ENERGY COMMISSION OF GHANA

NATIONAL ENERGY STATISTICS 2000 - 2013

FINAL DRAFT

APRIL 2014

STRATEGIC PLANNING AND POLICY DIVISION

FOREWORD

THE ENERGY COMMISSION has the mandate to prepare, review and update periodically indicative national plans to ensure that reasonable demands for energy are met in a sustainable manner. In addition, the Energy Commission is mandated to secure and maintain a comprehensive data base for national decision making for the efficient development and utilisation of energy resources available to the nation. In fulfilment of its mandates, the Energy Commission publishes statistics of the Energy Sector annually

The 2014 National Energy Statistics provides a time series data on Ghana's energy supply and use situation largely from 2000 to 2013.

This publication was prepared with data from the main energy sector institutions, including the Ministry of Energy and Petroleum, Volta River Authority (VRA), Ghana Grid Company (GRIDCo), Ghana National Petroleum Corporation (GNPC), National Petroleum Authority (NPA), Tema Oil Refinery (TOR), Public Utility Regulatory Commission (PURC), Electricity Company of Ghana (ECG), Northern Electricity Distribution Company (NEDCo), West African Gas Pipeline Company (WAPCo), West African Gas Pipeline Authority (WAGPA), as well as data from the Bank of Ghana (BoG) and the Ghana Statistical Service (GSS). The cooperation and assistance of all these agencies and entities are gratefully acknowledged.

It is our expectation that, the statistics contained in this publication would be useful to a wide range of users including planners, policy makers, researchers and students.

We are very much appreciative for the feedback received from users. These have been used to correct and improve the data provided in this year's publication. The 2014 National Energy Statistics therefore override those of previous years.

We would appreciate very much any feedback by way of comments and suggestions from readers.

This publication is available on our website **www.energycom.gov.gh**

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ABBREVIATIONS

GW	Gigawatt
GWh	Gigawatt-hour
kWh	kilowatt-hour
MMBTU	Million British Thermal Unit
MW	Megawatt
MWh	Megawatt-hour
W / kW	Watt / kilowatt
ATK/DPK	Aviation Turbine Kerosene/Dual Purpose Kerosene
ECG	Electricity Company of Ghana
GNPC	Ghana National Petroleum Corporation
LCO	Light Crude Oil
LPG	Liquefied Petroleum Gas
NEDCo	Northern Electricity Distribution Company
RFO	Residual Fuel Oil
TAPCO	Takoradi Power Company Ltd
TICO	Takoradi International Company
TOE	Tonnes of Oil Equivalent
TOR	Tema Oil Refinery
VALCO	Volta Aluminium Company
VRA	Volta River Authority
WAGP	West African Gas Pipeline
WAGPA	West African Gas Pipeline Authority

CONVERSION FACTORS

Ghana Standard Figures

Petroleum

Crude Oil	1 Tonne	1.01- 1.02 TOE
Gasoline:	1 Tonne	1.05 TOE
Kerosene:	1 Tonne	1.03 TOE
Jet Fuel:	1 Tonne	1.03 TOE
Diesel /Gas Oil:	1 Tonne	1.02 TOE
Residual Fuel Oil:	1 Tonne	0.97 TOE
LPG:	1 Tonne	1.08 TOE
7 barrels of crude Oil	1 Tonne of crude oil	
1 cubic metre	6.29 barrels	
1 barrel	36 imperial gallons	163.66 Litres
1 GJ of Natural Gas	1.05 MMBTU	1.07 Mscf
1 MMBTU of Gas	37.55 cubic metres (m^3)	
1 MMBTU of Gas	5.82 bbl of crude oil equivalent	

Ghana Standard Figures

Electricity

1000 W	1 kW
1000 kW	1 MW
1000 MW	1 GW
1000 kWh	1 MWh
1000 MWh	1 GWh
1 GWh	86 TOE
1 GWh	3600 GJ
1 TOE	41.86 GJ

Woodfuel

Firewood/fuelwood	1 Tonne	0.30 - 0.36 TOE
Charcoal	1 Tonne	0.68 - 0.88 TOE
Sawdust/sawmill residues/wood chips	1 Tonne	0.20 - 0.30 TOE

Low side reflecting average dry wood and corresponding Charcoal in the forest zones and the high side reflecting average dry wood and corresponding charcoal in the savannah zones of the country.

Charcoal production is based on the fact that between 4 – 5 units of wood have been used to produce one unit of charcoal in the country

Charcoal Source	Average Weight (kg) of Charcoal		
	Mini Bag	Maxi Bag	Moisture Content
Sawmill residue	21 - 22	44 - 45	Up to 40%
Savannah	30 - 32	55 - 60	Up to 20%
Acacia plant	31 - 32	57 - 63	Up to 20%
All other woods	25 - 27	50 - 55	Up to 25%

GLOSSARY

Conversion factors	Factors used to convert quantities from original physical unit into a common accounting unit for the purpose of aggregating different energy sources. The 'tonnes of oil equivalent' has been adopted as the accounting unit
Charcoal Kiln	A conversion device where combustion is initiated in a woodpile within the device and proceeds with a very limited supply of air until the wood is reduced to charcoal. This process is often called carbonization.
Energy Balance	Shows in a consistent accounting framework, the production, transformation and final consumption of all forms of energy for a given country in a given period of time, with quantities expressed in terms of a single accounting unit for purposes of comparison and aggregation. The Energy balance presents an overview of the energy produced and consumed in a system, matching input and output for a specific period of time, usually one year.
Final Energy Consumption	Energy Consumption by final user, i.e. energy which is not being used for transformation into other forms of energy
Production	It is the production of primary energy, i.e. crude oil, natural gas, hydro, renewable etc. that is extracted.
Import and export	Import and export comprise quantities having crossed the national territorial boundaries of the country
International Marine Bunkers	Covers those quantities delivered to ships that are engaged in international navigation
Stock changes	Reflect the differences between opening stock levels on the first day of the year and closing levels on the last day of the year of stocks on national territory held by producers, importers, energy transformation industries and large consumers. A stock build is shown as negative number and a stock draw as a positive number

Total Primary Energy Supply (TPES)	It is made up of production + import - export +/- stock changes
Statistical differences	It include the sum of the unexplained differences for individual fuels as they appear in the energy statistics
Electricity Plants	Refer to plants which are designed to produce electricity only
Petroleum refinery	Shows the use of primary energy for the manufacture of finished petroleum products and corresponding outputs
Own Use	It is the primary and secondary energy consumed by transformation industries for heating, pumping, lighting and other purposes

SECTION ONE: ENERGY INDICATORS AND BALANCES

Table 1.1: Energy Indicators (2006 - 2013)[1]

Energy Indicator	Unit	2006	2007	2008	2009	2010	2011	2012	2013[2]
Total Final Energy Consumed	KTOE	5,176.9	5,274.1	5,209.8	5,731.7	5,670.2	6,192.1	6,687.9	6,886.0
Total Electricity Generated	GWh	8,430.0	6,978.0	8,324.0	8,958.0	10,167.0	11,200.0	12,023.8	12,870.0
Total Electricity Consumed	GWh	7,361.9	6,440.5	7,219.4	7,452.4	8,317.4	9,186.6	9,258.0	10,583.2
Total Petroleum Products Consumed	KTOE	1,872.6	2,126.6	2,071.3	2,597.7	2,491.1	2,826.6	3,317.5	3,422.3
Total Biomass Consumed	KTOE	2,671.3	2,593.7	2,517.8	2,493.3	2,463.9	2,575.6	2,588.8	2,676.0
Population	million	21.8	22.3	22.9	23.4	24.7	25.3	25.9	26.5
GDP (Constant 2006 prices)	million Ghana cedis	18,705.1	19,913.4	21,592.2	22,454.0	24,252.0	27,891.0	30,099.0	32,322.0
Energy Intensity of the Economy	TOE/GHS 1,000 of GDP	0.28	0.26	0.24	0.26	0.23	0.22	0.22	0.21
Total Final Energy Consumed/capita	TOE/capita	0.24	0.24	0.23	0.24	0.23	0.24	0.26	0.26
Total Electricity Generated/capita	kWh/capita	386.7	312.9	363.5	382.8	411.6	442.7	464.2	485.7
Total Electricity Consumed/capita	kWh/capita	337.7	288.8	315.3	318.5	336.7	363.1	357.5	399.4
Total Petroleum Consumed/capita	TOE/capita	0.09	0.10	0.09	0.11	0.10	0.11	0.13	0.13
Total Biomass Consumed/capita	TOE/capita	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10
Total Electricity Consumed/GDP	kWh/GHS 1,000 of GDP	393.6	323.4	334.4	331.9	343.0	329.4	307.6	327.4

[1] Revised
[2] Provisional
Source: GDP and population data from Ghana Statistical Service
NB: Total Electricity Consumed include commercial losses

Table 1.2: Energy Balance - 2013 (KTOE)[1]

SUPPLY AND CONSUMPTION	Crude Oil[3]	Natural Gas	Petroleum Products	Wood[2]	Charcoal	Hydro	Solar	Electricity	TOTAL
Indigenous Production	5,371.8	-	-	3,553.9	-	708.0	0	-	9,633.7
Imports	1,328.3	291.6	3,070.4	-	-	-	-	2.3	4,692.7
Exports	-5,210.9	-	-216.5	-	-0.7	-	-	-10.5	-5,438.6
Stock Changes	-160.9	-	-171.0	-	-	-	-	-	-331.9
Total Primary Energy Supply	1,328.4	291.6	2,682.9	3,553.9	-0.7	708.0	0	-8.2	8,555.9
Electricity Plants	-881.1	-290.0	-5.2	-	-	-708.0	0	1,106.6	-777.7
Petroleum Refinery	-446.5	-	437.8	-	-	-	-	-	-8.7
Charcoal Kilns	-	-	-	-1,989.5	1,112.2	-	-	-	-877.2
Own use	-41.2	-	-	-	-	-	-	-6.9	-48.1
Losses	-27.3	-	-	-	-	-	-	-132.7	-160.0
Final Energy Consumption	-	-	3,300.1	1,564.4	1,111.6	-	-	910.2	6,886.2
Residential Sector	-	-	151.3	1,311.8	899.4	-	-	433.2	2,795.7
Commerce & Services Sector	-	-	22.9	31.0	86.1	-	-	152.9	292.9
Industry	-	-	380.1	221.6	126.1	-	-	322.2	1,050.0
Agriculture & Fisheries Sector	-	-	101.0	-	-	-	-	1.8	102.8
Transport	-	-	2,644.8	-	-	-	-	-	2,644.8
Statistical Difference	-67.8	1.7	-126.2	-	-	-	-	48.6	-143.7

[1]Provisional
[2]Wood include sawdust, sawmill residue, etc.
[3]All crude oil produced is exported

SECTION TWO: PRIMARY ENERGY SUPPLY AND FINAL ENERGY CONSUMPTION

Table 2.1: Total Primary Energy Supply (ktoe)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Oil	1,812	2,022	2,270	2,306	2,225	2,140	2,815	3,017	2,672	2,316	2,744	2,820	3,870	4,011
Natural Gas	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5	394	769	390	292
Hydro	609	582	479	363	472	499	472	337	510	544	522	598	648	700
Wood	3,888	3,703	3,539	3,395	3,273	3,174	3,100	3,066	3,068	3,124	3,206	3,370	3,408	3,553
Total	6,309	6,307	6,288	6,063	5,971	5,814	6,387	6,419	6,250	5,989	6,865	7,557	8,316	8,556

