ENERGY COMMISSION OF GHANA

NATIONAL ENERGY STATISTICS 2006 - 2015

APRIL, 2016

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 2016 National Energy Statistics provides a time series data on Ghana's energy supply and use situation largely from 2006 to 2015.

This publication was prepared with data from the main energy sector institutions, including the Ministries of Power 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 2015 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**

Michael Opam
Acting 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 CONTENTS

LIST OF TABLES

LIST OF FIGURES

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

Table 1.1: Energy Indicators (2006 – 2015)

Energy Indicator	Unit	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Primary Energy Supply	KTOE	6,398	6,404	6,273	6,036	6,946	7,609	8,362	8,564	9,147	9,550
Final Energy Consumed	KTOE	5,165	5,259	5,187	5,706	5,629	6,174	6,613	6,887	6,983	7,158
Electricity Generated	GWh	8,430	6,978	8,324	8,958	10,167	11,200	12,024	12,870	12,963	11,492
Electricity Consumed	GWh	7,362	6,441	7,219	7,452	8,317	9,187	9,258	10,583	10,696	9,639
Petroleum Products Consumed	KTOE	1,873	2,127	2,071	2,598	2,491	2,827	3,318	3,422	3,377	3,544
Biomass Consumed	KTOE	2,671	2,594	2,518	2,493	2,464	2,576	2,589	2,676	2,792	2,785
Population	million	21.8	22.3	22.9	23.4	24.7	25.3	25.9	26.5	27	27.7
GDP (Constant 2006 prices)	million Ghana cedis	18,705.1	19,913.4	21,592.2	22,336.0	24,101.0	27,486.0	30,040.0	32,237.0	33,522.0	34,888.0
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	0.21	0.21
Energy Consumed/capita	TOE/capita	0.24	0.24	0.23	0.24	0.23	0.24	0.26	0.26	0.26	0.26
Electricity Generated/capita	kWh/capita	386.7	312.9	363.5	382.8	411.6	442.7	464.2	485.7	480.1	414.9
Electricity Consumed/capita	kWh/capita	337.7	288.8	315.3	318.5	336.7	363.1	357.5	399.4	396.1	348.0
Petroleum Products Consumed/capita	TOE/capita	0.09	0.10	0.09	0.11	0.10	0.11	0.13	0.13	0.13	0.13
Biomass Consumed/capita	TOE/capita	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10
Electricity Consumed/GDP	kWh/GHS 1,000 of GDP	393.6	323.4	334.4	333.6	345.1	334.2	308.2	328.3	319.1	276.3
Primary Energy Supply/GDP	TOE/GHS 1,000 of GDP	0.34	0.32	0.29	0.27	0.29	0.28	0.28	0.27	0.27	0.27
Petroleum Products Consumed/GDP	TOE/GHS 1,000 of GDP	0.10	0.11	0.10	0.12	0.10	0.10	0.11	0.11	0.10	0.10
Primary Energy Supply/capita	TOE/capita	0.29	0.29	0.27	0.26	0.28	0.30	0.32	0.32	0.34	0.34
Grid Emission Factor (wind/solar projects)	tCO2/MWh	-	0.41	0.41	0.41	0.35	0.32	0.35	0.51	0.32	0.28
Grid Emission Factor (all other projects)	tCO2/MWh	-	0.58	0.56	0.57	0.51	0.44	0.48	0.73	0.36	0.31

[1]Provisional

Source: GDP and Population data from Ghana Statistical Service

NB: Total Electricity Consumed include commercial losses

Grid Emission Factor is the amount of CO_2 emitted per unit of electricity generated and supplied into the national grid

SECTION TWO: PRIMARY ENERGY SUPPLY AND FINAL ENERGY CONSUMPTION

Table 2.1: Primary Energy Supply (ktoe)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Oil	2,815	3,017	2,672	2,316	2,744	2,820	3,870	4,011	4,177	4,248
Natural Gas	N.A	N.A	N.A	5	394	769	390	292	621	1,182
Hydro	483	321	533	591	602	650	694	708	721	503
Wood	3,100	3,066	3,068	3,124	3,206	3,370	3,408	3,553	3,628	3,617
Total	**6,398**	**6,404**	**6,273**	**6,036**	**6,946**	**7,609**	**8,362**	**8,564**	**9,147**	**9,550**

[1]Provisional

N. A means Not Available

Figure 2.1: Trend in Primary Energy Supply (ktoe)

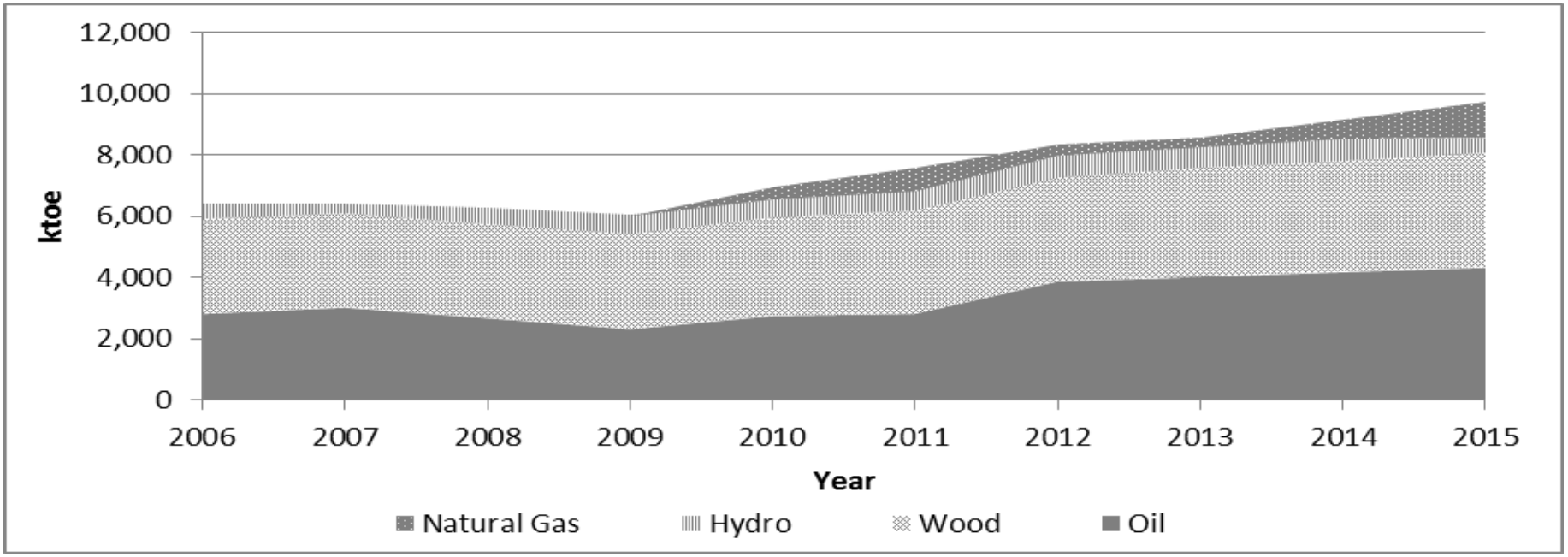
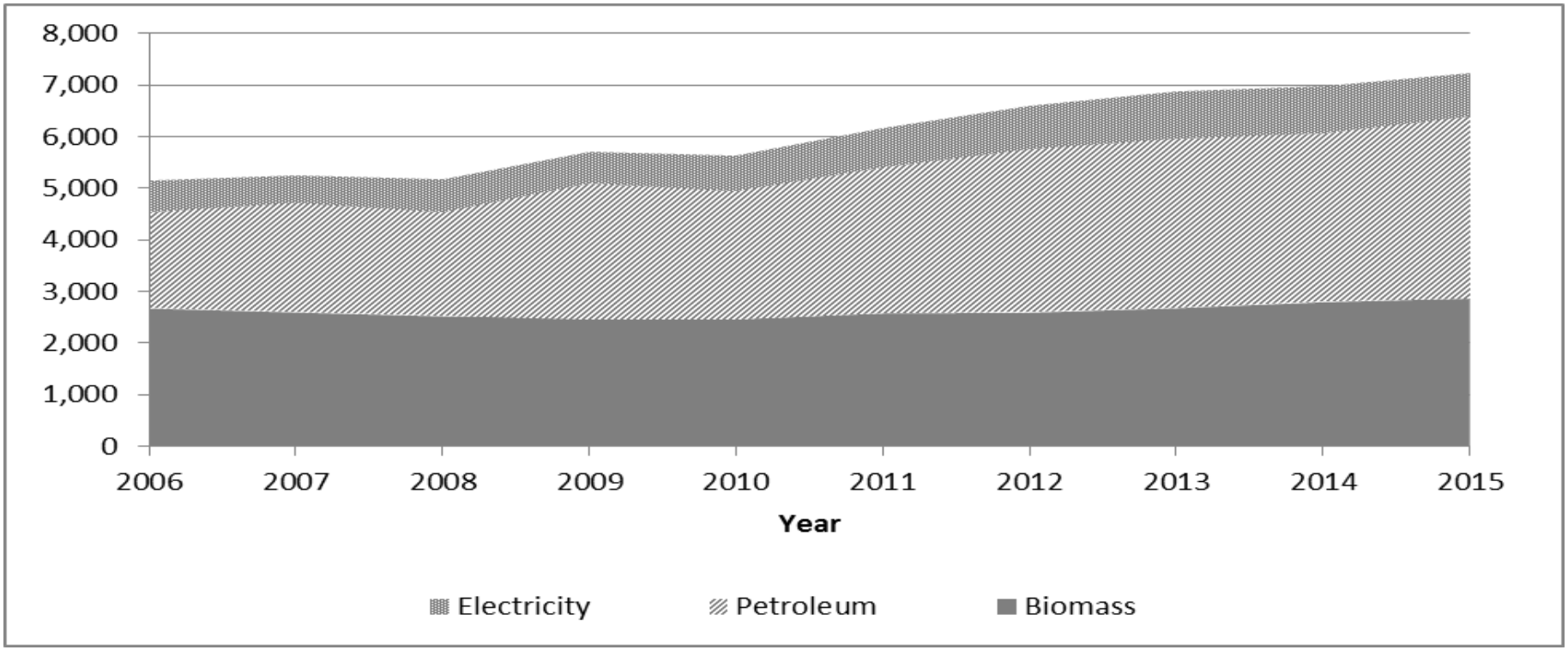


Table 2.2 Final Energy Consumed (ktoe)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Electricity	621.3	539.2	597.7	615.4	674.2	772.1	851.9	908.4	919.8	829.0
Petroleum	1,872.6	2,126.6	2,071.3	2,597.7	2,491.1	2,826.6	3,172.1	3,303.0	3,271.7	3,543.8
Biomass	2,671.3	2,593.7	2,517.8	2,493.3	2,463.9	2,575.6	2,588.8	2,676.0	2,791.7	2,784.7
Total	**5,165.3**	**5,259.4**	**5,186.7**	**5,706.4**	**5,629.2**	**6,174.3**	**6,612.7**	**6,887.4**	**6,983.2**	**7,157.5**

