



Calculating the kWh rates for electricity

By: Winston Dave Robotham - Regulatory Analyst

The rates charged by the Jamaica Public Service Company (JPS) Ltd. have been the subject of much debate as consumers grapple with the cost of electricity. As part of its role, the Office of Utilities Regulation (OUR) has responsibility for determining the kWh rates (that is, those rates associated with the Energy 1st and Energy Next components on the JPS bill). It is critical to point out here that currently these rates, when applied to consumption, only represent about 30% of the total charges.

The kWh rates for the Jamaica Public Service Company Limited (JPS) are determined based on a price cap regime introduced through the JPS All-Island Electric Licence, 2001. Under the price cap regime non-fuel base rates are set once every five (5) years. This regime allows for the non-fuel base rates to be adjusted annually by a component to incorporate a Performance Based Rate-making Mechanism (PBRM). A monthly adjustment is also allowed to account for movements in the monetary exchange rate between the United States dollar and the Jamaican dollar.

Annually, an adjustment is done to calculate the movement in the base rates charged by JPS. Given that the Company is allowed to make interim monthly adjustments to take into account movements in the foreign exchange rate, the effective change in rate at the annual adjustment for the average customer would therefore be the value of the annual adjustment of the base less the accumulated value of the foreign exchange adjustments over the preceding year.

The calculation for the annual adjustment is done in two parts as is outlined below:

A. Non-Fuel Adjustment

The annual Performance-Based Rate Making (PBRM) filing follows a general framework where the **annual rate of change in non-fuel base electricity price (δ PCI)** is determined through the following formula:

$$\delta PCI = dI \pm X \pm Q \pm Z$$

Where:

- δ PCI = the annual rate of change in the non-fuel base electricity price;
- dI = the annual growth rate in an inflation and devaluation measure;
- X = the adjustment to reflect productivity growth against the industry;
- Q = the quality of service adjustment; and
- Z = the adjustment for Force Majeure events¹ as defined in the licence.

The adjustment to the price cap is applied on a global basis. That is, the annual adjustment factor ($1 + \delta$ PCI) is applied to the tariff basket instead of the individual tariff 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 ($1 + \delta$ PCI).

The annual growth rate in an inflation and devaluation measure (dI)

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

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

¹Events that:

a) Affect the Licensee's costs; b) are not due to the Licensee's managerial decisions; and c) are not captured by the other elements of the price cap mechanism

THE OFFICE

Director General
Ahmad Zia Mian

Deputy Directors General
Maurice B. Charvis
Hopeton P. Heron

SENIOR MANAGERS

Secretary to the Office
Ansord E. Hewitt

Director, Policy & Research
Dr. Clement J. Jackson

Director, Administration/HR
Carolyn B. Young

Director, Consumer & Public Affairs
Michael A. Bryce

Chief Information Officer
Leighton G. Hamilton

Financial Controller
Olive C. Oakley

General Counsel
George C. Wilson

OUR's Objectives

- To ensure that consumers of utility services enjoy an acceptable quality of service at reasonable cost.
- To establish and maintain transparent, consistent and objective rules for the regulation of utility service providers.
- To promote the long-term efficient provision of utility services for national development consistent with Government policy.
- To provide an avenue of appeal for consumers who have grievances with the utility service providers.
- To work with other related agencies in the promotion of a sustainable environment.
- To act independently and impartially.

SuDoku answers from last edition

8	6	4	3	9	1	5	2	7
2	1	9	6	7	5	8	3	4
7	3	5	2	8	4	6	1	9
5	4	1	7	3	9	2	6	8
6	9	7	8	1	2	3	4	5
3	8	2	5	4	6	7	9	1
1	7	8	4	6	3	9	5	2
9	5	3	1	2	8	4	7	6
4	2	6	9	5	7	1	8	3

Congratulations OUR!



The OUR participated in the Green Expo which was held during the period June 10 – 12, 2011 at the Jamaica Pegasus hotel. The booth was awarded the "Most Environmentally Friendly" in its category.

