Bi-Annual Data Report

Energy Sector

July - December 2010

Volume 1 No. 1

Office of Utilities Regulation

Bi-Annual Data Report

Energy Sector

July - December 2010

Volume 1 No. 1

3rd Floor, PCJ Resource Centre
36 Trafalgar Road
Kingston 10
Jamaica
Telephone: (876) 968-6053
Fax: (876) 929-3635
E-mail: ouric@our.org.jm
Website: http://www.our.org.jm

The report is available in PDF format at the OUR's website.
Comments on this publication are welcome and can be sent directly to the OUR or to our website.

Contents

Preface

The Office of Utilities Regulation's Bi–Annual Data Report reviews some of the economic and financial indicators as well as limited technical operations data that impact regulatory policy and some of the factors that drive the performance and the tariffs of the utility companies over which the OUR has regulatory oversight. The Report will also present the OUR's perspectives on emerging trends over the short to medium term.

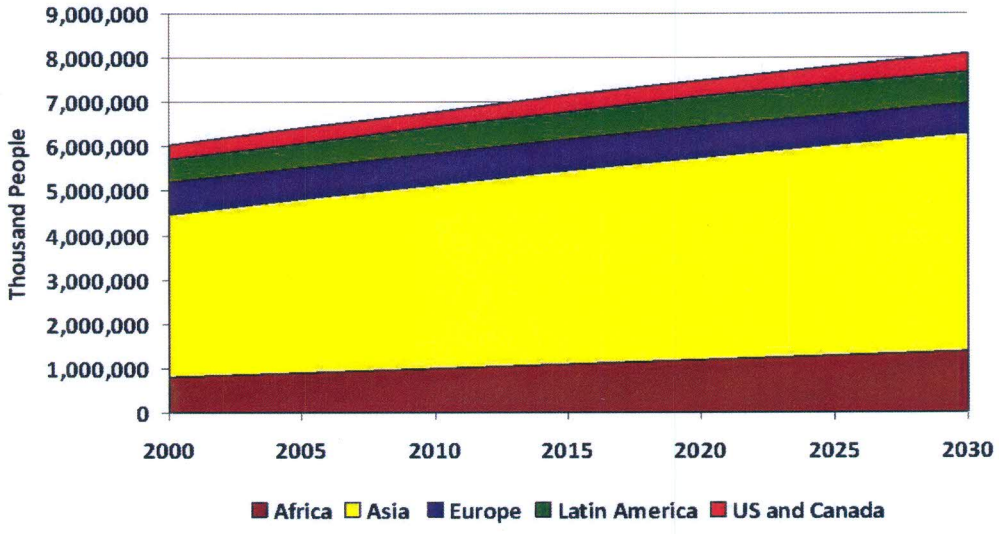
Information in this Report is focused on the Electric Power sector. However, some of the economic data apply to all sectors that are regulated by the OUR.

1. Population, Economic Growth and Gross Domestic Product (GDP)

Population and Economic Growth

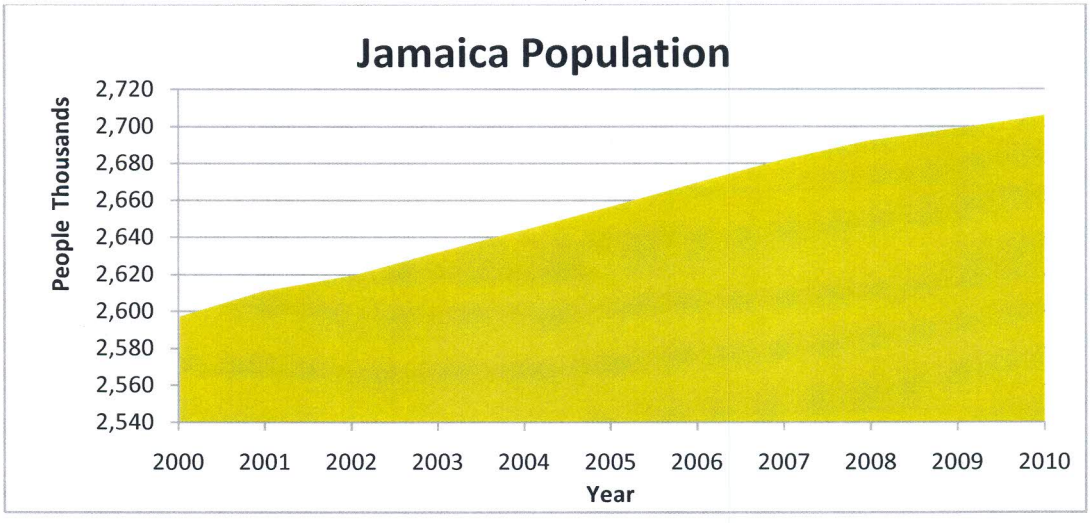
The world population is expected to grow past 8 billion by 2030 with almost 60% residing in Asia Pacific. History has shown that energy use increases much faster than population expands.

Figure 1.1



Source: IEA and Hart Energy Consulting

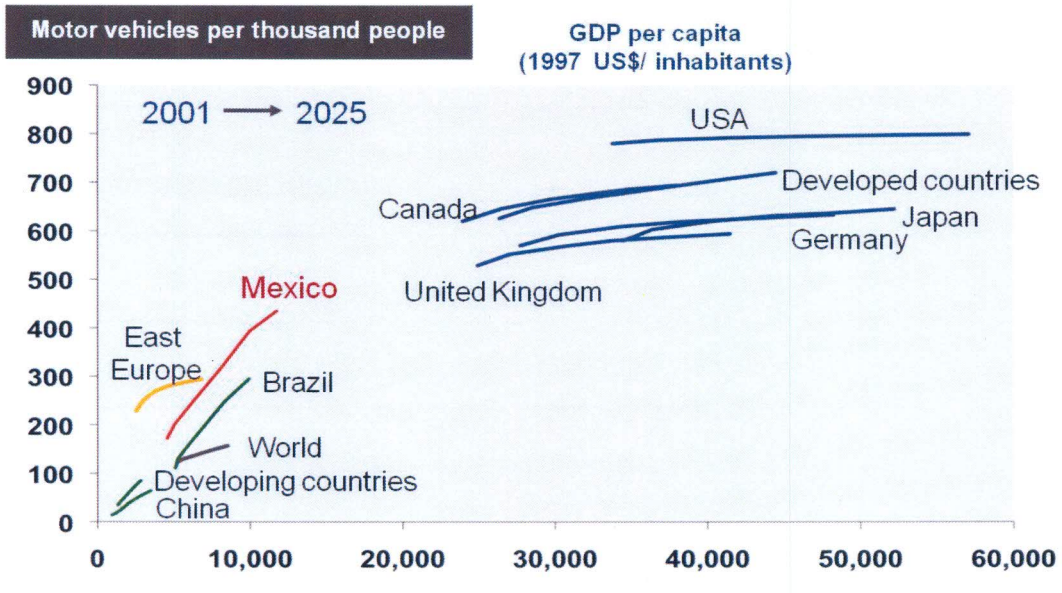
Figure 1.2



Source: Statistical Institute of Jamaica

Worldwide demand for energy will increase significantly during the next 15 years driven by population growth and the transition of emerging markets into the global economy. In developing nations, a smaller increment in GDP per capita yields a higher increment in energy consumption compared to developed countries.[1]

Figure 1.3



[1] Hart Energy Consulting - Conference on Upgrading Oil Refineries to Produce Clean Fuel Kingdom of Bahrain, 25-27 October 2010

Source: IEA and Hart Energy Consulting

Table 1.1

Selected Caribbean Countries		
Country	**Population**	**Motor vehicle per Thousand**
Cuba	11,204,000	38
Dominican Republic	10,090,000	123
Puerto Rico (United States)	3,982,000	642
Jamaica	2,705,800	188
Trinidad and Tobago	1,339,000	351
Bahamas	304,837	82
Barbados	275,330	406
Saint Vincent and the Grenadines	110,000	204

Source: The World Bank (2007)

Gross Domestic Product (GDP [real])

Gross Domestic Product (GDP) refers to the market value of all final goods and services produced within a country in a given period. It is often considered an indicator of a country's standard of living. Jamaica's GDP for the 6 month period ending December 2010 is estimated to have grown by 0.6% over the preceding 6 month period ending June 2010. For the 2009 comparative 6 month period ending December GDP is estimated to have contracted by 0.9%.

