GOVERNMENT OF FIJI
ZERO EMISSION BUS NETWORK

Prepared By:

Ebusco & Smartgen

101 Collins Street, MELBOURNE VICTORIA 3000

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

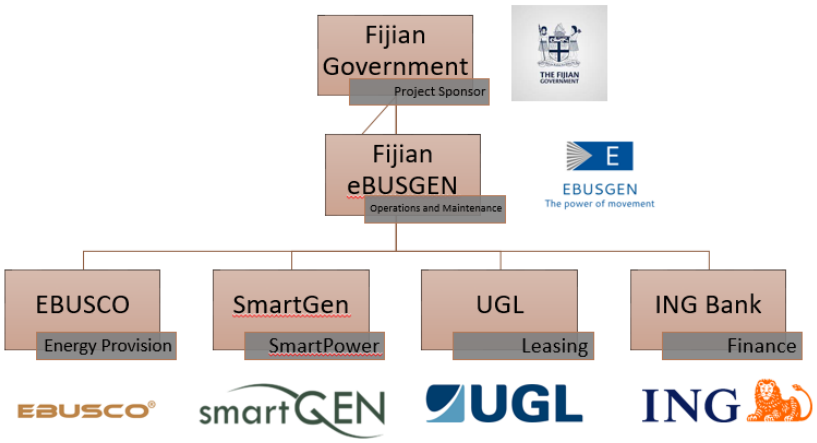
Ebusco & SmartGen *(operating as the Consortium)*has formed a consortium know as EBUSGEN to provide a trusted transport partner for the Land Transport Authority (Land Transport Authority). We are pleased to provide a proposal for the Zero Emission Bus (ZEB) Trial.

We have been committed to developing Electric vehicles since 2012. We are uniquely positioned to provide the Land Transport Authority with a platform to successfully pilot zero emission buses in Fiji's operational setting and provide a pathway to transition regional fleets to fully zero emission.

Fiji is experiencing a Regional Renaissance. Over the past 18 months, after covid-19, we are seeing a surge in the number of people seasonally visiting to Fiji, leaving urban centres for lifestyle reasons. This 'regionalisation' is felt strongly in areas like Fiji that offer attractive places to live without chronic transport congestion, whilst maintaining close proximity to cities, making daily commuting a possibility.

The provision of an electric bus service within the region will provide further encouragement for city-commuters to utilise the local public transport network and participate in the innovative technologies that are the foundation of the future inter-regional transportation hubs.

To assist us in the delivery of the pilot program, we have created a consortium of experts in specialist areas to provide the best commitment, depth and breadth of support in order to deliver the required outcome. Ebusco will provide their latest bus (Ebusco 2.3) along with their charging infrastructure, energy monitoring and management will be conducted by Smartgen, PMP will provide transition and monitoring of operations, research will be conducted by Deakin University, with ING backing the consortium and proposal.



Ebusco 2.3- Groningen, Netherlands

Table 1: Pilot Program Options

To assist Land Transport Authority in providing a range of trials across a broad range of settings, the consortium have offered 3 proposals to consider.

Option	# of Buses	Bus & Charger specifications	Service provision/ Use Cases
Option A	**20**	• 20 x Ebusco v2.3 bus (12.5-metre) 423-kWh battery pack (ADR compliant) • 10 x dual plug Ebusco 120KW charger	• 26 x Commuter bus routes
Option B	**40**	• 40 x Ebusco v2.3 bus (12.5-metre) 423-kWh battery pack (ADR compliant) • 20 x dual plug Ebusco 120KW charger	• 46 x Commuter bus routes • All School routes
Option C	**60**	• 60 x Ebusco v2.3 bus (12.5-metre) 423-kWh battery pack (ADR compliant) • 30 x dual plug Ebusco 120KW charger	• 66 x Commuter bus routes • All School routes • Additional routes to include peak city-commuter transits

Table 2: Supplementary Support for Pilot

Item	Commentary
Energy Modelling and Supply Chain (SmartGen)	SmartGen will develop a comprehensive energy model to enable Land Transport Authority to clearly forecast and monitor the energy distribution and infrastructure requirements to enable accelerated transition of the fleet to zero emission into the future.
Optional - Transition to Operations & Project Pilot Paper (PMP Urbanists)	PMP Urbanists (formerly MRCagney) will provide technical and operational expertise for seamless transitional operations by: • Providing project management support and stakeholder facilitation, • Providing analytical capability to measure and regularly report on the trial. PMP Urbanists will deliver a comprehensive project pilot report which will capture all lessons learnt as well as provide strategic recommendations for Land Transport Authority to consider into the future beyond 2025.
Optional - Research (Deakin University)	As part of the pilot program, Deakin University (in co-operation with a local Fijian University) will conduct research and analysis in the following key areas: • Community and Customer Engagement with a focus on transport safety as well as understanding accessibility and inclusion, • Modelling and simulation assessment and analysis. Findings of the research will be provided throughout the trial period to Land Transport Authority as well as delivered in a comprehensive report at the conclusion of the trial.

All options will provide Land Transport Authority with vital information and performance results across a broad range of settings. Our recommendation is Option B, the provision of 40 electric buses covering all commuter routes in Fiji plus school routes. As a consortium we believe that this option will provide Land Transport Authority with in-depth insights into energy provision, day-to-day operations, risk analysis, and opportunities in deploying and maintaining zero emission buses in a regional operational setting.

Fiji Defence Minister Inia Seruiratu has told an Asian security summit that climate change is a bigger threat to the Pacific than military tensions. He was addressing a summit in Singapore which has focused on China-US tensions and the Ukraine war. Cyclones have repeatedly battered Fiji and other low-lying Pacific countries.

"It threatens our very hopes and dreams of prosperity. Human-induced, devastating climate change," Mr Seruiratu told the forum, called the Shangri-La Dialogue.

