Jamaica Public Service Company Limited

Proposed Criteria Response
2019- 2024 Rate Review Process

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Abbreviations and Acronyms

CAIDI	-	Customer Average Interruption Duration Index
CAPM	-	Capital Asset Pricing Model
COSS	-	Cost of Service Study
DEA	-	Data Envelopment Analysis
dI	-	The annual growth rate in an inflation and devaluation measure
DMS	-	Distribution Management System
dPCI	-	The rate of change of the Revenue Target
EDF	-	Electricity Disaster Fund
EEIF	-	Energy Efficiency Improvement Fund
EGS	-	Electricity Guaranteed Standard
ELS	-	Energy Loss Spectrum
EV	-	Electric Vehicle
FAC	-	Fuel Adjustment Clause
FCAM	-	Fuel Cost Adjustment Mechanism
FERC	-	Federal Energy Regulatory Commission
FOR	-	Forced Outage Rate
FRA	-	Fuel Rate Adjustment
GCT	-	General Consumption Tax
GDP	-	Gross Domestic Product
GOJ	-	Government of Jamaica
GIS	-	Geographic Information System
GS	-	Guaranteed Standards
IPP	-	Independent Power Producer
IRP	-	Integrated Resource Plan
JPS/Licensee	-	Jamaica Public Service Company Limited
KVA	-	Kilo Volt Amperes

KWh	-	Kilowatt-hours
LIBOR	-	London Interbank Offered Rate
Licence	-	The Electricity Licence, 2016
LIC	-	Loss Interface Committee
LRMC	-	Long Run Marginal Cost
MAIFI	-	Momentary Average Interruption Frequency Index
MED	-	Major Event Day/s
MSET	-	Ministry of Science Energy and Technology
MHI	-	Manitoba Hydro International
MVA	-	Mega Volt Amperes
MW	-	Megawatt
MWh	-	Megawatt-hours
NG	-	Natural Gas
Office/OUR	-	Office of Utilities Regulation
O&M	-	Operating and Maintenance
OMS	-	Outage Management System
OPEX	-	Operating Expenses (prudently incurred)
OUR Act	-	The Office of Utilities Regulation Act, 1995 (as amended 2000, 2015)
PBRM	-	Performance Based Rate-Making Mechanism
PPA	-	Power Purchase Agreement
PPE	-	Property Plant and Equipment
PSP	-	Power System Plan
RE	-	Renewable Energy
REP	-	Rural Electrification Programme
RF	-	Responsibility Factor
ROE	-	Return on Equity
ROI	-	Return on Investment

ROR	-	Rate of Return
SAIDI	-	System Average Interruption Duration Index
SAIFI	-	System Average Interruption Frequency Index
SBF	-	System Benefit Fund
T&D	-	Transmission & Distribution
TMR	-	Total Market Return
TOU	-	Time of Use
WACC	-	Weighted Average Cost of Capital
Y_a	-	Technical Losses
Y_b	-	Non Technical Losses fully within JPS control
Y_c	-	Non Technical Losses not fully within JPS control

1 Introduction

The purpose of this document is to provide a response to the Offices of Utilities Regulation ("OUR/Office") on the 2019-2024 Rate Review Process Consultation Document[1]. Herein referred to as the "Proposed Criteria" or "OUR's Consultation Document"

The Electricity Licence, 2016 (the Licence) requires that the Office shall publish the Proposed Criteria for the next rate review process and shall initiate a consultative process by which the Criteria should be arrived at. In this process the Jamaica Public Service Co. Ltd. (JPS/Licensee/The Company) and other stakeholders shall be afforded 60 days to respond and comment on the Proposed Criteria. The Office shall take these responses and comments into consideration in arriving at the Final Criteria.

The Proposed Criteria has outlined principles, methodologies and procedures that the OUR proposes to use in the rate setting exercise in 16 categories. JPS has reviewed same and herein provides its response to each criterion. Our responses primarily highlight the differences noted between the requirements of the Licence and the Criteria, errors noted, limitations of JPS and, in some instances, proposing alternative or additional considerations.

Structure of the Criteria Response Document

JPS' Criteria Response Document is structured into five (5) main sections as set out below:

- Introduction
- Proposed Criteria: Five-year Rate Review Process – reviews the Criteria and the Licence and identifies a basis on which the utility's tariff may be established for the five (5) year period 2019 - 2024;
- Proposed Criteria: Annual Review Targets – comments on the proposed methodology to be used in the determination of the targets comprised in the Annual Revenue Target;
- Proposed Criteria: Fuel Cost – examines and provides recommendations on how the OUR proposes to set the heat rate target associated with the monthly fuel rate; and
- Supporting Documents: – lays out JPS' response to the additional information required in its Rate Review Application.

[1] Proposed Criteria-Jamaica Public Service company Limited\ 2019-2024 Rate Review Process Consultation Document\Document No.ELE 2018 May 1

Response to Proposed Criteria: Rate Review Process

As outlined by the OUR in the Proposed Criteria Section 3.1.2 "The stipulated date for the initial publication of the Proposed Criteria, that is 2018 January, was not achieved due to delays experienced with respect to the publication of the Integrated Resource Plan (IRP). Having regard to the fact that the initial publication of the Proposed Criteria is meant to facilitate consultation with stakeholders, in light of the delay in the publication of the IRP, the OUR considers it prudent to proceed directly to the consultation process".

The proposed criteria is therefore being reviewed without the benefit of the IRP, which represents a key component in the rate review process. The IRP should have been finalized and published by the Ministry of Science, Energy and Technology (MSET) at least 15 months before the 2019 rate review filing. As at the date of this response document a final IRP has not been promulgated by the responsible ministry.

