

ENERGY COMMISSION, GHANA



NATIONAL ENERGY STATISTICS

(2000 – 2012)

JULY 2013

FOREWORD

This is the 2013 publication of Ghana's Energy Statistics by the Energy Commission. It provides a time series data on Ghana's energy supply and use situation from 2000 to 2012.

This publication was prepared with data from the main energy sector institutions, including the Ministry of Energy, 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 organisations are gratefully acknowledged.

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

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**

A.K. Ofosu Ahenkorah, PhD
Executive Secretary

Energy Commission

PMB, Ministries Post Office

Accra **GHANA**

Tel: 233 302 813756/7/9

Fax: 233 302 813764/2

Email: info@energycom.gov.gh

Office location:

Ghana Airways Avenue

Airport Residential Area, Accra

TABLE OF CONTENT

FOREWORD.....	i
TABLE OF CONTENT	ii
LIST OF TABLES	ii
LIST OF FIGURES.....	iv
ABBREVIATIONS.....	v
CONVERSION FACTORS.....	vi
GLOSSARY	1
SECTION ONE: ENERGY INDICATORS AND BALANCES	3
SECTION TWO: ELECTRICITY	6
SECTION THREE: PETROLEUM	18
SECTION FOUR: WOODFUEL.....	25
SECTION FIVE: ENERGY PRICES	26

LIST OF TABLES

Table 1.1: Energy Indicators (2001 - 2012).....	3
Table 1.2: Energy Balance - 2012 (KTOE) *	4
Table 1.2: Energy Balance - 2011 (KTOE) *	5
Table 2.1: Installed Electricity Generation Capacity (End of December, 2012).....	6
Table 2.2: Electricity Generation by Plant (GWh).....	7
Table 2.3: Electricity Import and Export (GWh)	9
Table 2.4: Peak Load (MW).....	10

Table 2.5: Akosombo Dam Month End Elevation (feet)	11
Table 2.6: Transmission Losses	13
Table 2.7: Electricity Purchases and Sales by ECG (GWh)	13
Table 2.8: Electricity Purchases and Sales by NEDCo (GWh)	13
Table 2.9: Electricity Consumption by Customer Class (GWh)	15
Table 2.10: ECG and NEDCo Customer Population	17
Table 3.1: Crude Oil Production *	18
Table 3.2: Crude Oil and Natural Gas Import	18
Table 3.3: Petroleum Products Production (kilotonnes)	20
Table 3.4: Petroleum Products Import (kilotonnes)	21
Table 3.5: Petroleum Products Export (kilotonnes)	22
Table 3.6: Petroleum Products Consumption (kilotonnes)	23
Table 4.1: Woodfuel Supply (kilotonnes) *	25
Table 4.2: Woodfuel Consumption (kilotonnes) *	25
Table 4.3: Charcoal Export (kilotonnes) *	25
Table 5.1: Retail Prices of Major Petroleum Products	26
Table 5.2: Average Electricity End User Tariff (Gh¢/kWh)	28
Table 5.3: Average Charcoal Prices by Region	29
Table 5.4: Average Charcoal Price per kg (Ghana cedis)	29

LIST OF FIGURES

Figure 2.1: Trend in Electricity Generation.....	8
Figure 2.2: Electricity Import and Export.....	9
Figure 2.3: Trend in Peak Load	10
Figure 2.4: Trend in Akosombo Dam Monthly Elevation (2008 – 2012)	12
Figure 2.6: Trend in Transmission and Distribution Losses	14
Figure 2.7: Electricity Consumption by Customer Class	16
Figure 3.1: Crude Oil Import	19
Figure 3.2: Trend in Petroleum Products Production.....	20
Figure 3.4: Trend in Petroleum Products Export	22
Figure 3.5: Trend in Petroleum Product Consumption	24
Figure 5.2: Trend in Retail Price of Major Petroleum Products.....	27
Figure 5.3: Trend in Average Electricity End User Tariff (Ghc/kWh)	28

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	

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	
<i>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.</i>			
<i>Charcoal production is based on the assumption that between 4 – 5 units of wood is required to produce one unit of charcoal</i>			
Charcoal Source	Average Weight (kg) of Charcoal		Moisture Content
	Mini Bag	Maxi Bag	
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
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 present 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 that is extracted from the ambient environment
Import and export	Import and export comprise quantities having crossed the national territorial boundaries of a country
International Marine Bunkers	Covers those quantities delivered to ships that are engaged in international navigation
Stock changes	Reflects 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 - international marine bunkers +/- stock changes
Statistical differences	It include the sum of the unexplained differences for individual fuels as they appear in the energy statistics
Electricity Plants	Refers 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 (2001 - 2012)

Energy Indicator	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total Energy Consumed	KTOE	6,179.6	6,287.3	5,399.0	5,460.7	5,278.7	5,169.0	5,081.2	4,971.8	5,432.3	5,372.9	6,009.8	6,773.3
Total Electricity Generated	GWh	7,859	7,273	5,882	6,039	6,788	8,430	6,978	8,324	8,958	10,167	11,200	12,024
Total Electricity Consumed	GWh	7,149	6,829	5,241	5,299	5,964	7,362	6,441	7,219	7,452	8,317	9,187	9,258
Total Petroleum Products Consumed	KTOE	1,537.0	1,633.6	1,573.5	1,799.9	1,817.5	1,872.6	2,126.6	2,071.3	2,597.7	2,491.1	2,826.6	3,317.5
Population	million	19.4	19.8	20.3	20.8	21.3	21.8	22.3	22.9	23.4	24.7	25.3	25.9
GDP (Constant 2000 US\$)	million US\$	5,182.2	5,415.4	5,697.0	6,016.0	6,370.9	6,778.7	7,216.6	7,824.9	8,137.3	8,789.0	10,053.6	10,847.9
Energy Intensity	TOE/US\$ 1,000 of GDP	1.19	1.16	0.95	0.91	0.83	0.76	0.70	0.64	0.67	0.61	0.60	0.62
Total Electricity Generated/capita	kWh/capita	405.1	367.3	289.8	290.3	318.7	386.7	312.9	363.5	382.8	411.6	442.7	464.2
Total Electricity Consumed/capita	kWh/capita	368.5	344.9	258.2	254.8	280.0	337.7	288.8	315.3	318.5	336.7	363.1	357.5
Total Petroleum Consumed/capita	TOE/capita	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.09	0.11	0.10	0.11	0.13
Total Electricity Consumed/GDP	kWh/US\$1,000 of GDP	1,379.5	1,261.1	920.0	880.9	936.2	1,086.0	892.5	922.6	915.8	946.3	913.8	853.4

* Estimated

Source: GDP data from World Bank National Account

NB: Total Electricity Consumed include commercial losses

Table 1.2: Energy Balance - 2012 (KTOE)*

SUPPLY AND CONSUMPTION	Crude Oil	Natural Gas	Petroleum Products	Firewood	Charcoal	Hydro	Electricity	TOTAL
Indigenous Production	3,855.1	-	-	3,757.6	-	694.1	-	8,306.8
Imports	1,233.7	390.4	2,567.1	-	-	-	11.0	4,202.2
Exports	-4,286.1	-	-548.6	-	-1.4	-	-57.4	-4,893.5
Stock Changes/Statistical difference	567.5	-83.4	832.8	-	-	-	-61.3	1,255.7
Total Primary Energy Supply	1,370.3	307.0	2,851.3	3,757.6	-1.4	694.1	-107.6	8,871.3
Electricity Plants	-770.2	-307.0	-14.4	-	-	-694.1	1,034.0	-751.7
Oil Refinery	-534.8	-	466.1	-	-	-	-	-68.7
Other Transformation	-	-	-	-2,103.6	1,007.2	-	-	-1,096.4
Own use	-60.2	-	-	-	-	-	-4.2	-64.4
Losses	-5.0	-	-	-	-	-	-126.0	-131.0
Final Energy Consumption	-	-	3,303.1	1,654.0	1,005.8	-	796.2	6,759.0
Residential Sector	-	-	172.6	1,174.3	905.2	-	379.0	2,631.1
Commerce & Services Sector	-	-	25.1	66.2	10.1	-	133.8	235.1
Industry	-	-	358.6	413.5	90.5	-	281.9	1,144.5
Agriculture & Fisheries Sector	-	-	97.2	-	-	-	1.6	98.8
Transport	-	-	2,636.5	-	-	-	-	2,636.5
Non-Energy Use	-	-	13.2	-	-	-	-	13.2

