%
% higher cost over ICEVs without incentives	-17%	3%	65%	53%	191%	588%	10%	389%
% of Subsidy on battery	0%	10%	100%	100%	100%	100%	30%	100%
% GST reduced	0%	0%	84%	96%	100%	100%	0%	100%
% Customs reduced	0%	0%	0%	0%	100%	100%	0%	100%
% higher cost over ICEVs with/after incentives	-17%	-3%	0%	0%	49%	269%	0%	178%
Reduced GST (%) (Incentive)	No	No	**Yes**	**Yes**	Exemption	Exemption	No	Exemption
	19.0%	19.0%	3.0%	0.7%	0.0%	0.0%	19.0%	0.0%
Reduced Custom Duty (%)	No	No	No	No	Exemption	Exemption	No	Exemption
	10.0%	10.0%	10.0%	10.0%	0.0%	0.0%	15.0%	0.0%
Proposed Subsidy on Batteries as % of total EV cost	0%	6%	25%	25%	30%	27%	11%	22%
Proposed Subsidy (USD/unit)	0	138	9200	8856	15180	42780	2762	31050

The government would need to support the Bus segment due to very high purchase costs even after 2031 All other Vehicle segments to be supported till 2030 through subsidies

Figure 6.2: EVs affordability and subsidy requirements

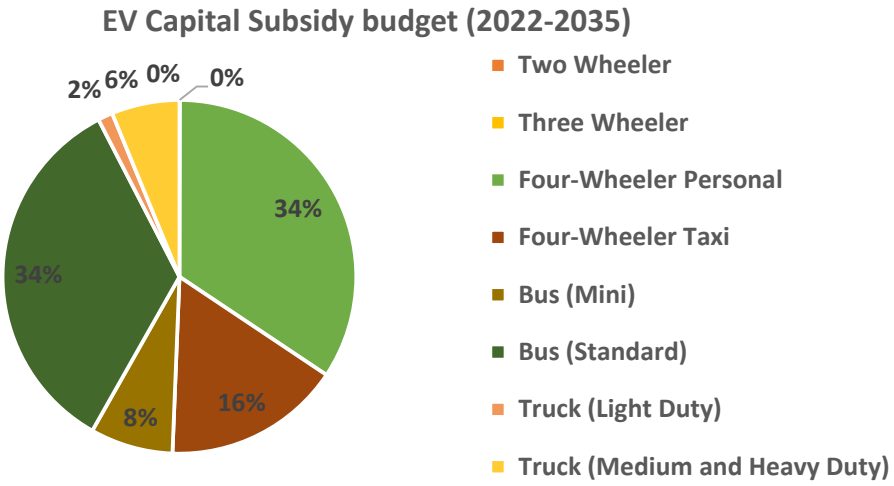


- **e-2W and e-3W** do **not required subsidy** due to parity
- **But Bus (Mini and Standard segments), and Truck (medium to heavy segment) having higher TCO and not achieve parity; will need support throughout till 2035**
- This is to be in the form of both Subsidies, GST and C**ustom duty reduction/exemption till 2035 in addition to the subsidy**.

EV Budget & Cost to government

The overall EV budget is estimated to be 26.3 million USD for 2022-2035. The cumulative budget proposed for fiscal incentives for EV promotion from 2022 to 2035 is less than 1% of the GDP of the Government of Solomon Islands for the year 2022. The overall impact of the proposed measures on revenues is positive even after providing the subsidies. The capital subsidy budget as per the vehicle segments is provided in **Error! Reference source not found.** below.

Figure 6.2 EV Capital Subsidy budget for various vehicle segments



Besides the program budget, there are cost implications in terms of revenue collection due to changes recommended in the vehicle and fuel tax structures. The net impact on revenue collection (after considering losses due to tax rebates to EVs and gains due to tax increases on ICEVs) is estimated at -2.6 million USD in short term (2022-2025) and 18.6 million USD for the medium term (2026 to 2030) and 58.8 million USD for the Long term (2031-2035). The details are given in Table 6.7.