[1]Provisional

Figure 2.2 Trend in Final Energy Consumed



SECTION THREE: ELECTRICITY

Table 3.1: Installed Electricity Generation Capacity (End of December, 2015)

PLANT	FUEL TYPE	INSTALLED CAPACITY (MW)	Share (%)
Hydro			
Akosombo	Water	1,020	*27.9*
Bui	Water	400	*10.9*
Kpong	Water	160	*4.4*
Sub-Total		***1,580***	**43.2**
Thermal			
Takoradi Power Company (TAPCO)	LCO/Natural Gas	330	*9.0*
Takoradi International Company (TICO)	LCO/Natural Gas	330	*9.0*
Sunon Asogli Power (Ghana) Limited (SAPP) - IPP	Natural Gas	200	*5.5*
Cenit Energy Ltd (CEL) - IPP	LCO	126	*3.4*
Tema Thermal 1 Power Plant (TT1PP)	LCO/Natural Gas	110	*3.0*
Tema Thermal 2 Power Plant (TT2PP)	DFO/Natural Gas	50	*1.4*
Takoradi T3	LCO/Natural Gas	132	*3.6*
Mines Reserve Plant (MRP)	DFO/Natural Gas	80	*2.2*
Kpone Thermal Power Plant (KTPP)	Natural Gas	220	*6.0*
Karpowership	HFO	225	*6.2*
Ameri Plant	Natural Gas	250	*6.8*
Sub-Total		***2,053***	**56.2**
Renewables			
VRA Solar	Solar	2.5	*0.1*
BXC Company	Solar	20	*0.5*
Sub-Total		***22.5***	**0.6**
Total		**3,656**	**100**

Table 3.2: Electricity Generation by Plant (GWh) per Installed Capacity (MW)

Plant	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Hydro Generation										
Akosombo	4,690	3,104	5,254	5,842	5,961	6,495	6,950	6,727	6,509	4,156
Kpong	929	623	941	1,035	1,035	1,066	1,121	1,144	1,148	819
Bui	-	-	-	-	-	-	-	362	730	870
Sub-Total	*5,619*	*3,727*	*6,195*	*6,877*	*6,996*	*7,561*	*8,071*	*8,233*	*8,387*	*5,845*
Thermal Generation										
Takoradi Power Company (TAPCO)	1,416	1,521	874	453	1,234	1,137	1,061	1,783	890	1,784
Takoradi International Company (TICO)	1,395	1,417	1,063	1,040	1,160	657	1,168	1,032	712	1,336
Tema Thermal 1 Power Plant (TT1PP)	-	-	-	570	591	559	622	475	697	541
Tema Reserve Power Plant (TRPP)	-	162	85	-	-	-	-	-	-	-
Emergency Reserve Power Plant (ERPP)	-	80	45	-	-	-	-	-	-	-
Kumasi Reserve Power Plant (KRPP)	-	33	16	-	-	-	-	-	-	-
Mines Reserve Plant (MRP)	-	38	46	18	20	12	20	-	195	170
Tema Thermal 2 Power Plant (TT2PP)	-	-	-	-	28	50	141	94	223	216
Sunon Asogli Power (Ghana) Ltd (SAPP)	-	-	-	-	138	1,224	848	694	1,255	1,185
Cenit Energy Ltd (CEL)	-	-	-	-	-	-	94	454	513	317
Takoradi T3	-	-	-	-	-	-	-	102	87	31
Karpowership	-	-	-	-	-	-	-	-	-	64
Ameri Plant	-	-	-	-	-	-	-	-	-	0
Sub-Total	*2,811*	*3,251*	*2,129*	*2,081*	*3,171*	*3,639*	*3,953*	*4,635*	*4,572*	*5,644*
Renewables										
VRA Solar								3	4	3
Total Generation	8,430	6,978	8,324	8,958	10,167	11,200	12,024	12,870	12,963	11,492
Installed Capacity (MW)	1,730	1,935	1,981	1,970	2,165	2,170	2,280	2,831	2,831	3,656

Source: GRIDCo

- means Not Available

Figure 3.1: Trend in Electricity Generation

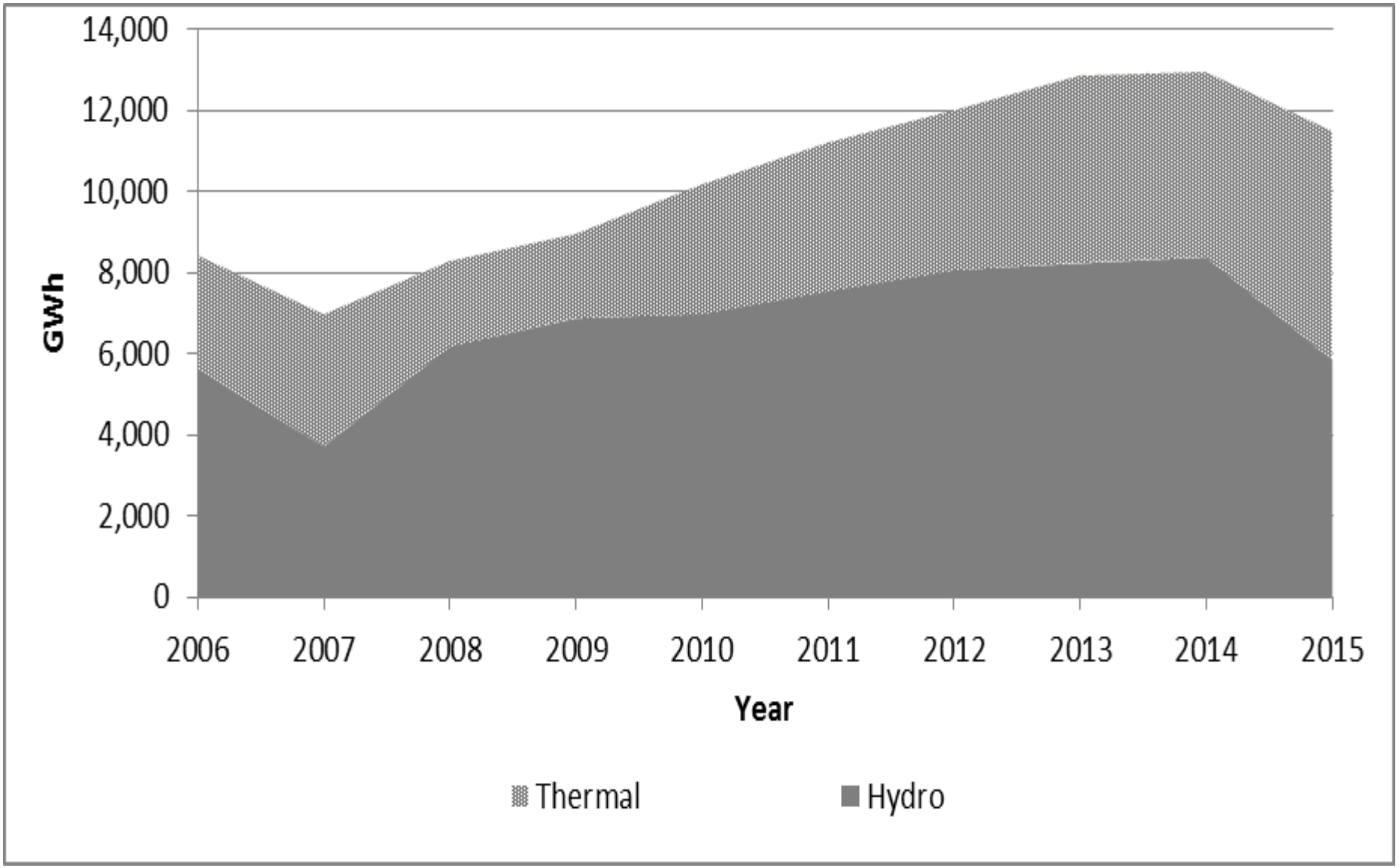


Table 3.3: Electricity Import, Export and Net Import (GWh)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Import	629	435	275	198	106	81	128	27	51	223
Export	754	246	538	752	1,036	691	667	530	522	552
Net Import	-125	189	-263	-554	-930	-610	-539	-503	-471	-329

[1]Provisional
Source: GRIDCo
NB: Negative net import means net export

Figure 3.2: Electricity Import, Export and Net Import

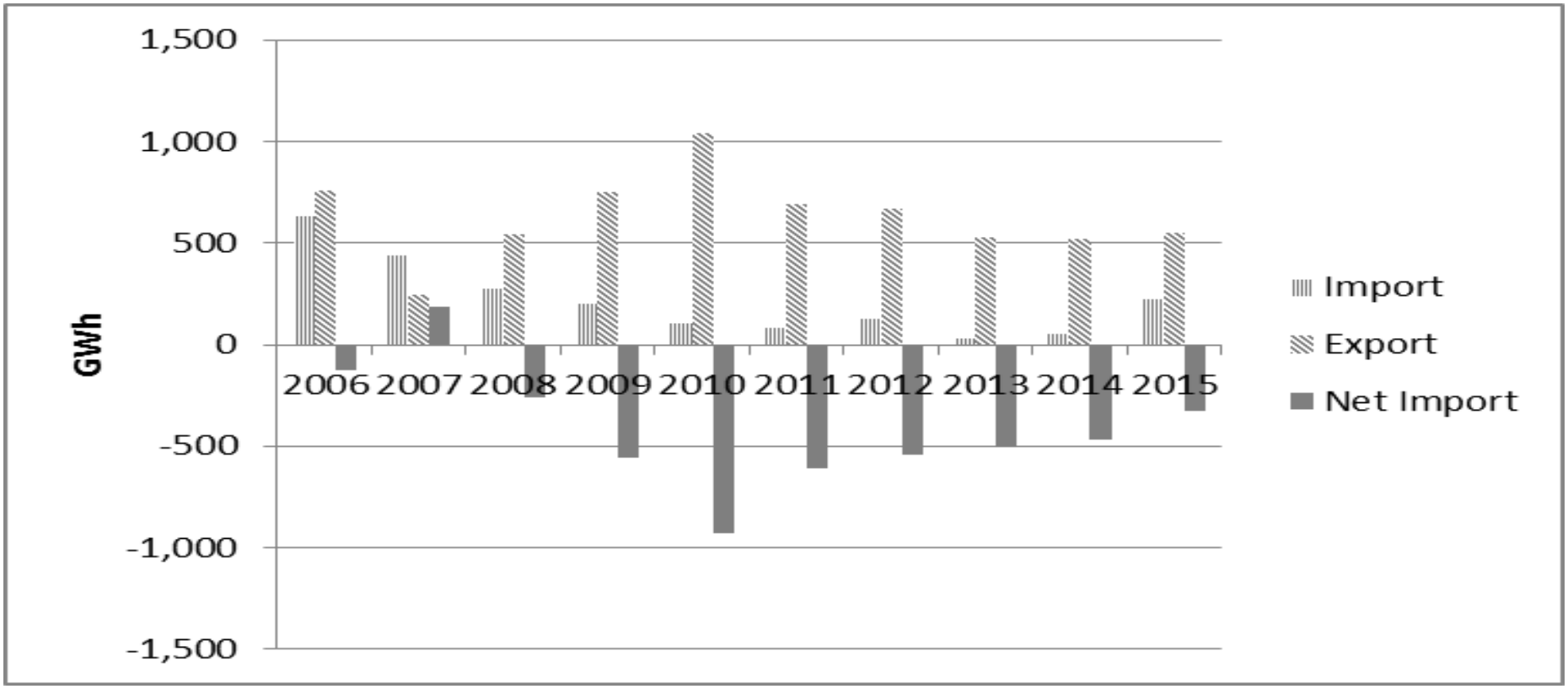


Table 3.4: Peak Load (MW)

