Chapter 1

Introduction

Indonesia became a net oil importer in 2003 due to increasing consumption of transported oil and dwindling domestic production. The Institute of Energy Economics, Japan (IEEJ) projects that, under the reference scenario, 75% of Indonesia's demand for oil products will be met by imports in 2040.

To reduce the expected potential increase in oil imports and to nurture the domestic automobile manufacturing industry, Indonesia has set a target to abandon sales of internal combustion engine vehicles (ICEVs) by 2040. Indonesia also intends for alternative vehicles to account for 20% of total vehicle production by 2025. If these targets are reached, their expected impacts are likely to transform the energy industry as a whole, with significant repercussions for electricity generation, transmission, and distribution as well as refineries, oil product retailers, and gas stations.

This study analyses the potential of using alternative vehicles such as electric vehicles (EVs), biofuel blended vehicles, and fuel-cell vehicles (FCVs) in Indonesia, and considers the implications for energy policy and energy supply industries. As many East Asia Summit countries[1] are expected to rely increasingly on imported oil products in the future (mostly driven by the growing demand for energy in the transport sector), the conclusions of this study examining the targeted shift away from ICEVs offer important perspectives for the countries in this region.

1. Research Objectives

The objectives of this study were follows:

(i) To analyse the potential use of alternative vehicles in Indonesia;

(ii) To estimate the benefits and costs of alternative vehicles by technology and energy type in Indonesia;

(iii) To ascertain the implications for energy policy and energy supply industries in Indonesia; and

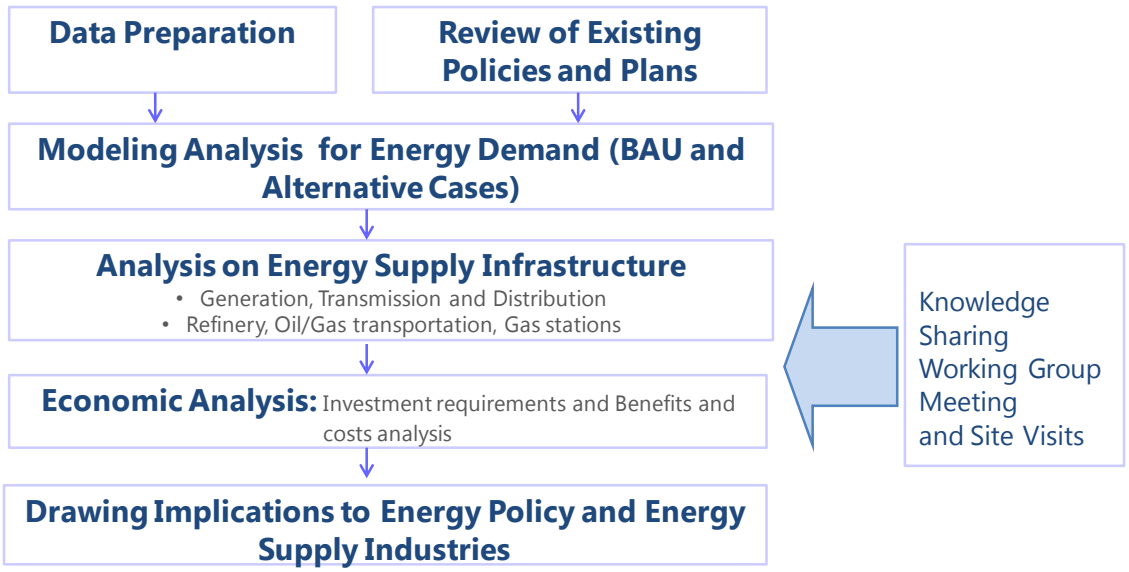
(iv) To share Japan's relevant technology, policy, and business models.

[1] These are the 10 countries in the Association of Southeast Asian Nations (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam), as well as Australia, China, India, Japan, New Zealand, the Republic of Korea, the United States, and Russia.

2. Study Methodologies

This study quantitatively analyses the potential use of alternative vehicles in Indonesia and presents implications for energy policy and energy supply industries (Fig. 1.1). The study effectively engaged stakeholders in both Indonesia and Japan through knowledge-sharing working group meetings. These occasions for discussion and information exchange were utilised to draw implications for Indonesia, Japan, and the wider East Asia Summit region.

Figure 1.1: Study Framework



BAU = business as usual.
Source: Authors.

3. Report Structure

This report is structured as follows to analyse the potential economic benefits and costs of shifting to EVs in Indonesia.

Chapter 1 outlines the study background, objectives, and methodologies.

Chapter 2 discusses the potential shift to using alternative vehicles in Indonesia (with a special focus on EVs), and considers its impacts on oil demand and CO_2 emissions.

Chapter 3 analyses the costs and benefits of shifting towards alternative vehicles in Indonesia, with due consideration of infrastructure investment in the electricity sector as a cost, and benefits from oil savings, reduced CO_2 emissions, and cost savings for drivers.

Chapter 4 considers cases where economic incentives were provided to promote alternative vehicles, including EVs. The study analysed cases in India, Singapore, and Malaysia as a means of capturing policy trends in East Asia.

Chapter 5 presents the policy implications of this study.