Fiji has developed a range of environmental policies and plans that we have aligned with our proposal. We believe that the Fijian community will wholeheartedly support this pilot and get behind this to ensure that it is a success for the whole Fijian region.

This act recognises that urgent action is needed to address the current and future impacts of climate change on the health, economy and wellbeing of the local community and its environment.

Finally, our submission follows the template provided by Land Transport Authority, to ensure ease of access for all information as required to make its determination on our proposal. We look forward to a positive result and being invited to participate procurement process, and eventually to be part of Land Transport Authority ZEB pilot programme.

2.0 ABILITY TO BE IMPLEMENTED & OPERATIONALISED

2.1 CUSTOMER BENEFITS

2.1.1 Fiji Customers

Fiji has a history of good bus services with affordable, safe, regular and dependable buses reaching 95% of the population. Private companies run bus services with low levels of subsidy. Passengers considered bus services beneficial, safe and affordable but they also wanted clean, safe, modern and comfortable buses.

The good, reliable timetabled services at controlled fares have developed over many years due to conscientious operators and effective regulation for routes, prices, safety and competition. The bus industry was protected from excessive competition. Operating costs have risen faster than income, resulting in an aging fleet that has compromised passenger safety.

The LTA Act. empowers LTA to regulate buses in numerous ways including bus standards, inspection, safety, emissions, routes, timetables and fares. The LTA Act is comprehensive, but weak on emission control. The Consultants reviewed Road Route Licenses (RRLs). There are 188 main RRLs issued to 66 companies, which provide excellent network coverage in urban and rural areas. Bus fares are comparable to other countries. Rural roads have 2 km fare stages giving higher fares than urban roads (3 km stages). LTA is responsible for setting fares

2.1.2 Emissions, smoke and noise pollution

Black smoke can be caused by a number of factors including:

- Inadequate maintenance of fuel injection equipment
- Incorrectly adjusted maximum delivery stop in the governor
- restricted air filter system
- High back pressure in the exhaust system.

Only a minority of buses in Fiji are very smoky and many smoky vehicles on the roads of Fiji are not buses. Nevertheless, smoky buses are seriously damaging the image and reputation of the industry. A loud exhaust roar that clearly advertises the presence of the offending vehicle often exacerbates the impression given by the smoky bus.

Old Leyland buses, legendary for their robustness and reliability, seem particularly susceptible to giving off smoke and noise pollution. Many people interviewed, including government officials, consumer organisations and bus passengers felt that smoky buses characterised the industry.

The negative image of smoky buses is often portrayed in newspapers and other media. In the survey of bus passengers, 40% of respondents wanted newer and cleaner buses, while 22% said they would be prepared to pay for higher fares if the buses were less smoky

ZEB Bus Pilot Customer Focus

In line with Fiji Bus strong focus on customer experience, the ZEB bus trial will provide an additional layer of focus on customers.

The consortium has adopted the C.A.R.E.S philosophy which is detailed below

Comfortable	**A**ffordable	**R**egional Renaissance	**E**lectric	**S**afety
Electric bus offers passengers an ergonomic and almost silent journey. Truly the most comfortable bus that has been produced by Ebusco.	Electric buses are affordable and competitive in price not only to purchase/lease but also to run and maintain, making it a good investment for Land Transport Authority and taxpayers dollars.	Fiji is entering a new dynamic phase of regionalisation in transport and accessibility, where the chronic congestion of city living is no longer a requirement of holding a city job.	EBUSGEN consortium are specialists in the electric vehicle industry, electric vehicle charging and renewable energy generation and storage, providing more than 1,000 units worldwide.	Passenger Safety is paramount in all aspects of our offering.

Using the latest EBUSGEN consortium electric bus, charging, renewable energy generation and storage technology, we are confident that we will be able provide our customers a safe, efficient and almost silent journey whilst maintaining our enviable service performance record. Details of our passenger comfort and benefits will be further described in the next stage of the submission.

In addition, our proposal to Land Transport Authority also focuses on conducting research focused on Customer Experience which will be delivered by Deakin University. This program of works (detailed in section 4.3) is specifically targeted to provide Land Transport Authority with vital information from the ZEB pilot program, to allow Land Transport Authority to make bold decisions beyond 2025 for reliable inter regional transportation solutions. Topics addressed but not limited to include;

1. Customer experience
2. Operational performance
3. Community engagement and
4. Passenger safety

2.2 TRIAL SIZE

We are offering 3 options to consider for the trial size of the pilot program, these are as follows:

Option A	20 x Electric Buses	Commuter services
Option B	40 x Electric Buses	Commuter services + School services
Option C	60 x Electric Buses	Commuter services + School services + Regional Routes

Our trial size opportunities, provides Land Transport Authority flexibility to enable it to undertake other trials simultaneously across Fiji extensive bus network.

Our recommendation for this pilot is to invest in Option B; the provision of 40 x Electric Buses. We believe Option B will provide Land Transport Authority with vital data and information to enable it to make informed decision beyond 2025.

Within this option, the Electric Buses will operate across all Commuter bus routes providing service coverage throughout all periods of the day. This option also provides us the opportunity to service the School Routes, thus engaging with the next generation of decision makers and global ambassadors.

Significantly, due to limited vehicle availability, Fiji Bus Lines currently provides all school services with non-DDA compliant buses (non-low floor buses, unless required). The provision of these buses would mean that for the first time, school services would be able to comply with DDA legislation.