	2006	2007	2008	2009	2010	2011	2012	2013	2014*	2015**
Ghana Load at Peak	1,104	1,158	1,208	1,263	1,391	1,520	1,658	1,791	1,853	1,757
System Peak	1,393	1,274	1,367	1,423	1,506	1,665	1,729	1,943	1,970	1,933

*Revised
**Provisional
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
Source: VRA & GRIDCo

Figure 3.3: Trend in Peak Load

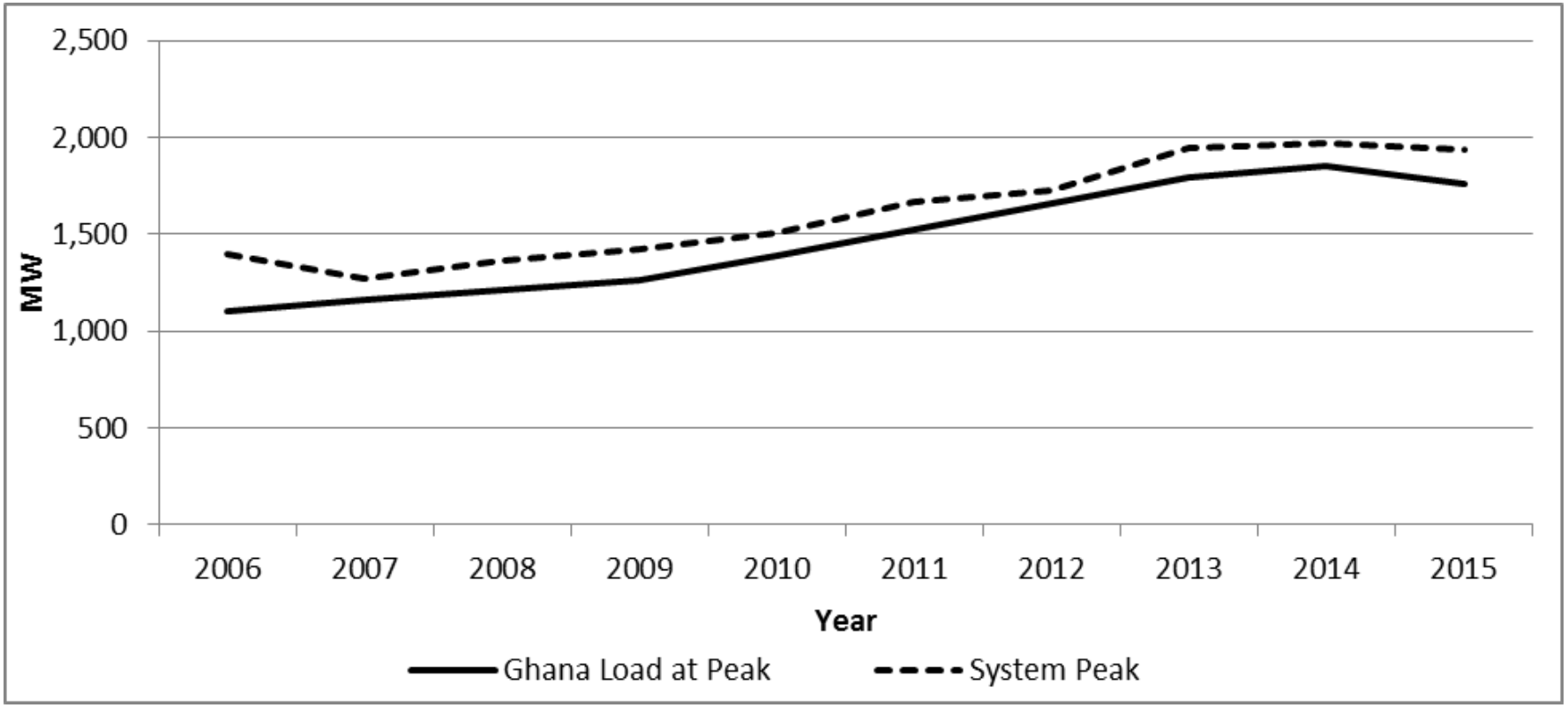


Table 3.5: Akosombo Dam Month End Elevation (feet)

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
January	252.3	248.0	241.5	253.1	261.7	266.1	273.8	269.8	266.3	256.1
February	250.4	246.1	239.4	251.4	259.9	264.5	272.4	268.0	264.3	254.1
March	248.7	243.8	237.4	249.2	258.1	262.6	270.8	265.9	262.2	251.8
April	247.0	241.5	236.3	247.5	256.9	260.7	269.1	264.1	260.3	249.5
May	245.3	239.8	235.9	246.0	255.0	259.0	267.4	262.6	258.7	247.6
June	244.4	238.5	235.5	245.0	254.0	258.0	266.4	261.4	257.0	245.5
July	244.7	237.0	235.2	246.4	254.1	257.7	266.7	263.2	256.2	244.5
August	246.2	236.7	239.5	252.9	258.8	259.7	267.6	264.0	255.1	243.3
September	250.0	240.9	252.5	261.4	266.3	269.8	271.7	267.6	258.1	247.7
October	253.4	246.0	256.4	266.4	270.4	277.0	274.7	270.8	260.8	250.5
November	252.1	245.7	255.8	265.1	270.3	276.7	273.7	270.0	259.4	249.1
December	250.1	243.8	254.7	263.6	268.2	275.4	271.9	268.4	257.7	247.1

Source: GRIDCo and VRA

Figure 3.4: Trend in Akosombo Dam Monthly Elevation

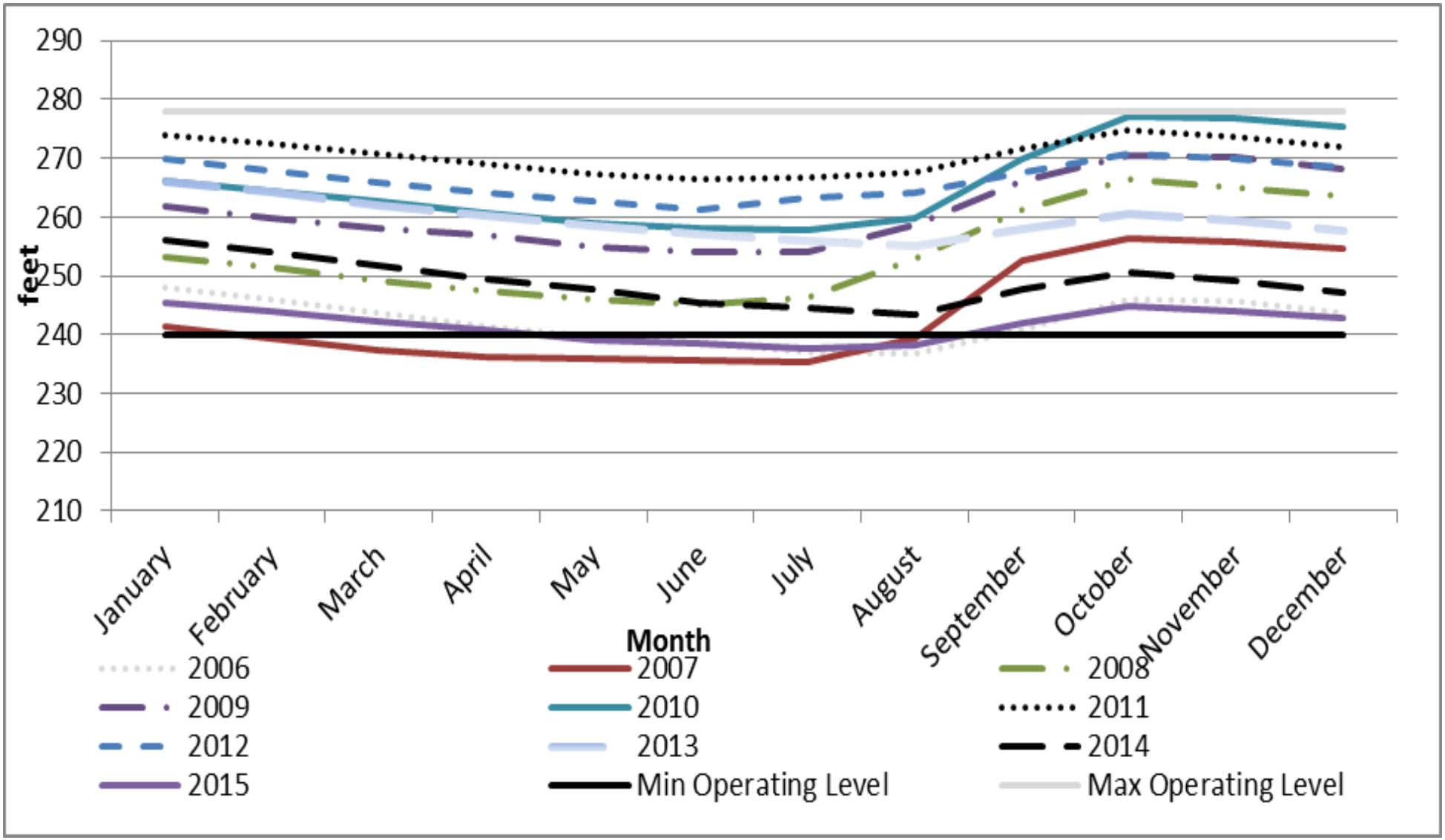


Table 3.6: Transmission Losses

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Transmission Losses	318.0	256.0	303.0	343.0	380.0	531.0	522.0	569.7	565.0	402.0
Losses as a % of net Generation	3.5	3.5	3.5	3.8	3.7	4.7	4.3	4.8	4.3	3.8