EDITORIAL TEAM



Michael Bryce

Collette Goode

Marsha Minott

Kishana Munroe

Calculating the kWh rates for electricity

Cont'd from page 1

For the 2011 to 2012 adjustment period:

- ✓ The growth rate in the inflation and devaluation measure (dl) is **1.02%**
- ✓ The X-Factor applicable is **-2.72%**²
- ✓ The Q-Factor adjustment applicable remains within the dead band and is **0%**
- ✓ The Z-Factor applicable is **0%**. There were no qualifying events under this component

The annual growth rate in the inflation and devaluation factor of 1.02% was derived by applying to the formula the following variables

1. The Jamaican twelve-month point-to-point inflation rate to February 28, 2011 of **7.18%**, derived from the most recent CPI data³
2. The U.S. twelve-month point-to-point inflation rate to February 28, 2011 of **2.11%**, derived from the US Department of Labour statistical data⁴
3. The base exchange rate was adjusted downwards from US\$1.00 : JA\$89.00 to **US\$1.00 : JA\$86.50**

B. Fuel Adjustment

The JPS licence allows the company to pass through the full cost of fuel to its customers, but for an adjustment for efficiency through a fuel adjustment mechanism. The efficiency adjustments are captured by setting targets for the *system losses* and the *system heat rate*. The system losses target is a measure of both technical losses; that component of the transmission and distribution network that is inherent in the physical delivery of electric energy; and non-technical losses (losses due to pilferage, tampering of meters, erroneous meter reading etc.). The system heat rate target is a measure of the level of efficiency of conversion of fuel to electricity by the generators in the system.

For the 2011 to 2012 adjustment period:

- ✓ The system losses target was reduced from 19.50% to **17.50%**⁵
- ✓ The system heat rate target was reset to **10,470 kJ/ kWh** up from 10,400 kJ/ kWh⁶

The 2011 to 2012 Annual Adjustment

In consideration of the factors in Section A, the OUR approved a downward adjustment of **-1.70%** to the base **non-fuel tariffs**

which became effective on **June 01, 2011** and will remain up to March 31, 2012.

Recall that the company is allowed to make a monthly adjustment on customers' bills to account for movements in the monetary exchange rate between the United States dollar and the Jamaican dollar. The base exchange rate that was applicable (computed in the tariff) prior to June 01, 2011 was US\$1.00: J\$89.00. During the period June 01, 2010 to March 31, 2011 the Jamaican dollar revalued against the United States dollar. Consequently, JPS' monthly billing exchange rates were below the US\$1.00: J\$89.00.

Given that the base exchange rate is adjusted to US\$1: J\$86.50, JPS would have already made downward adjustments to the **non-fuel** portion on customers' bills in the region of -2.13%. The base exchange rate adjustment would have also been captured in the computation of **dl** and therefore accounted for when looking at the downward adjustment of -1.70% that was approved.

Taking JPS' monthly adjustment into consideration, the effective change to the non-fuel rate for the review period is **0.43%** as shown in Table 1 below.

Table 1: Non Fuel Adjustment Factor

Annual Adjustment	
dl	1.02%
X	-2.72%
Q	0.00%
Z	0.00%
Total dPCI	-1.70%
Total change in Non-Fuel Base Rates	
Less pre-adjusted F/X Base Rate movement	-1.70%
(Amount adjusted monthly on customer's bills [(-2.13%)])	2.13%
Effective impact on Non-Fuel Rates	0.43%

The adjustment of -1.70% is applied to the overall tariff basket and the results of the impact on each rate class is shown in Table 2 below.

Table 2: Inflation Adjusted Base Non-Fuel Tariffs (dl ± X ± Q+Z)

Class	Block/ Rate Option	Customer Charge	Energy-J\$/kWh		Demand-J\$/KVA			
			Std.	Off-Peak	Part Peak	On-Peak		
New Rates								
Rate 10	LV	300.00	6.28	-	-	-	-	-
Rate 10	LV	> 100	14.36	-	-	-	-	-
Rate 20	LV	660.00	12.28	-	-	-	-	-
Rate 40A	LV							
Rate 40	LV - Std	4,800.00	3.50	1,269.37	-	-	-	-
Rate 40	LV - TOU	4,800.00	3.50	-	53.88	558.52	714.68	-
Rate 50	MV - Std	4,800.00	3.32	1,142.44	-	-	-	-
Rate 50	MV - TOU	4,800.00	3.32	-	50.77	495.06	634.69	-
Rate 60	LV	1,800.00	14.73	-	-	-	-	-