Provisional

Table 1.2: Energy Balance - 2011 (KTOE)*

SUPPLY AND CONSUMPTION	Crude Oil	Natural Gas	Petroleum Products	Firewood	Charcoal	Hydro	Electricity	TOTAL
Indigenous Production	3,536.7	-	-	3,349.3	-	650.2	-	7,536.2
Imports	1,562.2	769.2	2,183.1	-	-	-	7.0	4,521.5
Exports	-3,965.1	-	-777.4	-	-0.6	-	-59.4	-4,802.5
Stock Changes/Statistical difference	398.5	-195.3	433.6	0.0	-	-	1.3	638.0
Total Primary Energy Supply	1,532.3	573.9	1,839.3	3,349.3	-0.6	650.2	-51.1	7,893.3
Electricity Plants	-287.6	-573.9	-6.8	-	-	-650.2	963.2	-555.3
Oil Refinery	-1,113.0	-	987.3	-	-	-	-	-125.7
Other Transformation	-	-	-	-1,831.9	876.4	-	-	-955.5
Own use	-102.0	-	-	-	-	-	-3.5	-105.4
Losses	-29.8	-	-	-	-	-	-118.5	-148.3
Final Energy Consumption	-	-	2,819.9	1,517.4	875.8	-	790.0	6,003.2
Residential Sector	-	-	156.0	1,107.7	805.8	-	373.7	2,443.2
Commerce & Services Sector	-	-	21.1	83.5	26.3	-	132.7	263.6
Industry	-	-	316.0	326.2	43.8	-	282.0	968.0
Agriculture & Fisheries Sector	-	-	78.4	-	-	-	1.6	79.9
Transport	-	-	2,230.4	-	-	-	-	2,230.4
Non-Energy Use	-	-	18.0	-	-	-	-	18.0

Revised

SECTION TWO: ELECTRICITY

Table 2.1: Installed Electricity Generation Capacity (End of December, 2012)

Plant	Fuel Type	Installed Capacity (MW)	Share (%)
Hydro Generation			
Akosombo	Water	1,020	
Kpong	Water	160	
<i>Sub-Total</i>		<i>1,180</i>	51.8
Thermal Generation			
Takoradi Power Company (TAPCO)	LCO/Natural Gas	330	
Takoradi International Company (TICO)	LCO/Natural Gas	220	
Sunon Asogli Power (Ghana) Limited (SAPP)	Natural Gas	200	
Cenit Energy Ltd (CEL)	LCO/Natural Gas	110	
Tema Thermal 1 Power Plant (TT1PP)	LCO/Natural Gas	110	
Mines Reserve Plant (MRP)	Diesel	80	
Tema Thermal 2 Power Plant (TT2PP)	Natural Gas	50	
<i>Sub-Total</i>		<i>1,100</i>	48.2
Total		2,280	100

Table 2.2: Electricity Generation by Plant (GWh)

Plant	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
Kpong	1,052	1,085	858	675	877	911	929	623	941	1,035	1,035	1,066	1,121
<i>Sub-Total</i>	<i>6,609</i>	<i>6,609</i>	<i>5,036</i>	<i>3,886</i>	<i>5,281</i>	<i>5,629</i>	<i>5,619</i>	<i>3,727</i>	<i>6,195</i>	<i>6,877</i>	<i>6,996</i>	<i>7,561</i>	<i>8,071</i>
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
Takoradi International Company (TICO)	268	510	1,363	668	222	328	1,395	1,417	1,063	1,040	1,160	657	1,168
Tema Thermal 1 Power Plant (TT1PP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	570	591	559	622
Tema Reserve Power Plant (TRPP)	NA	NA	NA	NA	NA	NA	NA	162	85	NA	NA	NA	NA
Emergency Reserve Power Plant (ERPP)	NA	NA	NA	NA	NA	NA	NA	80	45	NA	NA	NA	NA
Kumasi Reserve Power Plant (KRPP)	NA	NA	NA	NA	NA	NA	NA	33	16	NA	NA	NA	NA
Mines Reserve Plant (MRP)	NA	NA	NA	NA	NA	NA	NA	38	46	18	20	12	20
Tema Thermal 2 Power Plant (TT2PP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	50	141
Sunon Asogli Power (Ghana) Ltd (SAPP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	138	1,224	848
Cenit Energy Ltd (CEL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	94
<i>Sub-Total</i>	<i>614</i>	<i>1,250</i>	<i>2,237</i>	<i>1,996</i>	<i>758</i>	<i>1,159</i>	<i>2,811</i>	<i>3,251</i>	<i>2,129</i>	<i>2,081</i>	<i>3,171</i>	<i>3,639</i>	<i>3,953</i>
Grand 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

NA = Not available

Source: GRIDCo and VRA

Figure 2.1: Trend in Electricity Generation

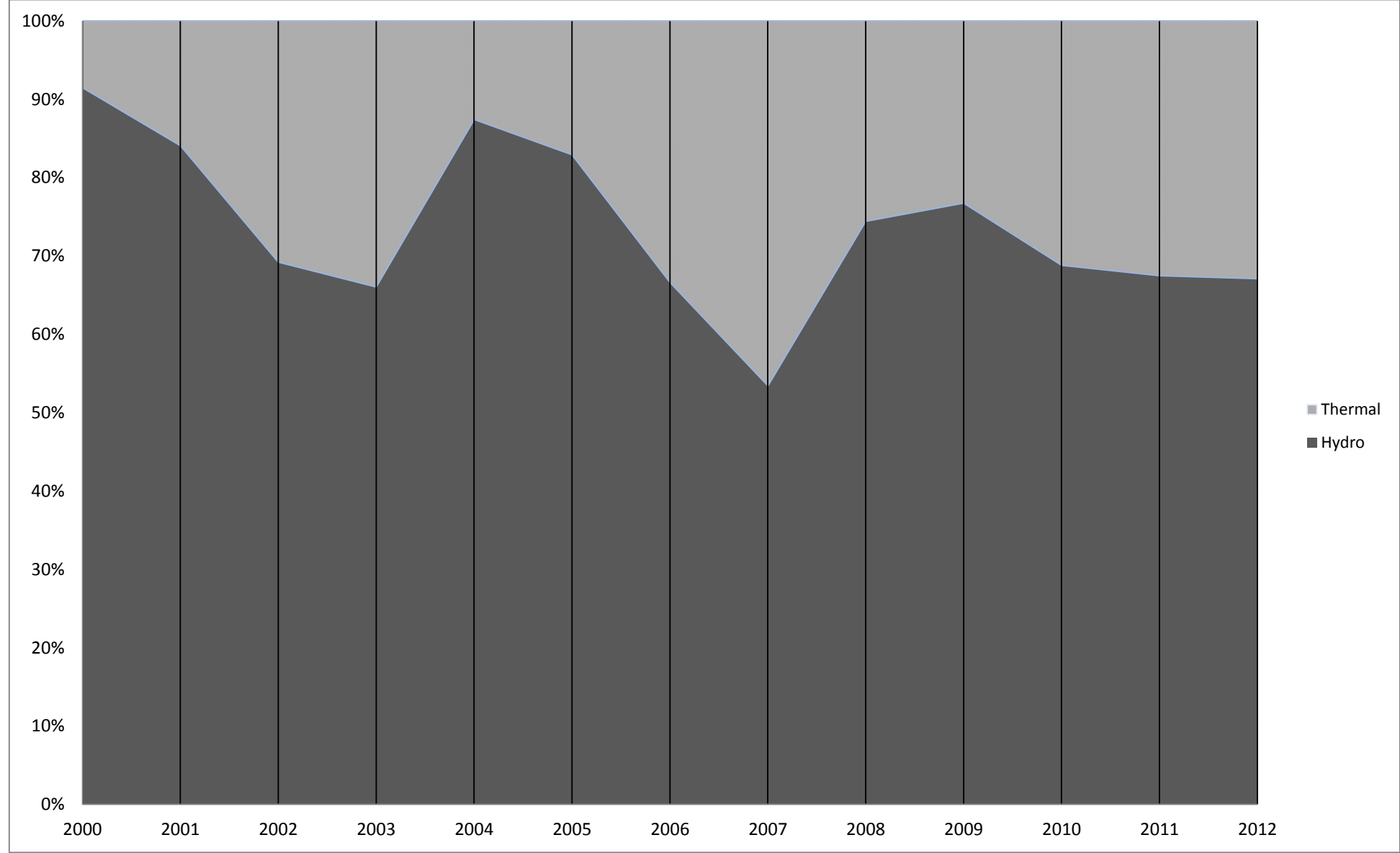


Table 2.3: Electricity Import and Export (GWh)