Source: GRIDCo and VRA

Figure 3.5: Trend in Transmission Losses

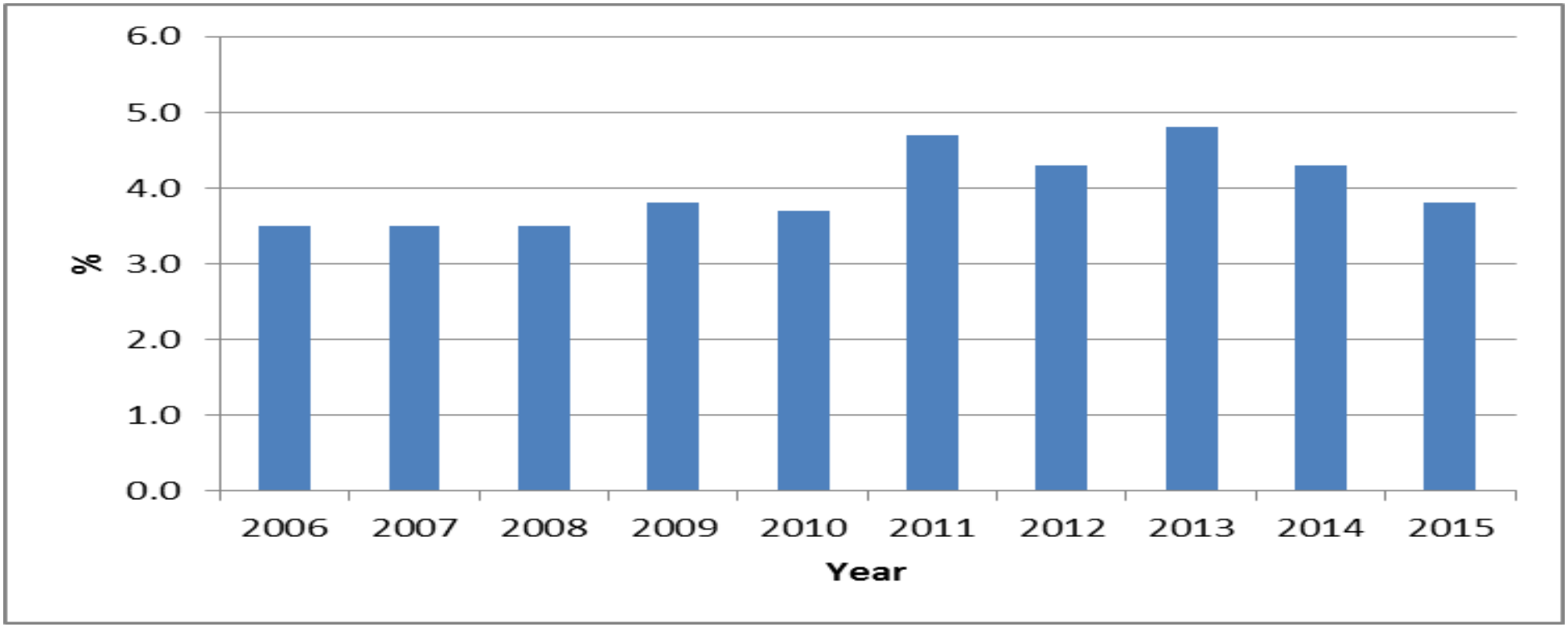


Table 3.7: Electricity Purchases and Sales by ECG

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Purchases (GWh)	5,253	5,146	5,799	6,052	6,771	7,259	7,944	8,479	8,370	7,544
Sales (GWh)	3,978	3,909	4,316	4,482	4,972	5,285	6,079	6,496	6,262	5,831
Losses (GWh)[2]	1,275	1,237	1,483	1,570	1,799	1,974	1,865	1,983	2,108	1,713
% Losses	24.3	24.0	25.6	25.9	26.6	27.2	23.5	23.4	25.2	22.7

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

Table 3.8: Electricity Purchases and Sales by NEDCo

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Purchases (GWh)	507	494	529	566	635	719	822	937	998	992
Sales (GWh)	356	366	391	413	511	580	657	737	758	719
Losses (GWh)[2]	151	128	138	153	124	139	165	200	240	273
% Losses	29.7	26.0	26.0	27.1	19.5	19.3	20.1	21.3	24.0	27.5

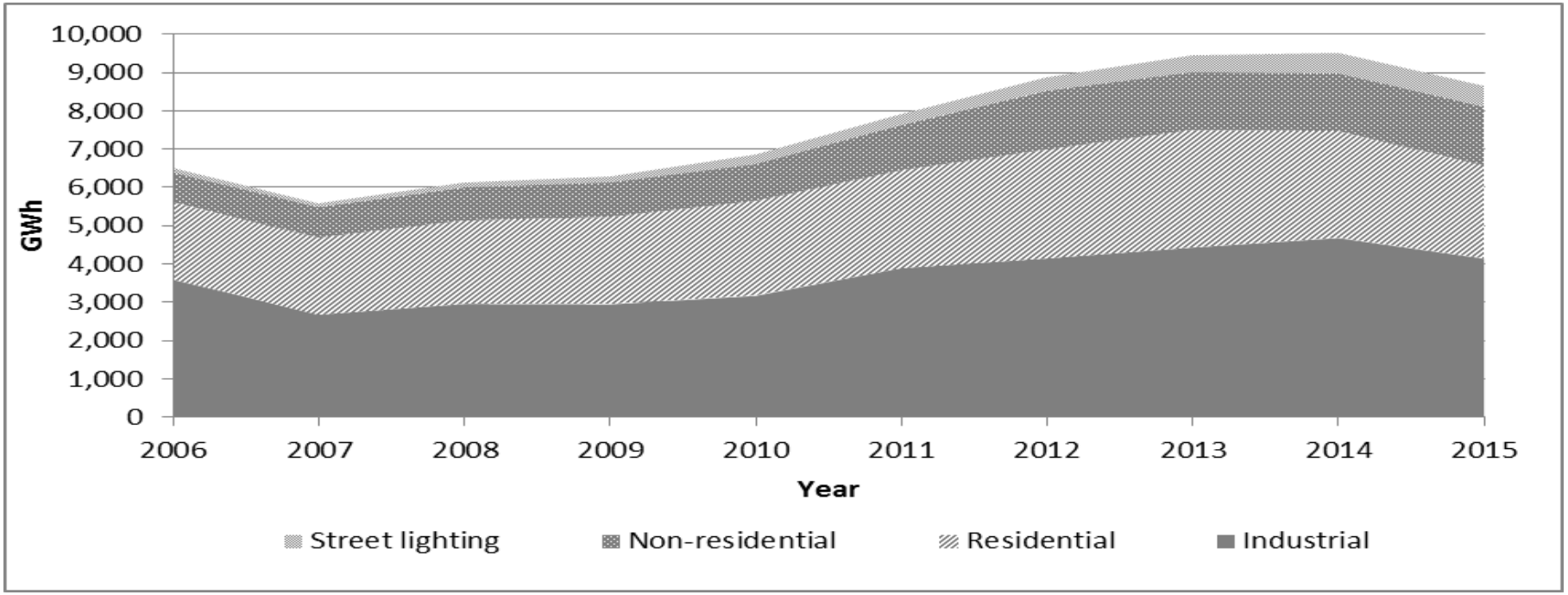
[1]Provisional
[2]Technical and commercial losses
Source: GRIDCO, VRA and NEDCo

Table 3.9: Electricity Consumption by Customer Class (GWh)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Residential	2,022	1,997	2,168	2,275	2,483	2,527	2,819	3,060	2,772	2,437
Non-residential	790	802	876	924	966	1,199	1,549	1,532	1,529	1,532
Industrial[2]	3,592	2,687	2,963	2,951	3,174	3,901	4,153	4,435	4,681	4,144
Street lighting	108	101	132	144	254	296	369	445	540	534
Total	6,512	5,587	6,139	6,294	6,878	7,922	8,890	9,472	9,522	8,646

[1]Provisional
[2]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 3.6: Electricity Consumption by Customer Class



SECTION FOUR: PETROLEUM

Table 4.1: Crude Oil Production (bbls)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
From Saltpond Field	160,457	189,378	213,730	173,444	97,642	75,731	105,464	98,289	97,301	46,630
From Jubilee Field	-	-	-	-	1,267,700	23,757,695	28,831,136	36,760,348	37,201,691	38,863,317
Total	**160,457**	**189,378**	**213,730**	**173,444**	**1,365,342**	**23,833,426**	**28,936,600**	**36,858,637**	**37,298,992**	**38,909,947**

- Means Not available

Source: Ghana National Petroleum Corporation

Table 4.2: Crude Oil Export

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Quantity (bbl)	160,457	189,378	213,730	173,444	97,642	24,731,475	26,430,934	36,048,290	37,702,873	36,459,906
Value (million US$)	N.A	N.A	N.A	N.A	N.A	2,779	2,976	3,885	3,585	1,931

Source: Bank of Ghana

Table 4.3: Crude Oil Import (kilotonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Import	1,712.8	2,053.7	1,975.8	982.8	1,661.6	1,531.6	1,209.5	1,302.3	693.2	310.5
For refinery	962.2	1,242.5	1,396.7	441.4	961.1	1,274.2	505.8	374.4	70.1	61.8
For electricity generation	750.6	811.2	579.1	541.4	700.5	257.4	703.7	927.8	623.1	248.7