N.A means Not available

Figure 2.1: Trend in Primary Energy Supply

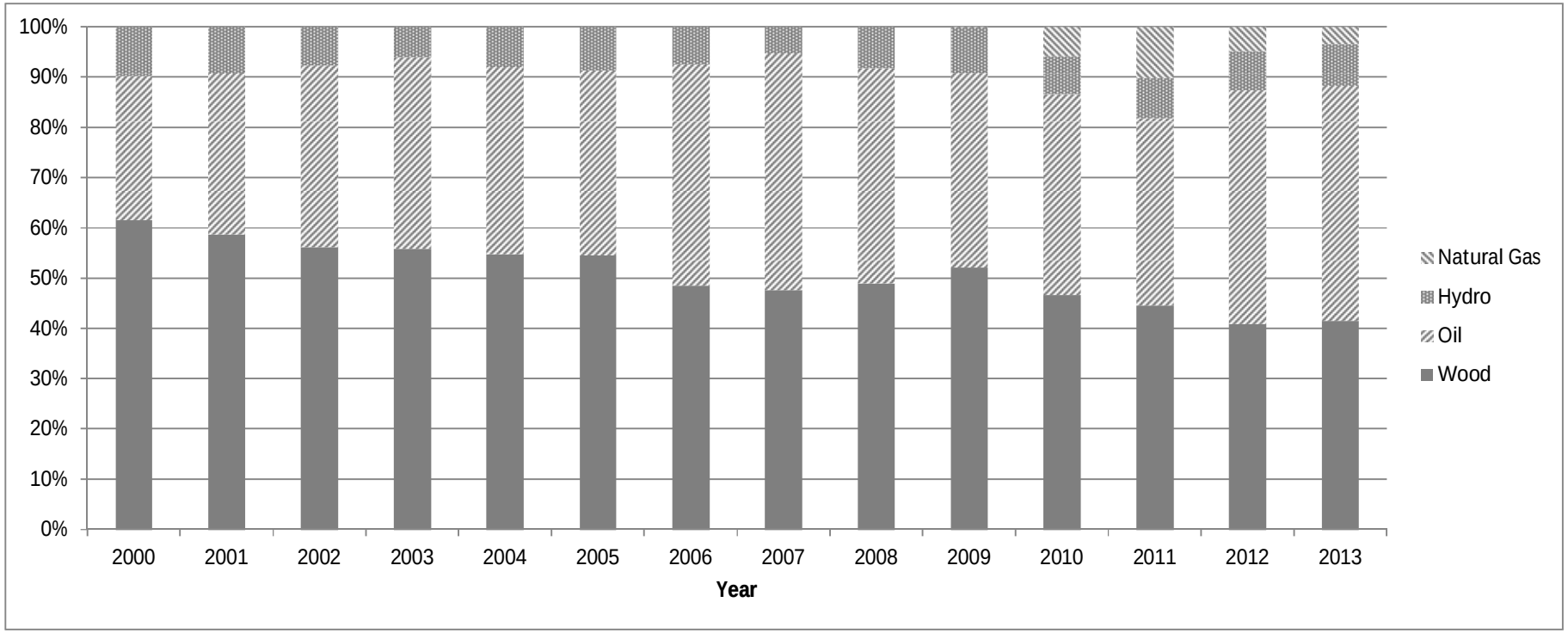
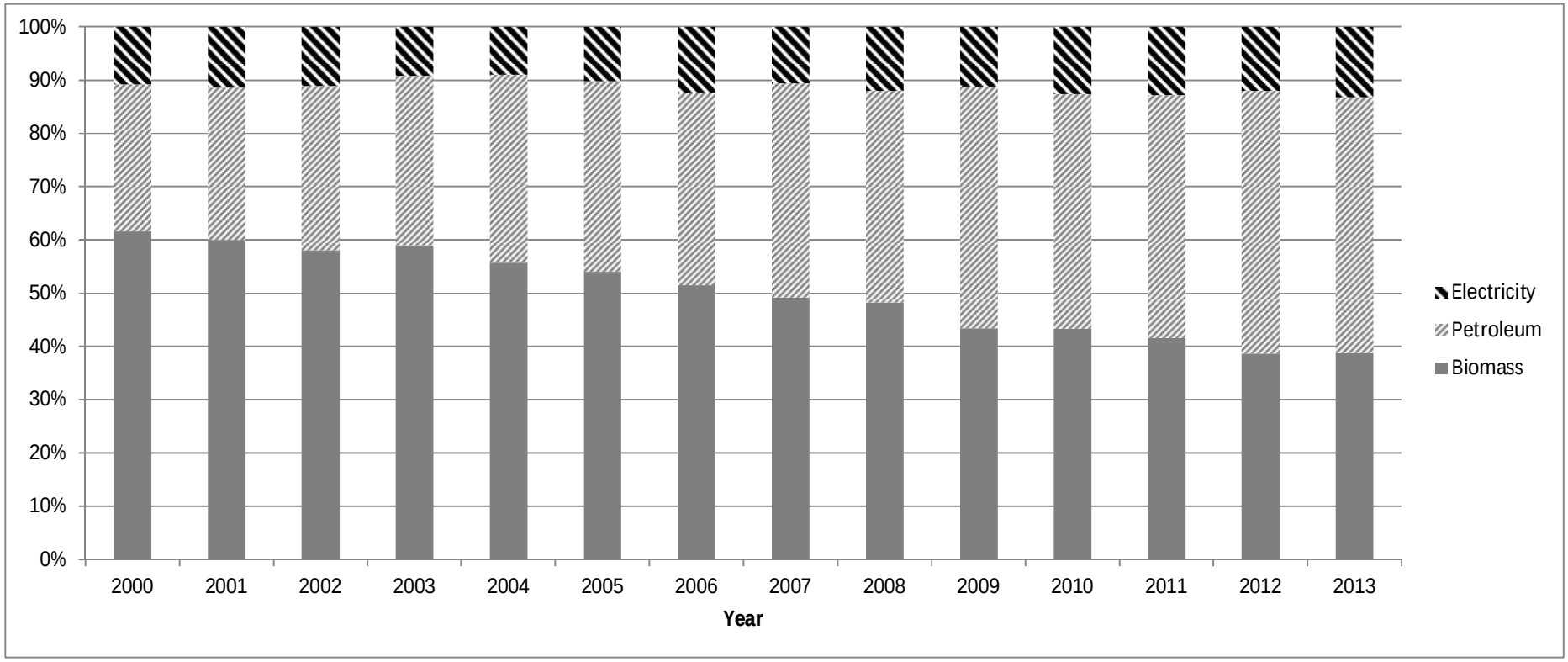


Table 2.2: Total Final Energy Consumed (ktoe)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Electricity	596.8	614.7	587.2	450.7	455.7	512.8	633.0	553.8	620.8	640.8	715.2	789.9	796.0	910.0
Petroleum	1,535.3	1,537.0	1,633.6	1,573.5	1,800.0	1,817.6	1,872.6	2,126.6	2,071.3	2,597.7	2,491.1	2,826.6	3,303.1	3,300.1
Biomass	3,432.4	3,237.8	3,081.8	2,924.7	2,839.0	2,745.2	2,671.3	2,593.7	2,517.8	2,493.3	2,463.9	2,575.6	2,588.8	2,676.0
Total	5,564.5	5,389.4	5,302.6	4,948.9	5,094.6	5,075.7	5,176.9	5,274.1	5,209.8	5,731.7	5,670.2	6,192.1	6,687.9	6,886.0

Figure 2.1: Trend in Final Energy Consumed



SECTION THREE: ELECTRICITY

Table 3.1: Installed Electricity Generation Capacity (End of December, 2013)

PLANT	FUEL TYPE	INSTALLED CAPACITY (MW)	
		Name Plate*	Dependable **
Hydro Generation			
Akosombo	Water	1,020	900
Bui	Water	400	342
Kpong	Water	160	140
Sub-Total		*1,580*	*1,382*
Thermal Generation			
Takoradi Power Company (TAPCO)	LCO/Natural Gas	378	300
Takoradi International Company (TICO)	LCO/Natural Gas	252	200
Sunon Asogli Power (Ghana) Limited (SAPP) - IPP	Natural Gas	220	180
Cenit Energy Ltd (CEL)	LCO/Natural Gas	126	110
Tema Thermal 1 Power Plant (TT1PP)	LCO/Natural Gas	126	110
Tema Thermal 2 Power Plant (TT2PP)	Natural Gas	49.5	45
Takoradi T3	LCO	132	120
Mines Reserve Plant (MRP)	Diesel/Gas	85	80
Effasu Power Barge	Natural Gas	125	100
Sub-Total		*1,494*	*1,245*
Embedded Generation			
Genser Power - IPP	LPG	5	2.1***
Sub-Total		*5*	*2.1*
Renewables			
VRA Solar	Sunshine	2.5	1.9
Sub-Total		*2.5*	*1.9*
Total		3,081.0	2,631.0

*This information is available from the Technical Division of the Energy Commission.

** This information is obtained after many years of operational experience. This is what the utilities (VRA & co) provide.

***Estimated

Table 3.2: Electricity Generation by Plant (GWh) per Installed Capacity (2000 – 2013)

Plant	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hydro Generation														
Akosombo	5,557	5,524	4,178	3,211	4,404	4,718	4,690	3,104	5,254	5,842	5,961	6,495	6,950	6,727
Kpong	1,052	1,085	858	675	877	911	929	623	941	1,035	1,035	1,066	1,121	1,144
Bui	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	362
Sub-Total	*6,609*	*6,609*	*5,036*	*3,886*	*5,281*	*5,629*	*5,619*	*3,727*	*6,195*	*6,877*	*6,996*	*7,561*	*8,071*	*8,233*
Thermal Generation														
Takoradi Power Company (TAPCO)	346	740	874	1,328	536	831	1,416	1,521	874	453	1,234	1,137	1,061	1,783
Takoradi International Company (TICO)	268	510	1,363	668	222	328	1,395	1,417	1,063	1,040	1,160	657	1,168	1,032
Tema Thermal 1 Power Plant (TT1PP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	570	591	559	622	475
Tema Reserve Power Plant (TRPP)	NA	NA	NA	NA	NA	NA	NA	162	85	NA	NA	NA	NA	NA
Emergency Reserve Power Plant (ERPP)	NA	NA	NA	NA	NA	NA	NA	80	45	NA	NA	NA	NA	NA
Kumasi Reserve Power Plant (KRPP)	NA	NA	NA	NA	NA	NA	NA	33	16	NA	NA	NA	NA	NA
Mines Reserve Plant (MRP)	NA	NA	NA	NA	NA	NA	NA	38	46	18	20	12	20	NA
Tema Thermal 2 Power Plant (TT2PP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	50	141	94
Sunon Asogli Power (Ghana) Ltd (SAPP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	138	1,224	848	694
Cenit Energy Ltd (CEL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	94	454
Takoradi T3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	102
Sub-Total	*614*	*1,250*	*2,237*	*1,996*	*758*	*1,159*	*2,811*	*3,251*	*2,129*	*2,081*	*3,171*	*3,639*	*3,953*	*4,635*
Renewables														
VRA Solar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3
Total	7,223	7,859	7,273	5,882	6,039	6,788	8,430	6,978	8,324	8,958	10,167	11,200	12,024	12,870
Installed Capacity (MW)	1,418	1,551	1,574	1,582	1,730	1,730	1,730	1,935	1,981	1,970	2,165	2,170	2,280	2,847

