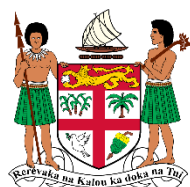


FIJI: Energy and Transport Data Audit and Data Management Assessment for Electrification of the Transport Sector

Final Report
September 2019



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Abbreviations

BAU	Business as Usual
CEO	Chief Executive Officer
DFS	Data Framework and Strategy
DOE	Department of Energy
EFL	Energy Fiji Limited
EV	Electric vehicle
FBOS	Fiji Bureau of Statistics
FRCS	Fiji Revenue and Customs Service
GGGI	Global Green Growth Institute
LEDS	Low-emissions development strategy
HIES	Household Income and Expenditure Survey
HTS	Household Travel Survey
HV	Hybrid vehicle
ICV	Internal Combustion Vehicle
LHD	Left Hand Drive (i.e. steering wheel on the left of the vehicle)
LTA	Land Transport Authority
MOIT	Ministry of Infrastructure and transport
MOU	Memorandum of Understanding
MSAF	Maritime Safety Authority of Fiji
NMT	Non-motorized transport
NTPD	National Transport Planning Database
PHV	Plug hybrid vehicle
PT	Public transport
PV	Photovoltaic
RHD	Right Hand Drive (as in Fiji)
TPU	Transport Planning Unit
TOU	Time of use
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VAT	Value added tax
VKT	Vehicle-kilometres travelled

Executive Summary

This is the final report on an Energy and Transport Data Audit and Data Collection Strategy to support planning for the electrification of the transport sector in Fiji (The Strategy is also called the Data Framework and Strategy, or DFS). The project was undertaken with the kind co-operation and assistance of the Ministry of Infrastructure and Transport (MOIT), and in particular the Transport Planning Unit (TPU) and the Department of Energy (DOE) of MOIT.

Adoption of electric vehicles (EVs) for land transport was one of the main strategies for reducing emissions identified in the *Low Energy Development Strategy 2018-2050*. Electrification may also have a more limited role in reducing maritime emissions. The aim of the project is to help provide a policy and planning bridge between the present situation and the first stage of the LEDS strategy.

The project proceeded in four stages: commencement, research and preparation of a data audit (followed by a first stakeholder workshop), development of a draft strategy and action plan (followed by a second stakeholder workshop), and completion (this report, together with other materials).

All public policies have both benefits and costs. Policy makers are not able to assess these realistically unless they have the necessary information, and they cannot be sure they have the necessary information without a preliminary assessment of the likely positive and negative outcomes of the policy. Then they will be in a position to collect the information required, calculate the cost and benefits and make an informed decision.

Chapter 2 describes the main impacts of likely positive outcomes (benefits) and negative outcomes (costs) from the introduction of electric vehicles and vessels to Fiji. In many cases potential positive impacts could turn out negative, and vice versa. It gives several worked examples of impact calculations that could be carried out once the necessary information becomes available.

Chapter 3 summaries the specific categories of data required to undertake the policy studies and evaluations, and the agencies responsible for acquiring and managing it. The data categories are been grouped into three inter-related clusters:

- Fuels (transport and generation)
- Vehicles (transport equipment); and
- Travel and mobility.

For fuels and transport equipment, information is required for all stages from import (and before import in some cases) to distribution, use and disposal. The travel behaviour relevant to this project takes place within Fiji. The chapter analyses the content, structure and accessibility of the main collections, and suggests how thee could be made more useful with greater co-ordination.

Chapter 4 identifies legal constraints and administrative bottlenecks in the flow of information between agencies and presents the data framework in terms of an

“information pyramid.” The development of transport electrification policy (the apex of the pyramid) needs to be solidly based on actual data.

As it happens, the base of the pyramid is well established already, although some gaps are identified in the chapter. Several agencies routinely collect relevant data, although they do not necessarily make it all public, or not in a consistent and accessible form. The chapter also reviews the use of data from international sources.

Chapter 5 presents the recommended Data Framework and Strategy (DFS). The objective of the DFS is to enable MOIT to prepare well-founded advice on the costs and benefits of transport electrification from a national perspective.

The DFS is divided into Tasks and Projects. Tasks are on-going activities, including managing information flows, data collections and access, planning data acquisitions, combining existing data sets, analysing new data sets as they become available and reporting progress and problems. Projects are distinct studies needed to support the higher levels in the information pyramid. Some may only need to be done once, and others repeated occasionally as data improves.

Chapter 5 identifies 24 distinct activities (on-going tasks and projects) and presents an indicative 3-year timeline (further detail is given in a separate report to MOIT). It is recognised that the work will depend on the time and financial resources available, and projects are staggered to spread the load. There are 7 high priority activities, involved with establishing the DFS and informing two of the threshold issues that policy-makers will need to address:

- What will be the impact of transport electrification on national emissions?; and
- What will be the impact on government revenues and the national economy?