Source: VRA, TOR & NPA

Figure 4.1: Imported Crude Oil Use

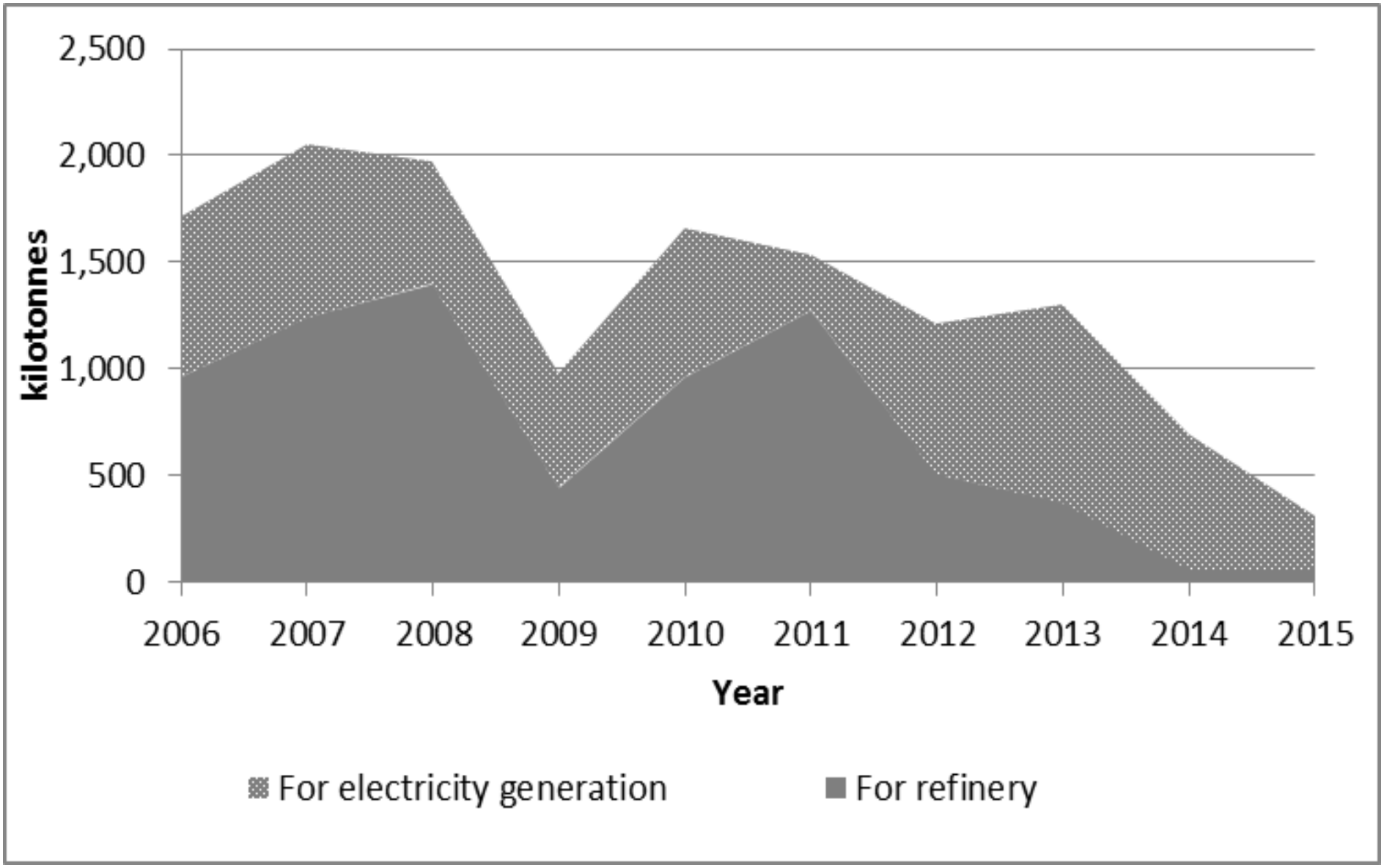


Table 4.4: Natural Gas Import

Year	2009	2010	2011	2012	2013	2014	2015
Import (mmBtu)	197,977.0	15,616,648.0	30,524,558.0	15,447,347.0	11,573,011.0	22,541,001.0	20,625,394.0

NB: Natural Gas Import through the West Africa Gas Pipeline
Source: WAGPCo & VRA

Figure 4.2: Trend in Natural Gas Import

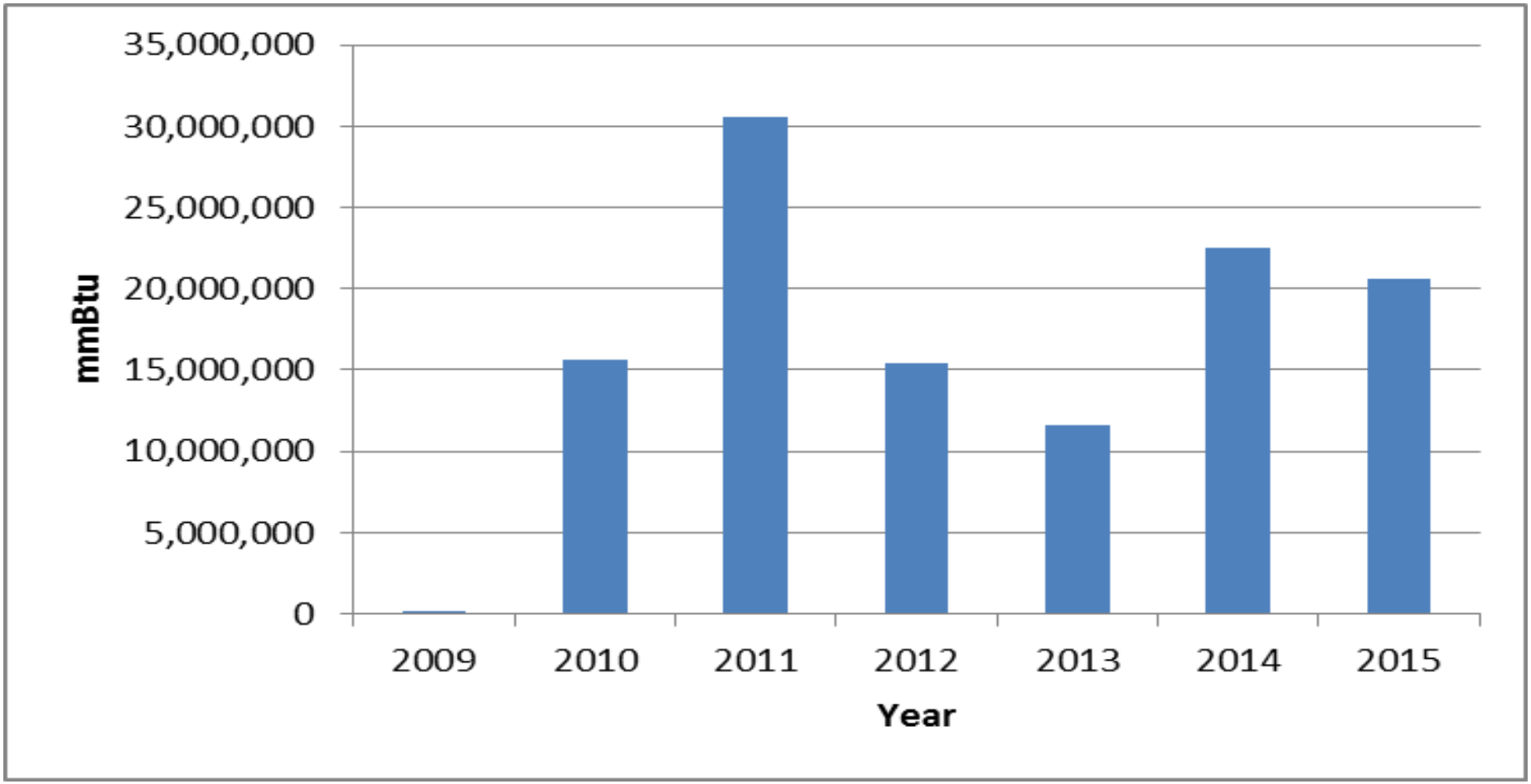


Table 4.5: Petroleum Products Production (kilotonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
LPG	35.8	67.3	54.6	14.0	31.6	44.6	26.8	25.6	3.3	2.0
Gasolines	294.4	493.0	391.2	135.0	337.7	344.3	157.7	167.3	40.4	31.8
Kerosene	65.1	122.0	168.6	48.7	71.0	52.6	21.1	14.6	4.5	0.2
ATK	46.2	65.8	21.3	1.3	116.7	116.1	47.6	59.8	9.4	18.2
Gas Oil	294.2	398.2	360.5	102.8	292.6	309.8	121.5	113.3	27.8	28.0
Fuel Oils	155.5	48.7	225.4	25.3	96.8	90.6	79.2	43.5	43.7	8.9
Total	**891.3**	**1,194.9**	**1,221.5**	**327.1**	**946.4**	**958.0**	**454.0**	**424.2**	**129.2**	**89.1**

Source: Tema Oil Refinery

Figure 4.3: Trend in Petroleum Products Production

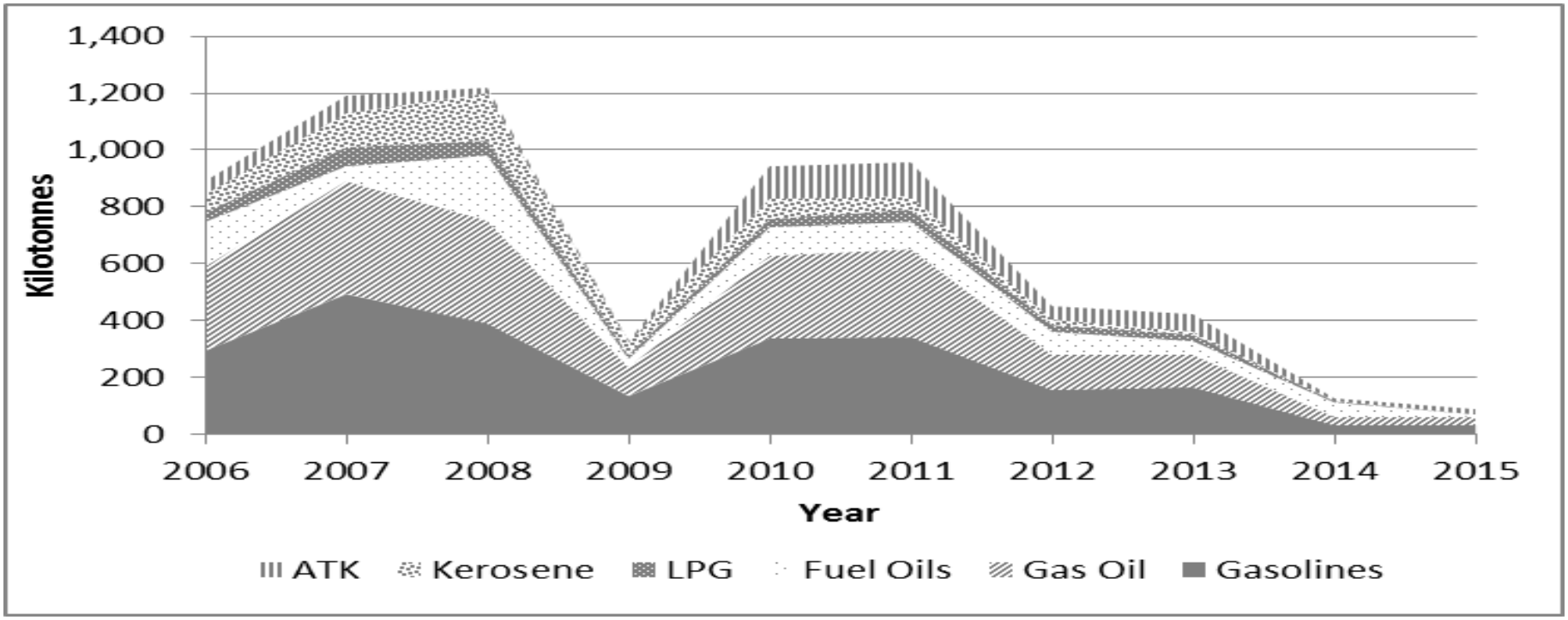


Table 4.6: Petroleum Products Import (kilotonnes)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
LPG	67.8	47.2	67.8	150.6	148.0	177.8	241.6	203.9	236.4	197.7
Gasolines	360.5	274.9	254.5	563.4	570.1	712.8	811.5	1,017.4	1,254.3	1,182.1
Kerosene	99.9	66.7	136.4	77.7	0.0	0.0	0.0	0.0	0.0	0.0
Gasoil	780.0	806.9	579.0	969.5	871.7	1,200.6	1,309.4	1,638.7	1,742.1	2,161.0
Fuel Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.3	48.6	0.0
DPK	0.0	0.0	0.0	0.0	0.0	17.5	115.0	0.0	0.0	0.0
ATK	79.3	42.6	156.2	83.5	0.0	0.0	95.7	41.4	112.4	109.1
Total	**1,387.4**	**1,238.3**	**1,194.0**	**1,844.6**	**1,589.9**	**2,108.7**	**2,573.2**	**2,945.6**	**3,393.8**	**3,649.9**