Source: GRIDCo

NA means Not Available

Figure 3.1: Trend in Electricity Generation

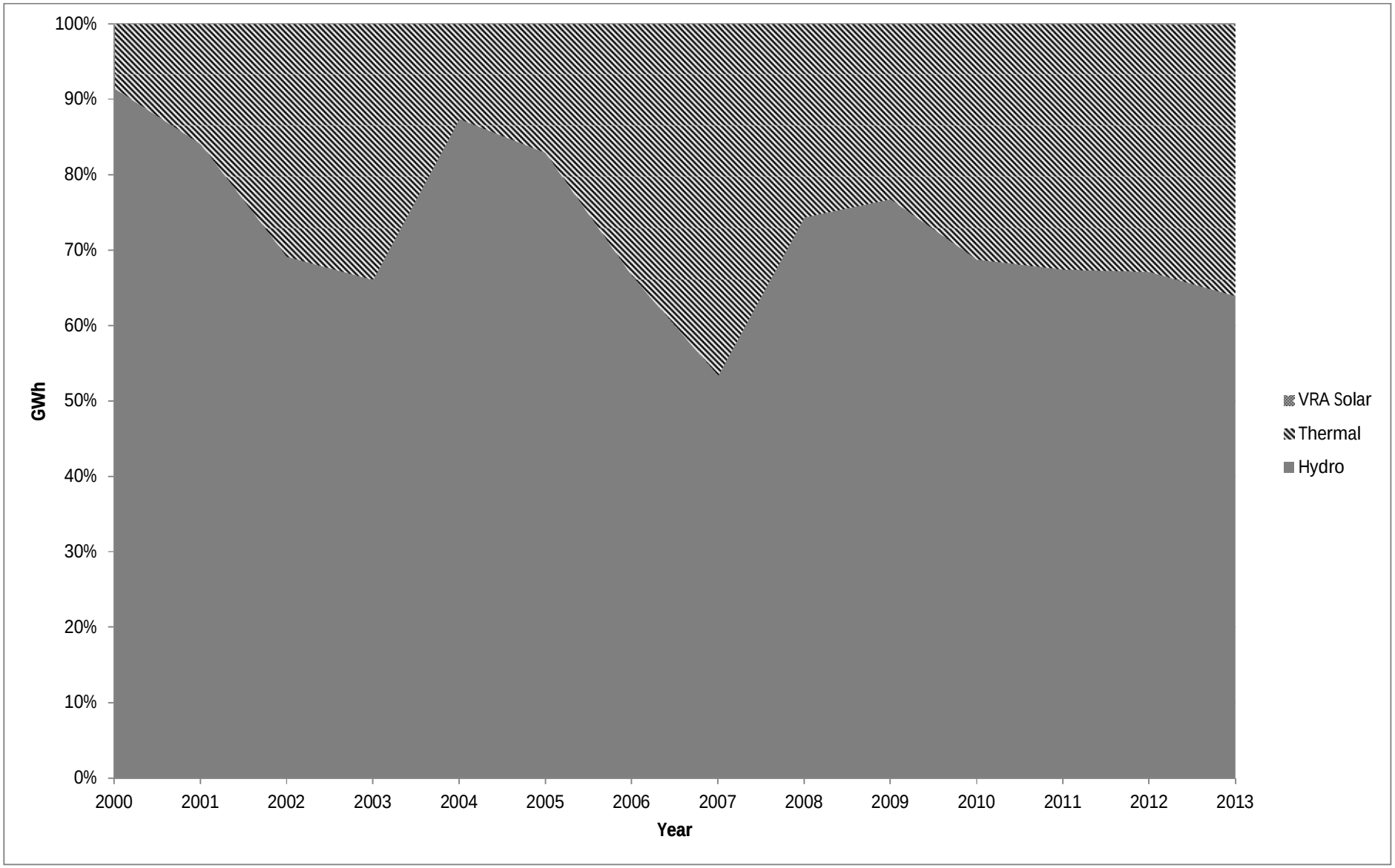


Table 3.3: Electricity Import, Export and Net Import (GWh)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Import	864	462	1,146	940	878	815	629	435	275	198	106	81	128	27
Export	392	302	612	604	665	639	754	246	538	752	1,036	691	667	122
Net Import	472	160	534	336	213	176	-125	189	-263	-554	-930	-610	-539	-95

Source: GRIDCo

NB: Negative net import means net export

Figure 3.2: Electricity Import, Export and Net Import

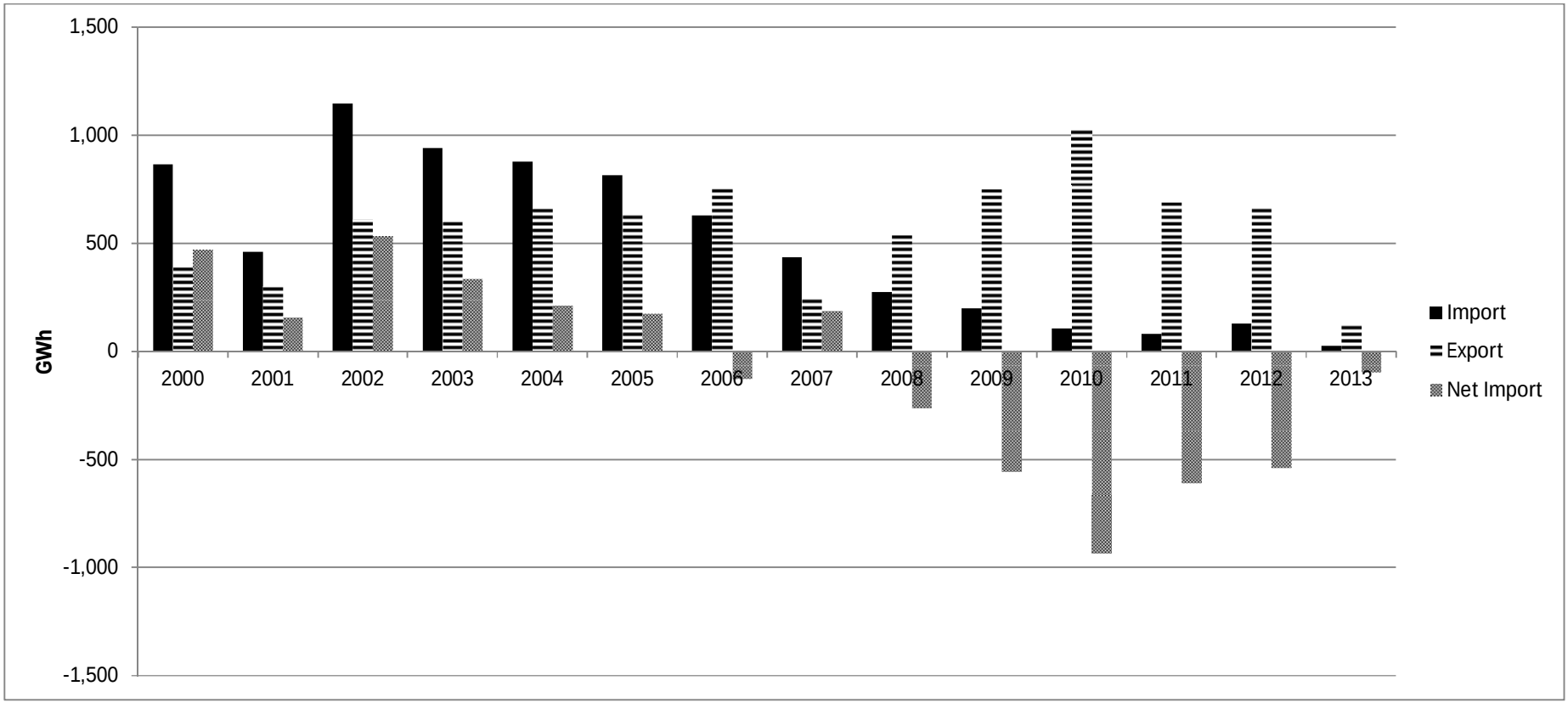


Table 3.4: Peak Load (MW)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ghana Load at Peak	820	854	879	925	985	1,064	1,104	1,158	1,208	1,263	1,391	1,502	1,658	1,791
System Peak	1,161	1,181	1,227	1,135	1,049	1,325	1,393	1,274	1,367	1,423	1,506	1,665	1,729	1,943

Source: VRA & GRIDCo

NB: Ghana Load at Peak = Maximum Demand for Ghana (ECG +NEDCo + Direct Customers of VRA + Mines)
System Peak = Ghana Load at Peak + VALCO Load + Export Load

Figure 3.3: Trend in Peak Load

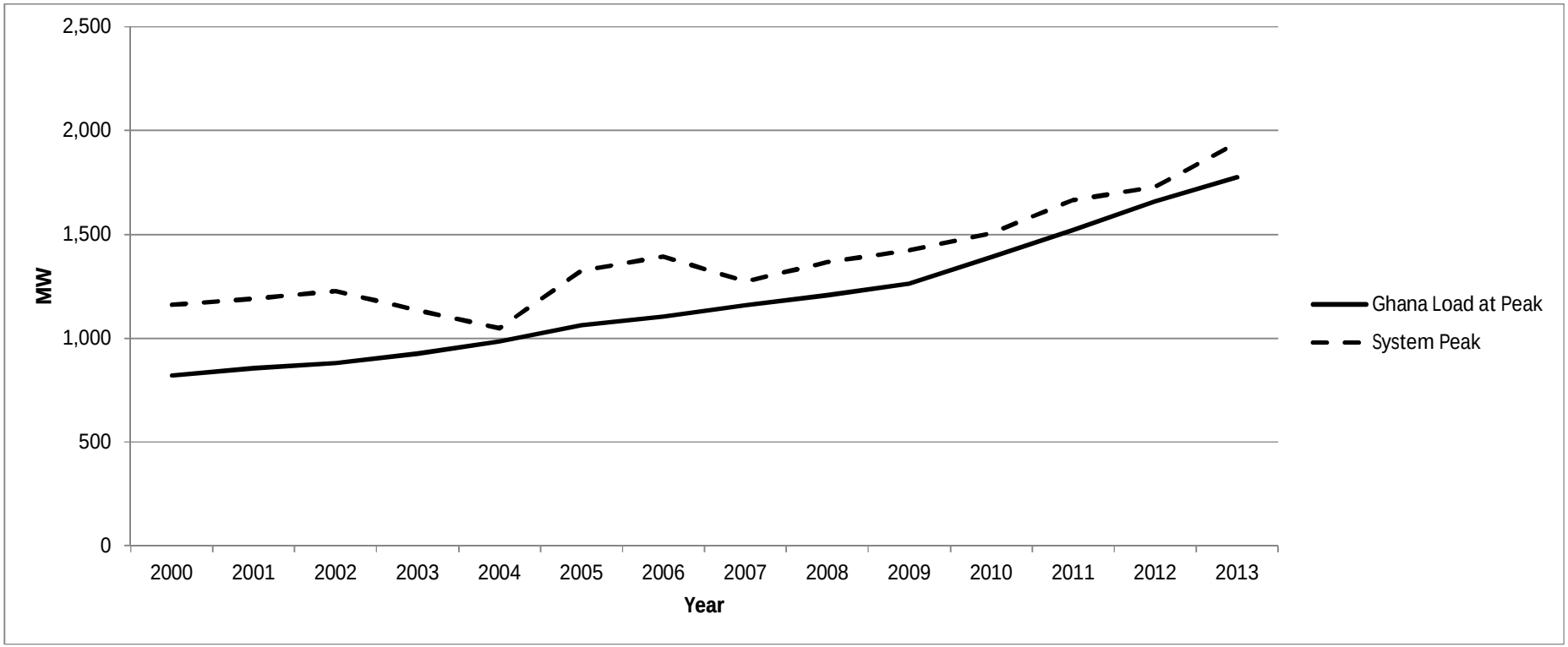


Table 3.5: Akosombo Dam Month End Elevation (feet)

Month	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
January	260.1	257.4	245.5	242.4	252.9	252.3	248.0	241.5	253.1	261.7	266.1	273.8	269.8	266.3
February	258.3	255.4	243.5	240.7	251.3	250.4	246.1	239.4	251.4	259.9	264.5	272.4	268.0	264.3
March	256.5	253.1	241.6	239.0	249.5	248.7	243.8	237.4	249.2	258.1	262.6	270.8	265.9	262.2
April	254.9	251.3	239.9	237.9	248.1	247.0	241.5	236.3	247.5	256.9	260.7	269.1	264.1	260.3
May	253.2	249.6	238.7	236.6	246.9	245.3	239.8	235.9	246.0	255.0	259.0	267.4	262.6	258.7
June	252.3	247.9	237.6	237.0	245.6	244.4	238.5	235.5	245.0	254.0	258.0	266.4	261.4	257.0
July	252.4	246.8	237.6	238.4	245.5	244.7	237.0	235.2	246.4	254.1	257.7	266.7	263.2	256.2
August	254.9	246.3	239.7	241.1	248.7	246.2	236.7	239.5	252.9	258.8	259.7	267.6	264.0	255.1
September	260.0	250.3	244.3	249.6	254.6	250.0	240.9	252.5	261.4	266.3	269.8	271.7	267.6	258.1
October	263.2	251.5	246.7	255.7	256.7	253.4	246.0	256.4	266.4	270.4	277.0	274.7	270.8	260.8
November	261.6	249.4	245.9	255.6	255.9	252.1	245.7	255.8	265.1	270.3	276.7	273.7	270.0	259.4
December	259.5	247.5	244.0	254.3	254.2	250.1	243.8	254.7	263.6	268.2	275.4	271.9	268.4	257.7

Source: GRIDCo and VRA

Figure 3.4: Trend in Akosombo Dam Monthly Elevation (2008 – 2012)