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

Source: GRIDCo and VRA

NB: Negative net import means net export

Figure 2.2: Electricity Import and Export

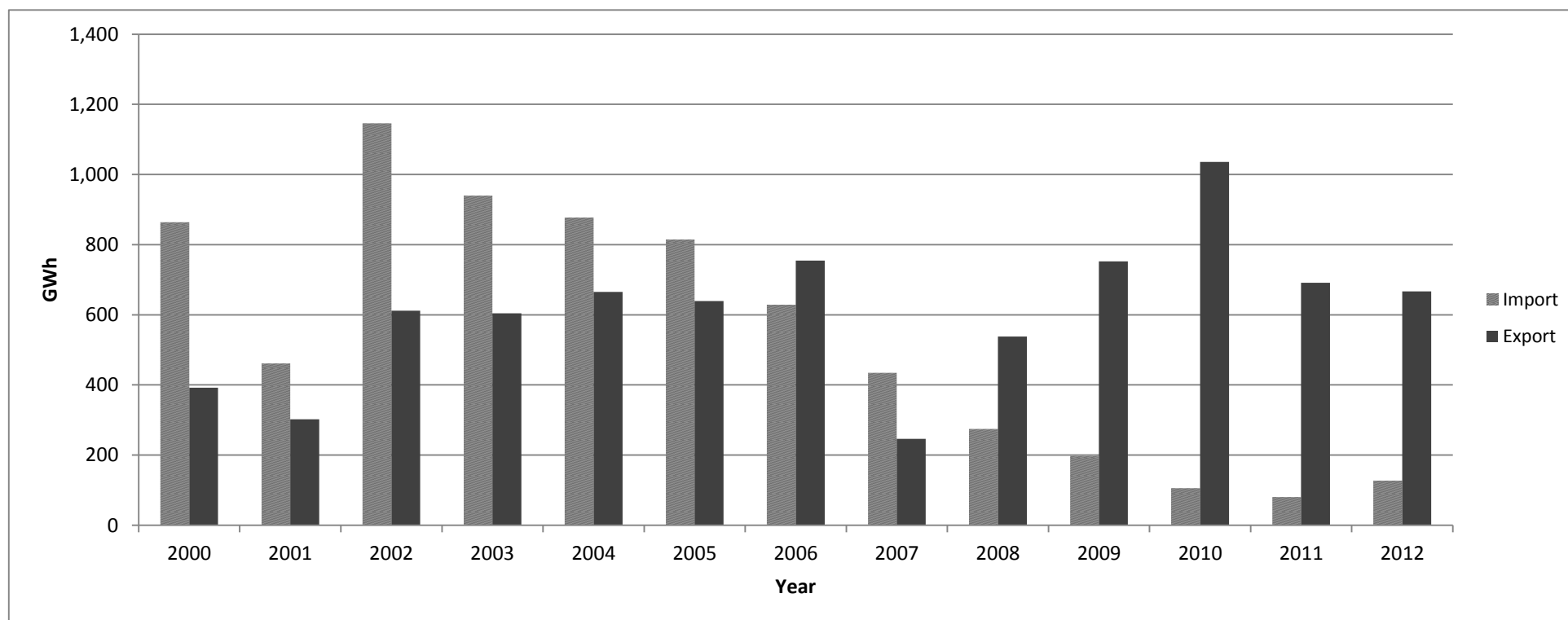


Table 2.4: Peak Load (MW)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Ghana Load at Peak	820	854	879	925	985	1,064	1,104	1,158	1,208	1,263	1,391	1,520	1,658
System Peak	1,161	1,190	1,227	1,135	1,049	1,325	1,393	1,274	1,367	1,423	1,506	1,665	1,729

Source: GRIDCo and VRA

NOTE

Ghana Load at Peak: Maximum demand for Ghana (excluding export and VALCO load)

System Peak: Ghana load at peak + VALCO load + export

Figure 2.3: Trend in Peak Load

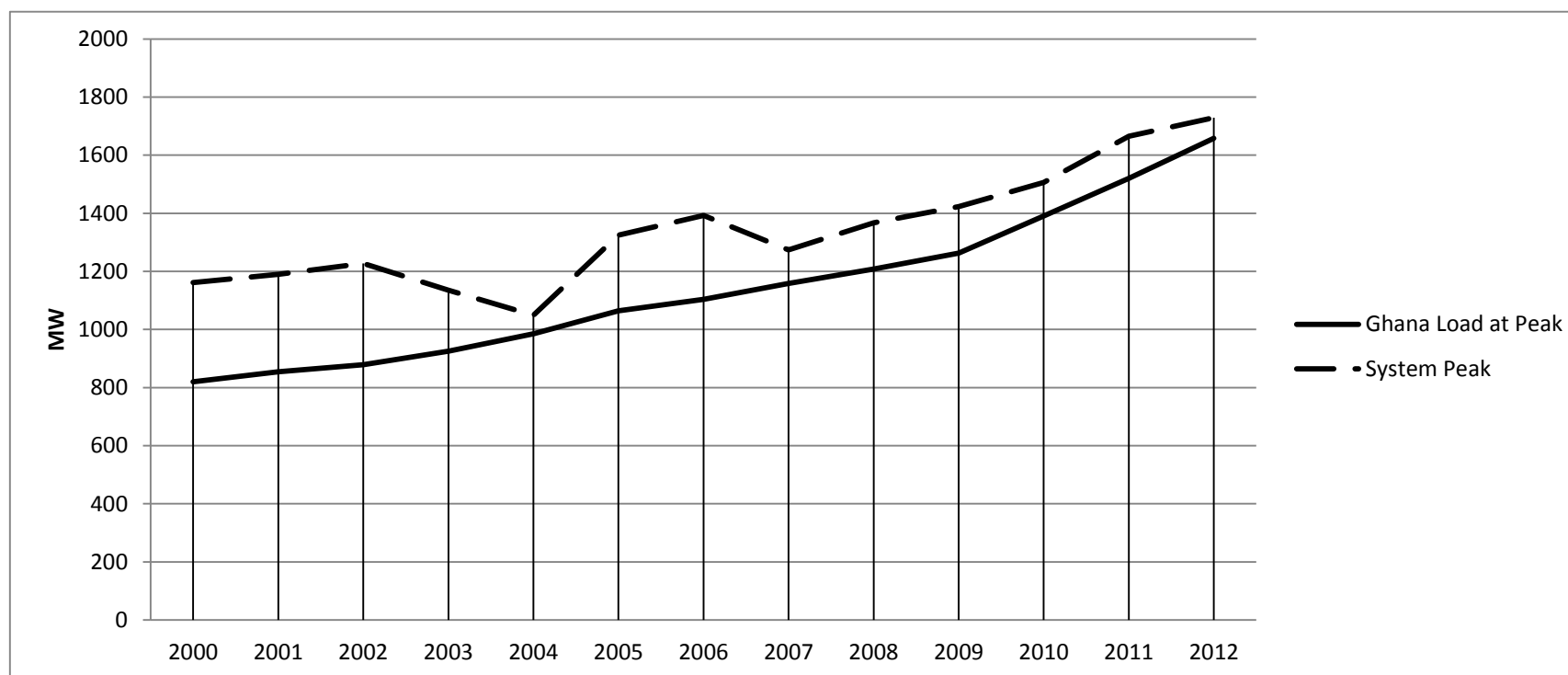


Table 2.5: Akosombo Dam Month End Elevation (feet)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
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
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
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
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
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
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
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
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
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
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
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

Source: GRIDCo and VRA

Figure 2.4: Trend in Akosombo Dam Monthly Elevation (2008 – 2012)