Table 1.2

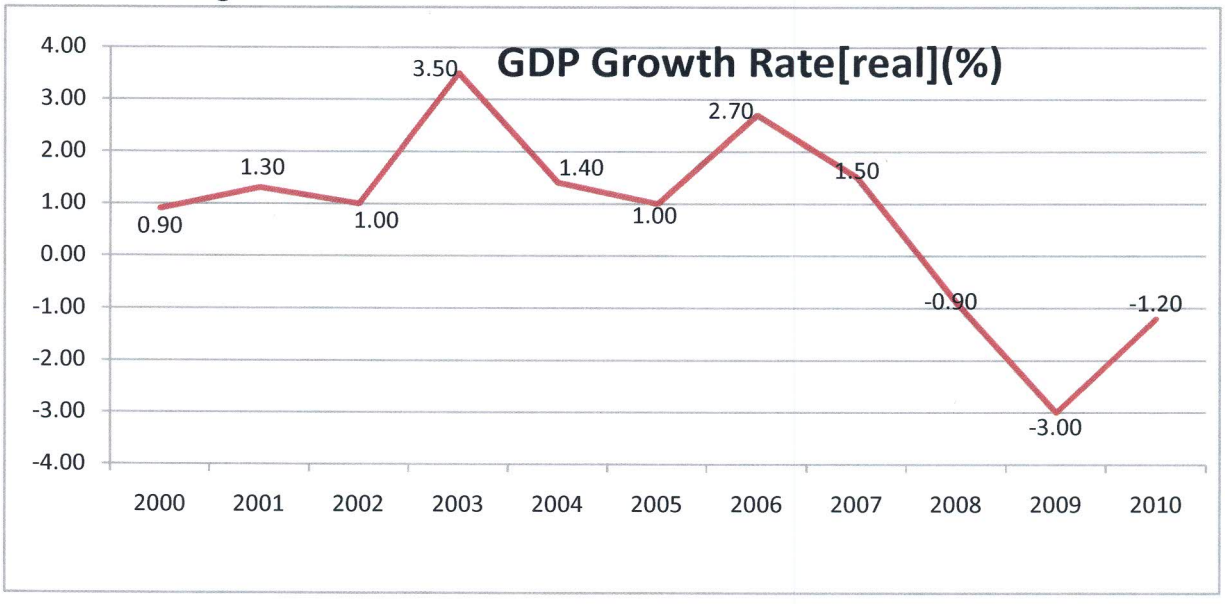
Jamaica's GDP 2000 – 2010

March 2000 - March 2010 (Seasonally Adjusted)					
	J$' Million				
Years	Quarter I	Quarter II	Quarter III	Quarter IV	Annual.
2000	112,284	112,027	112,696	113,129	450,135
2001	114,357	114,469	114,365	112,998	**456,189**
2002	113,545	114,074	115,932	117,065	**460,616**
2003	118,431	118,863	119,024	120,427	**476,746**
2004	121,798	121,758	119,863	120,211	**483,630**
2005	121,665	121,906	122,444	122,832	**488,847**
2006	123,733	125,786	126,877	127,071	**503,467**
2007	127,578	128,836	127,761	126,502	**510,677**
2008	127,302	127,475	126,310	124,920	**506,006**
2009	122,868	122,518	123,236	121,972	**490,594**
2010	121,491	120,099	122,095	120,909	**484,624**

Source: Statistical Institute of Jamaica.

Figure 1.4

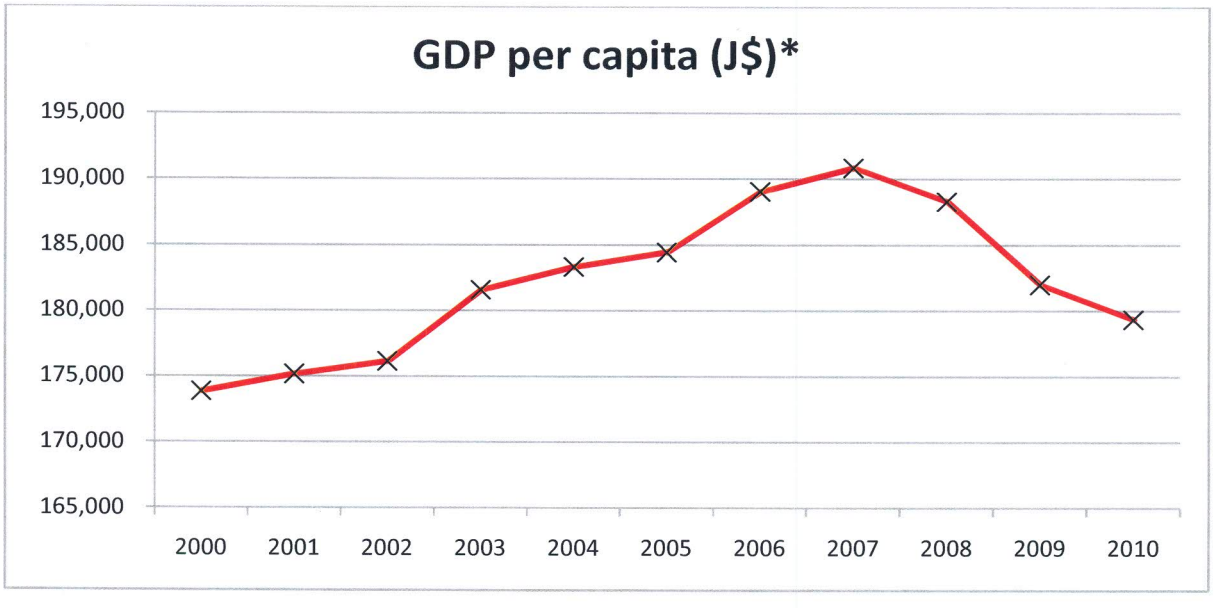
Jamaica's GDP growth Rate 2000 – 2010



Source: Statistical Institute of Jamaica.

Figure 1.5

Jamaica's GDP per capita 2000 – 2010

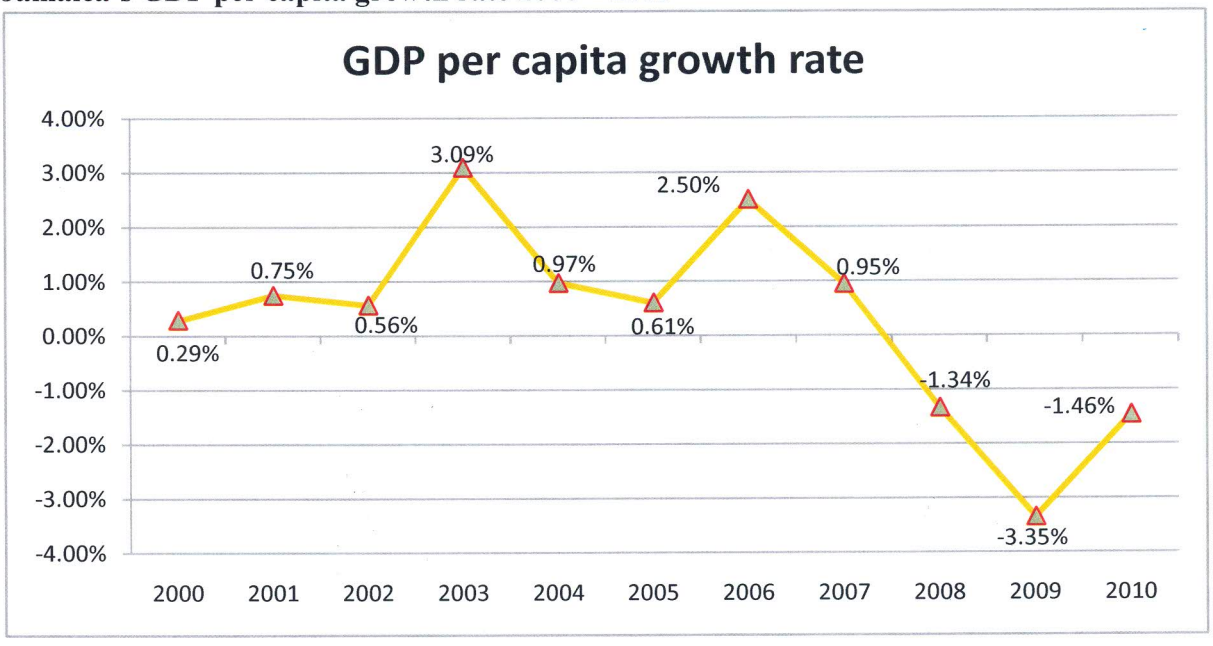


*Gross Domestic Product in Basic values at Constant Prices.

Source: Statistical Institute of Jamaica.

Figure 1.6

Jamaica's GDP per capita growth rate 2000 – 2010



Source: Statistical Institute of Jamaica.

Table 1.3

Jamaica's Population 2000 – 2010

Year	Population (e.o.y)	Population Mean	GDP ($'Million)	GDP per capita (J$)
2000	2,597,100	2,589,400	450,135	173,838
2001	2,611,100	2,604,100	456,189	175,181
2002	2,619,400	2,615,200	460,616	176,130
2003	2,632,000	2,625,700	476,746	181,569
2004	2,644,100	2,638,100	483,630	183,325
2005	2,656,700	2,650,400	488,847	184,443
2006	2,669,500	2,663,100	503,467	189,053
2007	2,682,100	2,675,800	510,677	190,850
2008	2,692,400	2,687,200	506,006	188,302
2009	2,698,800	2,695,600	490,594	181,998
2010	2,705,800	2,702,300	484,624	179,338

Source: Statistical Institute of Jamaica.

2. Country Risk Premium (CRP)

Country Risk

Country risk relates to the likelihood that changes in the business environment will occur that reduce the profitability of doing business in a country. Macro-socio-economic factors such as political instability, volatile exchange rates and economic instability lead investors to be wary of overseas investment opportunities. These factors can adversely affect operating profits as well as the value of assets and thus require a premium for investing. The Country Risk Premium (CRP) is higher for developing markets than for developed nations.

The Capital Asset Pricing Model (CAPM) can be adjusted to reflect the additional risks of international investing by adjusting the model for the CRP.

$R_e = R_f + \beta (R_m - R_f + CRP)$

There are some technical considerations on how to add the CRP into the equation for the cost of equity. There are three different versions based on the CAPM:

1. $R_e = R_f + \beta (R_m - R_f) + CRP$
2. $R_e = R_f + \beta_1 (R_m - R_f) + \beta_2 CRP$
3. $R_e = R_f + \beta (R_m - R_f + CRP)$

The first two versions treat CRP as a separate risk factor and by doing so assume a multi-factor model for deriving the cost of equity. Model (3) is a single factor model and stays within the pure CAPM framework.