Table 6.2 Financial impact from recommended measures (Million USD)

S.No	Description	Short Term impact (2022-2025)	Medium Term impact (2026-2030)	Long Term impact 2031-35	Total impact (2021-2030)
A.	**EV Promotion Budget**				
1.	**EV Capital Subsidy**	5.6	12.8	6.0	24.4
	Two Wheeler	-	-	-	-
	Three Wheeler	0.0	0.0	-	0.0
	Four-Wheeler Personal	3.4	2.7	2.3	8.4
	Four-Wheeler Taxi	1.4	1.3	1.3	4.0
	Bus (Mini)	0.3	0.9	0.7	1.8
	Bus (Standard)	0.2	7.2	1.0	8.4
	Truck (Light Duty)	0.1	0.1	0.1	0.3
	Truck (Medium and Heavy Duty)	0.2	0.6	0.6	1.5
2.	**EV Chargers Subsidy**	0.1	0.2	0.3	0.6
	Slow Chargers	0.0	0.0	0.0	0.1
	Fast Chargers	0.1	0.2	0.3	0.6

3.	**Public Awareness Program**	0.3	0.7	0.3	1.3
Total EV Promotion Budget (A)		6.0	13.7	6.7	26.3
B.	**Impact on Tax Revenue Due to Change in Vehicle Taxes**				
1.	Additional tax revenue from an increase in taxes on the sale of ICEVs	-	33.0	26.9	59.8
2.	Loss in revenue from a decrease in taxes on the sale of EVs	(5.0)	(34.7)	(9.5)	(49.2)
Net impact on vehicle tax revenue due to change in vehicle tax structure (B)		(5.0)	(1.7)	17.4	10.7
C.	**Impact on Tax Revenue Due To Change In Fuel Taxes**				
1.	Additional tax revenue on sale of gasoline	0.7	5.7	11.2	17.6
2.	Additional tax revenue on sale of diesel	1.7	14.6	30.2	46.5
Net impact on fuel tax revenue due to change in fuel tax structure (C)		2.4	20.3	41.4	64.1
Net impact on tax revenue due to change in both vehicle and fuel tax structure (B+C)		(2.6)	18.6	58.8	74.7
D.	**Overall cost to the Govt[9]**	**(11.0)**	**(48.4)**	**(16.1)**	**(75.5)**

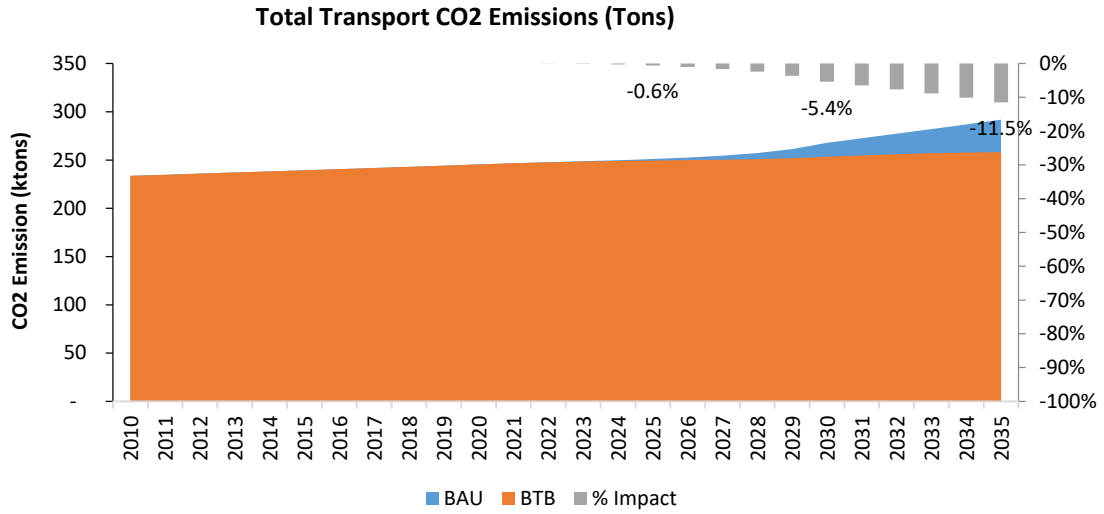
6.2 Benefits from EV adoption

6.2.1 Climate Benefits

As per the base case scenario, the current (2021) composition of vehicle stock is responsible for producing 247,600 tons of CO2 emissions. For the target year 2030, total CO2 emissions are estimated to reach 2,91,767 tons by 2035 (an increase by ~17.84 % from 2022 levels) as per BAU Scenario. In the EV adoption (BTB) scenario, the CO2 emissions are estimated to be 2,58,120 tons by 2035 (increase by ~4.3% from 2021 levels). It is therefore estimated to reduce CO2 emission by ~11.5% by 2030 under the EV adoption scenario as given in Figure 6.3.