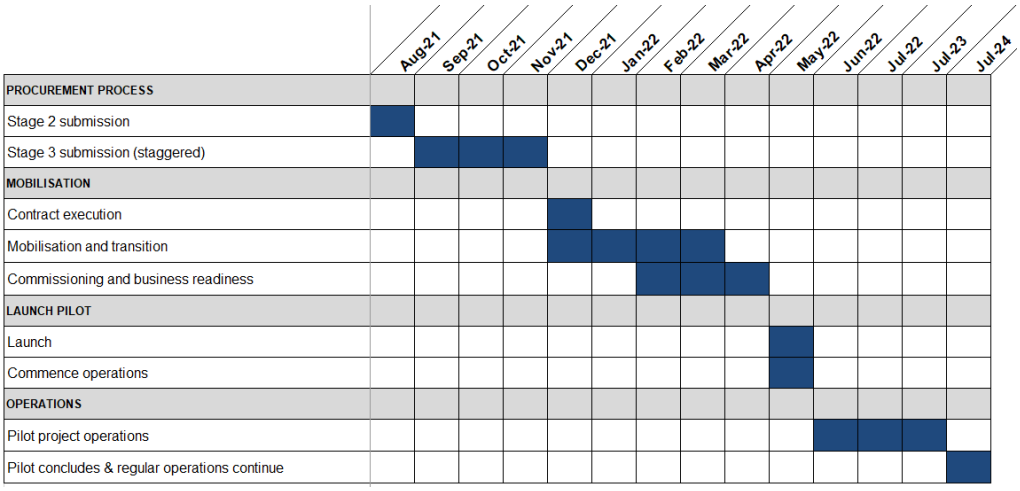
Whilst we embark upon the journey of dynamically shifting mindsets, we see this emerging demographic as being a vital component within the electrification transition. Our aim is to be a part of the passenger behaviour tendency shift that traditionally favours private transport, to a more efficient and reliable public transport network.

2.3 Timing for Delivery

We appreciate the urgency to commence the ZEB pilots so that we can help inform the long-term transition to a complete ZEB fleet across all Fijian bus operations beyond 2025. We will utilise our consortiums globally tried and tested project management methodology to deliver a seamless project for Land Transport Authority.

EBUSGEN consortium have significant experience in delivering electric bus services and charging infrastructure since 2012. Our local team will be supported by our consortium partners, who also have hands-on experience of bus operations, electric bus manufacturing, charging infrastructure development and renewable energy generations and battery storage system design and manufacturing. This collective experience provides us the knowledge and confidence that Land Transport Authority can be assured we will work collaboratively and transparently to deliver the pilot on time and on budget.

The following provides a high-level overview of the proposed timing for our project, noting that in our experience bus operations will commence 6 months from contract signing.



2.4 Safety

EBUSGEN are committed to providing safe, clean, and comfortable journey for all our passengers. Significantly, over the past 3 years, we have reported no operational breaches and have had no work cover claims. This is a testament to our staff who take safety very seriously. As is expected, we have existing operational safety procedures which all staff are trained in on a regular basis. Our excellent safety record means Land Transport Authority can rest assured that we will apply our same focus and energy on operating a safe service as part of the ZEB pilot program.

In relation to the bus itself, Ebusco offers several safety mechanisms as standard that enables operators to implement the buses with confidence. The following table provides some of these standard features:

DDA Complaint	Ebusco v2.3 buses are 100% DDA complaint.
Advanced Acoustic System	The Ebusco v2.3 buses all come standard with a 'tram-like' bell. Due to being silent in operation
Automatic Emergency Braking System (AEBS)	The AEBS system in the Ebusco v2.3 is designed with cameras and radar at the front of the bus. This is an active warning system, where, after an acoustic signal, immediate action will take place on the braking system. The system responds as follows: • Automatic braking on moving and stationary objects which comply with ADS regulations, • Avoid collisions during deceleration, moving objects, and stationary objects up to 80 km / h with Pedestrian Automatic Emergency Braking System (automatic braking for pedestrian crossing), • Also available with multi-lane application, • Front Collision Warning functionality, • Lower costs due to radar only configuration.
Added Covid-19 Safety Measures	Given the current environment and the most recent impact of the Covid-19 pandemic, passengers on public transport require confidence to return to the numbers previously experienced. This can provide that confidence and reduce the risk posed by pollutants and airborne contaminants, Ebusco has partnered with local Australian companies to install air purification and air conditioning units to reduce the threat posed by airborne contaminants.

Ebusco v2.3 Specification	12.5 LE NSW Australian acc. to ADR regulations
Body type	12.5m Low Entry / Low Floor
Passenger capacity	61 persons (based on ADR regulations, max. 18.000kg and count 80kg per passenger) 45 seated, 16 standing
Gross Vehicle weight	12850kg
Front Axle Capacity	6825kg
Rear Axle Capacity	11175kg
Length	12500mm
Width	2490mm
Height	3300mm
Floor to ceiling height	2400mm
Step-in height / kneeling	380mm / 310mm
Batteries	CATL 422kWh
Range	350-450km
Driven axle	ZF AVE 130
Max. speed	100km/h
Maximum power	250kW
Maximum Torque	17300Nm
Rim	Steel 22,5 x 8,25
Tyre	295/80-R22,5 Continental Urban TL HSU LRH

Ebusco Commitment:

Ebusco will deliver the buses and be responsible for the installation of the chargers to Fiji. The communication between the charger and the bus is optimal when choosing one system integrator. This will minimise any risk that may arise with different bus and charger technology.

Depot Charger:

Ebusco offers a standard depot charger (plug-in). For this pilot we will deliver a 120KW charger which will more than satisfy the charging requirements for the Castlemaine Bus Lines. The benefit of Ebusco chargers are as follows:

- No-Risk - Ebusco takes full responsibility
- Bidirectional charging
- Smart charging
- Pre-conditioning

2.4 SMART BUS STOP

smartGEN bus stops is an enabler of renewable energy power generation and storage in cities and in urban areas. It generates renewable energy using both wind and solar and stores it within its integrated battery storage system. It will also be used to create an area micro-grid system for demand management services to the electrical utilities to manage local solar feed into the grid and peak and off-peak demand services.

It can power any electrical device from electric scooters, personal electronic devices such as a mobile device, including electric cars.

SmartGEN would be installed in local council areas with an easement agreement in return to provide this social benefit for locals to use for various charging opportunities including electric bus and car charging.