Measuring Country Risk Premium

The Nelson-Siegel model

Good estimates of the term structure of interest rates (also known as the spot rate curve or the zero bond yield curve) are of the utmost importance to investors and policy makers. One of the term structure estimation methods, initiated by Bliss and Fama (1987), is the smoothed bootstrap. Nelson and Siegel (1987) and Svensson (1994, 1996) therefore suggested parametric curves that are flexible enough to describe a whole family of observed term structure shapes.[2]

The Nelson-Siegel model is extensively used by central banks and monetary policy makers (Bank of International Settlements (2005), European Central Bank (2008)). Fixed-income

[2] Annaert, J., Claes A.G.P., De Ceuster, M. J.K. and Zhang, h. "Estimating the yield curve using the Nelson-Siegel Model – A Ridge Regression Approach"

portfolio managers use the model to immunize their portfolios (Barrett, Gosnell and Heuson (1995) and Hodges and Parekh (2006)) and recently, the Nelson-Siegel model also regained popularity in academic research. Dullmann and Uhrig-Homburg (2000) use the Nelson-Siegel model to describe the yield curves of Deutsche Mark denominated bonds to calculate the risk structure of interest rates. Fabozzi, Martellini and Priaulet (2005) and Diebold and Li (2006) benchmarked Nelson-Siegel forecasts against other models in term structure forecasts, and they found it performed well, especially for longer forecast horizons. Martellini and Meyfredi (2007) used the Nelson-Siegel approach to calibrate the yield curves and estimate the value-at-risk for fixed-income portfolios. Finally, the Nelson-Siegel model estimates are also used as an input for affine term structure models.[3]

The Nelson-Siegel Function

$$y(t) = \alpha_1 + (\alpha_2 + \alpha_3)\frac{\beta}{t}\left(1 - e^{-t/\beta}\right) - \alpha_3 e^{-t/\beta}$$

We have adopted the Nelson-Siegel model to estimate Jamaica's country risk premium.

The premium as at December 31, 2010 was 4.78%[4].

[3] Ibid.
[4] See Table 1 in Apendices

3. Inflation

The Non-Fuel base Rate for each customer class of the Jamaica Public Service Company Limited (JPSCo) is adjusted on an annual basis, commencing June 1, 2004, (Adjustment Date).

The Licence stipulates that the annual Performance-Based Rate-Making (PBRM) filing follow the general framework where the **Annual Rate of change in Non-Fuel Electricity Prices (δPCI)** is determined through the following formula:
δPCI = dI ± X ± Q ±Z

Where,

δPCI	=	annual rate of change in non-fuel base electricity prices;
dI	=	the annual growth rate in an inflation and devaluation measure;
X	=	the offset to inflation (annual real price increase or decrease) resulting from productivity changes in the electricity industry;
Q	=	allowed price adjustment to reflect changes in the quality of service provided to the customers; and
Z	=	the allowed rate of price adjustment for special reasons not captured by the other elements of the formula.

The Price Index (PCI) is therefore to be adjusted as follows:

$$\mathbf{PCI_t = PCIt_{-1}(1+ \delta PCI)}$$

The price cap is to be applied on a global basis. Specifically, the annual adjustment factor (1 + δPCI) is to be applied to the tariff basket instead of the individual tariffs for each rate class. Each rate class attracts a specific weighting and the weighted average increase of the tariff basket must not exceed the global price adjustment factor (1 + δPCI).

$$\mathbf{dI = [0.76 * \delta e + 0.76 * 0.922 * \delta e * i_{US} + 0.76 * 0.922 * i_{US} + 0.24 * i_j]}$$

Where:

δe	=	Percentage change in the Base Exchange Rate
i_{US}	=	US inflation rate (as defined in the Licence)
i_j	=	Jamaican inflation rate (as defined in the Licence)
0.76	=	US factor
0.24	=	Local (Jamaica) factor

Annual Rate of change in Non-Fuel Electricity Prices (δPCI) is the annual adjustment that will be applied to the average non-fuel ($/kWh) price of electricity to all consumers.

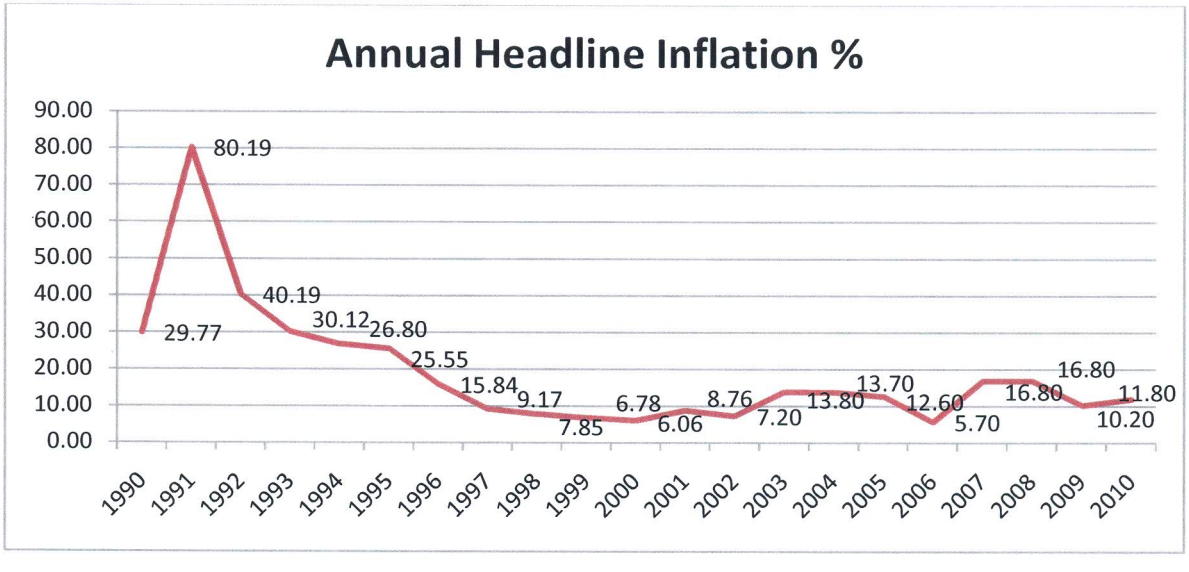
Annual Inflation Growth Rate (d*I*) represents the changes in the value of the Jamaican Dollar against the US Dollar and the ***inflation in the cost of providing electricity products and services***.

Over the years in computing the annual inflation growth rate, the consumer price index as obtained from the Statistical Institute of Jamaica was used to calculate headline inflation rate which is used as the inflation rate in the cost of providing electricity products and services in Jamaica.

We are however interested in a measure of inflation that measures the rate of decline in the purchasing power of money. Unfortunately there is no well-developed and generally agreed upon theory that can serve as a guide to constructing such a measure. Thus, in practical terms we are left with the options of (i) constructing a core inflation measure so as to better track the trend inflation rate in real time or (ii) forecast the future headline inflation rate, which in many circumstances may amount to the same thing.

Figure 3.1

Jamaica Annual Headline Inflation



Source: Statistical Institute of Jamaica.

MEASURING CORE INFLATION

Core Inflation is a measure of inflation which excludes certain items that face volatile price movements, notably food and energy and government induced indirect taxes or policy measures.

The notion of core inflation has played an important role in the deliberations of monetary policymakers for the past 25 years. However, despite the central role of this concept, there is still no consensus on how best to go about measuring core inflation. The most elementary approach, and the one that is probably the most widely used, consist of simply excluding certain categories of prices from the overall inflation rate. This is the so-called "ex. Food and energy" approach to core inflation measurement, and it reflects the origin of the concept of core inflation in the turbulent decade of the 1970s.[5]

Since 1997, the Bank of Jamaica (BOJ) has used a "symmetric" trimmed mean measure of core inflation which characterizes underlying inflation as that component of inflation which is associated with monetary dynamics. This is in a context where the Bank employs a monetary targeting framework. Empirical evidence shows that changes in the Bank's monetary base influence trimmed mean inflation with a one-quarter lag. As such the lag movements in the monetary base are used to explain core inflation as measured by the trimmed mean.

However, emerging concerns regarding the relationship between monetary aggregates and underlying inflation, as well as the efficacy of the trimmed mean inflation have prompted a review of the methodology. The trimmed mean method used by the Bank involves an equal or symmetric trimming of the tails of the price distribution i.e. the removal of the top and bottom10 per cent of the distribution. This procedure assumes symmetric trimming would result in a biased estimate of the population mean. Further, if the distribution is changing over time then the application of a constant rate of trim would also produce biased results.[6]

---

[5] Wynne, Mark A. "Core Inflation: A review of Some Conceptual Issues." Federal Reserve Bank of St. Louis Review, May/June 2008, 90(3, Part), pp. 205-28.

Mark A. Wynne is a vice president and senior economist at the Federal Reserve Bank if Dallas and the first director of the Bank's Globalization and Monetary Policy Institute.

[6] Bank of Jamaica Quarterly Monetary Policy Report, April to June 2007.

