Office of Utilities Regulation

Jamaica Public Service Company Limited Hurricane 2005 Compensation

Determination Notice

OFFICE OF UTILITIES REGULATION

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1. PURPOSE OF DOCUMENT

This document sets out the Office's decisions on issues related to the claim for compensation by the Jamaica Public Service Company Limited for recovery of damages suffered as a result of the hurricanes which affected its transmission and distribution system in 2005.

APPROVAL

This Document is approved by the Office of Utilities Regulation and the Determinations therein become effective on January 26, 2009.

On behalf of the Office:

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George C. Wilson
Director General (Acting)
Date: January 23, 2009

Abstract

During 2005 three hurricanes passed relatively close to Jamaica causing damage to the overhead transmission and distribution network of the Jamaica Public Service Limited (JPS). The first two hurricanes, Dennis and Emily occurred during the month of July and the third, Wilma, took place in October.

Although in none of the events the utility had to resort to shutting down the national grid, 18%, 14% and 5% of JPS' customers respectively, service was disrupted for extended periods because of the hurricanes. Overall, a total of 77 circuits suffered damages from the three weather events. In all three cases JPS took six (6) days or less to return service to 99% of its customers.

JPS in its Annual Rate Adjustment submission (April 2006) put in a claim for compensation in relation to the damages suffered and income losses arising from the hurricanes. The claim was made against the Z-factor provision of the **All-Island Electricity Licence, 2001**.

The claim was for $192.8 million and included sub-claims for – (i) hurricane restoration costs, (ii) loss of revenue and (iii) the opportunity costs of capital associated with the restoration effort and revenues losses.

JPS' auditors, KPMG, were asked to verify the cost of the damage. In September 2008 the Office received the report from the auditors and reviewed the claim. This document sets out the Office's determination and provides the rationale for the decisions taken.

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1.0 Background

During the four-month period, July to October 2005 Jamaica was severely affected by three hurricanes – Dennis, Emily and Wilma. Hurricane Dennis the first - veered to the north of the eastern tip of the island on July 7. At that stage it was classified as a category-2 system packing maximum winds of 90 mph. However, it strengthened briefly into a category-4 system as it drifted away from the island and made landfall in Cuba. JPS was able to maintain electricity to services to more than 75% of its customers during the event.

The second hurricane, Emily, passed more than 100 miles (150 km) to the south of the island on July 16. It was rated as a category-4 hurricane and attained maximum wind speed of 135 mph at its closest point to Jamaica. It is estimated that less than 20% of the company's customers loss power while the island was affected by the hurricane.

Hurricane Wilma developed into a tropical depression more than 100 miles (150 km) to the southwest of Jamaica on October 15, but later was upgraded to a tropical storm. It maintained a north-westerly path towards Cancun, Mexico strengthening into a category-5 system in the Gulf of Mexico. The southwestern section of the island was affected by the outer spiral bands of the system over the period October 17-20. JPS did not have to resort to turning off the grid during the event.

Only in the case of Hurricane Dennis did as many as 100,000 customers lose electricity as a result of the disaster. The estimated number of customers that lost power as a result of hurricanes Emily and Wilma was 80,000 and 27,000 respectively. In all three events 95% of the affected customers' service was returned in 6 days or less (see Fig.1.1).

Fig.1.1 Restoration Cost by Hurricane & Customers Affected

Hurricane	Restoration Cost ($'000)	Estimated Customers Affected		95% Restoration of Affected Customers (Days elapsed)
		No.	Share of Total	
Dennis	33,649	100,000	18%	5
Emily	27,364	80,000	14%	6
Wilma	25,817	27,000	5%	4
Total	**86,830**			

Some 296 structures/poles and 34 transformers were damaged in the hurricanes. The restoration effort resulting from the three hurricanes saw JPS effecting repairs to 70 distribution circuits and 7 transmission circuits (see Fig.1.2). The total restoration cost associated with the hurricanes was put at $86.8 million.