Key benefits

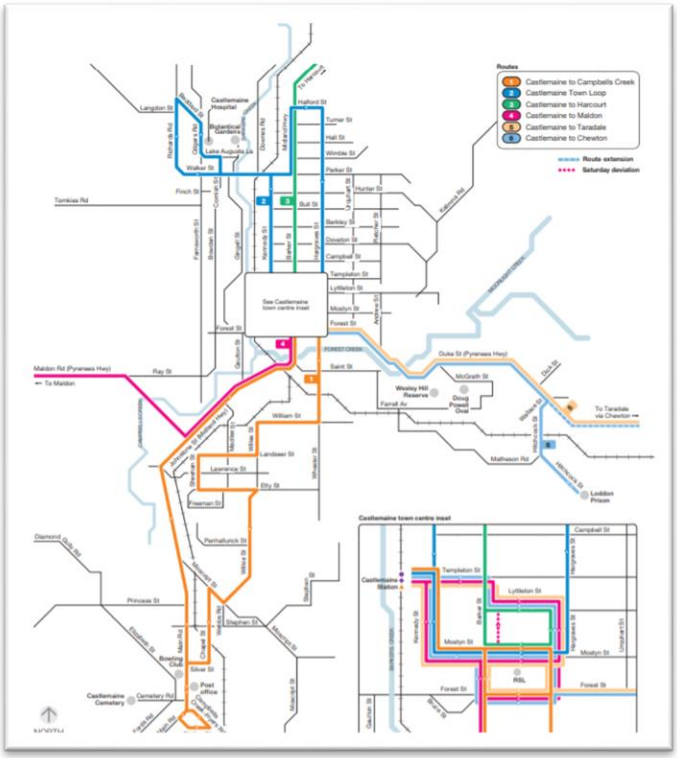
- Integrated enclosed and weather proof bus stop and built within smartGEN structure.
- Has it has its own power and integrated battery system these bus stops may be temperature controlled with either air-conditioning or heated as required.

2.5 INTEGRATION WITH EXISTING NETWORK AND OPERATORS

2.5.1 Whole of network approach

Regardless of which Option Land Transport Authority selects, Fiji Bus Operators will operate the Ebusco v2.3 buses across all commuter routes, across all times of service operations (refer to map, right).

If Option B and C are chosen, then we will be able to operate the buses across school route services, thereby expanding the trials reach.



2.5.2 Service delivery integration

EBUSGEN will be working closely with all the consortium partners and local bus operators to ensure that the trial will be successful and have conducted an onsite visit of Fiji Bus operations to review the yard as well as the key bus routes.

One of the key points of service integration, is ensuring that the ZEB buses integrated seamlessly with existing services including buses. Operationally we will look to ensure that buses meet first and last train in line with existing bus timetables.

2.5.3 Yard Plan

As part of our site visit, we will identify how the buses will be parked and charged at the depot. Further details of the Bus "In" and Bus "Out" operations will be provided as part of Stage 3 as we have commenced the compilation of a detailed Operations document. (Example shown)

2.5.4 Operational Integration

The consortium has conducted an operational analysis our Operations document will cover the following aspects, specifically tailored for zero emission buses:

- Integration of electric buses in standard rostering and scheduling practices,
- Integration of electricbuses into daily operations including daily dispatch,
- Updating current HSEQ and Operational processes to include operations, maintenance of electric buses,
- Development of a dashboard that will be made available to Land Transport Authority to enable real-time information.
- Integration of the electric buses into Fiji Bus Operators existing fleet management tool, regular maintenance program as well as standard monthly operating processes to Land Transport Authority,
- Vitally, all drivers and maintenance staff are trained in electric buses.

2.6 TRIAL OPERABILITY

EBUSGEN will work closely with all consortium partners to ensure that the trial once implemented, will be able to support and sustain our operations for the full period of the trial. The purpose of this trial will be to:

- Test the reliability and performance of zero-emission vehicles in regional operational design domains,
- Conduct research into specified areas to obtain data and analysis and provide strategic recommendation to Land Transport Authority regarding implementing zero emission buses,
- Develop an energy management model to provide Land Transport Authority a framework to transition their complete fleet to ZEB from 2025,
- Demonstrate a reduction in Total Cost of Ownership (TCO) in comparison to diesel buses.

2.6.1 Trial Operations Coverage

The proposed trial is designed to cover proposed routes as identifed and data that will be created to understand the outcomes of the pilot.

In line with current Fiji Bus operations, each bus covers a maximum of 300km per day. As per the experience of Ebusco v2.3 buses overseas, the buses currently cover 450-500km per day per charge, meaning that the vehicles are well within the limits of the requirement service for the existing bus routes, also accounting for differences in climate.

2.6.2 Grid Operations and Requirements

As part of the trial assessment, EBUSGEN will work with Energy Fiji and Fijian authorities to confirm the upgrades required to accommodate the Electric chargers and the grid requirements to power the buses.

Based on analysis to-date, all consortium partners are confident the technology will be able to satisfy the operational and performance service requirements.

A 6-hour window for charging has been identified, which allows for overnight charging.