Source: National Petroleum Authority

Figure 4.4: Trend in Petroleum Products Import

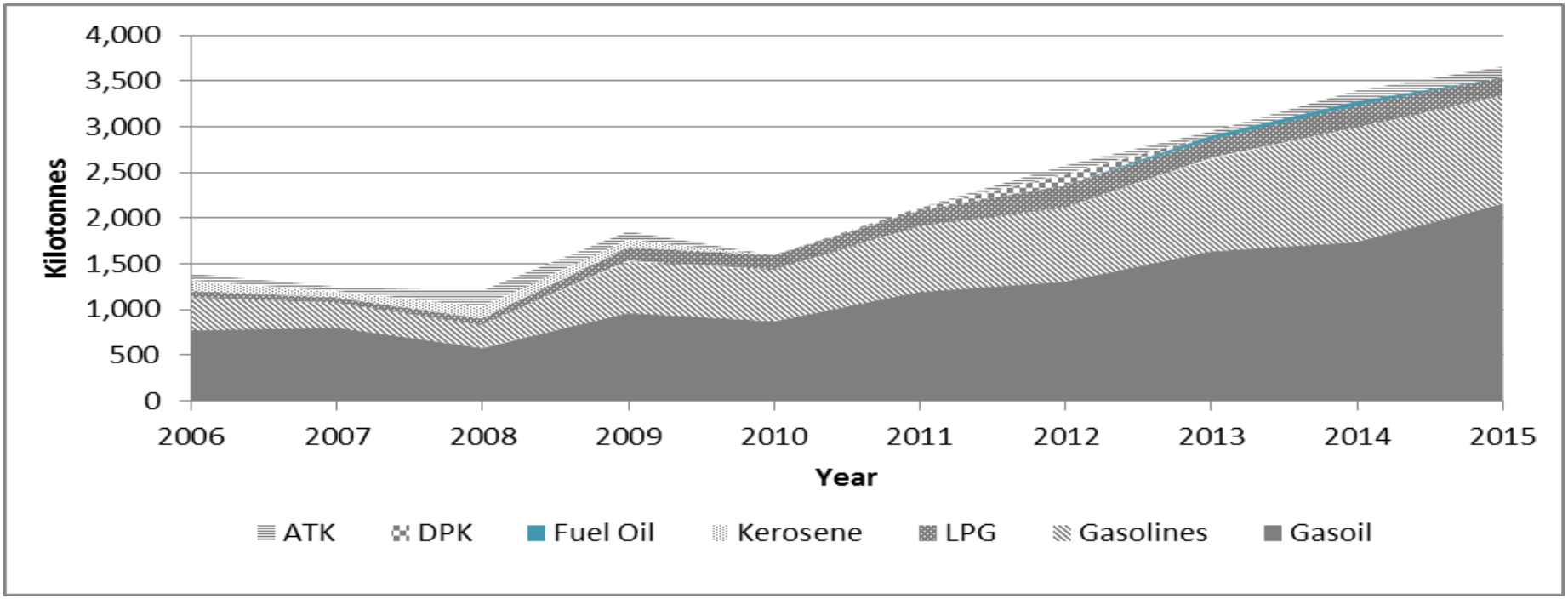


Table 4.7: Petroleum Products Export (kilotonnes)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
LPG	10.4	9.6	5.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Gas Oil	66.1	52.7	88.4	381.9	290.9	356.5	80.8	51.8	10.8	10.3
Residual Fuel Oil	45.9	26.2	148.4	30.2	40.6	43.5	44.5	3.7	0.0	0.0
Heavy Gasoline	99.8	133.7	73.0	20.5	93.6	141.1	54.3	36.0	10.2	9.9
ATK	0.4	2.5	0.3	0.0	103.0	128.5	131.0	122.3	105.6	101.9
Premium Gasoline	0.0	0.0	5.1	20.6	9.9	13.4	0.0	0.0	0.0	0.0
Total	**222.6**	**224.7**	**320.2**	**454.3**	**538.0**	**683.1**	**310.6**	**213.8**	**126.6**	**122.1**

[1]Provisional

NB: Gas Oil export include sales to international marine bunkers
ATK export is sales to international aviation bunkers

Source: Tema Oil Refinery and National Petroleum Authority

Figure 4.5: Trend in Petroleum Products Export

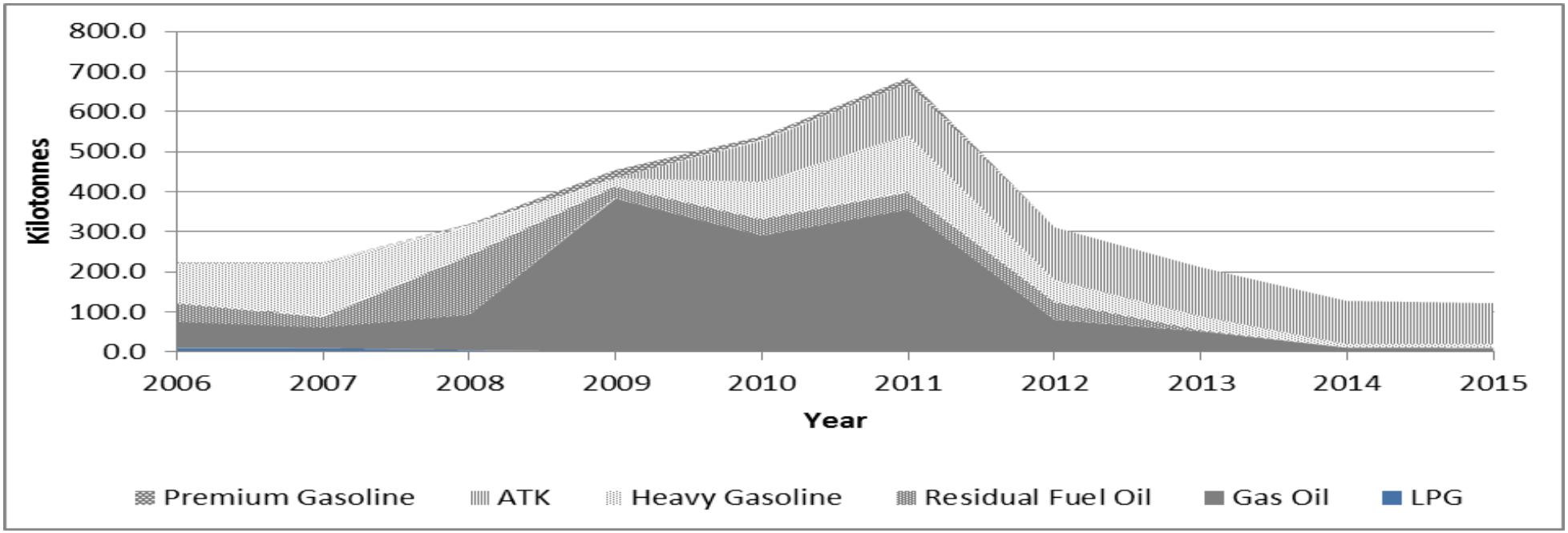
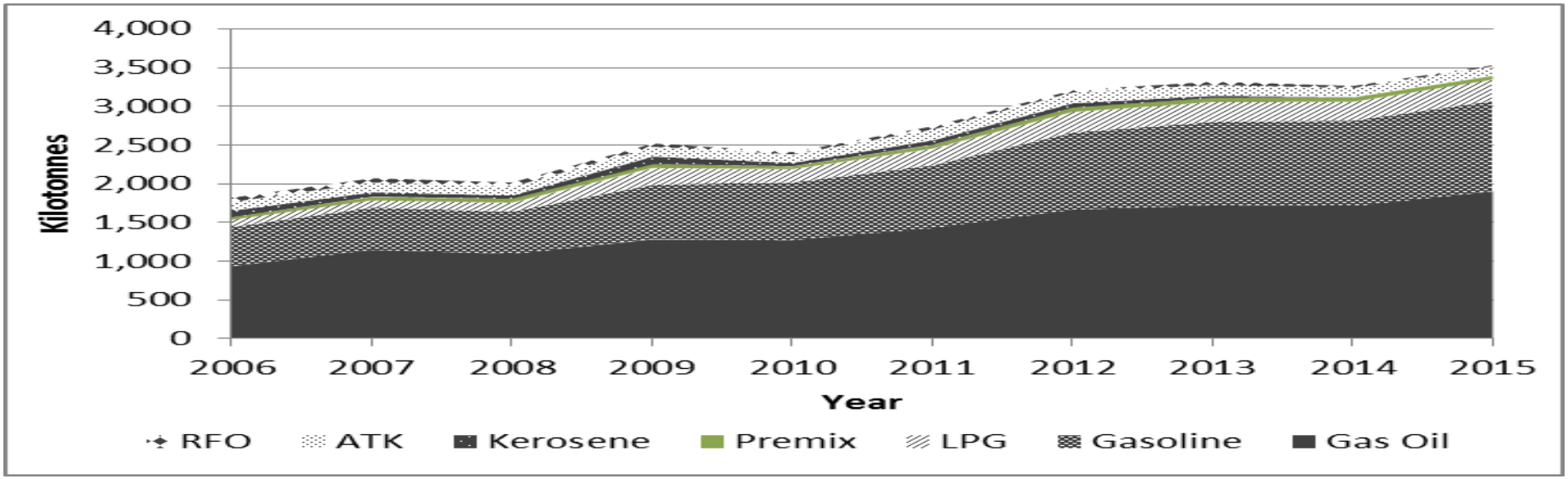