Fig.1.2 Restoration Cost by Hurricane & Customers Affected

Hurricane	Asset	Circuits Affected	Structure/Pole Damage	Conductor/ Wire Damage (Spans)	Transformer Damage
Dennis	Distribution	23	93	270	22
	Transmission	5	9	1	-
Emily	Distribution	14	95	270	12
Wilma	Distribution	33	83	173	-
	Transmission	2	16	22	-
Total		**77**	**296**	**736**	**34**

A claim for compensation was included in JPS' Annual Rate Adjustment submission of April 2006. The Company sought compensation for restoration costs, revenue losses and the opportunity costs of capital used to restore service to customers. The total claim amounted to $192.9 million (see Fig.1.3).

Fig.1.3 Summary of JPS' Claim

Category of Claim	$'000
Loss of Revenue	73,339
Opportunity cost of Capital	32,700
Hurricane restoration costs	86,830
TOTAL	**192,869**

In light of the relatively small size of the Claim the OUR was of the view that it would not be cost-effective to engage the services of a Loss Adjuster to review the Claim. As such JPS was instructed to provide certification from its auditors of the costs incurred during the restoration exercise.

JPS submitted the report from its auditors KPMG on September 3, 2008. The content and timing of the report has informed the decisions taken in this determination. It should be noted that the Office in its determination applied essentially the same principles employed in the Hurricane Ivan compensation settlement[1].

2.0 Interpretation of the Z-Factor

The JPS claim was made against the Z-factor provision of the **All-Island Electricity Licence, 2001** even though a Self-Insurance Scheme (Electricity Disaster Fund) was established in June 2004 for disasters of that kind. JPS stated that "(i) in the absence of adequate protection from the Self-Insurance Fund and given the nature of the event" it was necessary that the claim be filed against the Z-factor.

[1] See ***Jamaica Public Service Company Limited Z-factor Adjustment for Hurricane Ivan Recovery Costs Determination Notice (Elec 2005/05)***

Under the Performance-Based Rate Making Mechanism (PBRM) defined in Schedule 3 of the **All-Island Electricity License, 2001** provision is made for a Z-Factor price escalator which is applicable under special circumstances. The Z-factor can be invoked when an event has occurred for which all of the following three conditions are satisfied:

1. the Licensee's costs are affected;
2. the event is not due to managerial decisions;
3. the costs are not captured by the other elements of the price cap mechanism.

However, while hurricanes are 'acts of God' and as such are outside of management's control the Electricity Disaster Fund is now the provision within the price cap mechanism to address such contingencies.

The Electricity Disaster Fund was established with the approval of the Office in 2004 specifically to deal with natural catastrophes. This was because JPS was unable to acquire coverage for its transmission & distribution plants under satisfactory terms from traditional insurance companies. In this respect it was determined by the Office that the price cap mechanism would include a provision that allows a fraction of the revenue from every kWh sold to consumers to be reserved for the Electricity Disaster Fund. Consequently, except when the accumulated balance in the Fund is unable to cover the compensation charges due to JPS and other satisfactory vehicles of payments are not available then the Office may consider it prudent to resort the Z-factor.

Given that the balance presently in the Fund exceeds JPS' claim there is no need at this time to employ the Z-factor as a means of compensation.

3.0 Restoration Costs

The auditors, KPMG, in their report verified that JPS' restoration costs in connection to the 2005 hurricanes totaled $86.8 million (see Fig.3.1). When the costs are disaggregated by functions $85.7 million represents T&D expenditures and the remaining $1.1 million reflects generation costs.

The Electricity Disaster Fund was established for the purpose of providing compensation to JPS for damages to its T&D network that may be reasonably attributed to natural disasters. Non-T&D assets such as the Company's generation plants and administrative buildings are covered by conventional insurance policies, still available to electric utilities in the region at acceptable terms.