There are 6 activities rated medium-high priority and 11 rated as medium. All are considered necessary to build a sound basis for developing transport electrification, and in many cases will also support the general planning work of MOIT, and the TPU in particular.

1. Background to the Project

This is the final report on an Energy and Transport Data Audit and Data Collection Strategy to support planning for the electrification of the transport sector in Fiji.

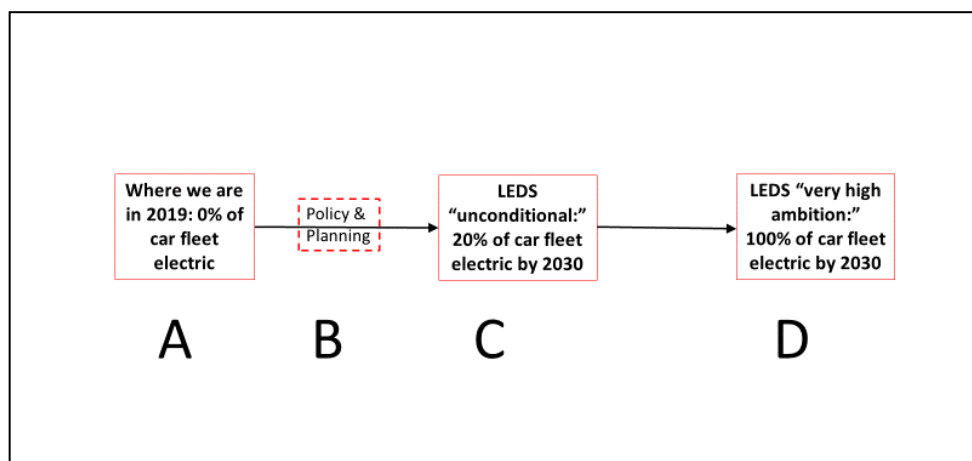
Adoption of electric vehicles (EVs) for land transport was one of the main strategies for reducing emissions identified in the *Low Energy Development Strategy 2018-2050* (LEDS), along with

- Adoption of hybrid vehicles (HVs)¹;
- Promotion of public transport (PT);
- Promotion of non-motorized transport (NMT), including cycling;
- Promotion of vehicle renewal and scrapping;
- Promotion of biofuels;
- Adoption of efficient new vehicles; and
- Efficiency improvements in operating vehicles.

Electrification may also have a more limited role in reducing maritime emissions, especially as a possible alternative in the transition away from 2-stroke outboard engines. The Fiji LEDS estimates that in 2014 maritime emissions were 174 kt CO₂, compared with 636 kt CO₂ for land transport.

The aim of the project is to help provide a policy and planning bridge between the present situation and the first stage of the LEDS strategy (Figure 1)

Figure 1 Transition from current situation to LEDS



¹ The actual recommendation in the LEDS (p79) was “Adoption of HEVs and EVs.” Hybrid vehicles (HVs) are sometimes called hybrid electric vehicles (HEVs) but as they have internal combustion engines and are fuelled solely by petroleum products they are better described as HVs. The fact that batteries and electric motors are involved in the drivetrain is not directly relevant to their tailpipe emissions, except that the energy recovered from braking makes them more fuel-efficient than conventional internal combustion vehicles (ICVs). HVs which can accept charge from an external power supply as well as on-board generation are called plug hybrid vehicles (PHVs). EVs have no internal combustion engine, and can only be charged from an external power supply.

Further policy development and implementation will rely on comprehensive and reliable information on a wide range of topics relevant to transport sector electrification. Some of this information already exists, but is not fully co-ordinated, as set out in Chapter 3 of this report. In other cases, initial data collections have been done, but need to be repeated at regular intervals to build up a reliable time series.

The first part of the project focussed on identifying, assessing, and applying existing information for policymaking, within the framework of the Sustainable Development Goal (SDG) on clean energy. It examined existing data collection, management, utilisation and sharing systems particularly in the context of electrification opportunities in land and maritime transport.

The second part of the project covered the next steps needed to create an enabling environment in terms of data for planning the transition to electric vehicles, immediate next studies needed, future energy data needs and how to obtain such data, initial mapping of roles of different agencies now and in future.

This report covers the entire project and includes recommendations.

Project Phases

The project proceeded in the following phases:

1. Commencement: clarify objectives, initial contact with main stakeholders, develop workplan, prepare inception report.²
2. Research and analysis: interview stakeholders, identify and acquire existing data collections, investigate patterns of data use. Summarise in a briefing paper, present results and obtain feedback from first workshop of stakeholders.
3. Strategy and action plan: Prepare energy data audit report, strategy action plan and recommendations in draft final report. Present to and obtain feedback from second workshop of stakeholders.
4. Completion: Final report (this document).

A draft report covering phase 2 was presented to a workshop of invited stakeholders in Suva on 28 June 2019.³ The findings of the draft report were validated during the workshop, the details of which are at Appendix 2.

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_647