Table 3.1

Jamaica Inflation Rates 2003 – 2010

INFLATION RATES (%)					
Period Ending March	Annual Head-line (point to point) (%)	Annual Head-line less Elec.,Gas And Other Fuels (%)	Annual Head-line less Vegetables & starchy Foods (ND) (%)	Annual Head-line less [Elec.,Gas And Other Fuels + Vegetables & Starchy Foods (ND)](%)	Annual Core Trimmed Mean (Sum of Quarters) (%)
2002/2003	6.10	4.97	5.71	4.58	3.30
2003/2004	16.50	14.98	15.39	13.87	7.50
2004/2005	13.10	11.63	10.32	8.84	6.70
2005/2006	11.30	9.89	11.73	10.33	4.80
2006/2007	8.00	7.96	7.56	7.52	4.80
2007/2008	19.70	16.99	16.30	13.60	10.70
2008/2009	13.40	13.59	12.17	12.36	7.60
2009/2010	13.30	11.06	13.17	10.93	6.00

Table 3.2

Jamaica Inflation Rates 2010

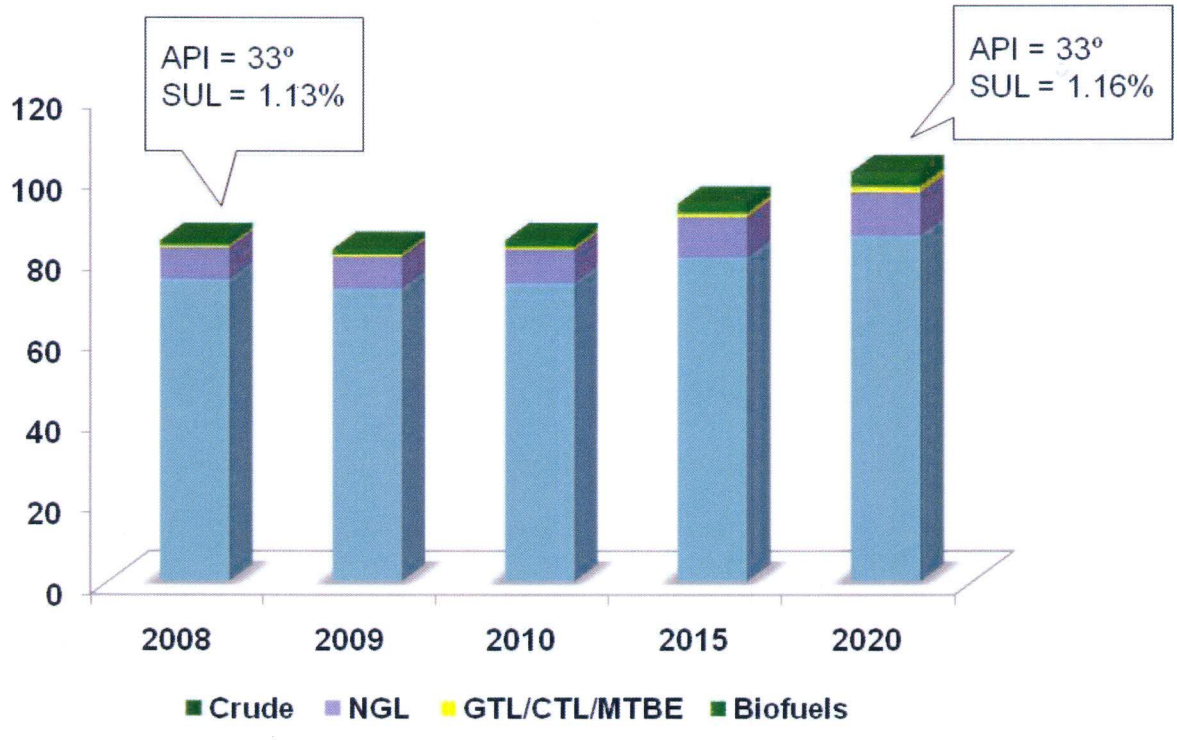
INFLATION RATES (%)					
Period Ending December	Annual Head-line (point to point) (%)	Annual Head-line less Elec.,Gas and Other Fuels (%)	Annual Head-line less Vegetables & starchy Foods (ND) (%)	Annual Head-line less [Elec.,Gas and Other Fuels + Vegetables & Starchy Foods (ND)](%)	Annual Core Trimmed Mean (Sum of Quarters) (%)
2010	11.77	11.59	9.88	9.70	5.30

4. Small Oil Refinery Developments

Figure 4.1

Crude Oil Outlook, 2008 -2020

Million bpd



Source: Hart Energy Consulting

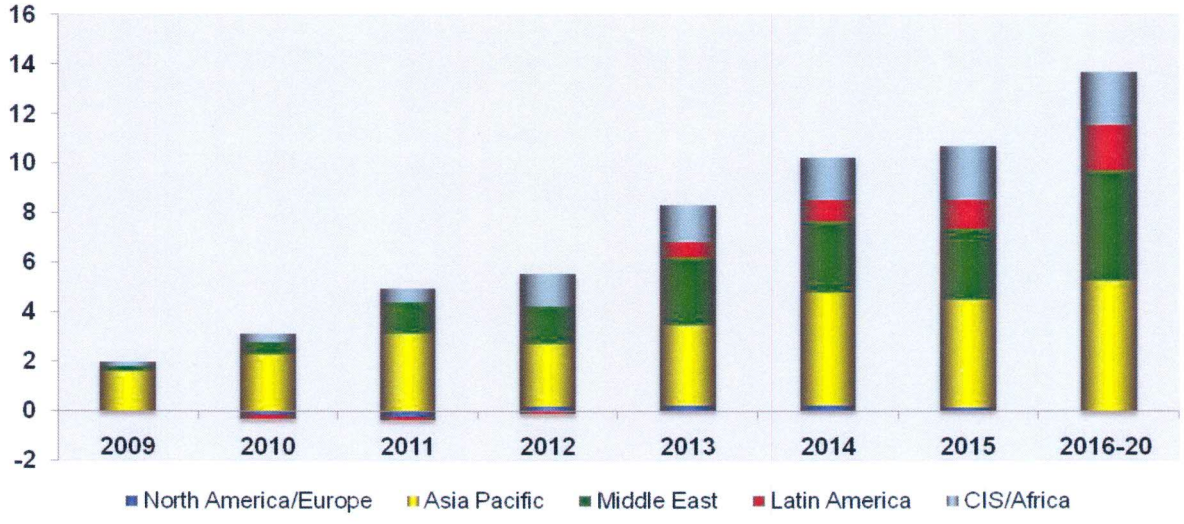
Crude oil and natural gas liquids (NGL) supplies will increase by 16 million bpd. Other sources (Biofuels and GTL) will provide an incremental supply of 3 million barrels per day (bpd). OPEC will account for 57% of net crude supply. Commonwealth Independent States (CIS), Brazil and Canada will supply the rest. Global crude quality will remain constant but regional differences will be accentuated.[7]

[7] Hart Energy Consulting – Conference on Upgrading Oil Refineries to Produce Clean Fuel Kingdom of Bahrain, 25-27 October 2010.

Figure 4.1

Refinery Capacity Additions

Million bpd



Source: Hart Energy Consulting

Focus will be on refinery capacity expansion and clean fuels production.

Global refining capacity will grow from 89 million bpd in 2009 to 102 million in 2020.

Before 2012, new capacity will come on stream in Asia-Pacific, Middle East and Africa. Shutdowns are anticipated in North America, Europe and the Caribbean.[8]

[8] Hart Energy Consulting – Conference on Upgrading Oil Refineries to Produce Clean Fuel Kingdom of Bahrain, 25-27 October 2010.

5. Natural Gas and Oil Price Trends

Table 5.1

Energy Content of Various Fuels

Conversion Factors Average Energy Content of Various Fuels	
1 kilowatt hour of electricity	3413 British thermal units (Btu)
1 cubic foot of natural gas	1,008 to 1,034 Btu
1 therm of natural gas	100,000 Btu
1 gallon of crude oil	138,095 Btu
1 barrel of crude oil	5,800,000 Btu
1 ton coal	16,200,000 to 26,000,000 Btu

Natural Gas is measured in either Mcf (1,000 cubic feet) or in therms. One Mcf contains approximately ten therms (one decatherm) or one million Btu (MMBtu).

British thermal unit (Btu)
A British thermal unit is the amount of energy required to raise the temperature of one pound of water by one degree Fahrenheit.

Figure 5.1

Comparison of Oil and Gas Price Movements (2005 – 2010)