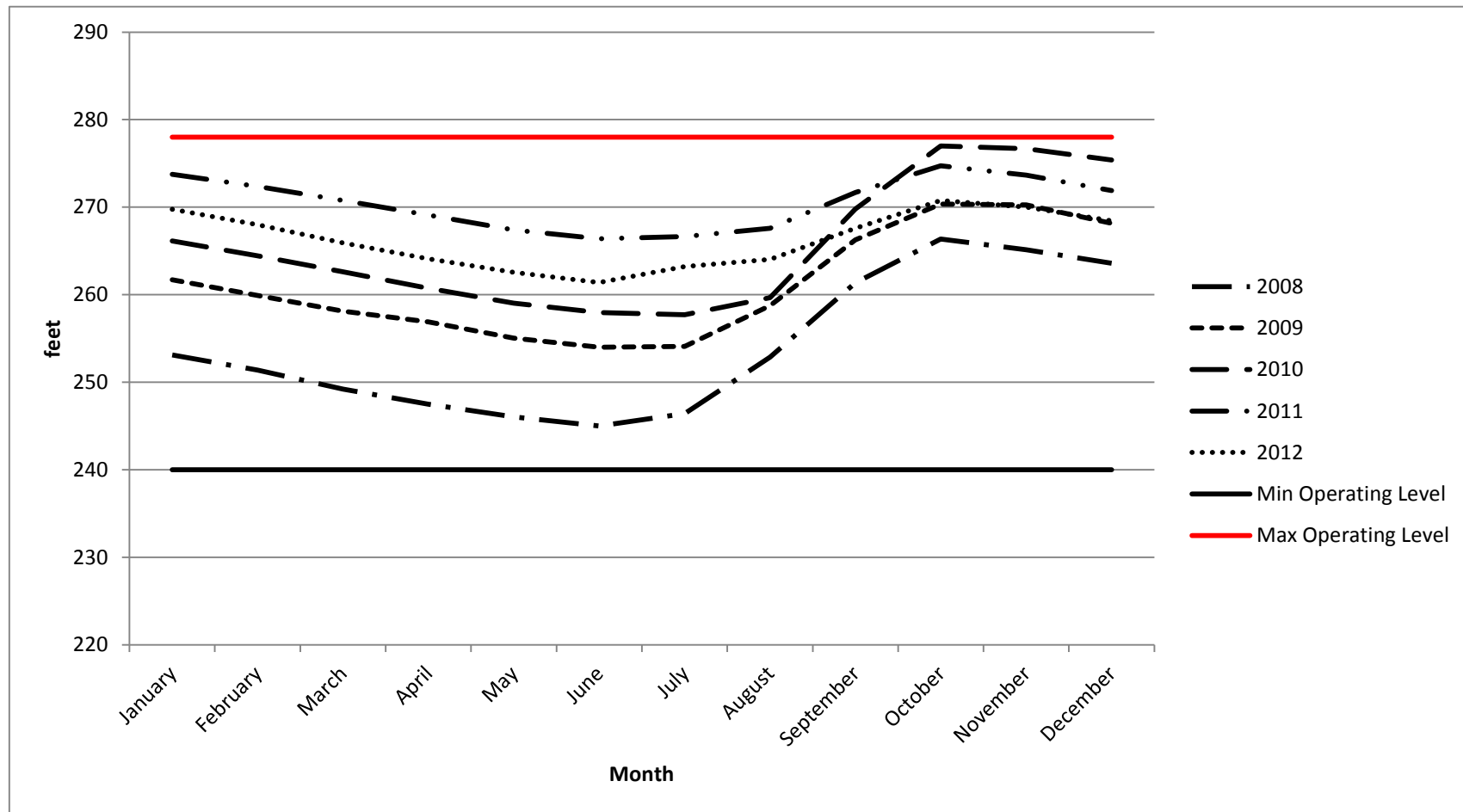


Table 2.6: Transmission Losses

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Transmission Losses (GWh)	229	259	368	402	205	249	318	256	303	343	380	531	522
Losses as a % 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

Source: GRIDCo and VRA

Table 2.7: Electricity Purchases and Sales by ECG (GWh)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Total Purchase (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
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	5,985
Distribution Losses (GWh)	1,078	1,095	1,127	1,153	1,277	1,284	1,275	1,240	1,464	1,610	1,819	1,920	1,959
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	24.7

* Provisional

** Technical and commercial losses

Source: VRA and ECG

Table 2.8: Electricity Purchases and Sales by NEDCo (GWh)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Total Purchases (GWh)	330	355	383	426	473	501	507	494	529	566	635	719	823
Total Sales (GWh)	232	250	265	283	323	365	356	365	392	404	473	581	658
Distribution Losses (GWh)	98	105	118	143	150	136	151	129	137	162	162	138	165
Percentage Losses	29.7	29.6	30.8	33.5	31.7	27.1	29.8	26.1	25.9	28.6	25.5	19.2	20.0

* Provisional

** Technical and commercial losses

Source: VRA and NEDCo

Figure 2.6: Trend in Transmission and Distribution Losses

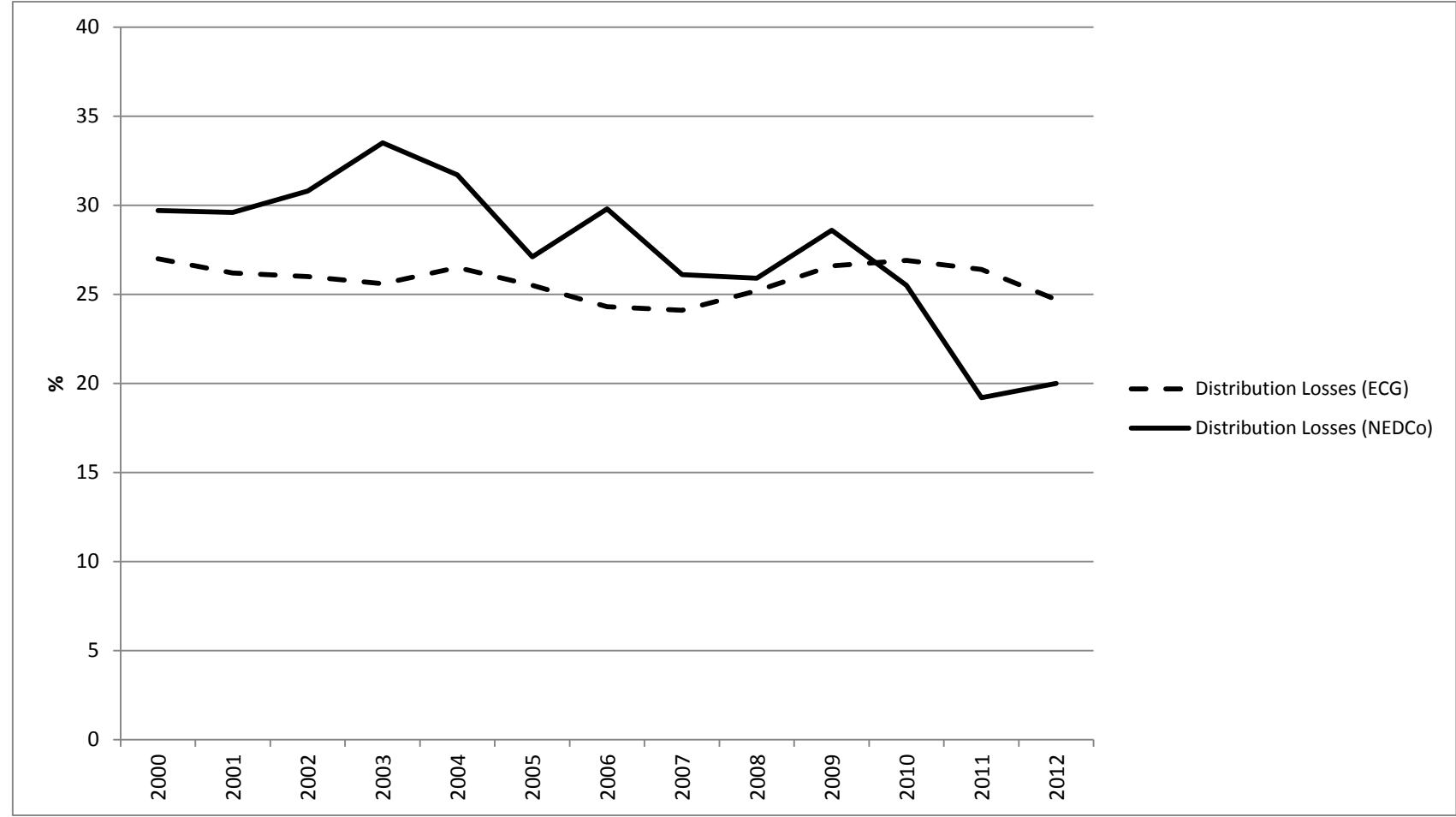


Table 2.9: Electricity Consumption by Customer Class (GWh)

Customer Class	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 [*]	2010	2011	2012 [*]
Residential	1,479	1,612	1,671	1,727	1,840	1,956	2,130	2,094	2,269	2,421	2,738	2,761	2,931
Non-Residential	551	580	602	620	661	676	790	802	927	884	966	1,041	1,153
Industrial ^{**}	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
Street Lighting	31	36	42	50	63	85	144	137	171	184	264	274	315
Total	6,368	6,564	6,219	4,603	4,593	5,258	6,656	5,720	6,330	6,410	7,124	7,976	8,552

^{*} Provisional

^{*} Revised

^{**} Special load tariff customers of ECG and NEDCo as well as bulk customers of VRA

Data do not include transmission and distribution (*commercial and technical*) losses

