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# Office of Utilities Regulation

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## EXECUTIVE SUMMARY OF HURRICANE BERYL'S FUEL RATE INVESTIGATION

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**OFFICE OF UTILITIES REGULATION**

2024 December

## 1.0 Introduction

In 2024 August, one month after Hurricane Beryl wreaked havoc on the electricity grid, customers saw significant increases in their electricity bills. The bill of the average residential customer with a monthly consumption of 150 kWh jumped by 15.6% between 2024 July and August. Consequent to this, the Office of Utilities Regulation (OUR) found it necessary to investigate the Jamaica Public Service Company’s (JPS’s) billing computation to determine the accuracy and validity of the rates it applied to its bills in 2024 August. This report summarizes the outcome of OUR’s analyses.

## 2.0 The Billing Components That Changed

By examining the components of customer bills that changed between July and August, the three factors identified were the: (1) billing foreign exchange rate; (2) non-fuel IPP rate, and (3) fuel rate. Together they accounted for the overall 15.6% change that occurred. However, the billing foreign exchange rate and the non-fuel IPP rate increased by 1.0% and 3.4% respectively. Consequently, these two factors combined accounted for less than 1 percentage point of the 15.6% increase experienced by customers. In this regard, they were not deemed to be significant contributors to the overall increase. In contrast, the fuel rate accounted for more than 14.6 percentage points of the overall increase, and therefore warranted deeper scrutiny.

Table 1: Factors that Changed on the Bill

Factor	Unit	2024 Jul	2024 Aug	Change
Billing Fx Rate	J\$/US\$	156.00	157.53	1.0%
IPP Charge	\$/kWh	11.63	12.02	3.4%
Fuel Rate	\$/kWh	24.335	32.172	32.2%
<b>Total Bill (150 kWh)</b>	<b>\$</b>	<b>8,035.85</b>	<b>9,290.65</b>	<b>15.6%</b>

## 3.0 The Fuel Rate Analysis

From the outset, it should be recognized that the fuel rate is the ratio of total (JPS & IPP) fuel cost to the energy sold (in kWh). Consequently, if there is an increase in fuel cost, all other things being equal, the fuel rate will increase. Likewise, if there is a reduction in energy sales, all other things being equal, the fuel rate will increase. In the month of 2024 July both occurred, and this amplified the impact of the fuel rate increase.

It is also worth noting that included in the total fuel cost applied in the fuel rate is what is called a ‘volumetric adjustment’. Fuel costs after efficiency adjustment are fully passed through to customers. However, they are calculated in one month and recovered in the sales billed the following month. In the event of an over or under-recovery of fuel costs, then it is reconciled by way of the volumetric adjustment the following month.

The OUR's analysis indicates that the increase in fuel rate in 2024 August is primarily attributable to three factors:

1. Reduction in the supply of and the demand for electricity in 2024 July.
2. Net increase in the overall cost of fuel from various sources in 2024 July.
3. Significant fuel volumetric adjustment.

### 3.1 Supply and Demand Reduction

In the hours leading up to the advent of the hurricane on July 3, the utility and independent power producers would have been forced as a precautionary measure to protect (this requires an explanation) their staff and secure their equipment, to severely reduce the available generation capacity by taking several plants off the grid. Among other things, this involved the removal of the natural gas facility supplying the largest base load generating plants, as well as the curtailment of energy from renewable generation plants. These actions led to a reliance on the backup fuel, automotive diesel oil (ADO). JPS was also forced to increase the operation of the less efficient and more expensive ADO gas turbine peaking units. Additionally, after the hurricane had passed, the damage to critical sections of the transmission and distribution grid, as well as to residences and businesses restricted demand. The effect of the hurricane on net generation and sales is summarized below:

- **Net Generation:** The supply of electricity reflected in net generation was down 13.73% in 2024 July relative to June's output.
- **Sales:** Electricity sales fell by 13.27% during the same period.
- **Impact on Fuel Rate:** The fixed costs of natural gas were spread over fewer units of electricity sold, leading to an increase in the fuel fixed cost per unit of sales.

### 3.2 Net Increase in the Unit Cost of Fuel

Operating the system under hurricane conditions, of necessity, led to suboptimal generation which translated to an increase in the cost of fuel per kWh sold because of the fixed component of fuel cost.

It is also important to note that ahead of the hurricane, JPS had sought and obtained tax relief on ADO which would be used at higher volumes, as natural gas would be unavailable for some time after the event.

Further, conditions during and immediately after the hurricane did not allow for energy generation from renewable sources, such as solar and wind plants. Consequently, renewable energy generation had to be replaced by fossil fuel-based energy production. The effect of the hurricane on the unit cost of sales is summarized below:

- **Heavy Fuel Oil (HFO):** Has increased by 4.5%. This contributed 21.81% to the Fuel Rate increase.

- **Automotive Diesel Oil (ADO):** Prices have decreased by 20.58% due to the removal of the Special Consumption Tax (SCT), but the increased usage of ADO due to the impact of the hurricane still led to higher costs. This contributed 24.5% to the Fuel Rate increase.
- **Natural Gas:** Price has increased by 7.19%. This increase contributed 26.26% to the Fuel Rate increase.
- **Renewable energy generation:** Output from renewable sources decreased by 53.36% from 2024 June to July, increasing reliance on more expensive thermal generation.
- **Impact on Fuel Rate:** The combined effect of the increase in the cost of fuel has translated to a higher fuel rate.