Fig.3.1 Generation and T&D Restoration Costs

Category	Generation ($'000)	T&D ($'000)	Total ($'000)
Payroll & wage costs	660	13,610	14,270
Labour expense	64	3,431	3,495
Third party contractors	140	17,471	17,611
General supplies	-	3,528	3,528
Material & equipment	-	46,767	46,767
Office expenses	272	148	420
Transportation	5	214	218
Miscellaneous	-	521	521
Total	**1,141**	**85,689**	**86,830**

It was on this basis that the Office disallowed the $1.1 million component of claim associated with damages to the company's generation plant. However, the Office considers the $85.7 million spent in restoring the T&D network as allowable expenses.

4.0 Replacement Cost versus Enhancement Cost

Enhancements to the damaged facility are almost inevitable in the restoration exercise after a disaster. This takes place primarily because of two factors:

a) In virtually all instances, the facilities damaged in the disaster are assets that have been in services for some time. Consequently, a part of their useful life would have already been consumed. Therefore, when these damaged assets are replaced by new ones, the overall useful life of the T&D system is extended.

b) Sometimes, in replacing the damaged asset with a new asset, the replacement is of superior quality to the one it replaces. For example, when a concrete pole is used to replace a wooden pole qualitatively the T&D system is upgraded since new installations are more durable.

In this context, the Office makes a distinction between replacement cost and enhancement cost. This is necessary since as a rule the Fund seeks to make compensation only for the expenditure that restores the T&D assets to its state prior to the disaster. Hence, the approved compensation payment excludes the enhancement component of restoration costs.

Notwithstanding, the Office recognizes that the enhancement component of the restoration cost represents an increment to the T&D asset base. It therefore should be capitalized. As such, the Company will receive the appropriate return on these assets commencing at the next Tariff Review.

In conducting the loss adjustment exercise for Hurricane Ivan (2004, the consultants, Axis, resorted to a judgment-based depreciation rule to separate replacement cost from enhancements cost. This approach was adopted because information on the depreciation of specific asset was not available to allow the Loss Adjusters to compute the relevant depreciation ratios.

The estimated ratios proposed by Axis were based on the average life of the plant in service in relation to useful life. They are as follows:

- T&D equipment – 50%
- T&D contract labour – 33%
- Building and works -15%

In the absence of more precise estimates at this point, the Office has decided to apply these same ratios.

Fig.4.1 Allocation of the Allowed Restoration Costs

	Allowed Cost ($'000)	Depreciation Factor (%)	Depreciation ($'000)	Recoverable Amount ($'000)
Payroll & wage costs	13,610	0.0	-	13,610
Labour expense	3,431	0.0	-	3,431
Third party contractors	17,471	33.0	5,765	11,705
General supplies	3,528	0.0	-	3,528
Material & equipment	46,767	50.0	23,383	23,383
Office expenses	148	0.0	-	148
Transportation	214	0.0	-	214
Miscellaneous	521	0.0	-	521
Total	**85,689**	**34.0**	**29,149**	**56,540**

On the basis of the depreciation ratio the Office has determined that $56.5 million of the total allowed restoration costs are immediately recoverable, while the remaining $29.1 million should be capitalized for future recovery (see Fig.4.1).

5.0 Compensation for Revenue Losses

In arriving at the revenue impairment component of its claim which amounted to $73.3 million, JPS based its derivation on the energy (kWh) shortfall in two months.

The damage caused by the first two hurricanes took place within a nine-day (9) period during July. Consequently, it was neither practical nor possible to isolate the revenue impact of the two events. The revenue shortfalls associated with July 2005 and October 2005 were $84.8 million and $24.5 million respectively.

JPS excluded the following elements normally found in its revenue stream from the calculation:

a) Fuel and Independent Power Producers (IPP) cost;
b) the Demand and Customer Charges
c) the sinking fund charge

The rationale JPS provided for their exclusion are as follows:

- the tariff mechanism is designed to facilitate the full recovery of Fuel & IPP costs. The recovery of this component of cost is therefore insulated from the disruption of natural disasters;

- the recovery of the Demand and Customer charges are fixed components of customer bills and are therefore independent of the number of kWh sold;

- it is not critical that the revenue deficit to the Fund be recouped when actual sales is lower than the forecast .