All figures are rounded to the nearest whole number

Source: ECG, NEDCo, VRA and GRIDCo

Figure 2.7: Electricity Consumption by Customer Class

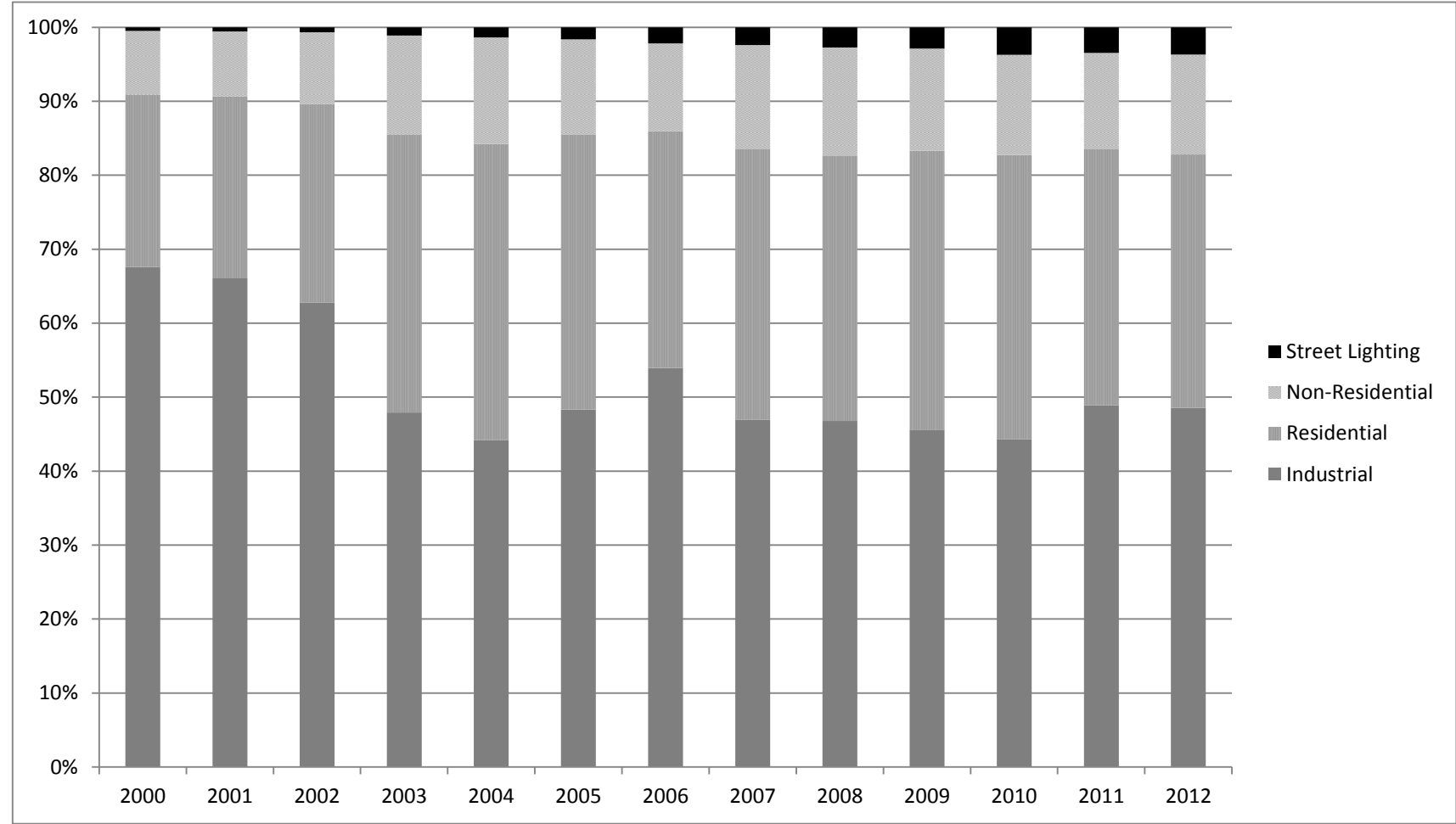


Table 2.10: ECG and NEDCo Customer Population

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*	2011*	2012**
ECG	817,325	893,880	969,674	1,093,494	1,225,810	1,321,595	1,413,964	1,539,056	1,723,526	1,947,568	2,117,999	2,355,207	2,393,680
NEDCo	115,273	128,967	139,683	152,441	174,146	202,758	230,127	248,297	278,472	307,871	342,207	392,380	483,695
Total	932,598	1,022,847	1,109,357	1,245,935	1,399,956	1,524,353	1,644,091	1,787,353	2,001,998	2,255,439	2,460,206	2,747,587	2,877,375
% change over previous year	10.3	9.7	8.5	12.3	12.4	8.9	7.9	8.7	12.0	12.7	9.1	11.7	4.7

* Revised

** Provisional

Source: ECG and NEDCo

SECTION THREE: PETROLEUM

Table 3.1: Crude Oil Production *

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Quantity (kilotonnes)	-	-	8.9	10.3	22.9	11.8	22.9	27.1	30.5	24.8	195.0	3,404.8	4,133.8

- Means not available

* Revised

** Provisional

Source: Ghana National Petroleum Corporation

Table 3.2: Crude Oil and Natural Gas Import

Year	For Electricity Generation (kilotonnes)	For Refinery (kilotonnes)	Total Crude Oil Import (kilotonnes)	Natural Gas (MMBtu)
2000	153.1	1,131.8	1,284.9	-
2001	275.9	1,262.9	1,538.8	-
2002	601.6	1,179.4	1,781.0	-
2003	527.6	1,406.2	1,933.8	-
2004	163.4	1,813.5	1,976.9	-
2005	322.0	1,645.5	1,967.5	-
2006	750.6	962.2	1,712.8	-
2007	811.2	1,242.5	2,053.7	-
2008	579.1	1,396.7	1,975.8	-
2009	541.4	441.4	982.8	197,977.0
2010	700.5	961.1 *	1,661.6	15,616,648.0
2011	257.4	1,274.2 *	1,531.6	30,524,558.0
2012 **	703.7	505.8	1,209.5	15,491,670.1

*Revised

** Provisional

Source: VRA, TOR and WAPCo

Figure 3.1: Crude Oil Import

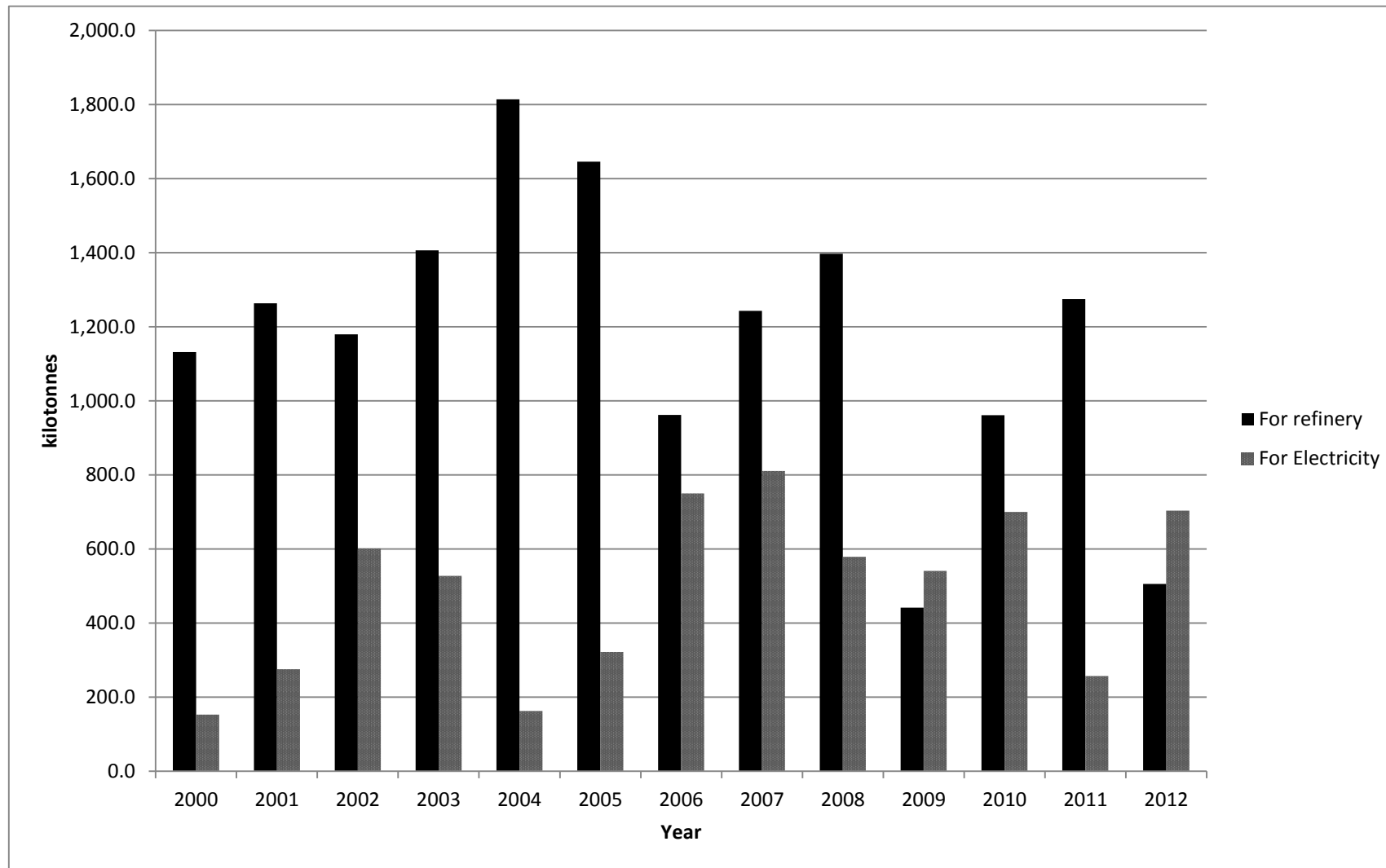


Table 3.3: Petroleum Products Production (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	2012**
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
Gasoline	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
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
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
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
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
Total	1,028.4	1,069.9	1,155.4	1,351.8	1,604.0	1,540.8	891.3	1,194.9	1,221.5	327.1	946.4	958.0	454.0