2.6.3 Transparency in Reporting

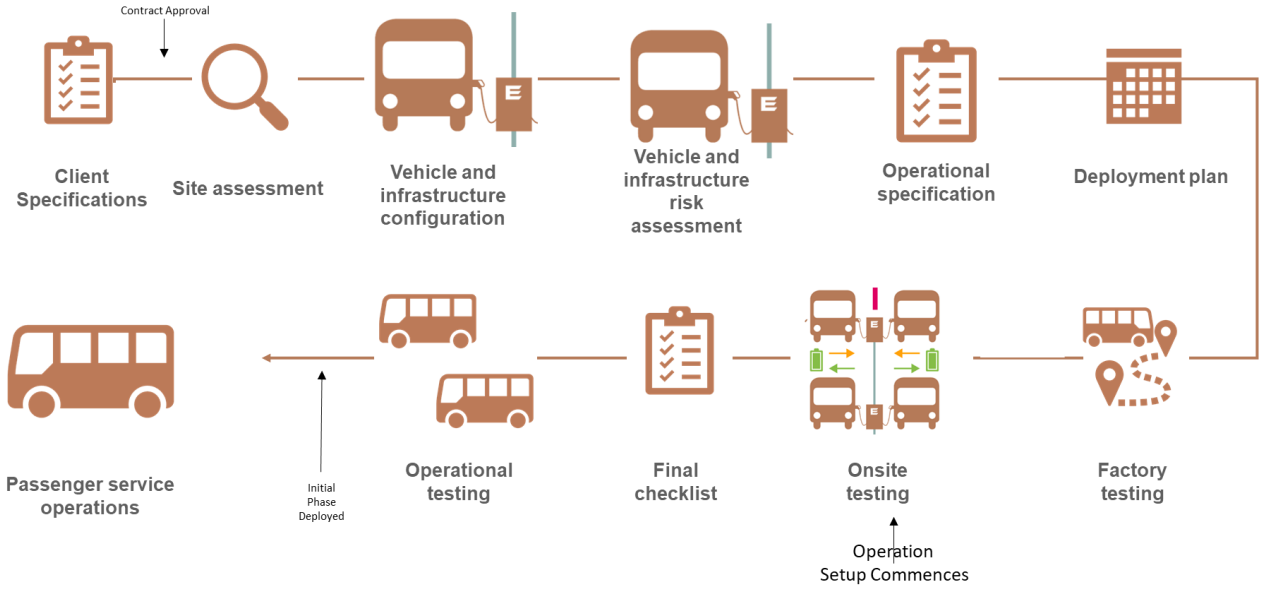
As part of Fiji Bus operators Monthly Operation Report, already provided to Land Transport Authority, we would seek to include additional reporting for how the trial is progressing. We envisage this information to include but not be limited to the following:

- Number of km travelled
- Percentage of charge at the end of each shift
- Time to charge
- Battery usage
- Information regarding grid usage
- Update on research project
- Information regarding patronage
- Customer feedback and experience (compliments and complaints)

In addition to this, we will provide Land Transport Authority access to the real-time dashboard information that is associated with each Electric bus within the ZEB Pilot Program.

2.6.4 Deployment Methodology

Learning from our global experience, it is recommended we follow a simple turn-key delivery process to enable a seamless integration of electric vehicles in daily operations



2.7 Post-Trial Considerations

We believe zero-emission bus technology will create a generational transformation for regional towns and cities. As early adopters of technology, we believe initial deployments are critical to the advancement and adoption of this technological evolution.

The proposal brings together some of the most influential organisations in technology, operations, energy provision, and academia. We believe that this partnership will deliver Land Transport Authority, the desired outcomes of a robust and long-term sustainable operation of zero-emission buses in Fiji.

In line with the requirements, we have developed the proposal to operate the trial which will provide us with sufficient time to learn from the use cases and provide Land Transport Authority with a rich source of data. The trial will demonstrate how zero-emission vehicles will operate as part of the integrated transport network in a regional setting.

Post successful delivery of the trial, we will seek to transition the Electric Buses into regular service operation. This will ensure that people in Fiji will continue to reap the benefits of these buses long after the trial has completed.

One of the key aspect we are seeking to address as part of this trial is to provide advice to Land Transport Authority about how to best scale up operations to a fully electric fleet. The consortium will work closely with Land Transport Authority to identify and develop commercial opportunities to total cost of ownership of the buses over the life of the contract.

PMP Urbanists will lead the development of project report that will include analysis and detailed recommendations for Land Transport Authority to consider as part of future investment and transition towards full electric bus fleets in a regional context.

3. LOCAL JOBS FIRST

We understand the Fijian Government's commitment to creating local jobs first. Our approach to for Fijian's, we will do this by:

Training & Train the Trainer Programs	• EBUSGEN will provide full initial and updated training to ensure that Fiji Bus Operators (both drivers and maintenance technicians) have full understanding and knowledge the bus. • A selected group of drivers will initially be trained to operate the electric vehicle. • Maintenance staff at various Fiji Bus Operators will maintain the vehicles and charging infrastructure with support and assistance from EBUSGEN.
Purchasing Spare Parts Locally	• EBUSGEN will supply Fiji Bus Operators with a spare parts kit, which is to be located onsite. • In addition, a full supply of spare parts will be located in metropolitan Melbourne and Brisbane with warehousing partner. • Local supply chain is important not only to deliver timely repairs but also to create and maintain local jobs in Fiji.
Establishing Advanced Manufacturing Plant in Victoria	• EBUSGEN has been in discussions with Investment Fiji via smartGEN and Australia Fiji Business Council around the establishment of a dedicated advanced manufacturing plant that would initially lead to the creation of electric buses and charging infrastructure. • This plant would service the 'right hand wheel drive' electric bus market globally, resulting in bringing advanced manufacturing to Fiji
Local Content	EBUSGEN has engaged suppliers of Australian made products to support the Fiji local market until we find a local replacment. Suppliers include: • **McConnell Seating** – Broadmeadows based seat manufacturer • **Luminator Technology** – Sydney base supplier of CCTV Platform, Hearing loops and Telematics • **Thermo-king** – Melbourne based supplier of air conditioning for Australia conditions • **EBUSGEN** is currently engaged in discussion with various other key suppliers within the Australian region, for supply of local content.

3.1 SOCIAL PROCUREMENT

Our consortium where possible will seek to meet and exceed the Fijian Government social procurement framework. Where possible and relevant we will seek to employ services and work with organisations who support the employment of indigenous community members, those with a disability and supporting disadvantaged Fijian's.

As an aside, working closely with the community to provide transport services to those organisations who need it most free of charge

3.2 FINANCIAL VIABILITY

We can confirm that all companies and organisations associated with our consortium are financially viable and solvent to conduct the proposed trial. We would be pleased to provide additional information that may be required by Land Transport Authority.