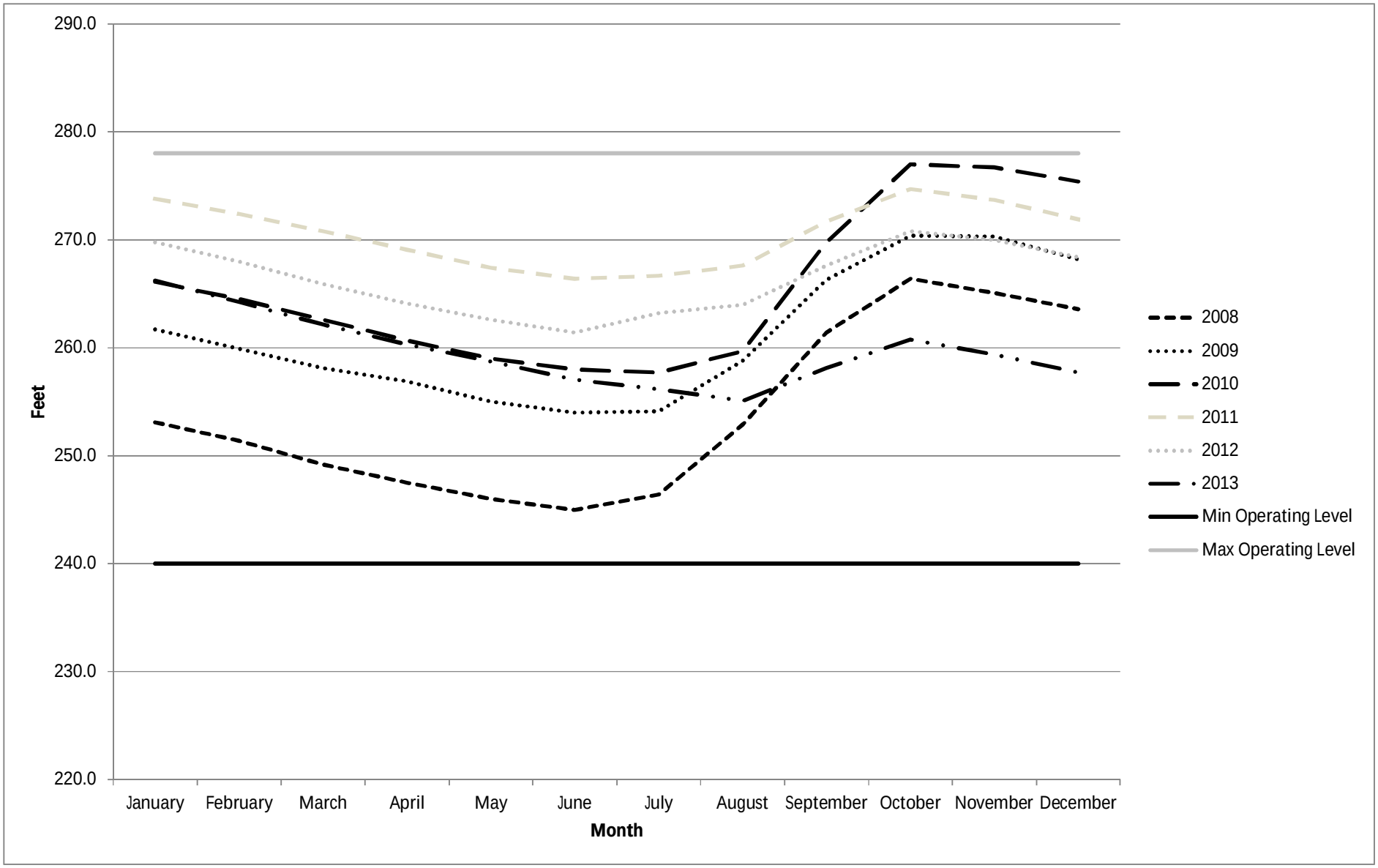


Table 3.6: Transmission Losses

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Transmission Losses (GWh)	229	259	368	402	205	249	318	256	303	343	380	531	522	570
Losses as % of net Generation	2.8	3.1	4.4	5.9	3.0	3.3	3.5	3.5	3.5	3.8	3.7	4.7	4.3	4.8

Source: GRIDCo and VRA

Figure 3.5: Trend in Transmission Losses

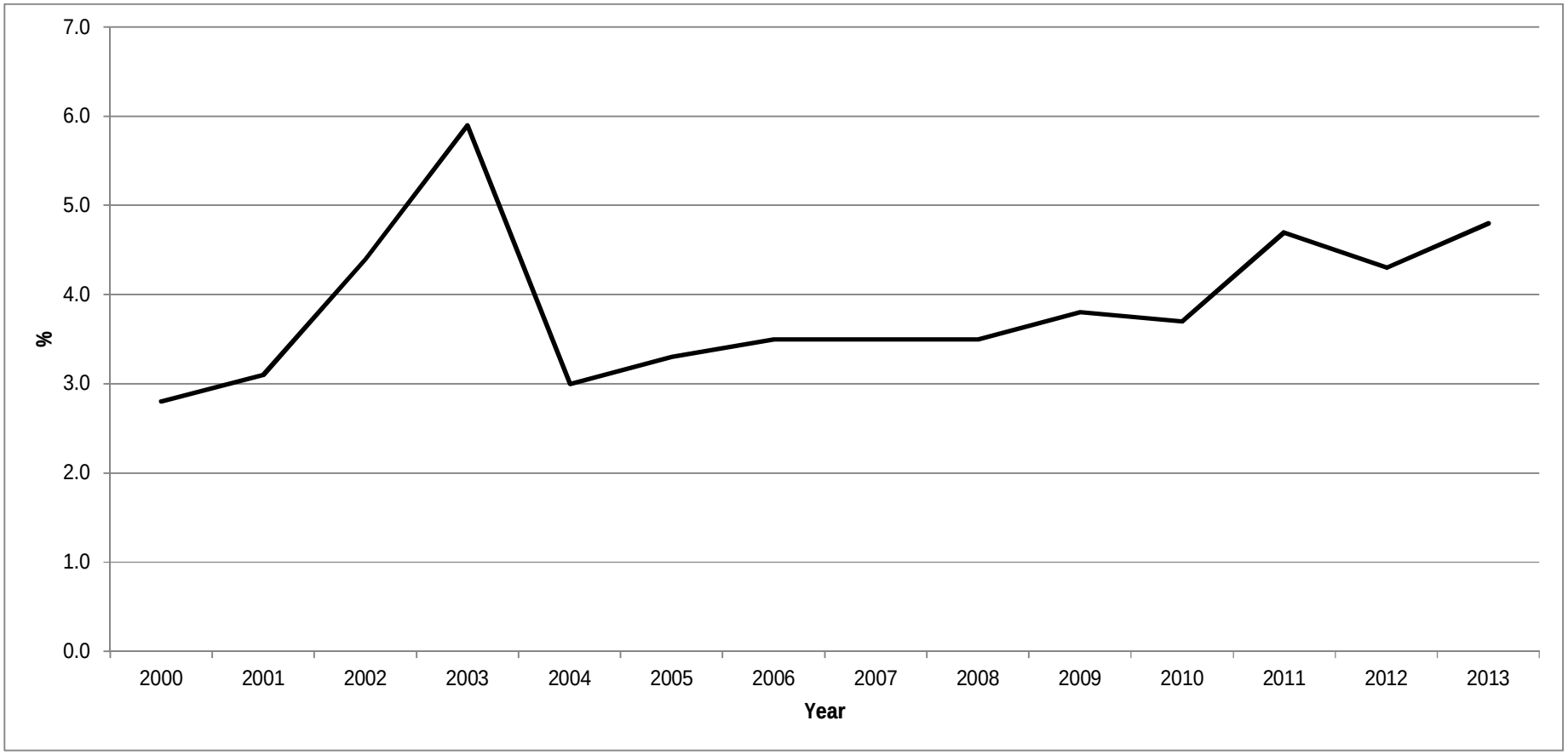


Table 3.7: Electricity Purchases and Sales by ECG

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012[1]	2013[2]
Total Purchases (GWh)	3,989	4,175	4,326	4,496	4,818	5,045	5,253	5,146	5,799	6,052	6,771	7,259	7,944	8,479
Total Sales (GWh)	2,910	3,080	3,200	3,343	3,542	3,761	3,978	3,906	4,335	4,442	4,952	5,339	6,041	6,476
Distribution Losses (GWh)[3]	1,079	1,095	1,126	1,153	1,276	1,285	1,275	1,240	1,464	1,610	1,819	1,920	1,903	2,003
Percentage Losses	27.0	26.2	26.0	25.6	26.5	25.5	24.3	24.1	25.2	26.6	26.9	26.4	24.0	23.6

[1]Revised
[2]Technical and commercial losses
[3]Provisional
Source: GRIDCo, VRA and ECG

Table 3.8: Electricity Purchases and Sales by NEDCo

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013[1]
Total Purchases (GWh)	330	355	383	426	473	501	507	494	529	566	635	719	822	937
Total Sales (GWh)	232	250	265	283	323	365	356	365	392	404	473	581	658	737
Distribution Losses (GWh)[2]	98	105	118	143	150	136	151	129	137	162	162	138	164	200
Percentage Losses	29.7	29.6	30.8	33.6	31.7	27.1	29.8	26.1	25.9	28.6	25.5	19.2	20.0	21.3

[1]Provisional
[2]Technical and commercial losses
Source: GRIDCO, VRA and NEDCo

Figure 3.6: Trend in Distribution Losses

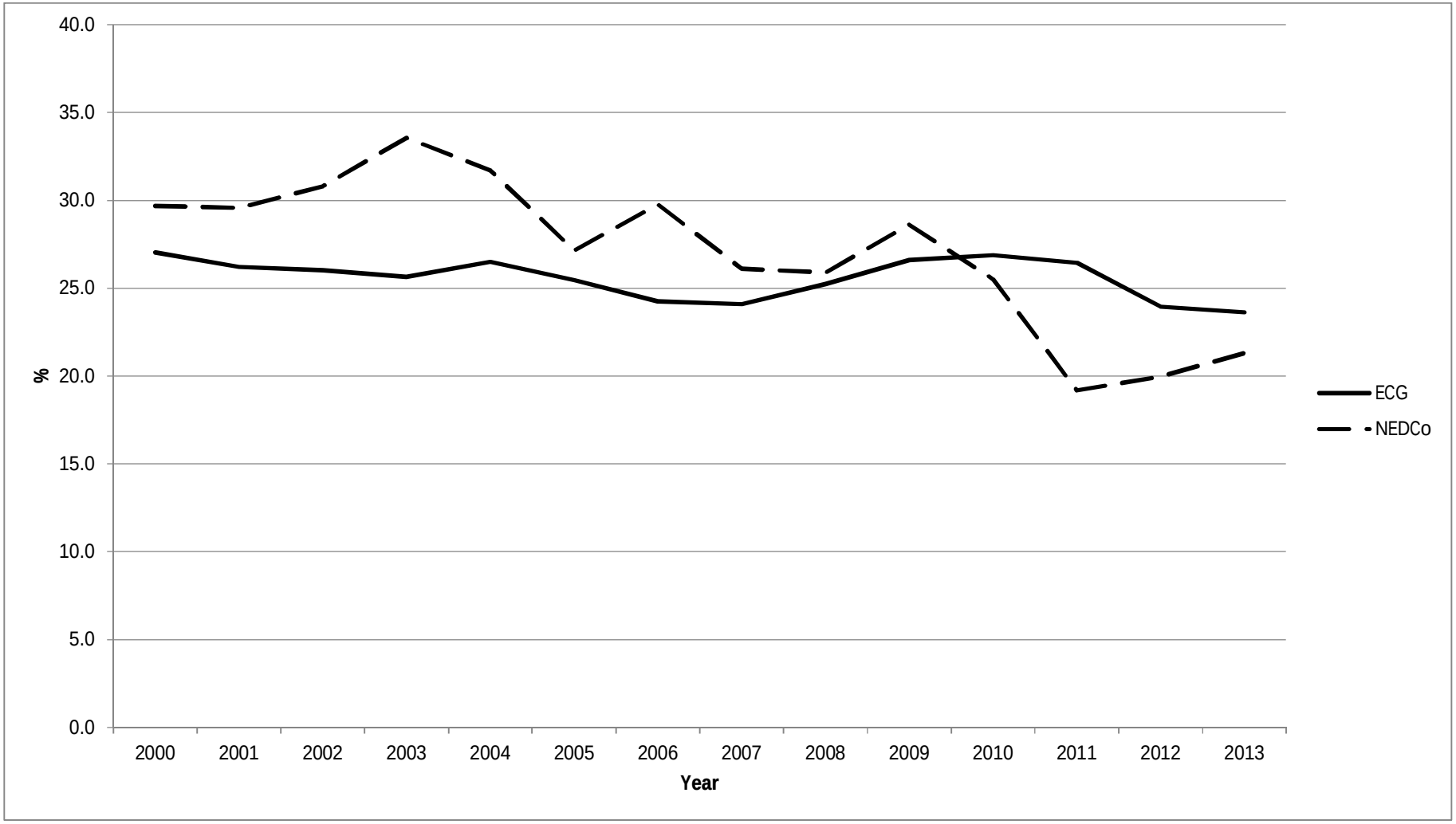
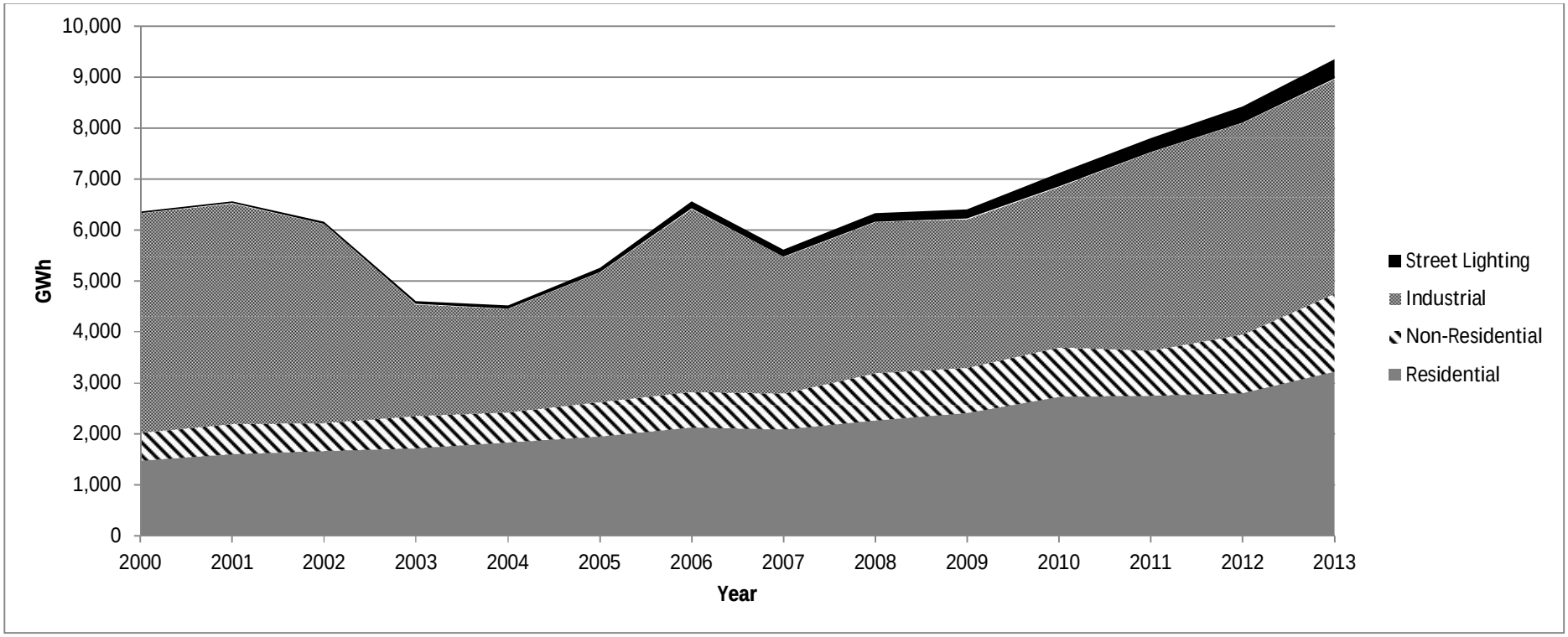