[9] Overall cost to government includes, EV Budget plus the amount of lossess occurred due to tax reductions as per the policy roadmap (Table 4.4)

Figure 6.3 CO2 Emission reduction (Kilo-Tons)



6.2.2 Environmental Benefits

Solomon Islands import vehicles and has very limited service, repaire and maintenance capacity. Most of the imported vehicles are pre-owned and the average age is more than ten years. Implementing stricter emission norms and adoption of EVs in the BTB scenario would reduce PM emissions by ~2.2%; NOx emissions by ~6.4% and SO2 emissions by ~-11.7% by year 2035 if the targets are achieved[10]. The reduction in air pollutants could help save ~ 0.3 million USDs over a period till 2035.

A summary of the environmental benefits is given in Table 6.4. in Figure 6.4,Figure 6.5,Figure 6.6.

Table 6.4 Summary of environmental benefits

	Environmental Benefits	Unit	Short Term 2022-25	Medium Term 2026-30	Long Term 2031-35	Total 2022-35
a)	**Reduction in GHG Emission**	**Tons**	(2,543)	(37,245)	(1,26,634)	(1,66,422.2)
	Two-Wheeler	Tons	(7.0)	(91.4)	(359.8)	(458.2)
	Three-Wheeler	Tons	(146.2)	(456.6)	(721.2)	(1,324.0)
	Four-Wheeler Personal	Tons	(481.4)	(4,850.9)	(14,519.5)	(19,851.7)

[10] Assumptions for estimating pollutants emission - Euro 1 norms were applicable for the year 2010 to 2014; Euro 2 norms are applicable for the year 2015 to 2022; Euro 4 and above norms will be implemented by the Solomon Islands government from year 2021-2030 and Euro 5 from year 2031 onwards. For estimation purpose, it is assumed that this norm will be applicable till 2035

	Four-Wheeler Taxi	Tons	(1,116.2)	(11,383.5)	(37,519.0)	(50,018.7)
	Bus (Mini)	Tons	(326.8)	(4,434.4)	(16,550.1)	(21,311.3)
	Bus (Standard)	Tons	(95.8)	(9,690.3)	(32,948.8)	(42,734.9)
	Truck (Light Duty)	Tons	(265.5)	(4,827.8)	(18,521.3)	(23,614.5)
	Truck (Medium and Heavy Duty)	Tons	(104.3)	(1,510.3)	(5,494.2)	(7,108.9)
b)	**Reduction in Pollutants emissions (PM, NOx, Sox)**					
	PM emissions	Tons	(1)	(3)	(4)	(7.0)
	NOx emissions	Tons	(13)	(122)	(175)	(309.5)
	SOx emissions	Tons	(0)	(1)	(0)	(1.0)

Figure 6.4 BAU vs BTB Passenger Transport- PM Emissions (Tons)