3.3 EXPERIENCE

3.3.1 - SmartGen

SmartGEN™ was granted INNOVATION PATENT in 2018 for designing a Electric Vehicle Charging Station which gets its supplementary power from generation of renewable energy at source via a combination of wind and solar.

It is powered by a Vertical Wind Turbine and Solar with all generated energy stored within its Integrated Battery Storage System whilst grid connected.

SmartGEN™ is a modular system, can be relocated to where it is suited best to moved to accommodate demand for EV charging.

Electric Vehicles are not charged directly from the grid but from its stored energy in smartGEN's battery storage system thus eliminating all grid impact issues.

Therefore assisting grid operators from expensive grid upgrades and peak power consumption implications as more and more electric vehicles becomes more mainstream forms of transport.

3.3.2 – Ebusco

Ebusco™ is dedicated to the development, production, and bringing to market of fully electric city and regional buses and the associated ecosystem. Our goal is to contribute to a better and healthier living environment by making sustainable, emission-free transport of people the standard. Ebusco is originally a Dutch company, with its head office in Deurne. At the moment more than 300 Ebusco buses are operating in seven countries across Europe, including major cities such as Amsterdam, Frankfurt and Munich. Together we work on creating clean cities.

Ebusco™ leads the electrification of public transport with innovative zero-emission buses by overcoming major obstacles to electrification and by being an industry innovator and first mover in a European setting. Since 2012 we have been producing 100% zero-emission, fully electric buses. Thus we were the first European company to receive a European WVTA certificate for a fully electric bus. With the Ebusco 3.0 we were also the first company in the world to deliver fully electric buses with a Total Cost of Ownership (TCO) lower than that of diesel buses. We are determined to stay one step ahead and to maintain our technological lead position by continuing to invest in research and development.

3.4 COLLABORATION

Over the past few months, our consortium partners have come together and worked collaboratively to prepare a submission for Land Transport Authority.

The following members meet on a regular basis and are highly engaged and committed to bringing to life the ZEB trial in Fiji.

Rikesh Ram | SmartGen – Director

Rikesh Ram is an Entrepreneur, Innovator and a thought leader in renewable energy and electric vehicle space and comes with a background in Finance, Project Management and Technology sectors.

He is a senior executive with 25 years of global corporate experience and as a board chair for OLEV Interntional, lead electric vehicle chassis design and development for wireless charging of buses and tram systems.

He is the founder of renewable energy powered, electric vehicle charging systems R&D company with a number of patents registered.

He has a passion for electric vehicle and innovating solutions to charge them with renewable energy and development of distributed energy generation and battery storage systems.

Simon Pearce | Ebusco – Director APJC

Simon is an energetic, passionate, commercially astute and experienced GLOBAL Executive, with proven ability to deliver sound TECHNOLOGY solutions. He is a Senior Executive with 29 years' global corporate experience across Public Transportation, Pharmaceutical, and Energy. Simon has a proven background in global program development and is a project leader with an extensive track record of successful solution integration, development and best practice change management, including outsourcing and contract management.

Amanda Bradshaw | Ebusco – Project Coordinator

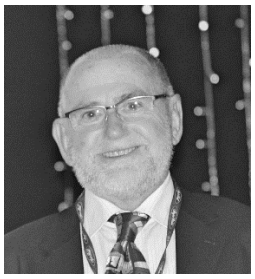
Amanda is a professional project coordinator with 20+ years of experience working with consumers across both the Transport and Hospitality sectors.

Amanda joined Ebusco in 2020 as Communication & Project Co-ordinator. Amanda has a strong focus on bringing together the right people with the right product, managing teams and delivering exceptional customer outcomes. Her passion for people, product and performance is evident through her career.

Amanda's will ensure a successful implementation of the project by, ensuring all aspects are completed in a timely manner, opportunities identified are followed through and the project is finished on time and on budget.

Kathy Lazanas | PMP Urbanists - General Manager

Kathy is an experienced executive with more than twenty years' experience. As a transport planner she has worked with a diverse group of organisations that interface closely with all levels of government to deliver projects on time and on budget. Kathy has worked in public transport operations for close to 10 years at Yarra Trams and Transdev Australasia, during this time she has an in depth understanding of bus operations and appreciates the importance of emerging technologies in our sector.



Ian Garth | Ebusco – Executive Account Manager

Ian has over 30 years of experience working across the Transportation industry sectos – Working for local transport organisations, Mersey Link, TasBus and other operators for more than ten years. Ian is a mobility specialist who brings his commercial acumen and knowledge of transport planning, network design operations to develop and deliver sustainable transport solutions to our growing cities.

Professor Doug Creighton, Deputy Director, Institute for Intelligent Systems Research and Innovation, Deakin University

Professor Creighton 20 years' experience in systems thinking and model-based decision support systems. He leads Modelling and Simulation research in the Institute for Intelligent Systems Research and Innovation at Deakin University, one of the institute's two core research programs. He is an expert in systems thinking, modelling and simulation, data analytics, software engineering, and systems engineering, with experience across transport, logistics, manufacturing, defence, health and mining domains.

Doug's research has primarily contributed to data analytics and decision support for existing and future transport and systems, informing strategic and operational decisions and government policy. Doug's research focuses both on theory and application of modelling and simulation to further understanding, generate insight and support decision making in complex engineered systems. Research strengths include systems mapping, modelling, simulation and data analytics for today's complex infrastructure systems.

In 2020 Doug was elected by the ARA Industry membership to National Rail Industry Group Executive Committee. He has receive multiple awards, including the 2016 Society of

Automotive Engineers (Australasia) Mobility Engineering Excellence Gold Award for Accessibility, as well as 2020 awards for Excellence in Industry Collaboration and Excellence in Project Impact.