Table 3.9: Electricity Consumption by Customer Class (GWh)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012[1]	2013[2]
Residential	1,479	1,612	1,670	1,727	1,840	1,956	2,130	2,095	2,269	2,418	2,738	2,761	2,803	3,228
Non-Residential	551	580	544	621	591	676	701	702	927	884	966	1,041	1,153	1,525
Industrial[3]	4,306	4,336	3,904	2,206	2,029	2,542	3,593	2,687	2,963	2,921	3,156	3,900	4,153	4,224
Street Lighting	31	36	42	50	63	85	144	137	171	184	264	274	315	377
Total	6,367	6,564	6,160	4,604	4,523	5,259	6,568	5,621	6,330	6,407	7,124	7,976	8,552	9,355

[1]Revised
[2]Provisional
[3]Special load tariff customers of ECG and NEDCo as well as bulk customers of VRA including VALCO
Data do not include transmission and distribution *(commercial and technical)* losses
Source: ECG, NEDCo, VRA and GRIDCo

Figure 3.7: Electricity Consumption by Customer Class



SECTION FOUR: PETROLEUM

Table 4.1: Crude Oil Production (kilotonnes)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
From Saltpond Field	8.9	10.3	22.9	11.8	22.9	27.1	30.5	24.8	13.9	10.8	15.1	15.0
From Jubilee Field	NE	NE	NE	NE	NE	NE	NE	NE	181.1	3,394.0	4,118.7	5,251.5
Total	8.9	10.3	22.9	11.8	22.9	27.1	30.5	24.8	195.0	3,404.8	4,133.8	5,266.5

NE means None Existent
Source: Ghana National Petroleum Corporation

Table 4.2: Crude Oil Export

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quantity (bbls)	62,474	71,996	160,115	82,447	160,457	189,378	213,730	173,444	97,642	24,731,475	26,430,934	36,048,290
Value (million US$)	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	2,779	2,976	3,885

[1]Provisional
Source: Adapted from Bank of Ghana

Table 4.3: Crude Oil Import (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013[1]
Total Import	1,284.9	1,538.8	1,781.0	1,933.8	1,976.9	1,967.5	1,712.8	2,053.7	1,975.8	982.8	1,661.6	1,531.6	1,209.5	1,302.3
For Refinery	1,131.8	1,262.9	1,179.4	1,406.2	1,813.5	1,645.5	962.2	1,242.5	1,396.7	441.4	961.1	1,274.2	505.8	374.4
For Electricity Generation	153.1	275.9	601.6	527.6	163.4	322.0	750.6	811.2	579.1	541.4	700.5	257.4	703.7	927.8

[1]Provisional
Source: VRA, TOR & NPA

Figure 4.1: Imported Crude Oil Use

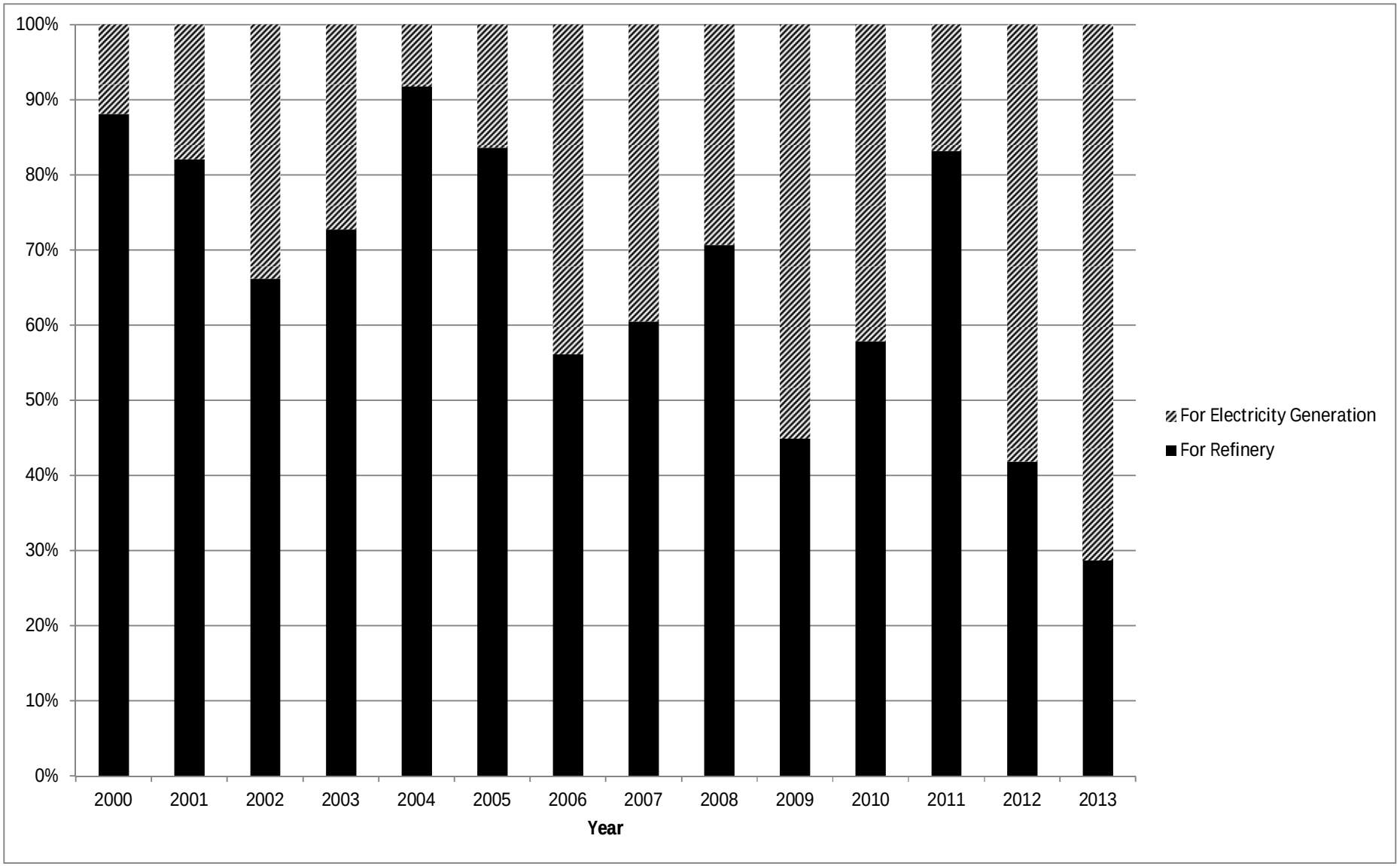


Table 4.4: Natural Gas Import

Year	2009	2010	2011	2012	2013[1]
Import (MMBtu)	197,977.0	15,616,648.0	30,524,558.0	15,447,347.0	11,573,011.0

[1]Provisional
NB: Natural Gas Import through the West Africa Gas Pipeline
Source: WAGPCo & VRA

Figure 4.2: Trend in Natural Gas Import

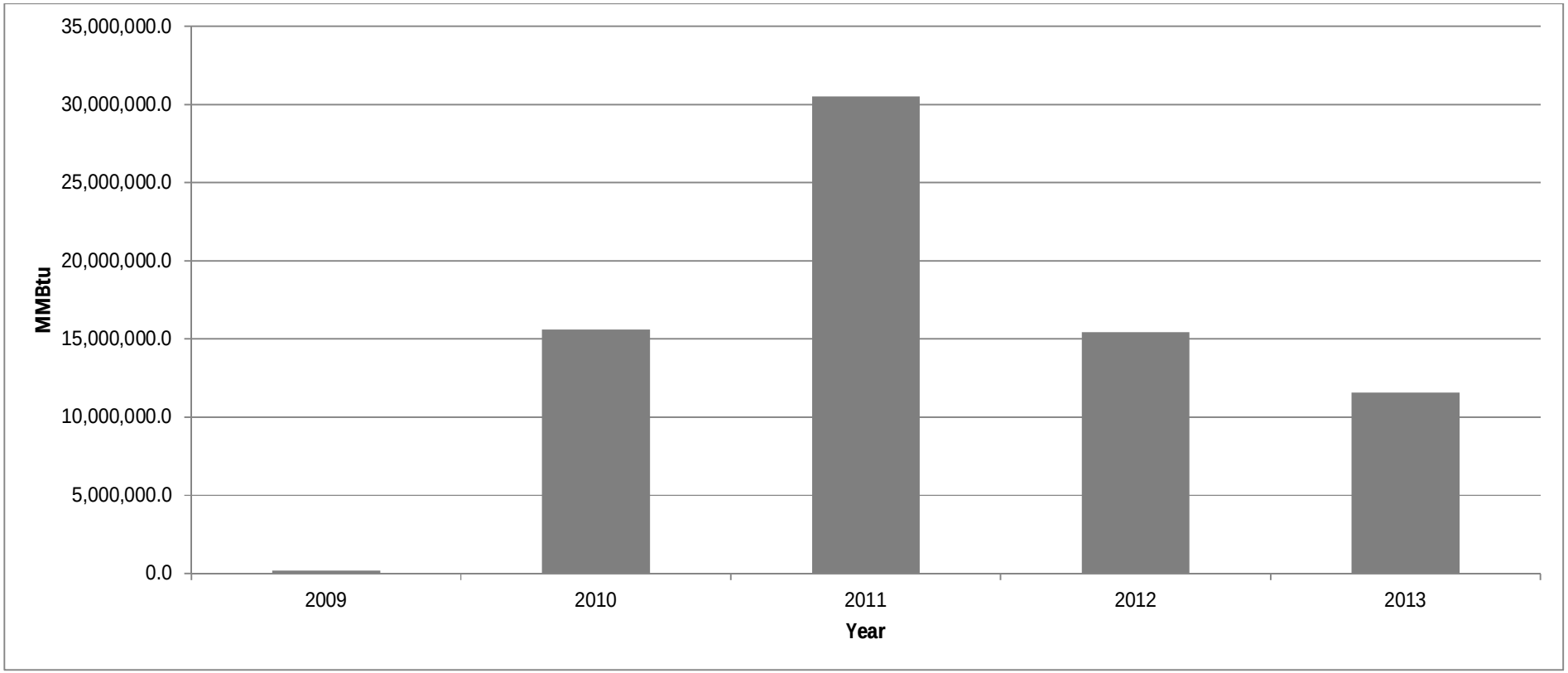


Table 4.5: Petroleum Products Production (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013[1]
LPG	9.7	7.0	24.4	52.6	65.5	75.3	35.8	67.3	54.6	14.0	31.6	44.6	26.8	25.6
Gasolines	238.6	286.3	346.2	433.8	553.1	567.1	294.4	493.0	391.2	135.0	337.7	344.3	157.7	167.3
Kerosene	51.8	98.1	61.1	109.6	111.1	87.7	65.1	122.0	168.6	48.7	71.0	52.6	21.1	14.6
ATK	108.3	64.0	81.6	85.6	106.9	119.0	46.2	65.8	21.3	1.3	116.7	116.1	47.6	59.8
Gas Oil	358.1	353.5	446.5	506.6	568.4	486.3	294.2	398.2	360.5	102.8	292.6	309.8	121.5	113.3
Fuel Oils	261.9	261.1	195.7	163.5	199.1	205.4	155.5	48.7	225.4	25.3	96.8	90.6	79.2	43.5