* Revised

** Provisional

Source: Tema Oil Refinery

Figure 3.2: Trend in Petroleum Products Production

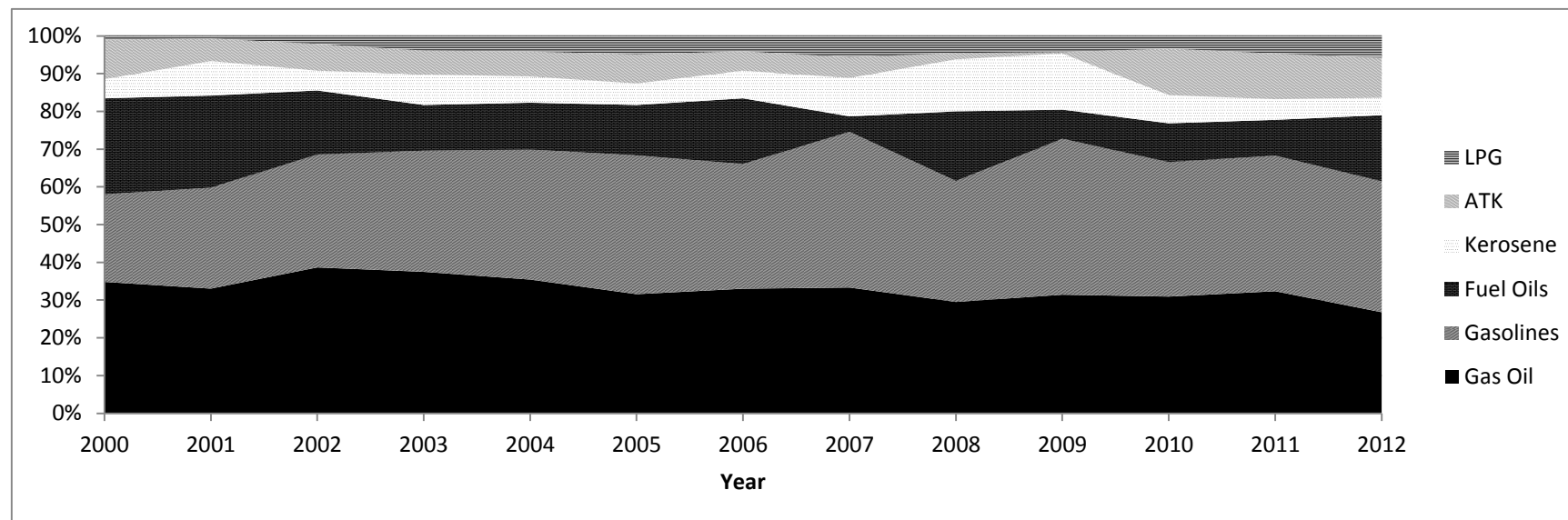


Table 3.4: Petroleum Products Import (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
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
Gasoline	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
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
Gas Oil	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
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
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
Total	816.3	800.9	749.7	569.0	579.5	578.3	1,308.1	1,195.7	1,037.8	1,761.1	1,589.9	2,108.7	2,477.6

* Provisional

Source: National Petroleum Authority

Figure 3.3: Trend in Petroleum Products Import

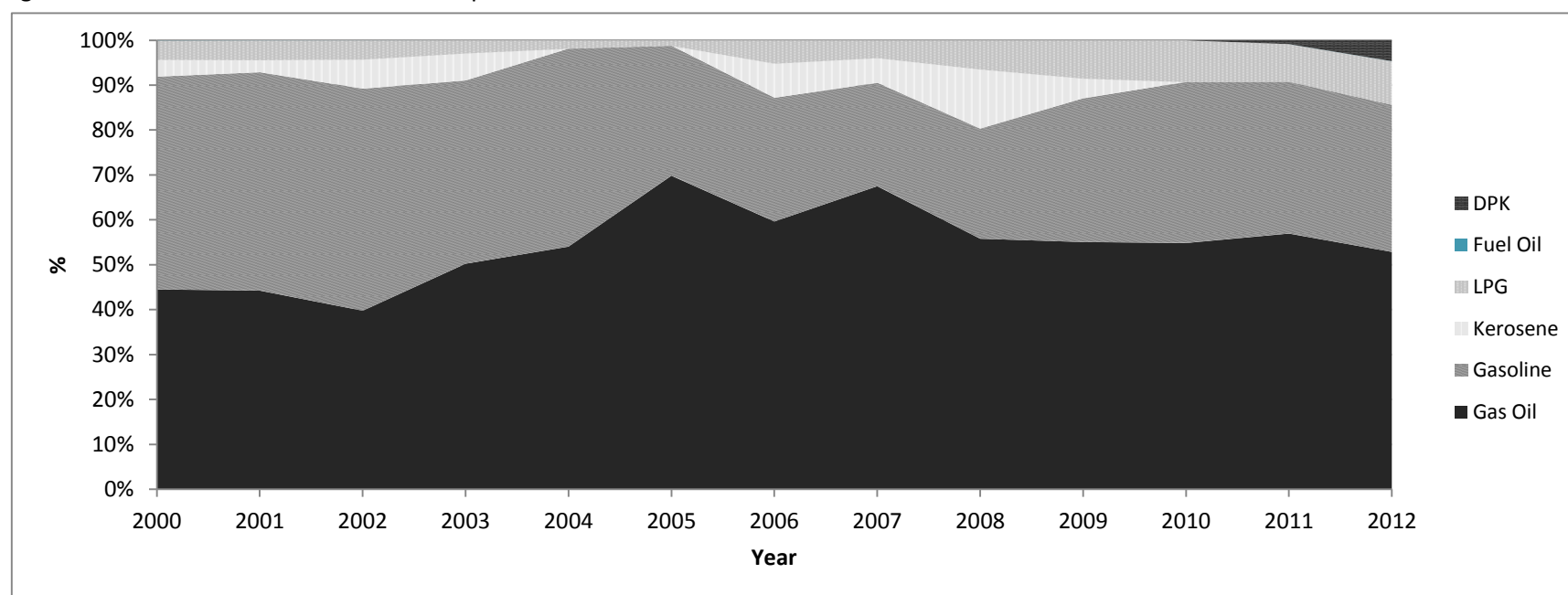


Table 3.5: Petroleum Products Export (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
Gas Oil**	50.9	34.6	36.3	45.8	61.1	74.9	105.3	97.0	145.5	395.4	329.3	437.0	264.7
RFO	190.7	215.7	151.7	89.4	168.9	162.8	45.9	26.2	148.4	30.2	40.6	43.5	43.3
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	27.1
Gasoline	97.1	126.7	129.2	104.0	150.8	203.8	113.4	163.8	111.8	72.1	213.0	258.0	198.8
Total	345.0	378.1	321.7	251.2	386.9	454.1	275.4	299.1	411.0	498.8	582.9	756.5	533.9