Ms. Genevieve Reid, Director Research Sectorial Partnerships Government and Industry, Office of the Deputy Vice Chancellor, Deakin University
Genevieve leads Deakin's Strategic Partnership team and is responsible for strengthening and growing collaborative and impactful industry research engagement. Prior to joining Deakin in 2019, Genevieve was Vice President Industry Engagement RMIT University; her sales and marketing career spans more than 25 years working in the technology sector and has taken her to North America, Europe and APAC.

Genevieve is part of a growing tech community of women dedicated to establishing and maintaining professional contacts to ensure women and girls expand their knowledge of industry trends and build the confidence and leadership skills needed for career success in the tech sector.

Genevieve has worked extensively in the non-profit sector as non-executive director of philanthropic organizations, Share Gift Australia and Chair of Arts Institution Craft Victoria. She is a member of the Public Relations Institute of Australia (PRIA) and the Australian Institute of Company Directors (AICD).

3.5 INFORMATION SHARING CAPABILITY

All consortium partners are committed to providing information openly and transparently to Land Transport Authority. We understand that the purpose of these trials is for Land Transport Authority to gain as much information and experience as possible over a short period of time to assist in the long term operations of ZEB across Fiji. With this in mind, we anticipate providing regular reports to Land Transport Authority as part of the Monthly Operation Reports but over and above this anticipate a regular meeting schedule with key stakeholders to ensure the successful implementation and operation of the Ebusco 2.3 buses over the duration of the trial.

3.5.1 Governance Forums

The following proposed forums will be established to monitor the progress of the project:

Purpose	Audience	Method	Frequency	Responsible
Weekly Status review	Project Managers	Meeting	Weekly	Program Manager
Project Schedule Review	Project Managers	Meeting	Weekly	Project Manager & Master Scheduler
Risks and Issues review	Project Managers	Meeting	Weekly	PMO Lead & Risk Manager
Steering Committee	Stakeholders	Governance Meeting	Monthly	Program Manager

3.5.2 Project Reporting

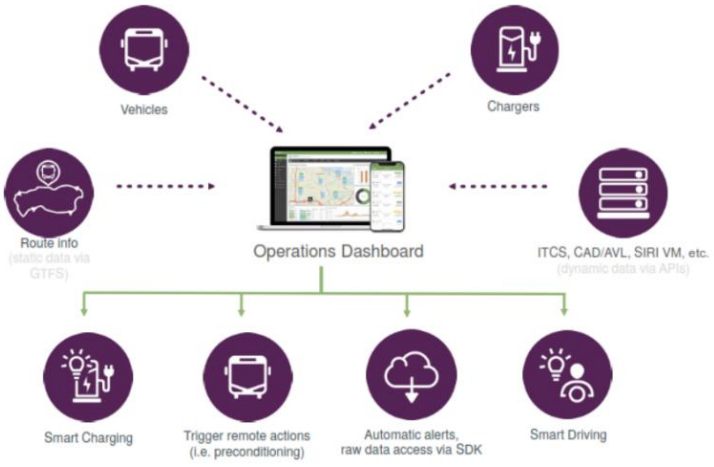
The reporting cycle required for effective governance is detailed in the following table.

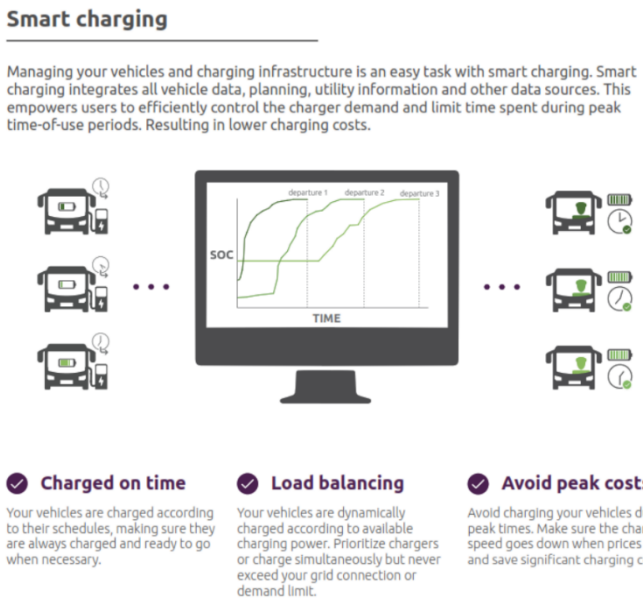
Reports	Frequency	Chair	Audience
Steering Committee Pack	Monthly	PM	Steering Committee
Weekly Status Report	Weekly	TBC	Program Director & Sponsor
Monthly Report	Monthly	TBC	Program Director & Sponsor
Project Governance	Fortnightly	TBC	Governance Group members

3.5.3 Real Time Information Portal

One of the key aspects of sharing information will be through Ebusco's telematics platform, which will allow real-time performance and safety monitoring of the zero-emission buses. This will enable Land Transport Authority Vic and us to have real-time information: Fleet performance

- Battery performance
- CO2 emissions
- Noise level emissions
- On route performance monitoring such
    - Harsh braking
    - Harsh acceleration
    - Rough turning
- Real-time errors, alerts and warnings





- Real-time monitoring of charging infrastructure.

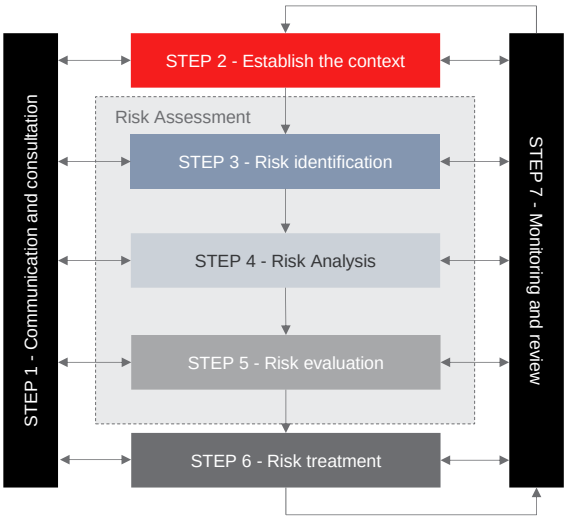
Using telematics Land Transport Authority will be able to gain valuable insights into zero-emission bus operations in real networks and allow them to make evidence-based decisions.