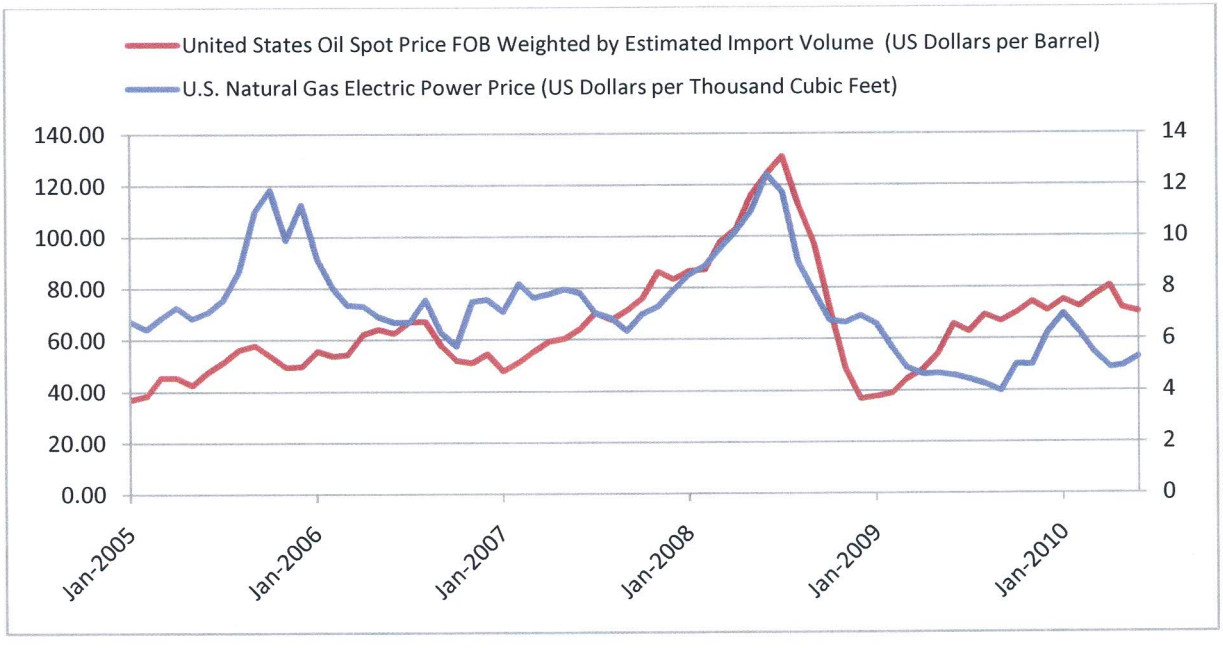
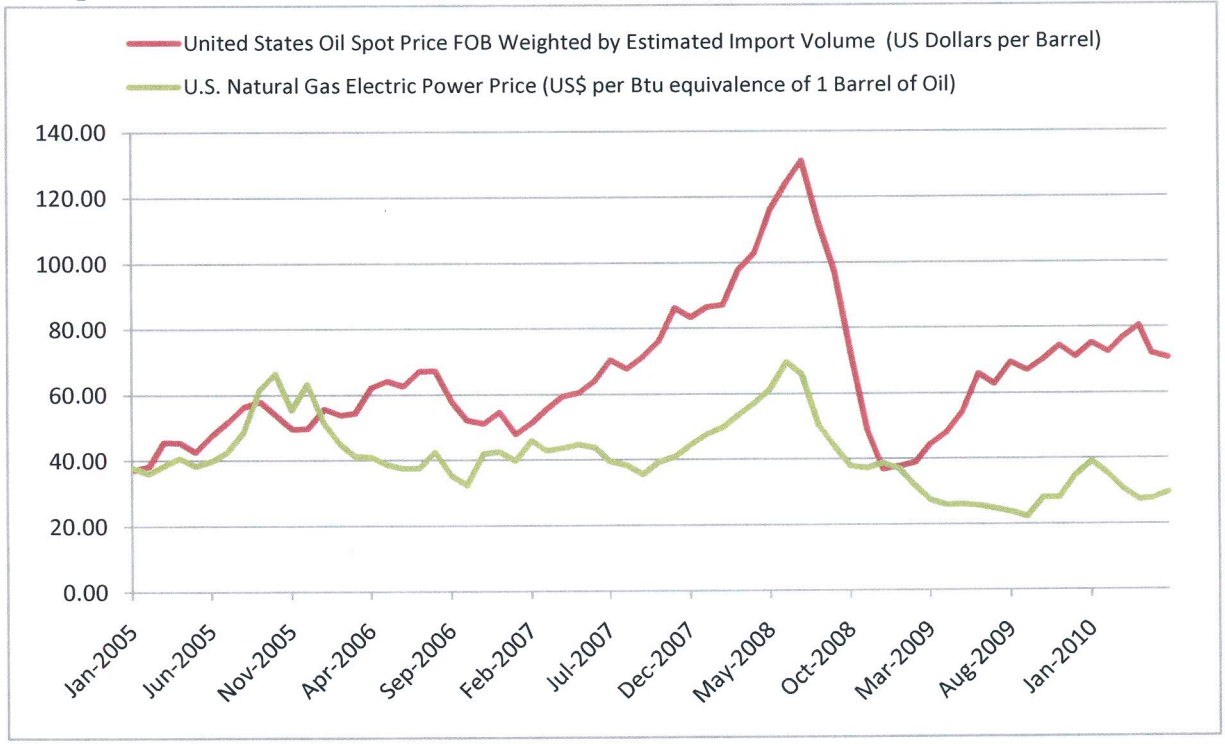


Figure 5.2

Comparison of Oil and Gas (boe) Price Movements (2005 – 2010)



The United States Energy Information Agency (EIA) estimates that natural gas working inventories will end January 2011 at 2.3 trillion cubic feet (Tcf), about 30 billion cubic feet (Bcf) or 1 percent below the 2010 end-of-January level. Inventories are expected to remain high through 2011. The projected Henry Hub natural gas spot price averages $4.16 per million Btu (MMBtu) for 2011, $0.22 per MMBtu lower than the 2010 average. EIA expects the natural gas market to begin to tighten in 2012, with the Henry Hub spot price increasing to an average of $4.58 per MMBtu.

The EIA further expects the price of West Texas Intermediate (WTI), also known as Texas light sweet or Light Sweet Crude Oil to average about $93 per barrel in 2011, $14 higher than the average price last year. For 2012, EIA projects that WTI prices will continue to rise, averaging $98 per barrel. EIA's forecast assumes U.S. real gross domestic product (GDP) grows 3.0 percent in 2011 and 2.8 percent in 2012, while world real GDP (weighted by oil consumption) grows by 3.9 percent and 4.0 percent, in 2011 and 2012 respectively.

Figure 5.3

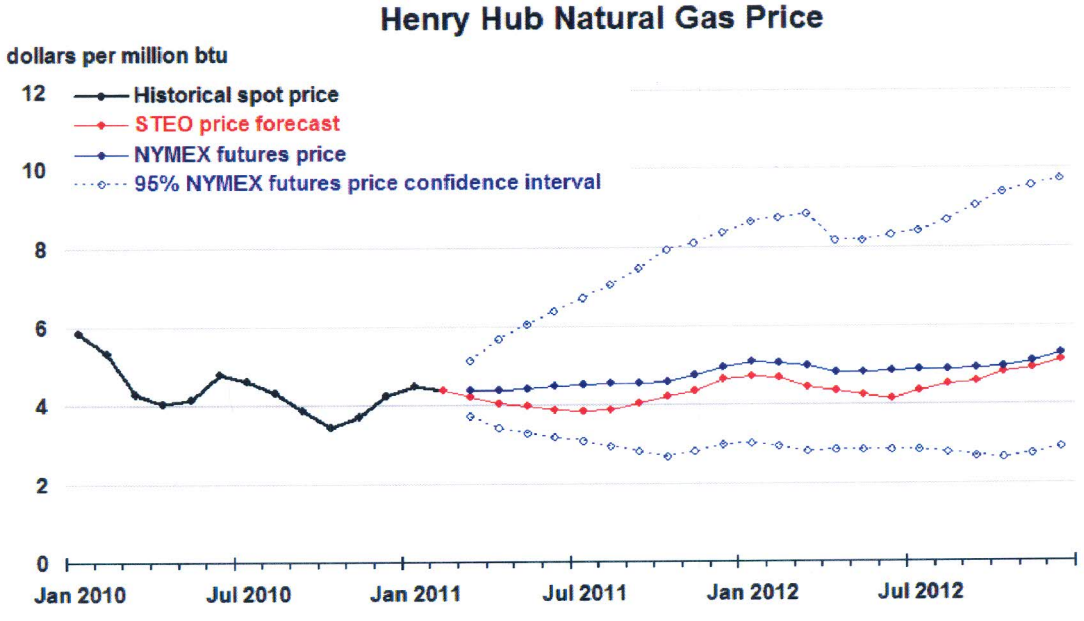
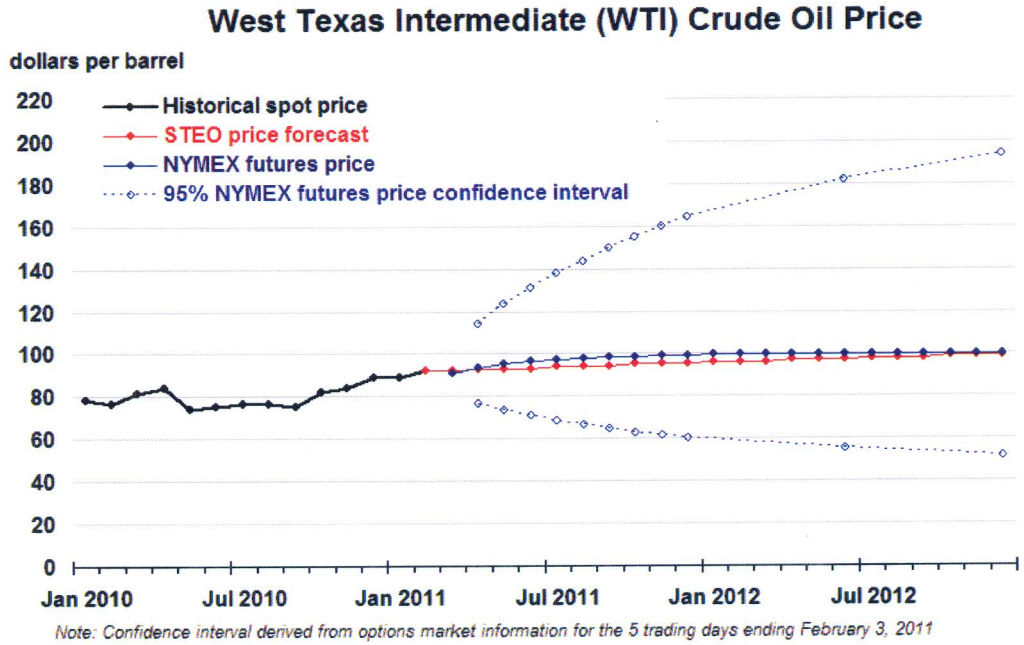


Figure 5.4



Source: Short-Term Energy Outlook, February 2011

6. JPS Operational Statistics

Table 6.1

JPS Operational Statistics 2000 - 2009

Jamaica Public Service Company Limited Operational Statistics											
	Dec 31-00	Dec 31-01	Dec 31-02	Dec 31-03	Dec 31-04	Dec 31-05	Dec 31-06	Dec 31-07	Dec 31-08	Dec 31-09	Dec 31-10
Energy Sales (MWH)											
Residential	1,054,677	1,074,004	1,111,473	1,110,794	1,089,691	1,123,274	1,103,225	1,064,068	1,048,399	1,082,599	
Commercial & Industrial (Sml.)	1,177,987	1,196,026	1,233,917	1,282,777	1,332,462	1,382,303	1,417,327	1,416,149	1,432,323	1,435,285	
Commercial & Industrial (Lge.)	462,494	481,275	512,737	542,628	497,815	464,020	510,882	561,602	599,850	589,560	
Other	55,561	68,435	69,550	73,262	79,672	85,557	89,235	89,675	98,506	96,435	
Total	2,750,719	2,819,740	2,927,677	3,009,461	2,999,640	3,055,154	3,120,669	3,131,494	3,179,078	3,203,879	
Net Generation (MWH)	3,301,850	3,360,741	3,524,905	3,696,005	3,716,952	3,877,990	4,046,429	4,075,483	4,123,290	4,213,983	
Total Losses (MWH)	551,131	541,001	597,228	686,544	717,312	822,836	925,760	943,989	944,212	1,010,104	
System Losses(% of Net Generation)	16.7%	16.1%	16.9%	18.6%	19.3%	21.2%	22.9%	23.2%	22.9%	24.0%	
System Losses Target					15.8%	15.8%	15.8%	15.8%	15.8%	19.5%	
Heat Rate (kj/kWh)						10,985	10,174	10,627	10,215	10,167	
Heat Rate Target (kj/kWh)					11,200	11,200	11,200	11,200	11,200	10,400	
Number of Customers											
Residential	427,908	442,845	452,388	462,107	480,665	491,452	511,039	520,085	526,492	521,837	
Commercial & Industrial (Sml.)	53,650	54,775	54,881	54,272	55,480	56,700	59,694	61,419	62,347	62,029	
Commercial & Industrial (Lge.)	94	97	98	103	94	92	101	116	124	130	
Other	190	182	193	195	195	202	211	208	199	222	
Total	481,842	497,899	507,560	516,677	536,434	548,446	571,045	581,828	589,162	584,218	

Note: 2010 data unavailable at the time of this report.