[1]Provisional
Source: Tema Oil Refinery

Figure 4.3: Trend in Petroleum Products Production

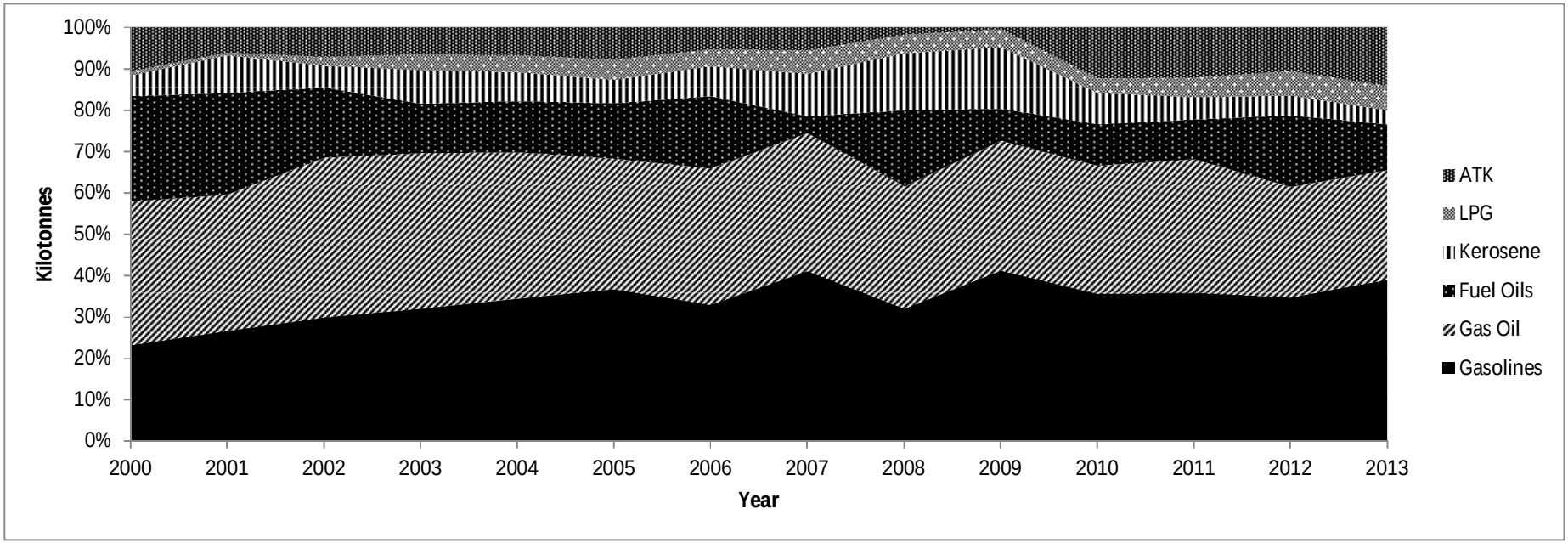


Table 4.6: Petroleum Products Import (kilotonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
LPG	35.4	35.6	32.0	16.7	11.0	7.1	67.8	47.2	67.8	150.6	148.0	177.8	241.6	203.9
Gasolines	387.0	389.4	370.8	232.1	255.4	167.5	360.5	274.9	254.5	563.4	570.1	712.8	811.5	1,017.4
Kerosene	30.4	21.5	48.8	34.6	0.0	0.0	99.9	66.7	136.4	77.7	0.0	0.0	0.0	0.0
Gasoil	363.2	354.3	298.0	285.7	313.1	403.7	780.0	806.9	579.0	969.5	871.7	1,200.6	1,309.4	1,638.7
Fuel Oil	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.3
DPK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	115.0	0.0
ATK	0.0	0.0	0.0	0.0	0.0	0.0	79.3	42.6	156.2	83.5	0.0	0.0	95.7	41.4

[1]Provisional
Source: National Petroleum Authority

Figure 4.4: Trend in Petroleum Products Import

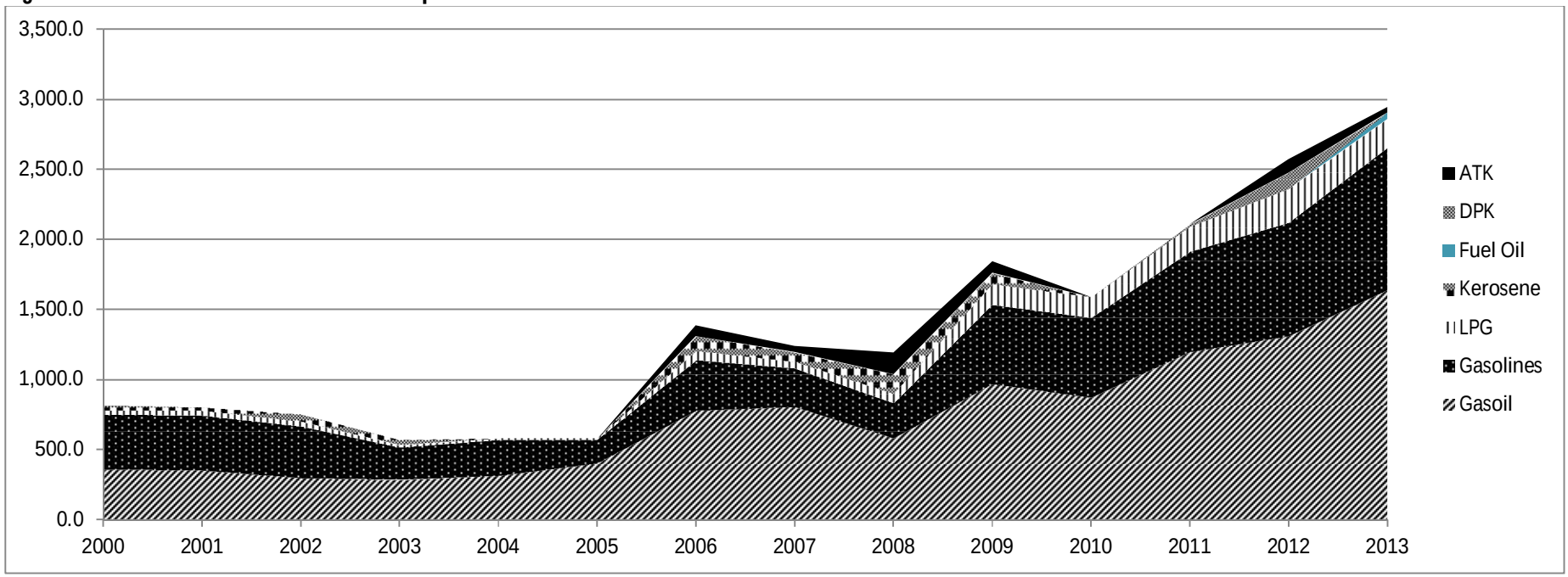


Table 4.7: Petroleum Products Export (kilotonnes)[1]

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
LPG	6.2	1.2	4.5	11.2	6.0	12.5	10.4	9.6	5.0	1.1	0.0	0.0	0.0	0.0
Gas Oil	0.6	1.0	1.9	12.0	42.4	37.7	66.1	52.7	88.4	381.9	290.9	356.5	80.8	51.8
Residual Fuel Oil	190.7	215.7	151.7	89.4	168.9	162.8	45.9	26.2	148.4	30.2	40.6	43.5	44.5	3.7
Heavy Gasoline	97.1	126.7	129.2	103.0	146.5	161.9	99.8	133.7	73.0	20.5	93.6	141.1	54.3	36.0
Premium Gasoline	0.0	0.0	0.0	1.1	4.4	42.0	13.5	30.1	38.8	51.6	119.4	116.9	0.0	0.0
ATK	0.0	0.0	0.0	0.8	0.0	0.1	0.4	2.5	0.3	0.0	0.0	18.0	0.0	0.0

[1]Revised
[2] Provisional
Source: Tema Oil Refinery and National Petroleum Authority
NB: Gas Oil export include sales to international marine bunkers

Figure 4.5: Trend in Petroleum Products Export

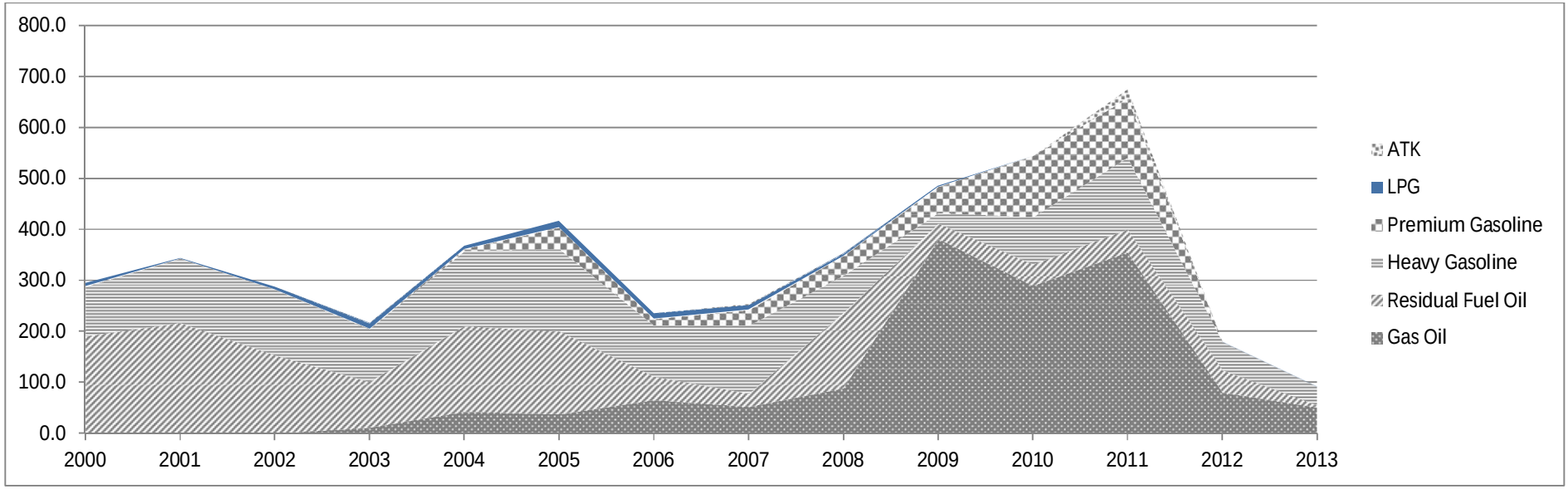
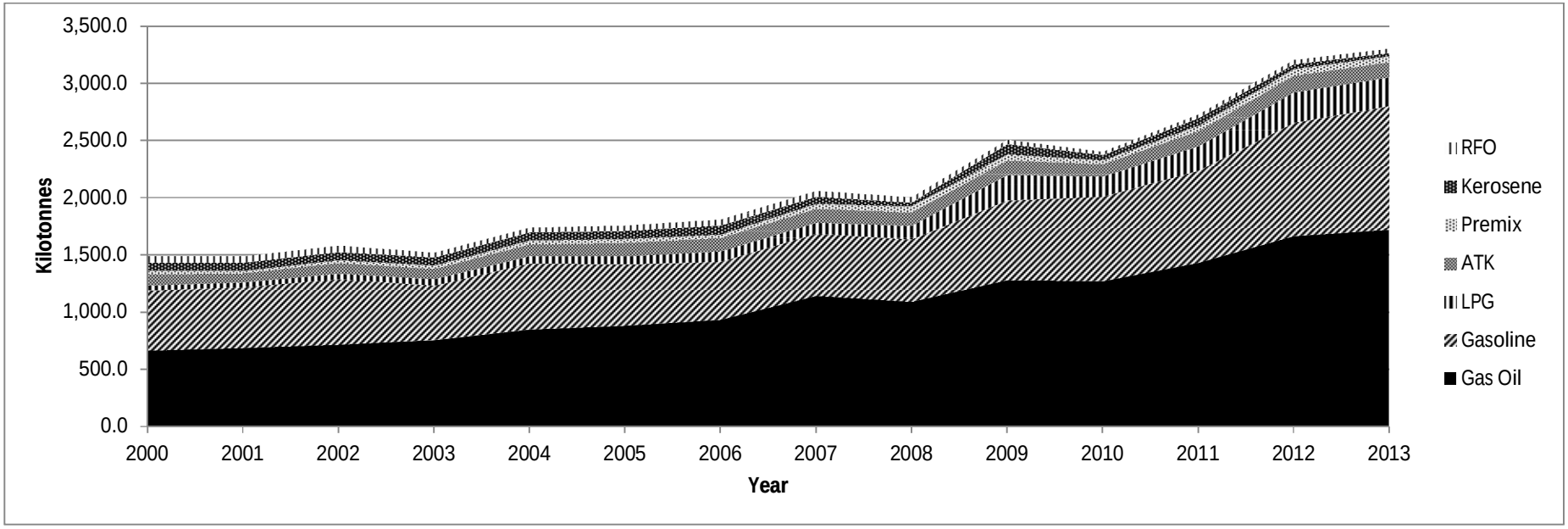


