

## List of Figures

Figure 1.1	Study Framework	2
Figure 2.1	Institute of Energy Economics, Japan Energy Modelling Framework	3
Figure 2.2	Technology Assessment Model (Vehicle Turnover Model)	4
Figure 2.3	Outlook for Vehicle Stocks	7
Figure 2.4	Sales Share by Powertrain Type	8
Figure 2.5	Demand by Fuel and Oil Growth by Type in the Road Sector	9
Figure 2.6	Sales Share by Powertrain Type for Each Scenario	10
Figure 2.7	Fuel Demand in the Road Sector by Scenario	11
Figure 2.8	Primary Oil Demand by Scenario	11
Figure 2.9	Electricity Demand by Sector and Scenario	12
Figure 2.10	Primary Energy Demand and Energy-Related Carbon Dioxide Emissions	13
Figure 2.11	Power Generation Mix for Each Scenario	14
Figure 2.12	Renewables Share and Carbon Dioxide Intensity in Power Generation and Carbon Dioxide Reduction from the Reference Scenario in 2040	14
Figure 3.1	Analysis Framework	17
Figure 3.2	Vehicle Cost Assumptions	18
Figure 3.3	Lithium-Ion Battery Module Cost Trends	19
Figure 3.4	Example of Lithium-Ion Battery Cost Estimates Using the Learning Curve	20
Figure 3.5	Global Outlook of the Institute of Energy Economics, Japan for Lithium-Ion Batteries for Hybrid Electric Vehicles, Plug-In Hybrid Electric Vehicles, and Electric Vehicles (Cumulative)	21
Figure 3.6	Estimated Cost of Lithium-Ion Batteries (2016–2040)	21
Figure 3.7	Tipping Point of Electric Vehicles (Passenger Vehicles)	23
Figure 3.8	Passenger Vehicle Stocks by Technology (left), and Drivers' Benefits in Indonesia (right)	24
Figure 3.9	Tipping Point of Electric Vehicles (Trucks)	24
Figure 3.10	Truck Stocks by Type of Technology, and Drivers' Benefits in Indonesia	25
Figure 3.11	Cost Assumptions	26
Figure 3.12	Cost Assumptions	26

Figure 3.13	Tipping Point of Electric Vehicles (Buses)	27
Figure 3.14	Bus Stocks by Technology, and Drivers' Benefits in Indonesia	27
Figure 3.15	Travel Distance and Total Cost of Operation per Kilometre (Based on 2017 Upfront Cost Assumptions)	28
Figure 3.16	Travel Distance and Total Cost of Operation per Kilometre (Based on 2040 Upfront Cost Assumptions)	29
Figure 3.17	Tipping Point of Electric Vehicles (Motorcycles)	30
Figure 3.18	Motorcycle Stocks by Type of Technology, and Drivers' Benefits in Indonesia	30
Figure 3.19	Net Drivers' Benefits for Electrifying the Transport System (Passenger Vehicles, Trucks, and Motorcycles)	31
Figure 3.20	Primary Oil Demand, and Oil Savings Benefits in Indonesia	32
Figure 3.21	Oil Price Assumptions, and Oil Savings Benefits in Indonesia (Low Case and High Case)	32
Figure 3.22	Oil Price Assumptions, and Oil Savings Benefits in Indonesia (Low Case and High Case)	33
Figure 3.23	Energy Sector Investment Requirements in Indonesia	34
Figure 3.24	Electricity Investment Requirements in Indonesia (Scenario Comparison)	34
Figure 3.25	Electricity Investment Requirements in Indonesia (Scenario Comparison)	35
Figure 4.1	Trends in World Stocks of Electric Vehicles and Plug-In Hybrid Electric Vehicles (2005–2017)	36
Figure 4.2	Trends in World Stocks of Electric Vehicles and Plug-In Hybrid Electric Vehicles (2017)	37
Figure 4.3	Electric Vehicle and Plug-In Hybrid Electric Vehicle Stock Share by Country	37
Figure 4.4	Impacts of Incentives on Electric Passenger Vehicle Price	45
Figure 4.5	True Cost of Vehicle Price in Singapore	47
Figure 4.6	Analysis Framework	48
Figure 4.7	Impacts of Incentives on Electric Passenger Vehicle Price	50

## List of Tables

Table 2.1	Assumptions for Gross Domestic Product and Population	5
Table 2.2	Calibration of 2011 Levels	6
Table 2.3	Assumptions for Fuel Economy in 2017 and 2040	6
Table 2.4	Assumptions for List Price in 2017 and 2040	7
Table 2.5	Alternative Scenarios for Vehicle Sales Mix	10
Table 3.1	Cost of Driving by Type of Technology	22
Table 4.1	Electric Vehicle Targets in the Selected Countries	38
Table 4.2	Summary of Policies and Incentives for Electric Vehicles in Asia	40
Table 4.3	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles Scheme Incentives	41
Table 4.4	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles Scheme Demand Incentives	42
Table 4.5	Central Government Excise Duty Rate	42
Table 4.6	Central Infrastructure Cess on Motor Vehicles	43
Table 4.7	Subsidy for Battery-Powered Electric Vehicles from the Delhi Pollution Control Committee	43
Table 4.8	Collections and Utilisation of the Air Ambience Fund for Incentivising Electric Vehicles	44
Table 4.9	Required Items with an Example of Vehicle Prices in Singapore	46
Table 4.10	Rebate and Surcharge on Vehicles Based on Emissions	47
Table 4.11	Road Tax on Electric Vehicles	48
Table 4.12	Economic Incentives for Energy-Efficient Vehicles	50