7. Electricity Generation Capacity

Table 7.1

Jamaica Electricity Generation Installed Capacity as at December 31, 2010

Installed Capacity as at December 31,2010					
Technology	**Plant Type**	**No. of Plants**	**Fuel Type**	**Total Capacity (MW)**	**% of Total**
Fossil Fuel Plants	Steam (Power only)	5	HFO	292.0	**95%**
	Stem (CHP)[Engines]	1	HFO	1.0	
	Diesel	6	HFO	224.4	
	Combined Cycle	1	ADO	114.0	
	Combustion Turbine	8	ADO	165.5	
Total Fossil				**796.9**	
RET	Hydro	7		22.3	**5%**
	Wind	1		20.7	
Total RET				**43.0**	
TOTAL				**839.9**	**100%**

Table 7.2

Jamaica Electricity Generation Capacity Addition up to 2016 (Projected)

Projected capacity to be installed/retired up to 2016					
Year	**Technology**	**Plant Type**	**Fuel Type**	**Total Capacity (MW)**	**Supplier**
2010	RET*	Wind		3.0	Jamaica Public Service Co. Ltd.
2011	RET	Wind		14.0	Wigton WindFarm
2011	RET	Wind		4.0	Wigton WindFarm
2011	RET	Hydro		6.0	Jamaica Public Service Co. Ltd.
2012	Fossil Fuel Plants	Diesel		65.5	Jamaica Energy Partners Ltd.
2014	**Fossil Fuel Plants**	**Steam**	**HFO**	**-292.0**	**Jamaica Public Service Co. Ltd.**
2014	Fossil Fuel Plants	TBA	TBA	360.0	RFP
2016	Fossil Fuel Plants	TBA	TBA	120.0	RFP
Net addition capacity				**280.5**	
*Late 2010 addition					

Table 1.3

Jamaica Electricity Generation Capacity 2016 (Projected)

Projected installed capacity 2016					
Technology	**Plant Type**	**No. of Plants**	**Fuel Type**	**Total Capacity (MW)**	**% of Total**
Fossil Fuel Plants	Steam (Power only)	0	HFO	0.0	**94%**
	Stem (CHP)[Engines]	1	HFO	1.0	
	Diesel	6	HFO	289.9	
	Combined Cycle	1	ADO	114.0	
	Combustio Turbine	8	ADO	165.5	
	TBA	TBA	TBA	480.0	
Total Fossil				**1050.4**	
RET	Hydro	8		28.3	**6%**
	Wind	4		41.7	
Total RET				**70.0**	
TOTAL				**1120.4**	**100%**

8. Indicative Electricity Generation Avoided Cost

The avoided cost of electricity generation on the JPS electric grid is defined as; the cost of energy or capacity or both to the electric utility if it does not purchase from a qualifying facility(s) but generates itself or purchase from other sources.

Avoided costs calculations incorporate projections of future year-by-year JPS costs.

Table 8.1

Jamaica Electricity System Indicative Generation Avoided Cost

Indicative Generation Avoided Cost			
		2010	2008
Pricing Arrangement		**Indicative Avoided Cost (US¢/kWh)**	
Capacity and Energy		10.05	10.48
	Variable Component	7.20	5.37
	Fixed Component	2.85	5.11
Energy Only		9.33	8.88
Alternatives:			
*Renewable Technologies with guranteed capacity		10.05	10.48
*Renewable Technologies with energy only qualifying facilities		9.33	8.88
Cogeneration Plants with guranteed capacity		10.05	10.48
Cogeneration Plants with energy only qualifying facilities		9.33	8.88
Short Term Arrangements		JPS monthly system fuel cost	

*A premium of up to a maximum of fifteen percent (15%) may be added to the avoided cost. This is based on Project economics and is evaluated by the OUR

9. Benchmarked Levelised Costs of Conventional and Renewable Energy Technologies

Table 9.1

Benchmarked Levelised cost of Conventional and Renewable Energy Technologies							
	COAL	COMBINED CYCLE	COMBINED CYCLE, NG	BIOMASS/W 20% COAL	WIND	HYDRO	SOLAR PV
Capacity Factor (%)	86.3	78.8	78.8	80	30	45	38
Capital Cost (US c/kWh)	3.19	2.1	1.94	3.8	7.13	9.86	20.3
O&M Cost (US c/kWh)	1.09	0.48	0.47	1.7	1.14	0.76	0.45
Fuel Cost (US c/kWh)	1.97	9.78	4.8	1.9	0	0	0
Total Cost (US c/kWh)	6.25	12.36	7.21	7.4	8.27	10.62	20.75

10. Caribbean Electricity Consumption

Table 10.1

Comparison of Some Caribbean Countries Electricity Consumption 2000 - 2009

CARIBBEAN ELECTRICITY CONSUMPTION ('000 KWHRS SOLD)										
Population 770,794	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Guyana										
Residential			130,741	124,051	139,830	145,788	142,459			
Commercial			52,959	51,928	55,205	59,024	64,371			
Industrial			104,353	92,096	97,125	96,327	107,272			
Country Total	***0***	***0***	***288,053***	***268,075***	***292,160***	***301,139***	***314,102***	***0***	***0***	***0***
Source: Guyana Power and Light Annual Reports										
Population 281,968										
Barbados										
Domestic	234,500	243,100	256,000	267,900	275,700	293,700	294,800	300,000	301,000	308,100
Commercial	468,300	491,900	507,900	538,000	555,600	591,000	608,600	640,800	643,000	644,100
Country Total	***702,800***	***735,000***	***763,900***	***805,900***	***831,300***	***884,700***	***903,400***	***940,800***	***944,000***	***952,200***
Source: Light and Power Holdings - Barbados, Annual Reports (Originally stated in GWh)										
Population 2,804,322										
Jamaica										
Residential	1,054,677	1,074,004	1,111,473	1,110,794	1,089,691	1,123,274	1,103,225	1,064,068	1,048,399	1,082,599
Commercial & Industrial (Small)	1,177,987	1,196,026	1,233,917	1,282,777	1,332,462	1,382,303	1,417,327	1,416,149	1,432,323	1,435,285
Commercial & Industrial (Large)	462,494	481,275	512,737	542,628	497,815	464,020	510,882	561,602	599,850	589,560
Other	55,561	68,435	69,550	73,262	79,672	85,557	89,235	89,675	98,506	96,435
Country Total	***2,750,719***	***2,819,740***	***2,927,677***	***3,009,461***	***2,999,640***	***3,055,154***	***3,120,669***	***3,131,494***	***3,179,078***	***3,203,879***
Source: Jamaica Public Service Company Ltd.										
Population 168,178										
St. Lucia										
Residential	85,075	88,443	89,084	92,848	96,062	98,914	101,635	104,784	103,214	107,820
Commercial (Including Hotels)	131,863	137,017	133,996	141,374	151,451	158,483	160,895	168,151	170,624	178,518
Industrial	13,250	12,954	12,673	13,185	12,345	12,522	12,982	15,789	18,626	19,002
Street Lighting	3,893	5,002	3,634	4,713	6,544	7,480	8,886	9,117	9,510	9,741
Country Total	***234,081***	***243,416***	***239,387***	***252,120***	***266,402***	***277,399***	***284,398***	***297,841***	***301,974***	***315,081***
Source: St. Lucia Electricity Services Ltd. (Lucelec) Annual Report 2009										
Population 69,625										
Dominica										
Residential					33,062	33,492	34,176	33,732	34,051	
Commercial					24,017	24,993	26,469	28,788	30,278	
Industrial					5,508	5,504	5,357	5,600	6,004	
Hotel					2,704	2,649	2,439	2,002	2,028	
Lighting					1	1	0	1	0	
Street Lighting					1,127	1,150	1,130	1,298	1,325	
Country Total	***0***	***0***	***0***	***0***	***66,419***	***67,789***	***69,571***	***71,421***	***73,686***	***0***
Population 1,339,000										
Trinidad and Tobago										
Residential	1,250,643	1,285,003	1,398,664	1,541,567	1,493,686	1,728,211	1,798,577	1,933,834	2,398,345	2,417,389
General	475,128	522,911	520,224	581,389	545,325	618,732	649,822	701,245	700,958	851,403
Industrial	3,271,728	3,513,055	3,706,752	3,941,962	3,800,807	4,168,650	4,157,116	4,467,199	4,345,892	4,265,607
Street Lighting	17,875	18,806	20,327	23,175	24,293	26,664	49,253	67,836	91,086	115,265
Country Total	***5,015,374***	***5,339,775***	***5,645,967***	***6,088,093***	***5,864,111***	***6,542,257***	***6,654,768***	***7,170,115***	***7,536,282***	***7,649,664***
Source: Trinidad and Tobago Electricity Commission Quarterly Reports										