Cont'd on page 4

²Full details of the derivation can be obtained from the JPS 2009/14 Tariff Determination Document Number: Ele 2009/14: Det/3 posted on the OUR's web site www.our.org.jm

³Obtained from the Statistical Institute of Jamaica, CPI Statistical Bulletin February 2010

⁴Obtained from US Bureau of Labour Statistics website, <http://data.bls.gov/cgi-bin/surveymost>

⁵Full details of the derivation can be obtained from the JPS 2011 Annual Tariff Adjustment Determination Notice Document Number: Ele 2011002_ DET002 posted on the OUR's web site www.our.org.jm

⁶Ibid

Calculating the kWh rates for electricity

Cont'd from page 3

The electricity bill comprises both the non fuel component and the fuel component. When we take account of the non-fuel adjustment factors in Section A and combine them with those of the fuel adjustment factors in Section B the overall impact on the typical customers' bills in each rate class is shown in Table 3 and Table 4 below.

Table 3: Estimated Bill Impact of Annual Tariff Adjustment

Rate Class	Typical Usage (kWh)	Demand (kVA)	Bill Impact (%)
Residential [10]	200.00	-	-1.65
Small Commercial [20]	1,000.00	-	-1.73
Large Com. Low Voltage [40]	35,000.00	100.00	-2.23
Large Com. Medium Voltage [50]	500,000.00	1,500.00	-2.32

Table 4: Bill Comparison for a Typical Rate 10 Consumer with consumption up to 200kWh

Rate 10	2010 Rates J\$				2011 Rates J\$				Change	
	Base F/X Rate	Billing F/X Rate	Usage kWh	Rate	Base F/X Rate	Billing F/X Rate	Usage kWh	Rate	J\$	%
	89.00	86.50			86.50	86.50				
Energy 1st	100	6.41	641.00	100	6.28	628.00	-	13.00	-2.03%	
Energy Next	100	14.66	1,466.00	100	14.36	1,436.00	-	30.00	-2.05%	
Customer Charge			287.50			300.00		12.50	4.35%	
Sub Total			2,394.50			2,364.00		30.50	-1.27%	
F/E Adjust		-0.021	51.12		0.000	-		51.12		
Fuel & IPP	200	19.882	3,976.40	200	19.257	3,851.40	-	125.00	-3.14%	
Bill Total			J\$ 6,319.78			J\$ 6,215.40		104.38	-1.65%	

SuDoKu

			4	2	8	1	
		3	5			6	
	7			9			5
	9						2
4	2		5	9	8		3
1							5
6			4				9
	8			2	5		
	5	3	9	8			

But how do I do it?

The object is to insert the numbers in the boxes to satisfy only one condition: each row, column and 3x3 boxes must contain the digits 1 through 9 exactly once.

Mission Statement

To contribute to national development by creating an environment for the efficient delivery of utility services to the customers while ensuring that service providers have the opportunity to make a reasonable return on investment.

Be an informed consumer – get information on your Rights under the **Guaranteed Standards Scheme** and submit your claim for breaches to the service provider, where compensation is not automatic. Copies of the Guaranteed Standards are available at the JPS and NWC offices islandwide as well as the OUR website at www.our.org.jm. You can also get information on utility subjects through our Information Centre. If you remain dissatisfied with the service provider's response to your complaint, you may **appeal** the utility company's decision to the OUR in writing.

OUR's Role

The Office of Utilities Regulation Act of 1995 established the Office of Utilities Regulation ('the Office'/OUR) as a body corporate. Under the Act, the OUR is charged with the responsibility of regulating the provision of utility services in the following sectors:

- Electricity
- Telecommunications
- Water & Sewerage
- Public transportation by road, rail and ferry

The OUR is headed by the Director General, who along with the Deputy Directors General comprise 'the Office'. The Director General is appointed by the Governor General and the Deputy Directors General are appointed by the Prime Minister.