Table 4.8: Petroleum Products Supplied to the Economy (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013[1]
LPG	45.0	42.5	50.0	56.7	65.7	70.5	88.0	93.3	117.6	220.6	178.4	214.4	268.5	251.8
Premium Gasoline	524.4	535.1	570.2	479.8	575.6	537.8	511.9	544.2	545.0	701.4	737.8	807.0	992.7	1,080.6
Premix	30.6	27.0	26.8	28.9	27.5	31.4	33.7	41.0	50.7	55.1	32.4	45.6	58.9	53.4
Kerosene	67.6	70.5	74.8	68.8	73.2	74.3	76.5	63.3	34.6	89.3	49.3	62.4	45.6	27.8
ATK	96.9	76.4	90.5	89.8	107.4	119.3	114.7	122.8	119.2	124.7	108.4	135.3	141.3	131.9
Gas Oil	665.8	685.4	717.8	755.3	848.9	880.4	934.0	1,147.0	1,092.1	1,280.0	1,271.9	1,431.2	1,665.0	1,722.6
RFO	57.1	52.0	51.9	45.7	45.2	47.8	56.8	51.3	47.9	40.3	30.9	37.5	33.5	39.3

[1]Provisional
Source: National Petroleum Authority

Figure 4.6: Trend in Petroleum Products Supplied to the Economy



SECTION FIVE: BIOMASS

Table 5.1: Biomass Supply (ktoe)[1]

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wood for charcoal	1,094	1,116	1,144	1,178	1,219	1,268	1,325	1,391	1,474	1,577	1,687	1,805	1,859	1,989
Wood for firewood	2,742	2,539	2,350	2,176	2,017	1,873	1,742	1,644	1,566	1,520	1,490	1,535	1,520	1,535
Other[2]	55	51	47	44	40	37	35	33	31	30	30	31	30	30
Total Wood Supply	3,891	3,705	3,541	3,398	3,277	3,178	3,102	3,068	3,070	3,127	3,207	3,371	3,409	3,554

[1]Revised

[2]include saw dust, sawmill residue etc.

Table 5.2: Biomass Consumption (ktoe)[1]

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Firewood	2,742	2,539	2,350	2,176	2,017	1,873	1,742	1,644	1,566	1,520	1,490	1,535	1,520	1,535
Charcoal	636	649	684	705	782	835	894	917	921	943	944	1,010	1,039	1,112
Other[2]	55	51	47	44	40	37	35	33	31	30	30	31	30	30
Total Biomass	3,432	3,238	3,082	2,925	2,839	2,745	2,671	2,594	2,518	2,493	2,464	2,576	2,589	2,676

[1]Revised

[2]include saw dust, sawmill residue etc.

Table 5.3: Charcoal Export (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quantity	3.0	2.8	3.5	4.6	4.6	5.7	2.9	3.6	2.9	4.3	1.4	0.8	2.0	0.8
Growth Rate (%)	-	-6.7	25.0	31.4	0.0	23.9	-49.1	24.1	-19.4	48.3	-67.4	-42.9	150.0	-61.4

SECTION SIX: ENERGY PRICES

Table 6.1: Average Crude Oil Prices (US$/barrel)

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
First Quarter	48.00	62.67	58.63	96.47	45.56	77.19	105.18	121.02	112.64
Second Quarter	52.89	70.43	68.67	122.84	59.71	79.44	117.19	110.38	103.31
Third Quarter	61.83	70.53	74.67	116.92	69.01	76.94	112.15	109.67	109.61
Fourth Quarter	57.75	60.89	88.68	57.31	75.54	87.32	109.04	110.08	109.27

Adapted from Bank of Ghana

Figure 6.1: Trend in Crude Oil Prices (Jan 2005 – Dec 2013)

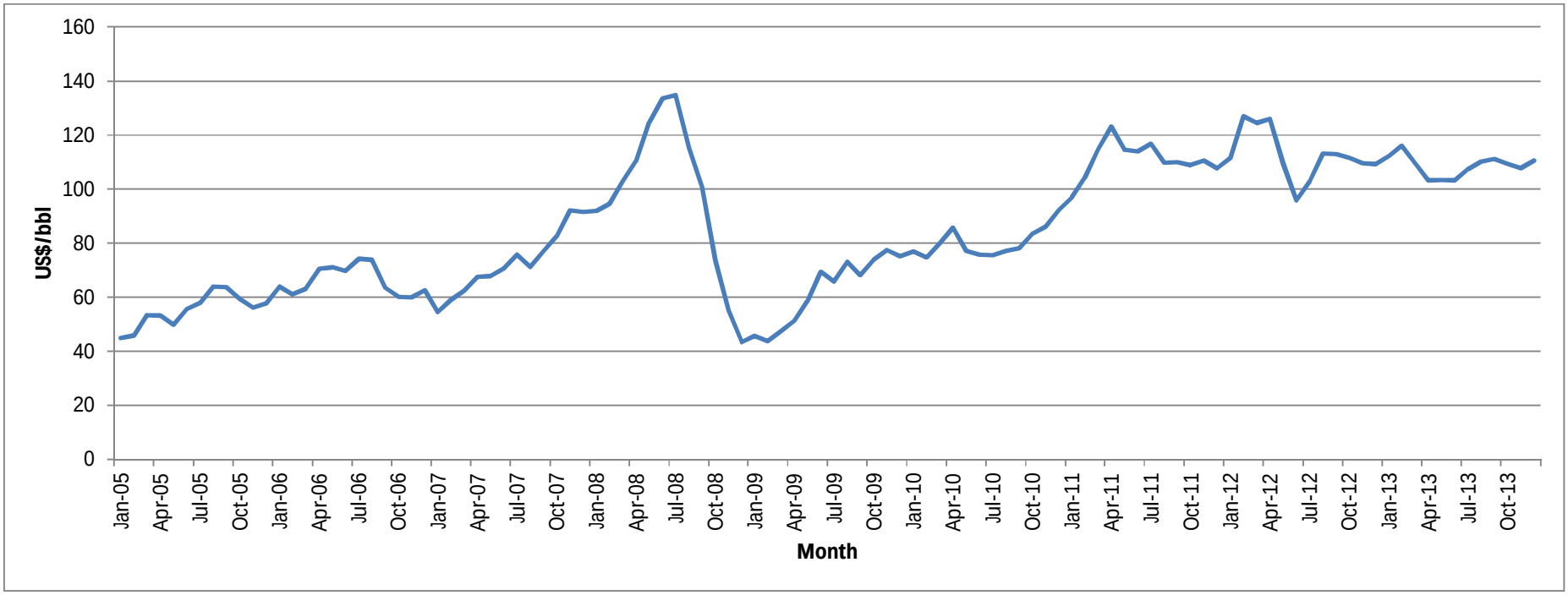


Table 6.2: Retail Prices of Major Petroleum Products

Effective Date	Exchange Rate (Gh¢/US$)	Premium Gasoline (Gh¢/Lt)	Gas Oil (Gh¢/Lt)	Kerosene (Gh¢/Lt)	LPG (Gh¢/kg)	RFO (Gh¢/Lt)
16-Feb-08	0.98	1.04	1.04	0.94	1.02	0.57
01-Mar-08	0.98	1.09	1.11	1.01	1.04	0.59
16-Mar-08	0.98	1.11	1.16	1.09	1.05	0.60
01-Apr-08	0.98	1.11	1.18	1.20	1.05	0.61
16-Apr-08	0.98	1.14	1.21	1.17	1.01	0.65
03-May-08	0.98	1.19	1.25	1.19	1.00	0.67
26-May-08	0.98	1.19	1.20	1.14	1.00	0.67
16-Oct-08	1.14	1.19	1.20	1.14	1.00	0.67
01-Nov-08	1.15	1.07	1.10	1.02	0.92	0.58
16-Nov-08	1.16	1.03	1.08	1.00	0.88	0.55
01-Dec-08	1.17	0.99	1.04	0.97	0.84	0.53
12-Dec-08	1.20	0.82	0.89	0.70	0.65	0.40
09-Mar-09	1.33	0.78	0.85	0.67	0.59	0.38
16-Mar-09	1.36	0.78	0.85	0.67	0.59	0.38
01-Apr-09	1.38	0.86	0.86	0.67	0.61	0.21
16-Apr-09	1.40	0.86	0.86	0.67	0.61	0.43
06-Jun-09	1.44	1.11	1.12	0.86	0.80	0.56
16-Jul-09	1.49	1.11	1.12	0.86	0.80	0.64
31-Oct-09	1.45	1.17	1.18	0.91	0.84	0.67
04-Jan-11	1.46	1.52	1.53	0.91	1.05	0.84
29-Dec-11	1.55	1.76	1.77	0.91	1.36	0.84
11-Feb-12	1.66	1.71	1.72	0.91	1.30	0.84
01-Mar-12	1.68	1.71	1.72	0.91	1.30	0.84
16-Mar-12	1.68	1.71	1.72	0.91	1.30	0.84
01-Apr-12	1.68	1.71	1.72	0.91	1.30	0.84
16-Apr-12	1.70	1.71	1.72	0.91	1.30	0.84
01-May-12	1.71	1.71	1.72	0.91	1.30	0.84
16-May-12	1.71	1.71	1.72	0.91	1.30	0.84
01-Jun-12	1.73	1.71	1.72	0.91	1.30	0.84