### 3.3 Volumetric Adjustment

Arising from the reduction in sales during July, there was a significant under-recovery of fuel costs in that month. This triggered a relatively large volumetric adjustment during the August billing period which increased the fuel rate. The result was:

- Volumetric adjustment increased by 129.86%, contributing 27.43% to the fuel rate increase.

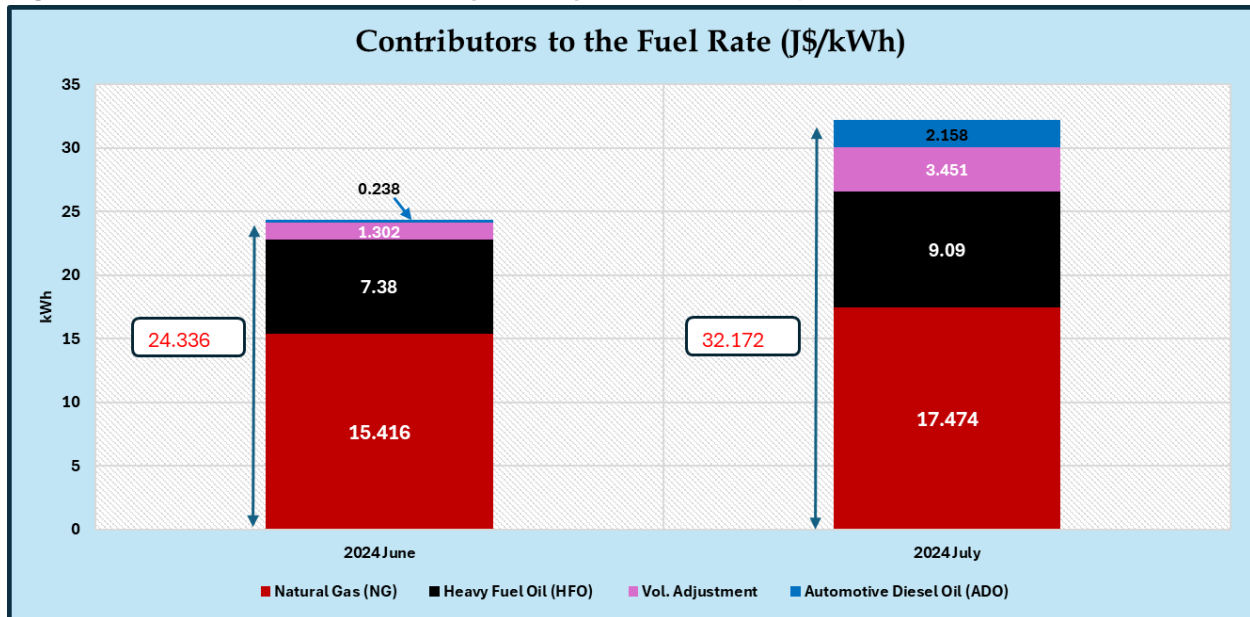
### 3.4 Contributors to the Fuel Rate Increase

The fuel rate in the August bills increased by \$7.837 per kWh over the previous month's bill. The increase may be explained by four factors, the three fossil fuel sources of generation and volumetric adjustment (see Table 2 below). All factors contributed in excess of one-fifth of the increase, with volumetric adjustment accounting for the highest, 27.43%.

**Table 2: Contributors to Fuel Rate Increase**

Source	Contribution	
	\$/kWh	%
HFO	1.709	21.81
ADO	1.920	24.50
NG	2.058	26.26
Volumetric Adjustment	2.150	27.43
<b>Total</b>	<b>7.837</b>	<b>100.00</b>

**Figure 1: Contributors to Fuel Rate (J\$/kWh) -2024 June & July**



#### 4.0 Lessons Learned

Despite the inconvenience of some customers being without electricity for extended periods, there are some aspects of the response to the hurricane threat that the industry got right. This included JPS's tactical curtailment of electricity supply and its request to the Ministry of Finance and the Public Service for an ADO tax exemption before the event. The increase in electricity price would have been higher without the latter intervention.

However, other areas could have been handled better. The OUR had previously communicated to JPS that it regarded overall increases in rates above 5% to constitute a bill shock. There was precedence for consultation between JPS and the OUR regarding the pass-through of significant and unexpected rate increases to avert bill shock. Unfortunately, this was not observed with respect to the July bill even though it is clear that JPS' application for a waiver of the tax on ADO indicated that it appreciated that a bill shock was imminent.

The curtailment in supply and the fall off in demand in 2024 July, inevitably resulted in a significant volumetric adjustment for 2024 August that was quite predictable. That adjustment represents a legitimate cost recoverable by JPS, but which as in a previous instance after consultation with the OUR, could have been collected over time to minimize the price effect on customers. It bears underscoring, therefore, that going forward, both the JPS and the OUR in consultation will need to be more vigilant to avert the kind of bill shock that can take place resulting from both the disruption to generation configuration and consumption caused by an event such as Hurricane Beryl.

The passage of Hurricane Beryl has highlighted the need for enhanced resilience in Jamaica's electricity sector. Other key lessons include:

- **Improved Preparedness:** The importance of pre-emptive measures to protect infrastructure and ensure rapid recovery.
- **Diversification of Energy Sources:** The need to reduce reliance on any single fuel type in the generation mix.
- **Enhanced Communication:** The need for better communication with consumers regarding the reasons for bill increases and the measures being taken to mitigate future impacts.

The OUR remains committed to ensuring transparency and fairness in the electricity sector and will continue to work with all stakeholders to address the challenges and improve the resilience of Jamaica's electricity supply system.

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