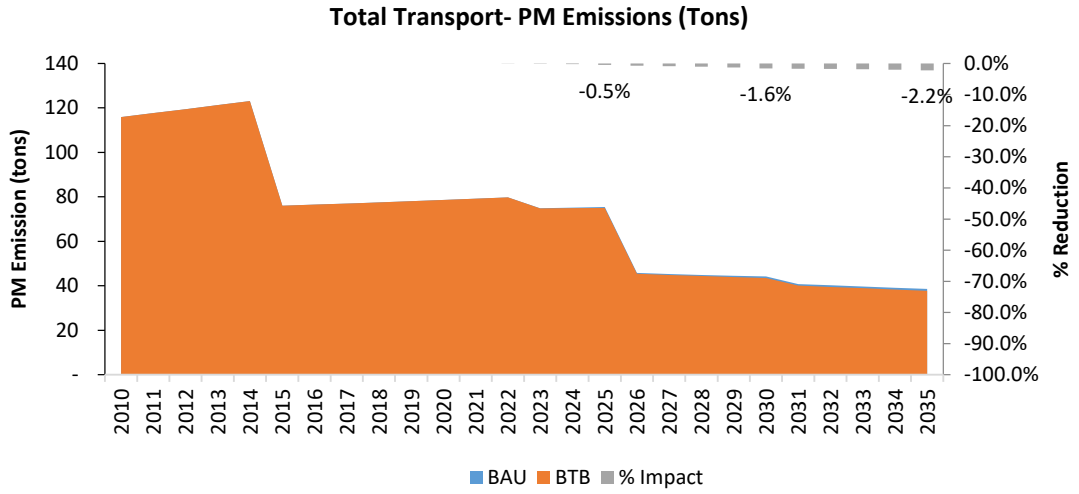


Figure 6.5 BAU vs BTB Passenger Transport- NOx Emissions (Tons)

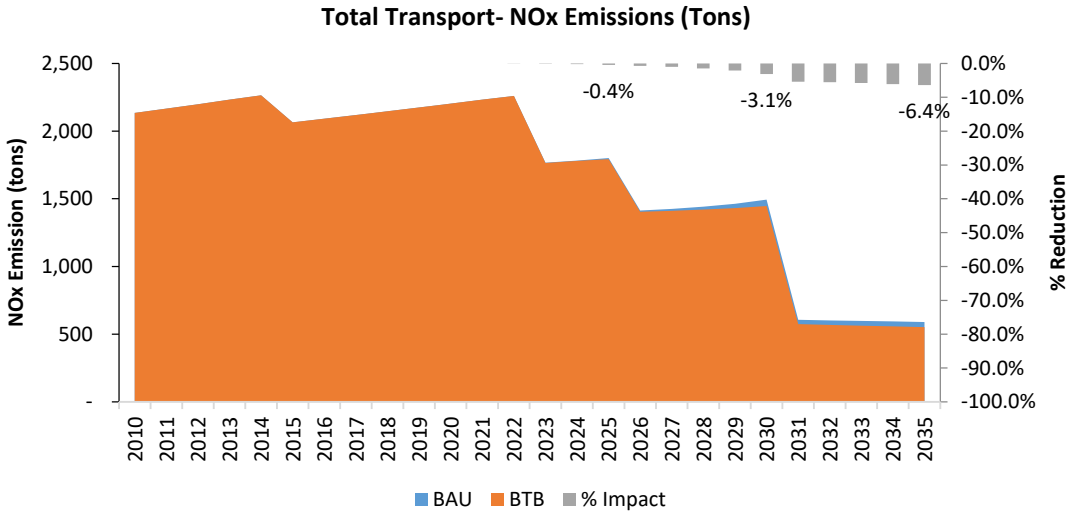
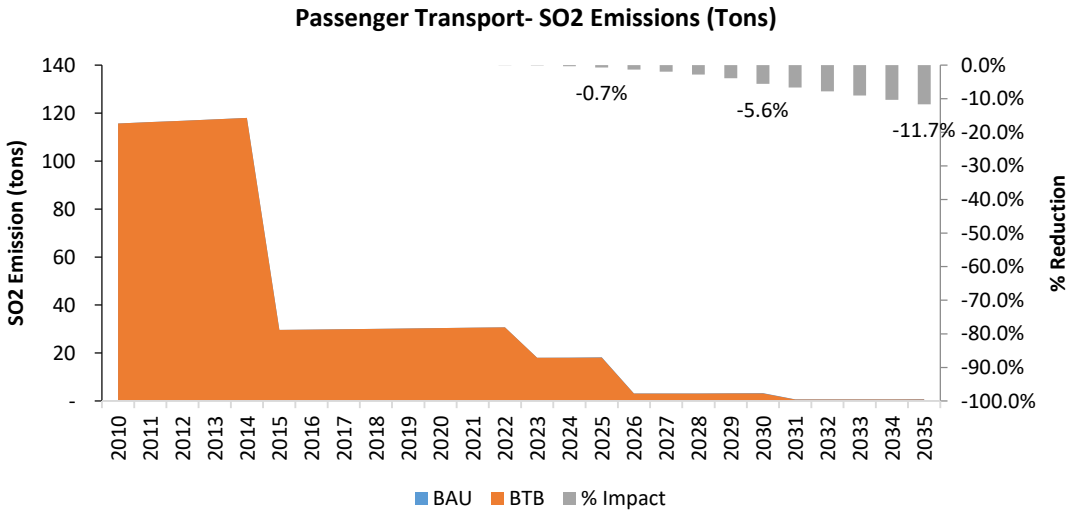