Appendices

Table I - Jamaica Country Risk Premia

Dates	GOJ 10-Year Yield (%)	10yr US Treasury (%)	CRP (%)
1/31/2007	6.63	4.87	1.76
2/28/2007	6.62	4.55	2.07
3/30/2007	6.51	4.64	1.87
4/27/2007	6.74	4.68	2.06
5/31/2007	6.77	4.87	1.90
6/29/2007	7.00	5.09	1.91
7/31/2007	7.09	4.84	2.25
8/31/2007	7.04	4.54	2.50
9/28/2007	6.79	4.53	2.26
10/31/2007	6.75	4.41	2.34
11/29/2007	6.65	3.99	2.66
12/31/2007	6.57	4.05	2.52
1/31/2008	6.75	3.64	3.11
2/29/2008	6.76	3.61	3.15
3/31/2008	6.89	3.45	3.44
4/30/2008	6.80	3.80	3.00
5/30/2008	6.74	4.03	2.71
6/30/2008	7.43	3.98	3.45
7/31/2008	7.23	4.04	3.19
8/29/2008	7.28	3.77	3.51
9/30/2008	7.79	3.62	4.17
10/31/2008	10.40	3.89	6.51
11/28/2008	11.13	2.98	8.15
12/29/2008	11.32	2.11	9.21
1/27/2009	11.47	2.62	8.85
2/26/2009	11.31	2.98	8.33
3/31/2009	11.91	2.72	9.19
4/30/2009	11.90	3.14	8.76
5/20/2009	10.80	3.22	7.58
6/30/2009	10.03	3.49	6.54
7/31/2009	9.62	3.57	6.05
8/31/2009	10.39	3.44	6.95
9/30/2009	9.51	3.32	6.19
10/30/2009	10.41	3.44	6.97
11/30/2009	11.68	3.23	8.45
12/31/2009	11.43	3.83	7.60
1/29/2010	10.32	3.67	6.65
2/26/2010	9.50	3.62	5.88
3/31/2010	7.54	3.83	3.71
4/30/2010	7.23	3.74	3.49
5/28/2010	8.18	3.32	4.86
6/30/2010	7.54	2.97	4.57
7/30/2010	7.22	2.92	4.30
8/31/2010	7.71	2.48	5.23
9/30/2010	7.78	1.87	5.48
10/29/2010	7.45	2.61	4.84
11/30/2010	7.56	2.76	4.80
12/31/2010	7.56	3.39	4.17
Average	**8.41**	**3.63**	**4.78**

Table II – Monthly Cushing, OK WTI Spot Price FOB

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1986	22.93	15.45	12.61	12.84	15.38	13.43	11.58	15.10	14.87	14.90	15.22	16.11
1987	18.65	17.75	18.30	18.68	19.44	20.07	21.34	20.31	19.53	19.86	18.85	17.27
1988	17.13	16.80	16.20	17.86	17.42	16.53	15.50	15.52	14.54	13.77	14.14	16.38
1989	18.02	17.94	19.48	21.07	20.12	20.05	19.78	18.58	19.59	20.10	19.86	21.10
1990	22.86	22.11	20.39	18.43	18.20	16.70	18.45	27.31	33.51	36.04	32.33	27.28
1991	25.23	20.48	19.90	20.83	21.23	20.19	21.40	21.69	21.89	23.23	22.46	19.50
1992	18.79	19.01	18.92	20.23	20.98	22.38	21.78	21.34	21.88	21.69	20.34	19.41
1993	19.03	20.09	20.32	20.25	19.95	19.09	17.89	18.01	17.50	18.15	16.61	14.51
1994	15.03	14.78	14.68	16.42	17.89	19.06	19.65	18.38	17.45	17.72	18.07	17.16
1995	18.04	18.57	18.54	19.90	19.74	18.45	17.33	18.02	18.23	17.43	17.99	19.03
1996	18.85	19.09	21.33	23.50	21.17	20.42	21.30	21.90	23.97	24.88	23.71	25.23
1997	25.13	22.18	20.97	19.70	20.82	19.26	19.66	19.95	19.80	21.33	20.19	18.33
1998	16.72	16.06	15.12	15.35	14.91	13.72	14.17	13.47	15.03	14.46	13.00	11.35
1999	12.51	12.01	14.68	17.31	17.72	17.92	20.10	21.28	23.80	22.69	25.00	26.10
2000	27.26	29.37	29.84	25.72	28.79	31.82	29.70	31.26	33.88	33.11	34.42	28.44
2001	29.59	29.61	27.24	27.49	28.63	27.60	26.42	27.37	26.20	22.17	19.64	19.39
2002	19.71	20.72	24.53	26.18	27.04	25.52	26.97	28.39	29.66	28.84	26.35	29.46
2003	32.95	35.83	33.51	28.17	28.11	30.66	30.75	31.57	28.31	30.34	31.11	32.13
2004	34.31	34.68	36.74	36.75	40.28	38.03	40.78	44.90	45.94	53.28	48.47	43.15
2005	46.84	48.15	54.19	52.98	49.83	56.35	59.00	64.99	65.59	62.26	58.32	59.41
2006	65.49	61.63	62.69	69.44	70.84	70.95	74.41	73.04	63.80	58.89	59.08	61.96
2007	54.51	59.28	60.44	63.98	63.45	67.49	74.12	72.36	79.91	85.80	94.77	91.69
2008	92.97	95.39	105.45	112.58	125.40	133.88	133.37	116.67	104.11	76.61	57.31	41.12
2009	41.71	39.09	47.94	49.65	59.03	69.64	64.15	71.05	69.41	75.72	77.99	74.47
2010	78.33	76.39	81.20	84.29	73.74	75.34	76.32	76.60	75.24	81.89	84.25	89.15
2011	89.17											