The Office notes three flaws associated with the revenue impairment computations:

1. Although the actual energy rate can be established from its revenue records, JPS chose to apply the less precise and more complicated method. The JPS procedure required the determination of proportion of energy charge in its Non-fuel & IPP revenue requirement from which the applicable revenue is derived.

2. The company based its computation on the approved revenue requirement over a one year period rather than the actual revenue inflows. It should be noted that while the Office may approve a revenue projection this is by no means a guarantee. It therefore seems more plausible that a revenue estimate should reflect the latest information which better captures reality.

3. While the Company has information to determine the revenue shortfall on a class by class basis it chose to use a broad brush (average) approach in the computation rather than an aggregate of the revenue losses in each rate class.

However, the recognition of these flaws have no bearing on the Office's decision since the revenue component of the claim was rejected in keeping with the Determination made in respect of the Hurricane Ivan Claim. In the first place, theoretically the energy charge is designed in the tariff to recover the company's variable cost. This means that the fixed component of the company's costs is recovered through its demand and customer charges. Therefore the claim for revenue loss which is derived from its energy charge is not a fixed cost but a variable cost.

Secondly, the Office is of the view that it is unacceptable to ask customers already facing their own challenges as a result of the disaster to pay for kWh they did not consume. The

Fund should not be seen as source that guarantees the revenue requirements of JPS at the expense of putting an unreasonable burden on customers. As such, the Office has determined that the entire sum of $73.3 million attributable to Revenue Loss is not recoverable from the Fund.

In addition, consistent with the Hurricane Ivan Determination, the Office still maintains that this component of the claim is not recoverable under the Z-factor provision of the **All- Island Electricity Licence, 2001.**

6.0 Opportunity Cost of Capital

The opportunity cost of capital represents income that the Company gave up earning because of the effect of the hurricanes. JPS in computing the opportunity cost of capital, defined it to be the 2004 approved rate of return[2] (14.83%) adjusted for taxes (33 1/3%) applied to revenue losses caused by the disruption and the expenditure warranted by the destruction. Consequently, after applying the pre-tax rate of return to the total of $160.1 million[3] over an 11-month period[4] the opportunity cost of capital was identified to be $32.7 million.

Consistent with the Hurricane Ivan Determination, the Office believes that:

1. Revenue losses should not be included in the opportunity cost of capital for the reasons discussed Section 5.

2. The interest rates available to JPS during the time of the hurricane should be applied in the calculation rather than the 2004 approved rate of return. Debt financing represents the least cost route of meeting restoration expenditure.

It is worth noting that JPS in making the claim anticipated an 11-month period for settlement measured from the day of the first hurricane. However, the process has taken more than two (2) years.

One of the reasons for the delay was a disagreement between the OUR and JPS as to the terms of reference for the auditors. This matter was resolved in June 2007. The Office is of the view that six months was more than ample time for a settlement had JPS dealt with the issue in a timely fashion. As such the Office has determined that the clock should be stopped for cost of capital payment at December 2007. However, it was restarted in mid September 2008 when the auditor's report was received until the time of this Determination.

According to JPS, in responding to the urgent demand for funds in the aftermath of the hurricane, two dividends payments of US$10 million each scheduled for the end of

[2] This rate was approved by the OUR in its 2004 Tariff Determination
[3] Restoration cost + Revenue losses = $86.8 million + $73.3 million
[4] The period JPS projected for compensation

September and December were postponed and channeled into the restoration exercise. The utility therefore argues that the opportunity cost of capital is equal to the 14.85% weighted average cost of capital approved by the Office in the last tariff submission.