*Provisional

** Revised

Source: Tema Oil Refinery and National Petroleum Authority

NB: Gas Oil export include sales to international marine bunkers

Gasoline is made up of premium (RON 95), heavy/light Gasoline and premium

Figure 3.4: Trend in Petroleum Products Export

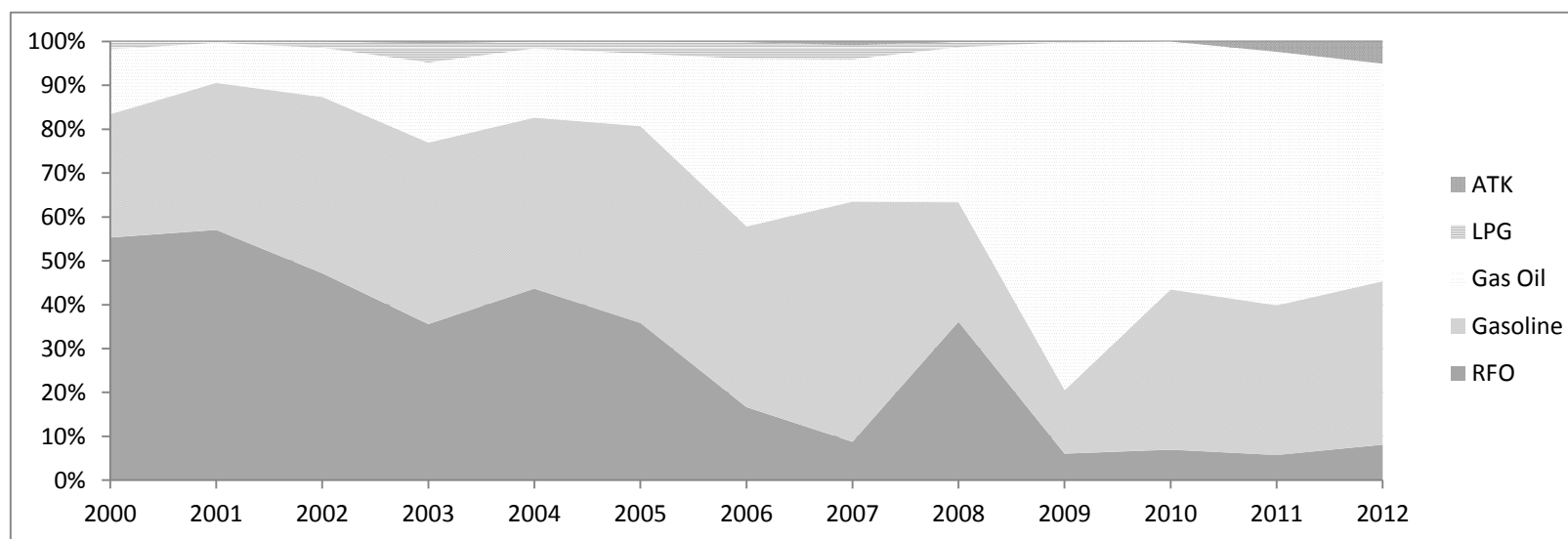


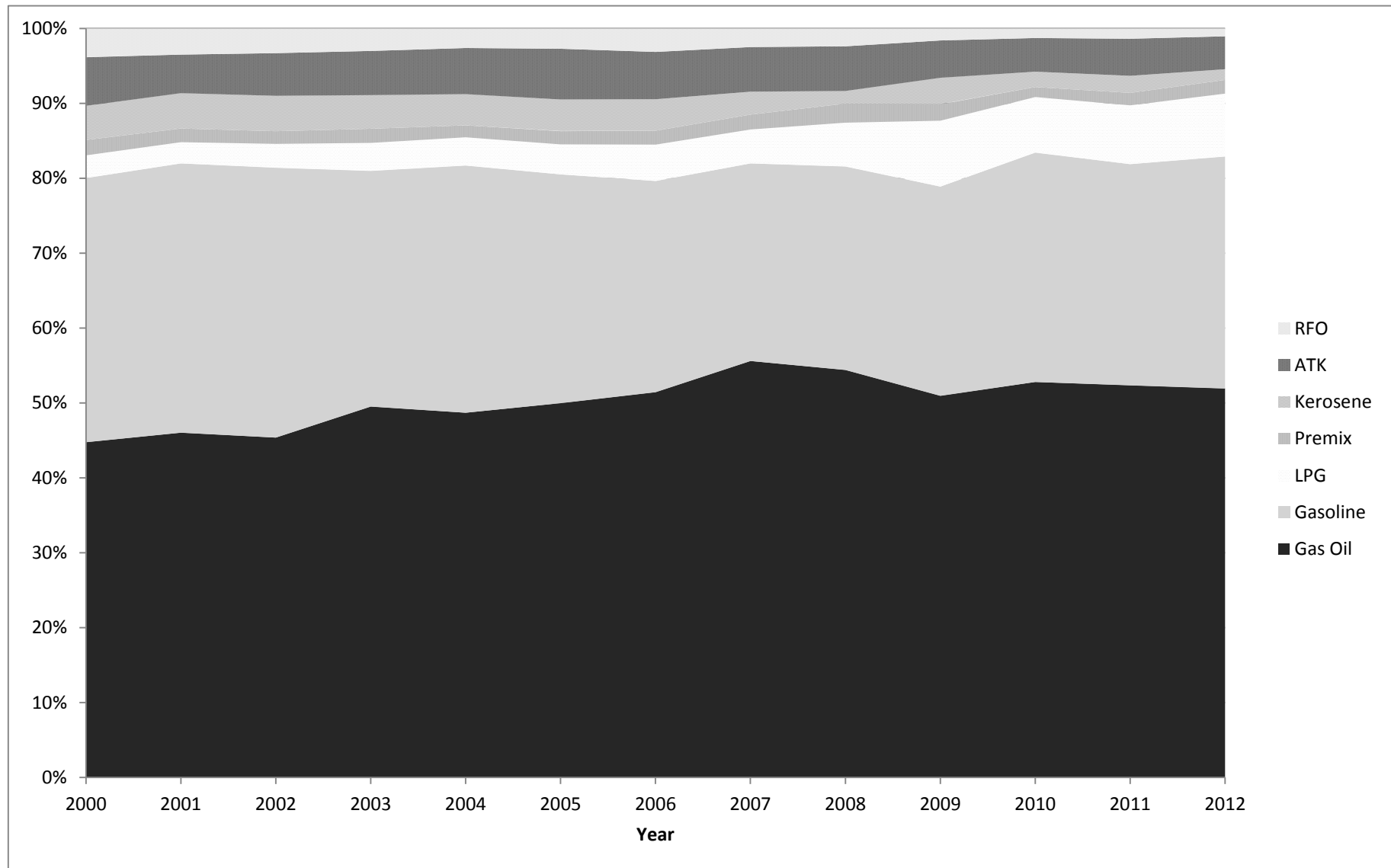
Table 3.6: Petroleum Products Consumption (kilotonnes)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
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
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
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
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
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
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
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
Total	1,487.4	1,488.9	1,582.0	1,525.0	1,743.5	1,761.5	1,815.6	2,062.9	2,007.1	2,511.4	2,409.1	2,733.4	3,205.5

* Provisional

Source: National Petroleum Authority

Figure 3.5: Trend in Petroleum Product Consumption



SECTION FOUR: WOODFUEL

Table 4.1: Woodfuel Supply (kilotonnes)*

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Wood for charcoal	4,207.7	4,291.8	4,399.1	4,531.1	4,689.7	4,696.7	4,732.7	4,798.0	4,818.6	4,821.7	4,827.1	5,551.1	6,374.7
Wood for firewood	9,139.3	10,154.0	10,219.4	8,060.6	7,470.4	6,688.6	5,808.2	4,981.3	4,604.6	4,342.7	4,257.6	4,598.2	5,012.0
Total Wood Supply	13,347.0	14,445.8	14,618.5	12,591.7	12,160.1	11,385.2	10,540.9	9,779.3	9,423.2	9,164.4	9,084.7	10,149.3	11,386.7

*These final estimates override all previous figures

Table 4.2: Woodfuel Consumption (kilotonnes)*

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Firewood	9,139.3	10,154.0	10,219.4	8,060.6	7,470.4	6,688.6	5,808.2	4,981.3	4,604.6	4,342.7	4,257.6	4,598.2	5,012.0
Charcoal	935.0	953.7	977.6	1,006.9	1,042.2	1,043.7	1,051.7	1,066.2	1,070.8	1,071.5	1,072.7	1,233.6	1,416.6

*These final estimates override all previous figures

Table 4.3: Charcoal Export (kilotonnes)*

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*	2011	2012
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
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

* Revised

SECTION FIVE: ENERGY PRICES

Table 5.1: 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)
01-Dec-07	0.95	1.04	1.03	0.94	1.01	0.58
16-Dec-07	0.96	1.02	1.03	0.94	1.06	0.56
02-Jan-08	0.96	1.03	1.02	0.93	1.05	0.57
16-Jan-08	0.97	1.07	1.04	0.94	1.02	0.60
01-Feb-08	0.97	1.03	1.02	0.93	1.02	0.57
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

