

List of Figures

Figure 1.1. Total Primary Energy Supply, 2010–2018	1
Figure 1.2. Total Final Energy Consumption, by Sector and by Fuel, 2010–2018	2
Figure 1.3. Oil Consumption, by Sector, 2010–2018	3
Figure 1.4. Oil Consumption, by Product Type, 2010–2018	4
Figure 1.5. Import Dependency Ratio, 2010–2018	5
Figure 1.6. Energy Import, by Fuel Type, 2010 and 2018	6
Figure 1.7. Energy Intensity, 2010–2018	7
Figure 1.8. Total Primary Energy Supply, 2018-2040	8
Figure 1.9. Total Final Energy Consumption, BAU	9
Figure 1.10. Oil Demand Projection, by Final Sector, BAU, 2018–2040	10
Figure 1.11. Oil Demand, by Product Type, BAU, 2018–2040	11
Figure 2.1. Provinces of Cambodia	13
Figure 3.1 Average Floor Space of Selected Samples of the Commercial Sector	28
Figure 3.2. Monthly Consumption of LPG, Diesel, and Electricity in the Commercial Sector	29
Figure 3.3. Sample Size and Annual Revenue of the Industry Sub-sectors	31
Figure 3.4. Average Annual Diesel and Electricity Consumption	32
Figure 3.5. Average Fuel Intensity of Surveyed Industries	33
Figure 3.6. Household Profile for Houses and/or Villas and Flats	34
Figure 3.7. Average Monthly LPG Intensity, by House Type	36
Figure 3.8. Average Monthly Electricity Intensity, by House Type	37
Figure 3.9. Sampled Vehicles, by Province and Vehicle Type	38
Figure 4.1. Cambodia Oil Terminal Map	50
Figure 4.2. Delivery Routes Nationwide	52
Figure 4.3 Delivery by Tank Truck and Railway	54
Figure 5.1. Yearly Gasoline Demand (kl)	61
Figure 5.2. Yearly Diesel Oil Demand (kl)	61
Figure 5.3. Yearly LPG Demand (tonne)	61
Figure 5.4. Yearly Fuel Oil Demand (kl)	61

Figure 5.5. Population by Province, 2019	62
Figure 5.6. Distribution of Petroleum Products and Population	64
Figure 5.7. Gasoline Demand, by Province, 2018 (kl)	67
Figure 5.8. Diesel Oil Demand, by Province, 2018 (kl)	69
Figure 5.9. LPG Demand, by Province, 2018 (tonne)	70
Figure 5.10. Methodology of Estimation	71
Figure 5.11. Demand for Main Petroleum Products in 2030 and 2040	72
Figure 6.1 Structure of Logistics Optimisation Model for Cambodia	97
Figure 6.2 Unit Cost of Pipeline	104
Figure 6.3. Total Transportation Costs to Major Provincial Capitals, by Supply Route	106

List of Tables

Table 2.1. Population and Household Data, by Province, 2019	14
Table 2.2. Population and Households, by Province, Urban and Rural, 2008	15
Table 2.3. Floor Area by Geographical Domain, 2017 (in % average m ² /HH)	16
Table 2.4. Number of Households, by Main Source of Lighting: Urban and Rural, Province (1998 and 2008)	17
Table 2.5. Main Sources of Lighting, by Geographical Domain (%), 2017	18
Table 2.6. Number of Households, by Main Source for Cooking, Rural and Urban, Province (2008 and 2013)	18
Table 2.7. Main Sources of Cooking, by Geographical Domain (%) (2017)	19
Table 2.8. GDP, by Economic Activity, at Constant Prices (billion riels, 2000)	20
Table 2.9. Number of Establishments, by Kind of Business Place – Provinces (2011)	21
Table 2.10. Number of Establishments, by Area of Business Place – Provinces (2011)	22
Table 2.11. Number of Establishments, by Main Activity Sector – Provinces (2011)	23
Table 2.12. List of Factories in Battambang Provinces, 2012–2020	24
Table 2.13. Estimated Number of Vehicles in Cambodia, 1992–2005	25
Table 3.1. Monthly LPG, Diesel, and Electricity Intensity	29
Table 3.2. Average Monthly LPG and Electricity Consumption, by House Type	35
Table 3.3. Fuel Economy of Sampled Vehicles, by Province (km/litre)	39
Table 3.4. Unit Consumption (Fuel Intensity) of Vehicles, by Selected Province (litre/vehicle)	39
Table 3.5. Commercial Sector Questionnaire	42
Table 3.6. Industry Sector Questionnaire	43
Table 3.7. Residential Sector Questionnaire	43
Table 3.8. Transport Sector Questionnaire	44
Table 4.1. Storage Capacity of Oil Terminals, by Location (Summary)	46
Table 4.2. Number of Storage Tanks and Capacity Scale, by Terminal Area	47
Table 4.3. Storage Capacity of Oil Terminals, by Location (Summary)	49
Table 4.4. Total demand of Gasoline and Diesel Oil, by Province, in 2030 and 2040	56
Table 4.5. Demand Composition Ratio, by Province in 2030 and 2040	57
Table 5.1. Population and Composition Ratio, by Province (2018 and 2019)	63
Table 5.2. Demand for Petroleum Products, by Province and Composition Ratio, 2018	65

Table 5.3. Provinces with Large Demand for Gasoline, 2018	68
Table 5.4. Provinces with Large Demand for Diesel Oil, 2018	68
Table 5.5. Provinces with Large Demand for LPG, 2018	69
Table 5.6. Population, by Province	74
Table 5.7. Demand per Capita, 2030 and 2040 (Cambodia total)	75
Table 5.8. Demand Composition Ratio, by Province, 2040	75
Table 5.9. Demand for Petroleum Products, by Province, 2040	77
Table 5.10. Provinces with Large Demand for Gasoline, 2040	78
Table 5.11. Provinces with Large Demand for Diesel Oil, 2040	78
Table 5.12 Total Demand for Gasoline and Diesel Oil in 2030 and 2040	79
Table 5.13. Assumed Urban Population in 2018	81
Table 5.14. Number of Vehicles and Consumption of Petroleum, 2018	82
Table 5.15. Distribution of Industrial Establishments, by Type and Province, 2018	83
Table 5.16. Diesel Consumption in 2018 and Share by Province	85
Table 5.17. Consumption of Petroleum of the Residential and Commercial Sectors, 2018	86
Table 5.18. Sectoral Petroleum Demand of Cambodia, 2040	87
Table 5.19. Projected Urban Population in 2018 and 2040 and Composition, by Province	88
Table 5.20. Petroleum Demand of the Road Transport Sector, 2040	89
Table 5.21. Petroleum Demand of the Residential and Commercial Sectors, 2040	91
Table 5.22. Industrial Diesel Demand in 2040, by Province	92
Table 5.23. Petroleum Demand in 2040, by Fuel and by Province	93
Table 6.1. Demand for Gasoline and Diesel Oil by Province in 2030 and 2040	98
Table 6.2. Demand for Gasoline and Diesel Oil by Area in 2030 and 2040	99
Table 6.3 Terminal Cost (\$/kl)	101
Table 6.4. Supply and Demand of Gasoline and Diesel Oil in Thailand	109
Table 6.5. BAU Case in 2030	110
Table 6.6. SV-PP Pipeline Case in 2030	111
Table 6.7. Optimal Solution Case in 2030	112
Table 6.8. BAU Case in 2040	113
Table 6.9. Enhanced Mekong River Terminal and Railway Case in 2040	114