Figure 6.6 BAU vs BTB Passenger Transport- SO2 Emissions (Tons)



6.2.3 Social Benefits

Evidence from epidemiological and toxicological studies indicates that transport-related air pollution affects several health outcomes. Such pollution contributes to an increased risk of death, particularly from cardiopulmonary causes, and it increases the risk of non-allergic respiratory symptoms and

disease.[11] The ICCT study[12] links vehicle tailpipe emissions to ~361,000 global premature deaths from ambient PM2.5 and ozone worldwide in 2010 and ~385,000 in 2015, equivalent to 11.7% of global ambient PM2.5 and ozone premature deaths in 2010 and 11.4% in 2015. The EVs have zero tailpipe emissions[13] providing direct health benefits in the region. In terms of societal benefits, the introduction of EV two-wheeler and three-wheeler will provide micro-mobility benefits to the relatively poor segments.

6.2.4 Other Benefits

The global electric car market has been experiencing rapid growth for more than a decade now and reached 10 million vehicles in 2020, which was a 43% increase over 2019 and represented a 1% stock share. About 3 million new electric cars were registered globally in 2020. Two third of the stock was that of battery electric vehicles (BEVs). Several governments supported electric cars through fiscal and other incentives and electric cars are slowly becoming competitive in some countries (IEA, 2021). Solomon Islands' automotive market can benefit from the exponentially growing global market. It provides an opportunity for the country to promote e-Mobility and utilize it for leveraging a good industry ecosystem for small assembly, retrofitting and supply of items related to EVs.
The fuel savings from switching to EVs were estimated at 51.6 million litres, leading to a foreign exchange savings of about 161.5 million USD (at March 2022 rates) by 2035.

[11] WHO, 2005. Health effects of transport-related air pollution. https://www.euro.who.int/en/data-and-evidence/evidence-informed- Zimbabwepolicy-making/publications/hen-summaries-of-network-members-reports/what-are-the-effects-on-health-of-transport-related-air-pollution, n

[12] ICCT. A global snapshot of the air pollution-related health impacts of transportation sector emissions in 2010 and 2015. https://theicct.org/publications/health-impacts-transport-emissions-2010-2015.

[13] emissions may be produced by the source of electrical power, such as a power plant