Source: National Petroleum Authority

Figure 5.2: Trend in Retail Price of Major Petroleum Products

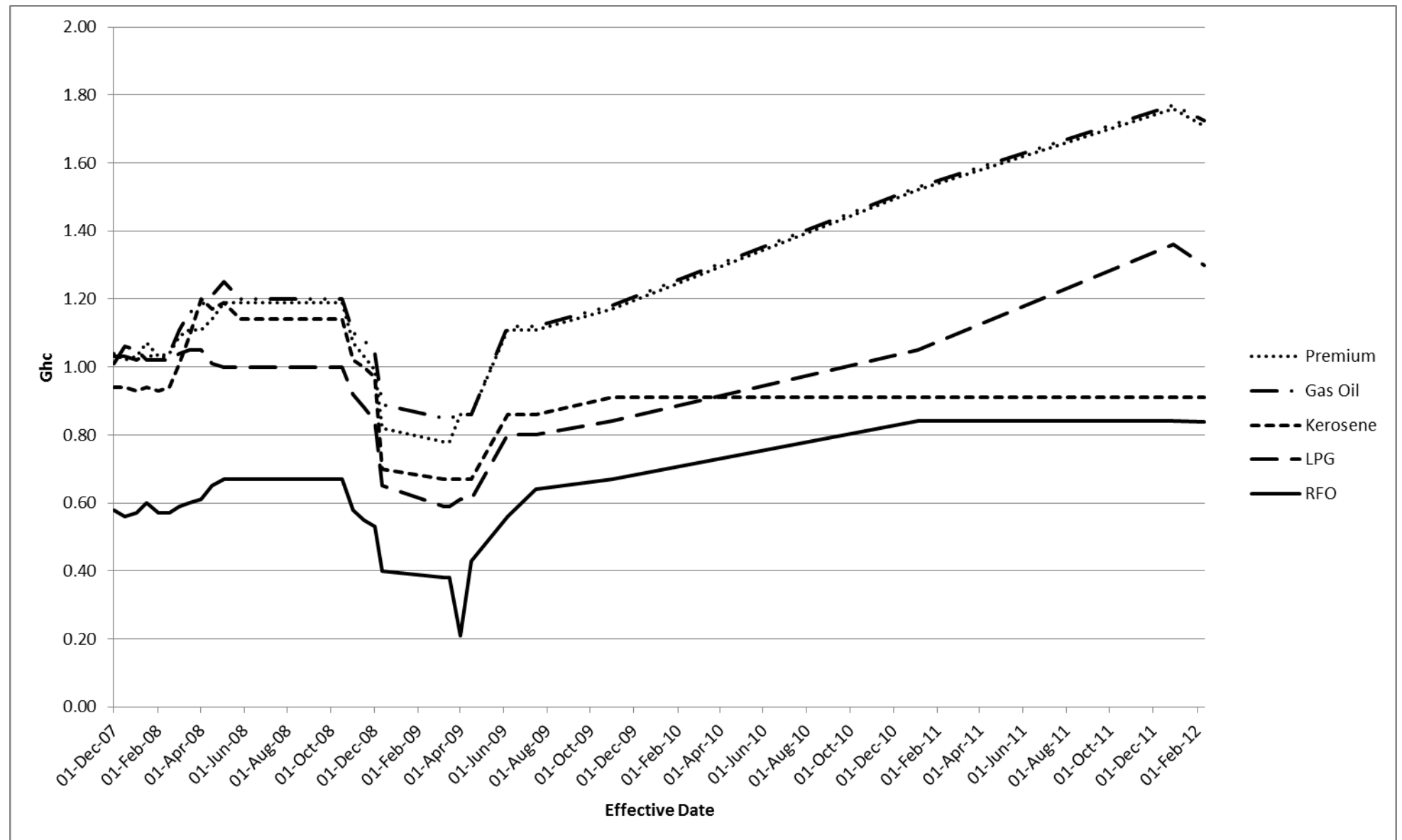


Table 5.2: Average Electricity End User Tariff (Gh¢/kWh)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Average End User Tariff	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

Figure 5.3: Trend in Average Electricity End User Tariff (Ghc/kWh)

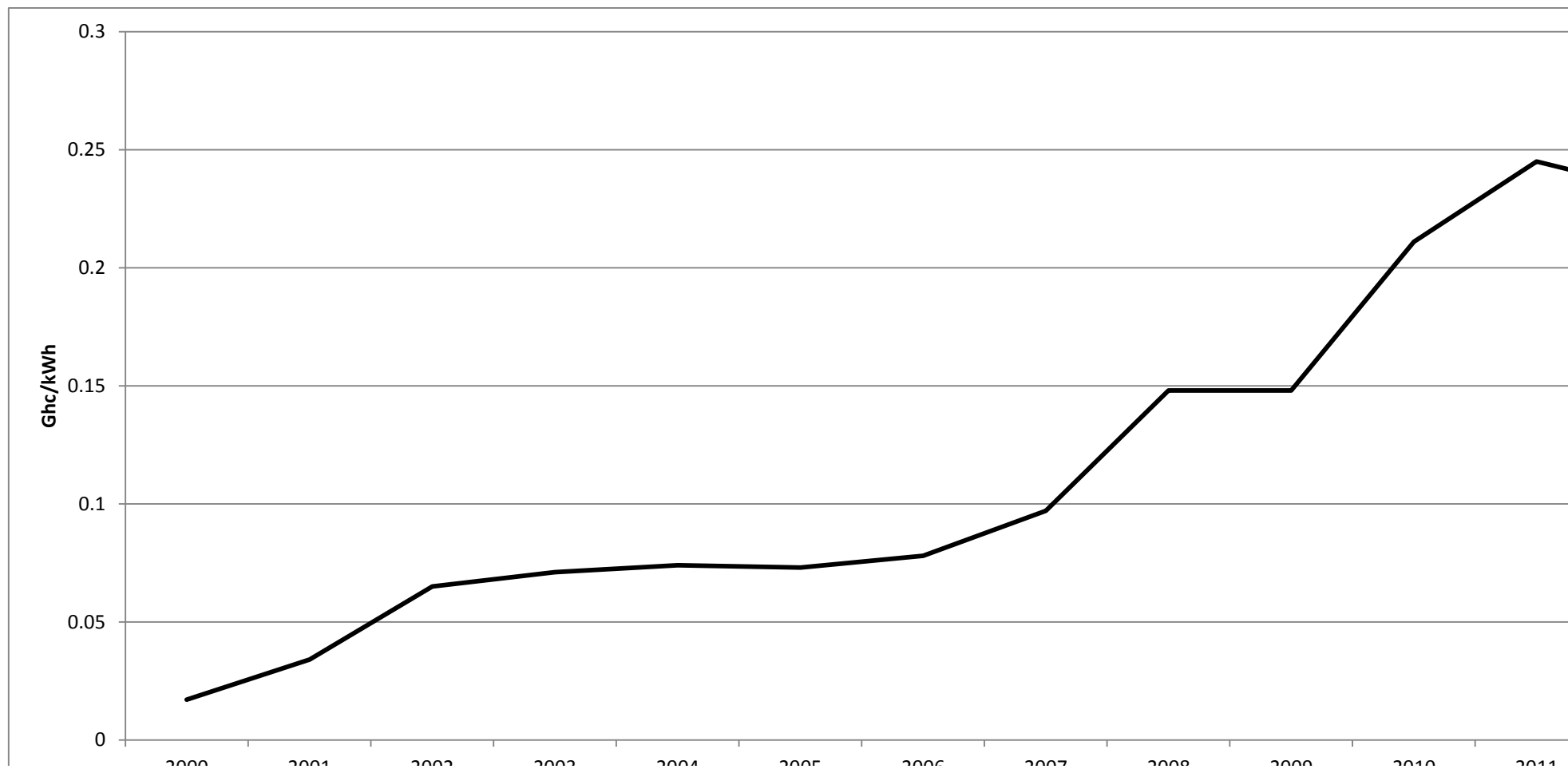


Table 5.3: Average Charcoal Prices by Region

Region	Maxi Bag (Ghc)			Mini Bag (Ghc)		
	2011	2012	% Change over previous year	2011	2012	% Change over previous year
Greater Accra	20.17	21.15	4.9	13.13	15.01	14.32
Ashanti	12.36	15.07	21.9	6.09	8.68	42.53
Western	15.33	23.85	55.6	10.37	13.60	31.15
Eastern	12.00	16.76	39.7	7.00	11.69	67.00
Central	21.33	22.08	3.5	11.41	13.95	22.26
Volta	19.18	26.19	36.5	10.36	13.73	32.53
Brong Ahafo	9.39	11.04	17.6	4.75	6.20	30.53
Northern	14.11	14.97	6.1	9.42	7.52	-20.17
Upper East	10.00	19.51	95.1	5.11	11.96	134.05
Upper West	10.00	13.46	34.6	5.11	8.28	62.04
Country Average	15.23	18.23	19.7	8.83	11.04	25.03

Table 5.4: Average Charcoal Price per kg (Ghana cedis)

Region	Maxi Bag (Ghc)			Mini Bag (Ghc)			Mean		
	2011	2012	% Change over previous year	2011	2012	% Change over previous year	2011	2012	% Change over previous year
Greater Accra	0.50	0.35	-30.0	0.38	0.48	26.3	0.44	0.41	-6.8
Ashanti	0.27	0.29	7.4	0.27	0.33	22.2	0.27	0.31	14.8
Western	0.38	0.45	18.4	0.29	0.52	79.3	0.34	0.49	44.1
Eastern	0.27	0.32	18.5	0.23	0.45	95.7	0.25	0.38	52.0
Central	0.35	0.37	5.7	0.35	0.44	25.7	0.35	0.41	17.1
Volta	0.38	0.50	31.6	0.38	0.53	39.5	0.38	0.51	34.2
Brong Ahafo	0.19	0.19	0.0	0.19	0.20	5.3	0.19	0.20	5.3
Northern	0.29	0.26	-10.3	0.27	0.24	-11.1	0.28	0.25	-10.7
Upper East	0.20	0.34	70.0	0.19	0.39	105.3	0.19	0.36	89.5
Upper West	0.19	0.23	21.1	0.19	0.27	42.1	0.19	0.25	31.6