Table 4.8: Petroleum Products Supplied to the Economy (kilotonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
LPG	88.0	93.3	117.6	220.6	178.4	214.4	268.5	251.8	241.5	279.0
Gasoline	511.9	544.2	545.0	701.4	737.8	807.0	992.7	1,080.6	1,102.3	1,163.2
Premix	33.7	41.0	50.7	55.1	32.4	45.6	58.9	53.4	56.2	47.2
Kerosene	76.5	63.3	34.6	89.3	49.3	62.4	45.6	27.8	9.3	6.9
ATK	114.7	122.8	119.2	124.7	108.4	135.3	141.3	131.9	113.9	112.0
Gas Oil	934.0	1,147.0	1,092.1	1,280.0	1,271.9	1,431.2	1,665.0	1,722.6	1,713.0	1,902.7
RFO	56.8	51.3	47.9	40.3	30.9	37.5	33.5	39.3	26.8	13.4
Total	**1,815.6**	**2,062.9**	**2,007.1**	**2,511.4**	**2,409.1**	**2,733.4**	**3,205.5**	**3,307.4**	**3,263.1**	**3,524.4**

Source: National Petroleum Authority

Figure 4.6: Trend in Petroleum Products Supplied to the Economy



SECTION FIVE: WOODFUELS

Table 5.1: Woodfuel Supply (ktoe)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wood for charcoal	1,325.2	1,391.4	1,473.5	1,576.7	1,687.1	1,805.2	1,859.3	1,989.5	2,049.0	2,043.0
Wood for firewood	1,742.5	1,643.8	1,565.6	1,520.0	1,490.2	1,534.9	1,519.5	1,534.7	1,550.0	1,545.0
Other[1]	34.8	32.9	31.3	30.4	29.8	30.7	30.4	29.7	30.0	30.0
Total Wood Supply	**3,102.5**	**3,068.1**	**3,070.4**	**3,127.0**	**3,207.0**	**3,370.7**	**3,409.2**	**3,553.9**	**3,629.0**	**3,618.0**

[1]include saw dust, sawmill residue etc.
NB: 2005-2009 figures extrapolated from 2003 field survey data. 2011-2014 figures extrapolated from 2010 field survey data.

Table 5.2: Woodfuel Consumption (ktoe)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Firewood	1,742.5	1,643.8	1,565.6	1,520.0	1,490.2	1,534.9	1,519.5	1,534.7	1,550.0	1,545.0
Charcoal	894.0	917.0	920.9	942.9	944.0	1,010.0	1,038.8	1,111.6	1,212.0	1,210.0
Other	34.8	32.9	31.3	30.4	29.8	30.7	30.4	29.7	29.7	29.7
Total	**2,671.3**	**2,593.7**	**2,517.8**	**2,493.3**	**2,463.9**	**2,575.6**	**2,588.8**	**2,676.0**	**2,791.7**	**2,784.7**

[1]include saw dust, sawmill residue etc.
NB: 2006-2009 figures extrapolated from 2003 field survey data. 2011-2014 figures extrapolated from 2010 field survey data.

Table 5.3: Charcoal Export (kilotonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[1]
Quantity	2.9	3.6	2.9	4.3	1.4	0.8	2.0	0.8	0.5	0.4
Growth Rate (%)	-49.1	24.1	-19.4	48.3	-67.4	-42.9	150.0	-61.4	-35.3	-20.0

[1]Provisional

SECTION SIX: ENERGY PRICES

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

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
January	63.86	54.56	91.92	45.62	76.92	96.82	111.55	112.28	107.32	49.72
February	61.10	58.96	94.49	43.73	74.74	104.09	126.96	116.11	108.80	58.70
March	63.06	62.36	103.00	47.32	79.90	114.62	124.55	109.53	107.68	57.01
April	70.56	67.49	110.43	51.23	85.68	123.13	125.90	103.31	108.10	60.90
May	71.00	67.92	124.61	58.57	76.99	114.53	109.36	103.32	109.20	65.62
June	69.74	70.60	133.47	69.34	75.66	113.91	95.89	103.30	111.97	63.75
July	74.24	75.84	134.79	65.76	75.49	116.68	102.77	107.37	108.21	56.75
August	73.87	71.17	115.22	73.07	77.11	109.82	113.19	110.25	103.48	48.18
September	63.49	77.00	100.75	68.19	78.21	109.96	113.04	111.21	98.56	48.57
October	60.13	82.47	73.60	73.87	83.49	108.80	111.52	109.45	88.07	48.12
November	60.00	92.06	55.05	77.50	86.11	110.61	109.53	107.77	79.40	44.42
December	62.54	91.51	43.29	75.24	92.35	107.72	109.19	110.60	62.36	37.72

Source: Bank of Ghana

Figure 6.1: Trend in Crude Oil Prices

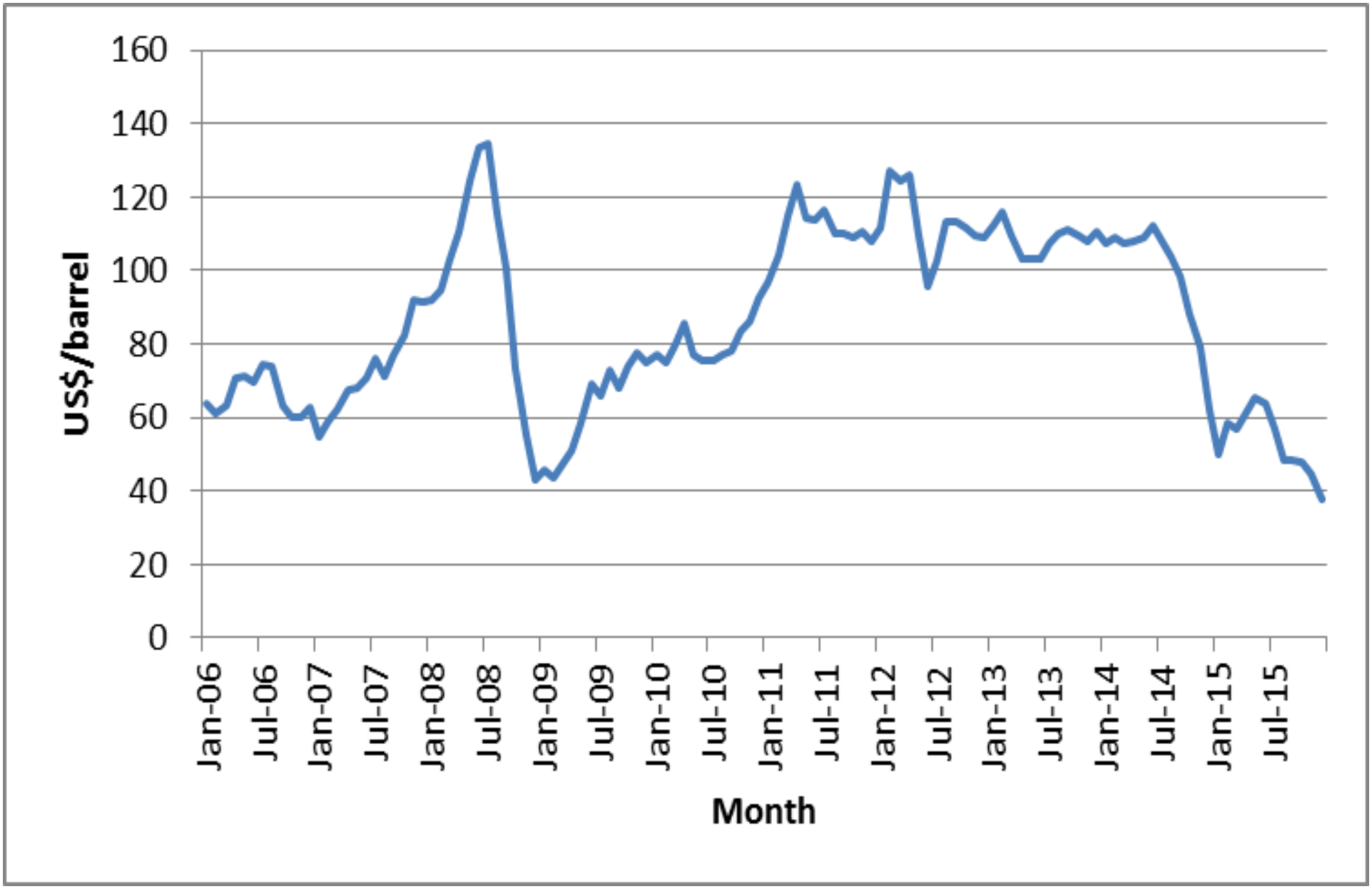


Table 6.2: Retail Prices of Major Petroleum Products

Effective Date	Exchange Rate (Gh¢/US$)	Premium Gasoline	Gas Oil	Kerosene	LPG	RFO	Premix
1-Jun-14	2.88	2.73	2.68	2.61	2.87	1.35	1.25
16-Jun-14	2.93	2.73	2.68	2.61	2.87	1.35	1.25
1-Jul-14	3.01	2.73	2.68	2.61	2.87	1.35	1.25
14-Jul-14	3.10	3.36	3.27	3.23	3.32	1.57	1.57
1-Aug-14	3.15	3.36	3.27	3.23	3.32	1.57	1.57
16-Aug-14	3.15	3.36	3.27	3.23	3.32	1.57	1.57
1-Sep-14	3.20	3.36	3.27	3.23	3.32	1.57	1.57
16-Sep-14	3.20	3.36	3.27	3.23	3.32	1.57	1.57
1-Oct-14	3.20	3.36	3.27	3.23	3.32	1.57	1.57
16-Oct-14	3.20	3.36	3.27	3.23	3.32	1.57	1.57
21-Oct-14	3.20	3.29	3.20	3.16	3.25	1.57	1.57
1-Nov-14	3.20	3.29	3.20	3.16	3.25	1.57	1.57
16-Nov-14	3.20	3.29	3.20	3.16	3.25	1.57	1.57
20-Nov-14	3.20	3.39	3.30	3.25	2.94	1.57	1.57
1-Dec-14	3.20	3.39	3.30	3.25	2.94	1.57	1.57
16-Dec-14	3.20	3.39	3.30	3.25	2.94	1.57	1.57
1-Jan-15	3.20	3.05	2.97	2.85	2.64	1.41	1.57
16-Jan-15	3.25	3.05	2.97	2.85	2.60	1.41	1.57
1-Feb-15	3.25	3.05	2.97	2.85	2.60	1.41	1.57
16-Feb-15	3.50	3.05	2.97	2.85	2.60	1.41	1.57
1-Mar-15	3.60	3.05	2.97	2.92	2.64	1.41	1.57
16-Mar-15	3.71	3.05	2.97	2.92	2.64	1.41	1.57
1-Apr-15	3.90	3.05	2.97	2.92	2.64	1.41	1.57
9-Apr-15	3.90	3.05	2.97	2.92	2.64	1.41	1.57
16-Apr-15	3.95	3.05	2.97	2.92	2.64	1.41	1.57
1-May-15	3.95	3.05	2.97	2.92	2.64	1.41	1.57
16-May-15	3.95	3.33	3.24	3.19	2.88	1.41	1.57
1-Jun-15	4.19	3.33	3.24	3.19	2.88	1.41	1.57
16-Jun-15	4.52	3.47	3.37	3.32	3.00	1.41	1.57