This will determine the success of the trial, the value they are getting of their investment and have a baseline data for future planning of transition of the zero-emission fleet. Overleaf are some examples of performance dashboards for an online overview of the real-time status of your electric fleet, you can immediately see the location, the state (active errors and/or warnings), the battery status, and the average efficiency of your fleet.

4.1 Offer Sustainability

The consortium partners have extensive Public Transport experience and are well versed with all the operational aspects of running bus operations. The consortium partners have undertaken a detailed study
of the existing daily operations to clearly understand the operational requirements and accordingly developed the above offer. The offer has built-in contingencies to ensure any unforeseen risks can be effectively mitigated

Achieving successful trial outcomes will require Land Transport Authority and consortium of partners to manage risks throughout the life of the trial actively. For this reason, the project plan and cost estimate include resourcing for risk management throughout the life of the trial. The adjacent diagram shows the risk management approach. In anticipation we have already identified the following key risks and have identified some early mitigation strategies to ensure the trials success.



Risk	Mitigation Strategies
Integration of zero emissions buses into existing operations	• Develop a detailed concept of operations outlining the various processes to integrate zero emission buses. • Ensure eletric buses have relevant safety plans • Ensure the drivers and mechanics are trained prior to the commencement of operations. • Develop rostering schedules around bus drivers trained in the electric buses
Infrastructure upgrades	• SmartGen are an integral part of the consortium and have undertaken a site review to develop detailed planning of the infrastructure required for the electric buses.

Risk	Mitigation Strategies
	• The upgrades have been costed and have been included in the budget provided to Land Transport Authority
Financial sustainability post pilot	• ING is providing financial support for our pilot, as a large international bank ING will provide professional advice regarding post pilot • Additionally, Ebusco has professional relationships with various financial institution which can provide a risk-free leasing model. • Fiji Bus Operatorswill work with LAND TRANSPORT AUTHORITY to discuss post trial contract arrangements well before the pilot finishes.

4.2 VALUE ADD – RESEARCH

As outlined earlier, we are proposing that Deakin University with local universities will undertake a piece of academic research as part of the Fiji Bus Operators trial. The following proposed program is designed to maximise outcomes from the Fiji regional ZEB trial and make insights available to Land Transport Authority, bus operators, energy market operators, bus manufacturers, and the community.

Deakin's multidisciplinary research strengths and facilities provide expertise in public transport and the transition to zero emission. The project team includes:

- Institute for Intelligent Systems Research and Innovation (IISRI) – Modelling and Analytics, Trial Design, Reporting
- School of Health and Social Development – Community Engagement, Inclusion and Accessibility
- School of Architecture & Built Environment – Community Engagement, Systems Thinking
- Faculty of Business and Law – Customer and Marketing Insights
- School of Engineering – Transport Safety
- Institute for Frontier Materials – Batteries
- Deakin Research – Strategic Partnerships

The program will encompass all aspects of trial design, execution, and outcomes analysis to deliver key insights and evidence to Land Transport Authority, the Community, and the project team. University's independent, research-based design, monitoring and analysis of trials will provide all participants confidence in the academic rigor of the project outcomes. The program is designed to identify opportunities and challenges, leverage quantitative and qualitative evidence, to inform "at scale" deployment ZEBs and support Fiji's zero emissions aspirations.

4.2.1 Proposed Scope

The Fiji Bus Operators Trial Research Program will encompass the following two activities:

1. Community Engagement
2. Modelling and Simulation Scenario Analysis Tool

4.2.2 Community Engagement

The proposed approach will engage with stakeholders (including customers and community) through:

- Research on user satisfaction, preference, acceptance of technologies/services etc.
- Deakin's proven Systems Thinking approach for primary data collection

The activity will establish a baseline, and monitor perceptions and changes in understanding throughout the trial. As well as direct experience of electric buses, the engagement will also include:

- **Transport Safety:** Public transport safety analysis including road user behaviour and causation factors. Although the low sound issue of EVs has received good attention in research, a key concern remains in low-speed environments where pedestrians and cyclists are present, including vision impaired road users.
- **Accessibility and Inclusion:** The Deakin transport mobility team in accessibility and inclusion is led by Senior Lecturer in Disability and Inclusion Dr Kevin Murfitt AM, a national leader in public transport accessibility and a member of the Victorian Accessible Transport Advisory Committee.

The outcome will be a report and systems maps drawing together insights and evidence resulting from Community Engagement workshops. Community perceptions, interdependencies and changes in understanding and language will inform Land Transport Authority strategy in engagement and communication. This research will be completed under standard university ethics guidelines, to ensure informed consent, freedom to withdraw and no identifiable information is released in the quarterly reports, systems mapping and publicly available version of the Community Engagement report.

4.2.3 Modelling and Simulation Scenario Analysis Tool

A simulation modelling tool will be developed to encode business rules and constraints of operation, and using statistics collected during the trials validate models to estimate performance over a wide range of scenario. Such models quantify uncertainty and allow "what-if" scenarios to be run. The models will provide quantified analysis and performance predictions to inform policy and Land Transport Authority strategy. For example, what are the implications, constraints, and optimum configurations of:

- Different operational concept?
- Deploying the bus on a different route?
- Scaling up the number of buses, routes, etc.

Data and modelling analytics will inform experimental design, to guide route selection and maximise insights from the trial. Using Fiji Bus operational and trial data, Deakin will support experimental design and development test cases.

Deakin can support an evidence-driven approach to derive insights for Land Transport Authority, both in terms of operational and scale-up challenges and opportunities. Outcomes will inform also future battery lifecycle optimisation and condition-based maintenance.

Deakin will publish the research finding, with approval and in collaboration with project partners and Land Transport Authority.