An analysis of JPS loans form the end of July to the end of December 2005 reveals that the Company's weighted average US$ borrowing rate was 11.81%. This rate was applied to US$ equivalent of the restoration cost to arrive at the compensation for the cost of capital covering the period mid July 2005 to December 2007 and then mid September 2008 to January 2009.

Fig.6.1 Opportunity Cost of Capital

Hurricane(s)	Period	Duration (Months)	Exch. Rate[5] (J$:US$1)	Principal in:		Cost of Capital	
				(US$)	(J$'000)	(US$)	(J$'000)[6]
Dennis/Emily	Mid Jul 2005 – Dec. 2007	29½	62.07	640,064	39,725	214,413	17,818
	Mid Sep 2008 –Jan. 2009	4½	72.68	854,478	62,103	38,511	3,200
Wilma	Mid Oct 2005 –Dec. 2007	26½	63.47	264,871	16,811	78,491	6,523
	Mid Sep 2008 –Jan. 2009	4½	72.68	340,015	24,712	15,475	1,286
Total						**346,889**	**28,827**

The OUR's cost of capital compensation also recognizes the timing of the hurricanes. In light of this the cost of capital calculation for the Hurricanes Dennis and Emily commenced in mid July 2005 while it began in mid October 2005 for Hurricane Wilma. The total recoverable restoration cost of $56.5 million was allocated between the first two hurricanes and Wilma in the ratio of 70.3% and 29.7% in keeping with distribution of the restoration cost in JPS' original claim.

Based, on the above methodology the overall opportunity cost of capital attributable to the restoration exercise has been computed to be $28.8 million or US$346,889 (see Fig.6.1).

[5] JPS billing exchange rate
[6] Conversion to J$ is based on Scotia Bank exchange rate (selling) for US$1 = J$83.10 on Jan 19, 2009

7.0 Summary of Compensation

The table below summarizes the costs that have been allowed for compensation from the Electricity Disaster Fund by the Office

Fig.7.1 JPS Claim and the Approved Compensation

Category of Claim	JPS claim J$'000	Compensation from the Fund	
		J$'000	US$
Hurricane restoration costs	73,339	60,900.5	732,858
Loss of Revenue	32,700	-	-
Opportunity costs of Capital	86,830	28,827.0	346,889
TOTAL	**192,869**	**89,727.5**	**1,079,747**

JPS is therefore entitled to a sum of US$1,079,747 from the Electricity Disaster Fund. This translate to $89.7 million at the exchange rate of US$1: J$83.10.

8.0 Determinations

In respect of the Claim made by JPS to recovery $192,869 million under the Z-component of PBRM in relation to (i) hurricane restoration costs, (ii) loss of revenue and (iii) opportunity costs, the Office has determined that:

1. The Claim should correctly be made against the Electricity Disaster Fund.

2. Of the $73.3 million restoration cost claim $1.1 million represents generation costs and was therefore disallowed, as the fund was established to deal exclusively with T&D expenditures.

3. Of the $85.7 million T&D expenditure allowed as restoration costs $56.5 million was deemed to the cost required to restore the T&D assets to the state it was in immediately prior to the hurricanes. The remaining $29.2 million reflects enhancements to the plant which should be capitalized.

4. The component of the claim for revenue losses of $32.7 million is invalid under the Electricity Disaster Fund, as well as the Z-factor provision of the **All-Island Electricity Licence, 2001** and therefore not recoverable.

5. The component of the claim for opportunity cost for is reasonable. However, the calculation should be based on the interest rates available to JPS at the time and is only applicable to the replacement component of restoration cost of $56.5 million. Consequently, the compensation for the opportunity cost of capital has been reduced from $86.8 million to $28.8 million.

6. JPS shall be allowed to withdraw the sum of US$1,070,747 from the Electricity Disaster fund as compensation for the damage suffered as a result of Hurricanes Dennis, Emily and Wilma in 2005. This is equivalent to $89.7 million when converted at the current exchange rate. As such the compensation represents approximately 46.5% of the initial claim submitted.