Source: National Petroleum Authority

Table 6.3: Electricity Tariff

Tariff Category	Effective Date										
	Mar,2011	Jun, 2011	Sept, 2011	Dec, 2011	Oct, 2013	Jan, 2014	Jul, 2014	Oct, 2014	Apr, 2015	Jul, 2015	Dec, 2015
Residential											
0 - 50 (Exclusive)	9.5	9.5	9.5	9.5	15.7	17.2	19.3	20.5	21.1	21.1	33.6
51 - 300 (GHp/kWh)	16.0	16.0	17.1	17.6	31.4	34.5	38.7	41.2	42.3	42.3	67.3
301 - 600 (GHp/kWh)	20.7	20.7	22.2	22.8	40.8	44.9	50.2	53.5	54.9	54.9	87.4
600+ (GHp/kWh)	23.0	23.0	24.6	25.3	45.3	49.8	55.8	59.4	61.0	61.0	97.1
Service Charge (GHp/month)	150.0	150.0	160.5	165.3	295.7	324.5	363.8	387.5	397.7	397.7	633.2
Non-Residential											
0 -300 (GHp/kWh)	22.9	22.9	24.5	25.3	45.2	49.6	55.6	59.2	60.8	60.8	96.8
301 - 600 (GHp/kWh)	24.4	24.4	26.1	26.9	48.1	52.8	59.2	63.0	64.7	64.7	102.1
600+ (GHp/kWh)	38.5	38.5	41.2	42.4	75.9	83.3	93.4	99.5	102.1	102.1	162.5
Service Charge (GHp/month)	250.0	250.0	267.5	275.5	492.9	540.9	606.3	645.9	662.9	662.9	1,055.3
SLT - Low Voltage											
Maximum Demand (GHp/kVA/month)	14.0	14.0	1,498.0	1,542.9	2,760.3	3,028.9	3,395.1	3,616.9	3,712.1	3,712.1	5,909.6
Energy Charge (GHp/kWh)	23.9	23.9	25.6	26.3	47.1	51.7	58.0	61.8	63.4	63.4	100.9
Service Charge (GHp/month)	14.0	14.0	1,070.0	1,102.2	1,971.7	2,163.5	2,425.1	2,583.6	2,651.5	2,651.5	4,221.2
SLT - Medium Voltage											
Maximum Demand (GHp/kVA/month)	12.0	12.0	1,284.0	1,322.5	2,366.0	2,596.2	2,910.1	3,100.2	3,181.8	3,181.8	5,065.4
Energy Charge (GHp/kWh)	18.5	18.5	19.8	20.4	36.5	40.0	44.9	47.8	49.1	49.1	78.1
Service Charge (GHp/month)	14.0	14.0	1,498.0	1,542.9	2,760.3	3,028.9	3395..1	3,616.9	3,712.1	3,712.1	5,909.6
SLT - High Voltage											
Maximum Demand (GHp/kVA/month)	12.0	12.0	1,284.0	1,322.5	2,366.0	2,596.2	2,910.1	3,100.2	3,181.8	3,181.8	5,065.4
Energy Charge (GHp/kWh)	17.0	17.0	18.2	18.7	33.5	36.8	41.2	43.9	45.1	45.1	71.8
Service Charge (GHp/month)	14.0	14.0	1,498.0	1,542.9	2,760.3	3,028.9	3,395.1	3,616.9	3,712.1	3,712.1	5,909.6
SLT-High Voltage - Mines											
Capacity Charge (GHp/KVA/Month)	-	-	-	1,542.9	2,760.3	3,028.9	3,395.1	3,616.9	3,712.1	3,712.1	5,909.6
Energy Charge (GHp/kWh)	-	-	-	29.8	53.2	58.4	65.5	69.8	71.6	71.6	114.0
Service Charge (GHp/Month)	-	-	-	1,542.9	2,760.3	3,028.9	3,395.1	3,616.9	3,712.1	3,712.1	5,909.6

Table 6.4: Average Electricity End User Tariff

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GHS/kWh	0.078	0.097	0.148	0.148	0.211	0.245	0.232	0.307	0.464	0.541
Exchange Rate (GHS/US$)[1]	0.92	0.97	1.20	1.43	1.45	1.55	1.88	1.97	3.20	3.68
US$/kWh	0.084	0.100	0.123	0.104	0.145	0.158	0.124	0.156	0.145	0.147

[1]Source: Bank of Ghana

Figure 6.2: Trend in Average Electricity End User Tariff

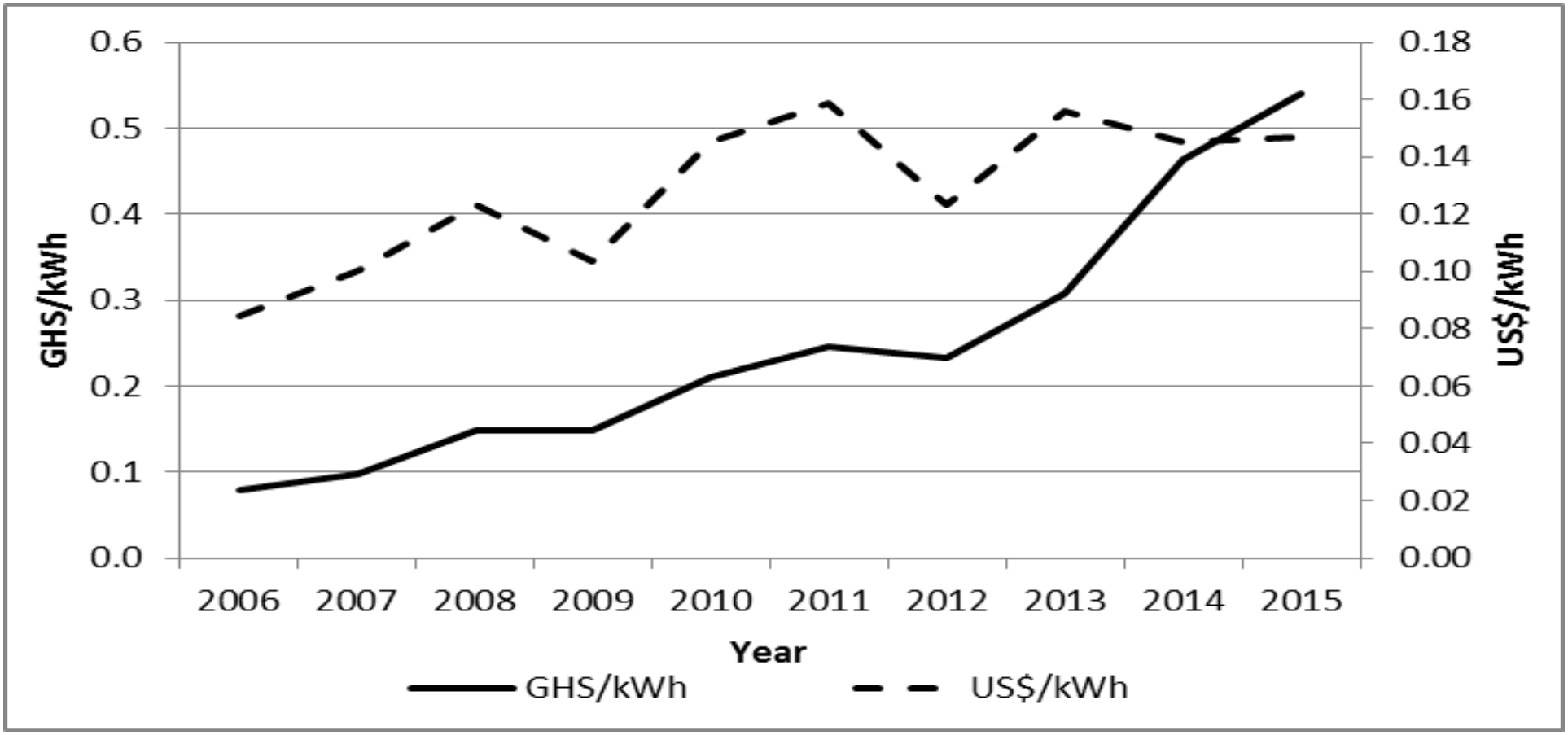


Table 6.5: Average Charcoal Prices by Region

Region	Maxi Bag (Ghc)					Mini Bag (Ghc)				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Greater Accra	20.17	21.15	23.68	30.26	37.10	13.13	15.01	17.43	22.42	26.61
Ashanti	12.36	15.07	16.62	19.32	22.91	6.09	8.68	9.15	12.71	15.12
Western	15.33	23.85	25.79	28.58	32.96	10.37	13.60	15.30	18.20	21.68
Eastern	12.00	16.76	19.03	22.21	30.55	7.00	11.69	13.44	16.62	21.51
Central	21.33	22.08	26.49	31.09	39.03	11.41	13.95	19.83	23.53	31.00
Volta	19.18	26.19	32.02	36.43	49.50	10.36	13.73	16.66	20.67	28.28
Brong Ahafo	9.39	11.04	12.58	15.81	20.27	4.75	6.20	7.11	9.22	12.15
Northern	14.11	14.97	18.30	22.15	25.32	9.42	7.52	9.10	12.88	15.79
Upper East	10.00	19.51	24.93	30.65	34.45	5.11	11.96	14.80	20.35	23.00
Upper West	10.00	13.46	15.56	18.25	23.00	5.11	8.28	9.42	11.86	15.47
Country Average	15.23	18.23	21.19	25.11	31.15	8.83	11.04	13.22	16.66	20.14

Table 6.6: Average Charcoal Price per kg (Ghana cedis)

Region	Maxi Bag (Ghc)					Mini Bag (Ghc)				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Greater Accra	0.50	0.35	0.39	0.50	0.67	0.38	0.48	0.55	0.71	0.81
Ashanti	0.27	0.29	0.32	0.37	0.45	0.27	0.33	0.35	0.49	0.58
Western	0.38	0.45	0.49	0.54	0.64	0.29	0.52	0.59	0.70	0.83
Eastern	0.27	0.32	0.36	0.42	0.58	0.23	0.45	0.52	0.64	0.75
Central	0.35	0.37	0.44	0.52	0.67	0.35	0.44	0.63	0.75	0.95
Volta	0.38	0.50	0.61	0.69	0.87	0.38	0.53	0.64	0.79	0.91
Brong Ahafo	0.19	0.19	0.22	0.27	0.33	0.19	0.2	0.23	0.30	0.36
Northern	0.29	0.26	0.32	0.39	0.44	0.27	0.24	0.29	0.42	0.51
Upper East	0.20	0.34	0.43	0.53	0.60	0.19	0.39	0.48	0.66	0.74
Upper West	0.19	0.23	0.27	0.32	0.41	0.19	0.27	0.30	0.38	0.50