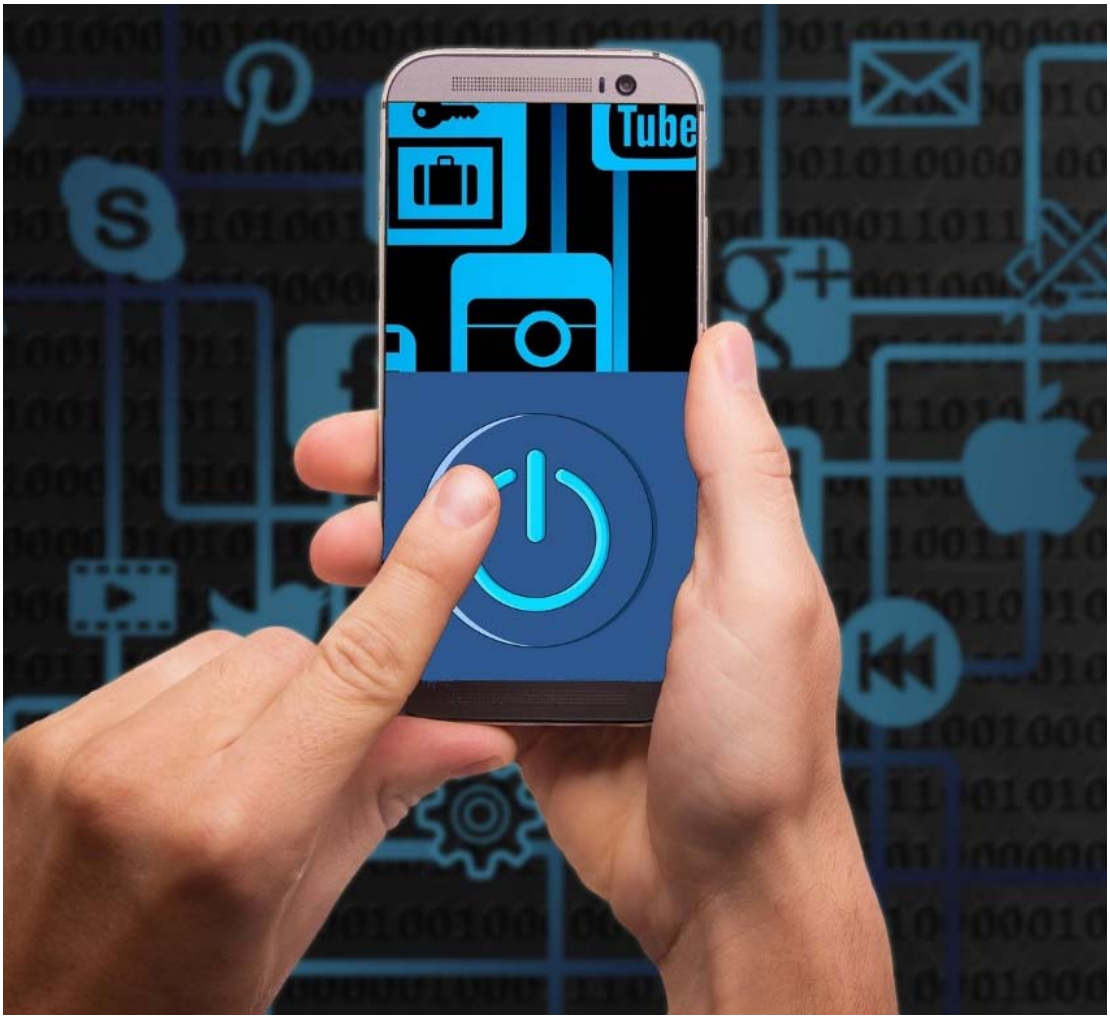


Photo credit: Fabian Krüger from Pixabay

7. Conclusion

The EV Policy Roadmap for Solomon Islands has been developed with the active involvement of several stakeholders from the government and private sector in Solomon Islands. Several presentations and discussions have been undertaken with the steering committee and stakeholder ministries to get input and guidance from them. Their involvement and inputs have helped assess the priorities of Solomon Islands for transition to EVs.

During the development of the policy framework for e-mobility, intracity-public transport was prioritized by stakeholders as the potential segment to kick start the e-Mobility adoption in the

country. The suggested measures in the policy roadmap for the 2022-2035 period would help the government in realising various e-mobility targets including EV adoption for public transportation. EV adoption in the case of low hanging fruits such as two and three-wheelers may be relatively easy due to their overall economics and small numbers.

The proposed demand-side measures including the subsidy, tax incentives and other non-financial measures prioritising EV use will help make EVs an attractive option for end-users. Other proposed measures include awareness raising and capacity building of the relevant stakeholders.

Supply-side measures will help the development of the EV supply chain. The measures include fiscal incentives and EV mandates for OEMs, dealers and governmental agencies. Other suggested measures include the development of standards for EVs to ensure safety; the development of guidelines for charging infrastructure, vehicle and battery scrappage; favourable taxes; and electricity pricing reforms in favour of EVs.

EVs adoption targets 2022-2035 are estimated to cost about 26.3 million USD of which more than 44% is subsidy to the buses, primarily due to their high cost and the need to keep public transportation costs low. Another 4 Mn USD i.e., 16% subsidy is suggested to be exteded to Taxis as another public transport mode. This is followed by incentives for private cars at 8.4 million USD due to their high numbers, other promotion and awareness costs at 1.3 million USD and Charger subsidy at 0.6 million USD. However, these costs can be neutralized by taxes on ICEVs to disincentivise their use. The proposed measures in fact can help earn the government additional revenue besides meeting all the above costs. EV adoption will also reduce GHG emissions (assuming decarbonization of electricity in future) and thus contribute to meeting the national targets for GHG emission reduction. Reduction in air pollution will provide social benefits, including reduced expenditure on health.