Figure I – Monthly Cushing, OK WTI Spot Price FOB

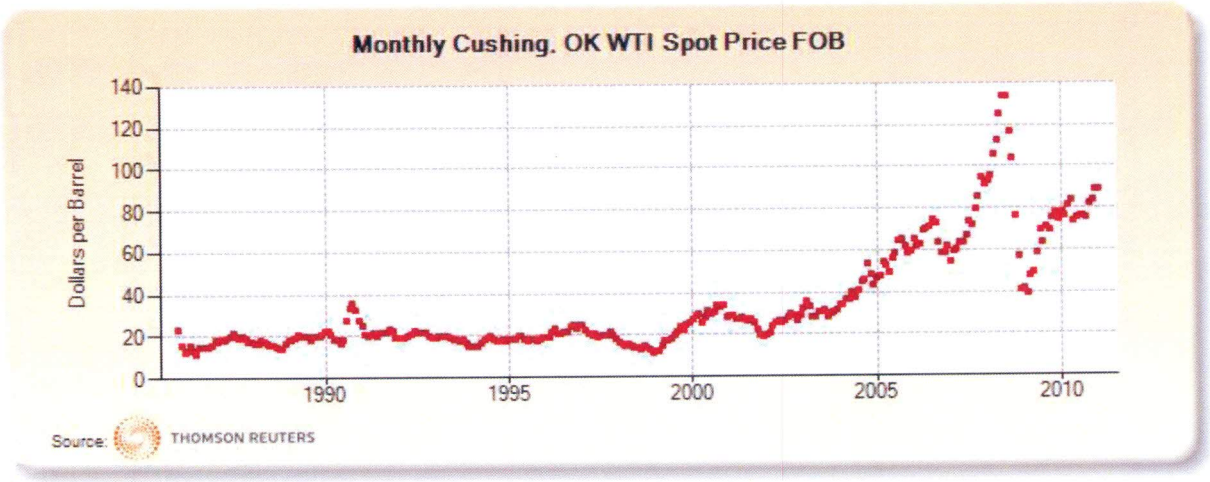


Figure II – Natural Gas Futures Contract 1

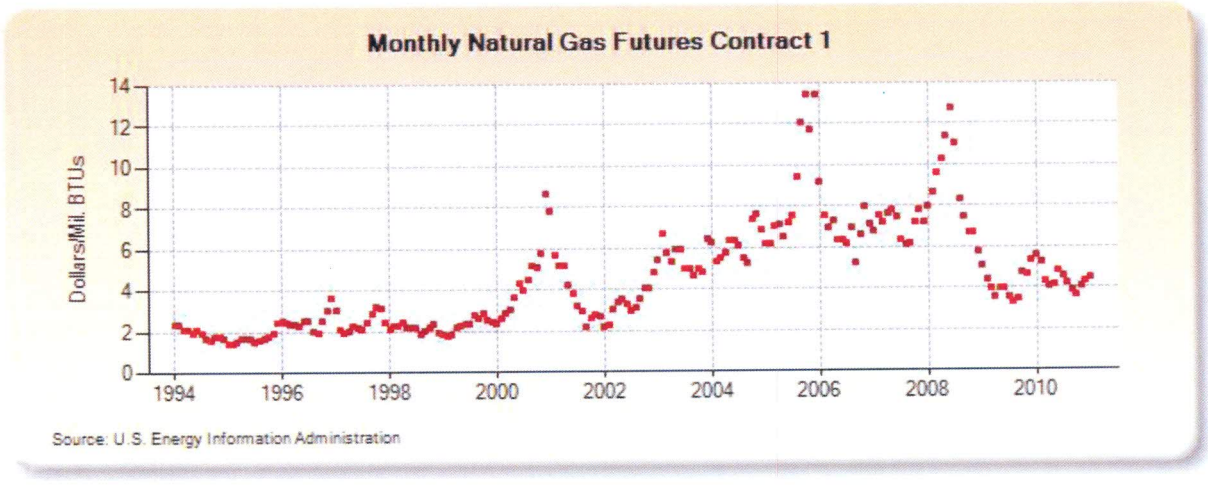
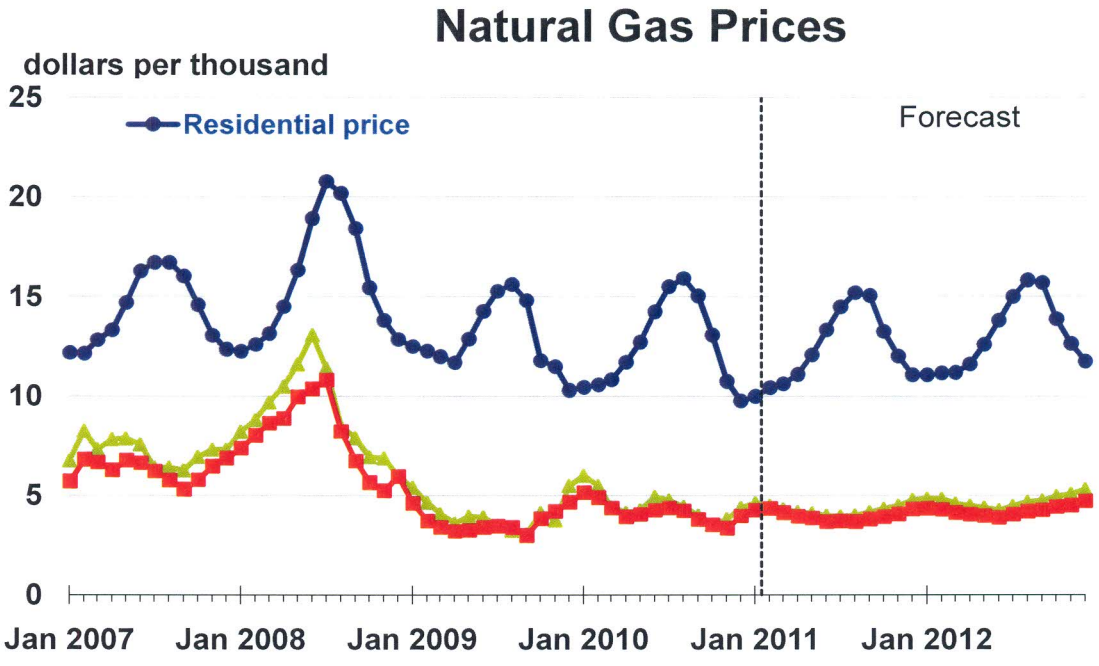


Table III – Natural Gas Futures Contract 1

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1994	2.35	2.36	2.11	2.11	1.94	2.08	1.96	1.69	1.62	1.72	1.77	1.70
1995	1.43	1.44	1.53	1.66	1.71	1.63	1.49	1.56	1.67	1.79	1.96	2.46
1996	2.48	2.46	2.35	2.31	2.28	2.54	2.52	2.05	1.93	2.48	3.02	3.65
1997	3.07	2.07	1.90	2.01	2.25	2.16	2.13	2.46	2.87	3.24	3.09	2.41
1998	2.10	2.26	2.25	2.47	2.16	2.17	2.15	1.86	2.04	2.20	2.32	1.93
1999	1.83	1.76	1.80	2.15	2.27	2.35	2.31	2.80	2.64	2.88	2.55	2.42
2000	2.39	2.61	2.83	3.03	3.60	4.30	3.97	4.46	5.13	5.08	5.74	8.62
2001	7.83	5.68	5.19	5.19	4.24	3.78	3.17	2.94	2.21	2.62	2.79	2.69
2002	2.19	2.26	3.02	3.41	3.56	3.26	2.94	3.09	3.57	4.09	4.04	4.84
2003	5.38	6.66	5.79	5.36	5.93	5.93	5.03	4.98	4.67	4.99	4.83	6.47
2004	6.27	5.36	5.54	5.77	6.40	6.33	6.06	5.47	5.22	7.37	7.61	6.83
2005	6.19	6.20	7.05	7.15	6.49	7.21	7.58	9.43	12.11	13.45	11.70	13.43
2006	9.14	7.52	6.98	7.26	6.37	6.39	6.22	6.99	5.22	6.63	8.00	7.16
2007	6.78	7.55	7.22	7.63	7.82	7.50	6.40	6.14	6.19	7.22	7.78	7.18
2008	7.99	8.64	9.62	10.29	11.38	12.78	11.07	8.30	7.49	6.73	6.70	5.79
2009	5.07	4.38	4.00	3.56	3.93	3.94	3.55	3.31	3.46	4.78	4.63	5.34
2010	5.60	5.22	4.30	4.09	4.16	4.79	4.59	4.22	3.90	3.60	4.04	4.28
2011	4.50											

Figure III – Natural Gas Prices



Source: Short-Term Energy Outlook,

Table: IV – Natural Gas Prices

Natural Gas Prices			
(Dollars per thousand cubic feet)			
Month	**Residential**	**Henry Hub**	**Wellhead**
Jan 2007	12.17	6.75	5.70
Feb 2007	12.13	8.24	6.80
Mar 2007	12.81	7.32	6.65
Apr 2007	13.31	7.83	6.26
May 2007	14.69	7.87	6.75
Jun 2007	16.28	7.57	6.62
Jul 2007	16.71	6.41	6.21
Aug 2007	16.71	6.40	5.76
Sep 2007	16.03	6.26	5.30
Oct 2007	14.57	6.95	5.78
Nov 2007	13.04	7.32	6.46
Dec 2007	12.34	7.32	6.87
Jan 2008	12.24	8.22	7.38
Feb 2008	12.58	8.80	8.02
Mar 2008	13.13	9.70	8.63
Apr 2008	14.49	10.49	8.87
May 2008	16.33	11.61	9.96
Jun 2008	18.91	13.07	10.36
Jul 2008	20.77	11.42	10.79
Aug 2008	20.17	8.50	8.21
Sep 2008	18.41	7.90	6.71
Oct 2008	15.45	6.94	5.64
Nov 2008	13.80	6.88	5.23
Dec 2008	12.84	5.99	5.94
Jan 2009	12.49	5.40	4.60
Feb 2009	12.26	4.65	3.70
Mar 2009	11.98	4.08	3.38
Apr 2009	11.68	3.60	3.18
May 2009	12.86	3.95	3.23
Jun 2009	14.26	3.91	3.38
Jul 2009	15.27	3.49	3.45
Aug 2009	15.61	3.23	3.37
Sep 2009	14.80	3.06	2.98
Oct 2009	11.78	4.12	3.83
Nov 2009	11.48	3.77	4.20
Dec 2009	10.30	5.50	4.66

Natural Gas Prices			
(Dollars per thousand cubic feet)			
Month	Residential	Henry Hub	Wellhead
Jan 2010	10.45	6.00	5.14
Feb 2010	10.57	5.48	4.89
Mar 2010	10.83	4.42	4.36
Apr 2010	11.70	4.15	3.92
May 2010	12.71	4.26	4.04
Jun 2010	14.24	4.94	4.25
Jul 2010	15.50	4.77	4.36
Aug 2010	15.91	4.45	4.22
Sep 2010	15.03	4.01	3.78
Oct 2010	13.06	3.53	3.51
Nov 2010	10.74	3.82	3.34
Dec 2010	9.76	4.38	3.96
Jan 2011	9.99	4.62	4.25
Feb 2011	10.43	4.50	4.34
Mar 2011	10.62	4.32	4.12
Apr 2011	11.09	4.17	3.94
May 2011	12.07	4.11	3.86
Jun 2011	13.32	3.98	3.67
Jul 2011	14.48	3.95	3.70
Aug 2011	15.19	4.01	3.68
Sep 2011	15.05	4.17	3.80
Oct 2011	13.25	4.34	3.93
Nov 2011	12.00	4.49	4.06
Dec 2011	11.07	4.78	4.31
Jan 2012	11.06	4.85	4.33
Feb 2012	11.16	4.82	4.28
Mar 2012	11.18	4.59	4.12
Apr 2012	11.61	4.48	4.03
May 2012	12.59	4.38	3.96
Jun 2012	13.80	4.26	3.88
Jul 2012	14.99	4.47	4.03
Aug 2012	15.81	4.67	4.18
Sep 2012	15.68	4.73	4.25
Oct 2012	13.86	4.95	4.41
Nov 2012	12.62	5.07	4.48
Dec 2012	11.73	5.29	4.70
Source: Short-Term Energy Outlook, Feb. 2011			

REQUEST FOR OFFICE DECISION

SECTOR: Electricity

SUBJECT MATTER: Bi-Annual Data Report

DECISION REQUIRED: Authorization to publish

BACKGROUND: The Office of Utilities Regulation's Bi–Annual Data Report reviews some of the economic and financial indicators as well as limited technical operations data that impact regulatory policy. Additionally, the report reviews some of the factors that drive the performance and the tariffs of the utility companies over which the OUR, has regulatory oversight. The Report also presents the OUR's perspectives on emerging trends over the short to medium term.

Information in the report is focused on the electric power sector. However, some of the economic data apply to all sectors that are regulated by the OUR.

RESEARCH AND ANALYSES: N/A

FINDINGS AND CONCLUSIONS: N/A

RECOMMENDATIONS: N/A

CLEARED BY AND INITIALED:

Please check the relevant box (es)

General Counsel	(✓)	Legal Counsel	( )
Director - Regulation & Policy	( )	Director - CPA	(✓)
Director - Utility Monitoring	( )	Director - HR/Admin	( )