Effective Date	Exchange Rate (Gh¢/US$)	Premium Gasoline (Gh¢/Lt)	Gas Oil (Gh¢/Lt)	Kerosene (Gh¢/Lt)	LPG (Gh¢/kg)	RFO (Gh¢/Lt)
16-Jun-12	1.83	1.71	1.72	0.91	1.30	0.84
01-Jul-12	1.87	1.71	1.72	0.91	1.30	0.84
16-Jul-12	1.88	1.71	1.72	0.91	1.30	0.84
01-Aug-12	1.88	1.71	1.72	0.91	1.30	0.84
16-Aug-12	1.89	1.71	1.72	0.91	1.30	0.84
01-Sep-12	1.89	1.71	1.72	0.91	1.30	0.84
16-Sep-12	1.89	1.71	1.72	0.91	1.30	0.84
01-Oct-12	1.89	1.71	1.72	0.91	1.30	0.84
16-Oct-12	1.89	1.71	1.72	0.91	1.30	0.84
01-Nov-12	1.89	1.71	1.72	0.91	1.30	0.84
16-Nov-12	1.88	1.71	1.72	0.91	1.30	0.84
01-Dec-12	1.88	1.71	1.72	0.91	1.30	0.84
16-Dec-12	1.88	1.71	1.72	0.91	1.30	0.84
01-Jan-13	1.89	1.71	1.72	0.91	1.30	0.84
16-Jan-13	1.89	1.71	1.72	0.91	1.30	0.84
01-Feb-13	1.89	1.71	1.72	0.91	1.30	0.84
16-Feb-13	1.89	1.71	1.72	0.91	1.30	0.84
17-Feb-13	1.89	2.05	2.07	1.05	1.95	0.97
01-Jun-13	1.92	2.11	2.11	1.05	2.00	0.97
16-Jun-13	1.94	2.11	2.11	1.05	2.00	0.97
01-Jul-13	1.99	2.11	2.11	1.05	2.00	0.97
17-Jul-13	1.99	2.15	2.14	1.15	2.12	1.01
01-Aug-13	1.99	2.15	2.14	1.25	2.20	1.05
16-Aug-13	2.00	2.15	2.14	1.25	2.20	1.05
16-Sep-13	2.00	2.23	2.24	1.48	2.36	1.05
01-Oct-13	2.00	2.13	2.19	1.59	2.31	1.11
16-Oct-13	2.00	2.10	2.19	1.71	2.25	1.17
01-Nov-13	2.01	2.14	2.23	1.83	2.28	1.23
16-Nov-13	2.04	2.12	2.22	1.82	2.27	1.23
01-Dec-13	2.07	2.19	2.26	2.02	2.52	1.35
16-Dec-13	2.09	2.19	2.26	2.02	2.52	1.35

Source: National Petroleum Authority

Figure 6.2: Trend in Retail Price of Major Petroleum Products

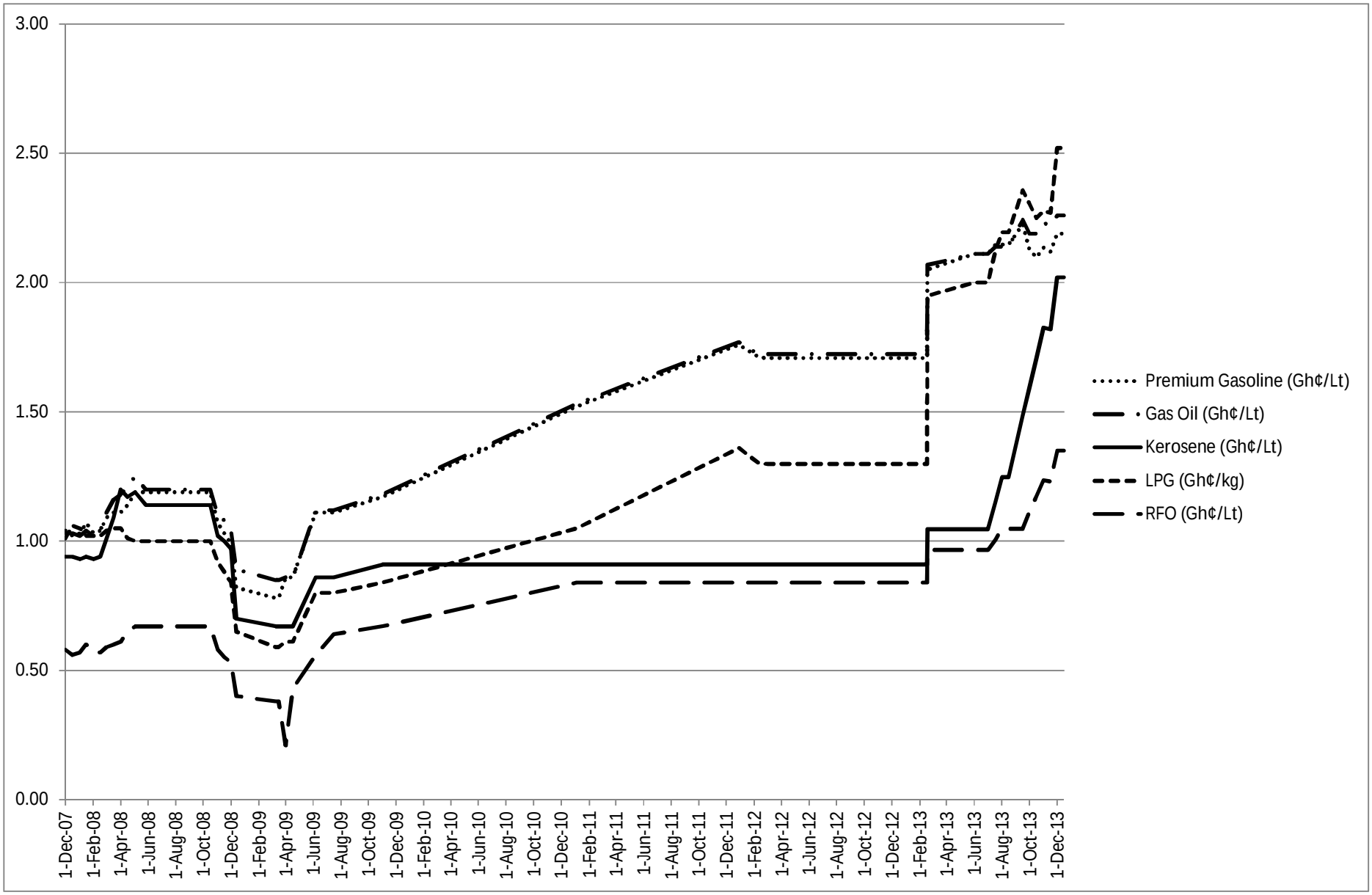


Table 6.3: Average Electricity End User Tariff

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Average End User Tariff (GHS/kWh)	0.017	0.034	0.065	0.071	0.074	0.073	0.078	0.097	0.148	0.148	0.211	0.245	0.232	0.307
Exchange Rate (GHS/US$)[1]	0.70	0.73	0.84	0.88	0.90	0.91	0.92	0.97	1.20	1.43	1.45	1.55	1.88	1.97
Average End User Tariff (US$/kWh)	0.024	0.047	0.077	0.080	0.082	0.080	0.084	0.100	0.123	0.104	0.145	0.158	0.124	0.156

[1]Source: Bank of Ghana

Figure 5.3: Trend in Average Electricity End User Tariff

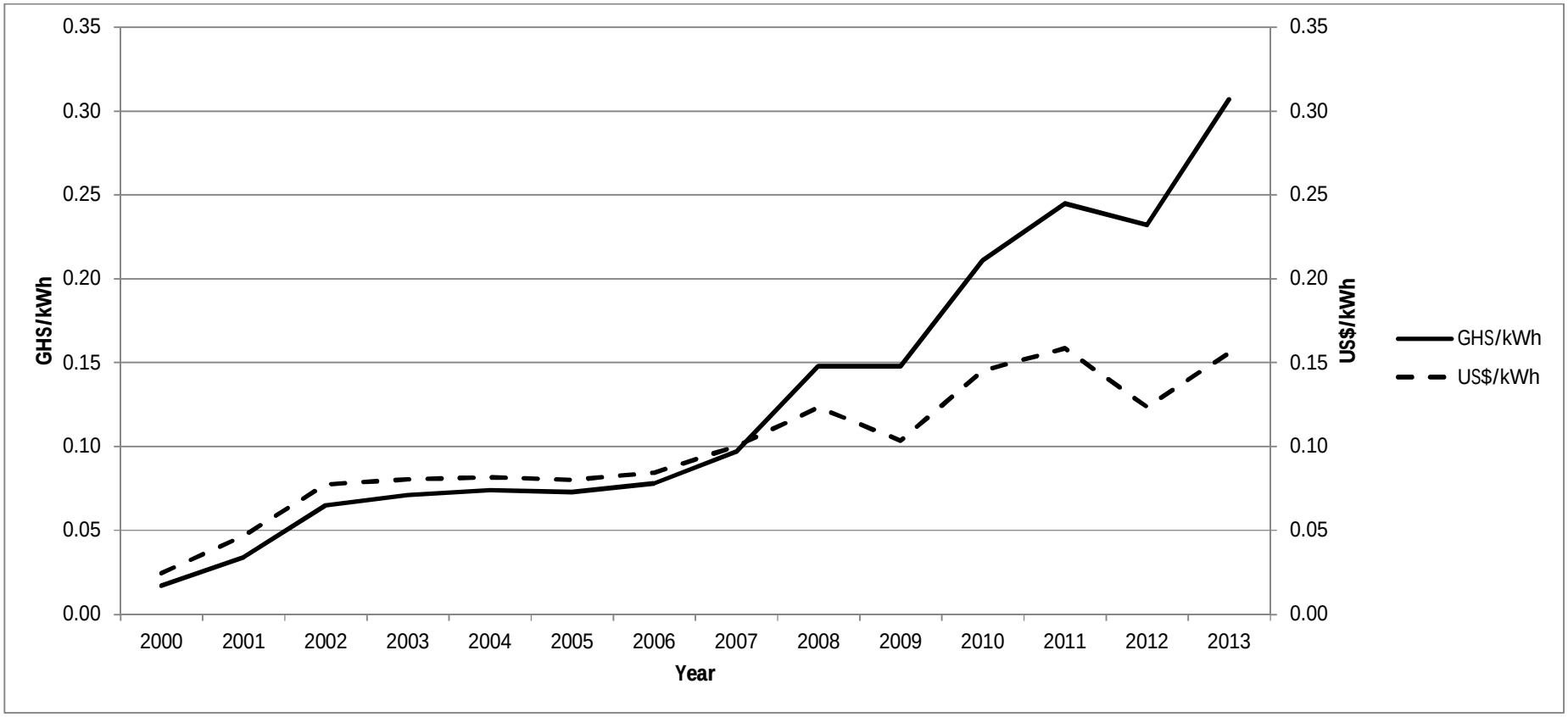


Table 6.4: Average Charcoal Prices by Region

Region	Maxi Bag (Ghc)				Mini Bag (Ghc)			
	2011	2012	2013	% Change over previous year	2011	2012	2013	% Change over previous year
Greater Accra	20.17	21.15	23.68	*11.96*	13.13	15.01	17.43	*16.12*
Ashanti	12.36	15.07	16.62	*10.29*	6.09	8.68	9.15	*5.41*
Western	15.33	23.85	25.79	*8.13*	10.37	13.60	15.30	*12.50*
Eastern	12.00	16.76	19.03	*13.54*	7.00	11.69	13.44	*14.97*
Central	21.33	22.08	26.49	*19.97*	11.41	13.95	19.83	*42.15*
Volta	19.18	26.19	32.02	*22.26*	10.36	13.73	16.66	*21.34*
Brong Ahafo	9.39	11.04	12.58	*13.95*	4.75	6.20	7.11	*14.68*
Northern	14.11	14.97	18.30	*22.24*	9.42	7.52	9.10	*21.01*
Upper East	10.00	19.51	24.93	*27.78*	5.11	11.96	14.80	*23.75*
Upper West	10.00	13.46	15.56	*15.60*	5.11	8.28	9.42	*13.77*
Country Average	15.23	18.23	21.19	*16.24*	8.83	11.04	13.22	*19.75*

Table 6.5: Average Charcoal Price per kg (Ghana cedis)

Region	Maxi Bag (Ghc)				Mini Bag (Ghc)			
	2011	2012	2013	% Change over previous year	2011	2012	2013	% Change over previous year
Greater Accra	0.50	0.35	0.39	*11.43*	0.38	0.48	0.55	14.58
Ashanti	0.27	0.29	0.32	*10.34*	0.27	0.33	0.35	6.06
Western	0.38	0.45	0.49	*8.89*	0.29	0.52	0.59	13.46
Eastern	0.27	0.32	0.36	*12.50*	0.23	0.45	0.52	15.56
Central	0.35	0.37	0.44	*18.92*	0.35	0.44	0.63	43.18
Volta	0.38	0.50	0.61	*22.00*	0.38	0.53	0.64	20.75
Brong Ahafo	0.19	0.19	0.22	*15.79*	0.19	0.20	0.23	15.00
Northern	0.29	0.26	0.32	*23.08*	0.27	0.24	0.29	20.83
Upper East	0.20	0.34	0.43	*26.47*	0.19	0.39	0.48	23.08
Upper West	0.19	0.23	0.27	*17.39*	0.19	0.27	0.30	11.11