It is important therefore, that the OUR in the publication of the Final Criteria define a calendar and a consultative process for the incorporation of these key inputs into JPS' Business Plan. Alternatively, it should propose a mechanism for JPS to address obligations emerging from the IRP that would not have been incorporated in the Business Plan ahead of the April 2019 Rate Review filing due to this timing issue.

2 Proposed Criteria: 5 Year Rate Review Process

2.1 Revenue Requirement

2.1.1 The Proposed Criteria outlined in Section 3.2.2 states: "According to the provisions of the Licence, the Revenue Requirement under the revenue cap principle comprises two (2) main elements:

1. The Return on Investment (ROI) for the Licensed Business;
2. Recovery of all prudently incurred operating expenses of the Licensed Business".

However, the wording in the Licence is slightly different:
Schedule 3 (27) The Revenue Requirement under the revenue cap principle is made up of two (2) main elements:

1 Net investment (Rate Base) in the Licensed Business multiplied by the WACC to calculate the capital recovery element; and
2 Recovery of all prudently incurred expenses of the Licensed Business.

The inclusion of the word "operating" in the Proposed Criteria is limiting and creates confusion and should be eliminated. From the Licence, it is derived that expenses include: non fuel operating costs (31), depreciation (32) and taxes (33).

2.1.2 Revenue Requirement Determination

The revenue requirement is established based on costs and not on the rate proposal submitted by JPS. Following the principles in the Licence we propose to adopt the following mechanism for the revenue requirement determination.

For Section 3.2.2 JPS proposes the following wording:

According to the provisions of the Licence, the Revenue Requirement under the revenue cap principle comprises two (2) main elements:

1. ***The Return on investment (ROI) for the Licensed Business;***
2. ***Recovery of all prudently incurred expenses of the Licensed Business including:***
    - ***i. Non fuel operating costs***
    - ***ii. Depreciations***
    - ***iii. Taxes***

For Section 3.2.4 JPS proposes the following wording:

"In delineating the Criteria, the four components of the Revenue Requirement will be examined, starting with the Rate of Return followed by the approved operating expenses.

For every year "t", the *required revenues* (RRA_t) should cover the operating and maintenance expenses (i.e. OPEX), the depreciation of assets (D_t), taxes (T_t), and a return on the capital invested ($r * K_t^I$) . Formally:

$$RRA_t = OPEX_t + D_t + T_t + r * K_t^I$$

Where

r: is the opportunity cost of capital defined in Licence ¶ 30;
K_t^I: is the Rate Base at the beginning of each year t defined in Licence¶ 29;
D_t : is the Depreciation charge for year t defined in Licence ¶ 32;
$OPEX_t$: are the non-fuel operating costs for year t defined in ¶ 31;
T_t: is the statutory Tax for year t defined in ¶ 33.

2.2 Return on Investment

In defining the cost of capital, the Proposed Criteria establishes:

> Section 3.3.2 WACC combines the approved Rate of Return (ROR) of all category of funds in the business in proportion to each funds' contribution to the actual or deemed capital structure to yield a single ROR for the company. WACC (pre-tax) may be expressed as:
>
> $$WACC_{(pre-tax)} = \frac{r_D}{(1-t)}\left(\frac{D}{D+E}\right) + r_E\left(\frac{E}{D+E}\right)$$
>
> Where:
>
> r_D= Cost of debt
> r_E= Rate of return on equity (or ROE)
> *D*= Value of debt in the capital structure
> *E*= Value of equity in the capital structure
> t= tax rate.

There is a transposition error in the formula for pre-tax WACC: R_E and not R_D should be divided by (1-t).

JPS requests that the Final Criteria show the correct formula to be as follows:

$$\mathbf{WACC_{(pre-tax)} = r_D * \left(\frac{D}{D+E}\right) + \frac{r_E}{(1-t)} * \left(\frac{E}{D+E}\right)}$$

2.3 Cost of Debt

Criterion 1:
In presenting information on the cost of debt for the 2019 – 2024 Rate Review, JPS shall be required to provide a schedule showing the weighted average interest rate of its long-term debt. The schedule shall be based on the company's audited financial position as at 2018 December 31 and shall include:

a) A list of all its long-term debt and their corresponding amounts

b) The associated interest rate for each loan

c) The computation of the weighted average interest rate

In the OUR's Consultation Document, Section 3.4.1, it is proposed that the cost of debt should be calculated using the weighted average borrowing cost for JPS' long-term debt, which is consistent with the 2014-2019 Rate Review. In response, JPS seeks to highlight the problems associated with the current approach for estimating the cost of debt, while presenting the Company's proposals for the OUR to consider in its deliberation on the final criterion for cost of debt.

The cost of debt represents the costs JPS must pay to borrow from commercial lenders to fund its operations. In general terms, the cost of debt depends on the default risk that lenders perceive on the firm. JPS is mandated to and is making significant strides towards the modernization of Jamaica's electricity grid, improvement of its overall efficiency and enhancing service delivery. This requires JPS to make significant capital investments to improve the quality of its asset base; hence the Company has to continually source new funding as repayments of existing loan continues.

2.3.1 Concerns with Current Approach:

1. The OUR's proposed approach is to a large extent in keeping with the Licence, with the exception that, in our opinion, it does not factor in the forward-looking approach that is implicit in the spirit of Licence. While the Licence states that ***'the interest rate will reflect the weighted average interest rate in place for the latest audited financial statements[2]'***, it continues that the interest rate should be ***'corrected for known material changes in the funding structure related to refinancing or new PPE capital outlays'***. JPS' interpretation is that the Licence has captured and is reflecting a forward-looking approach to the interest rate component of the weighted average cost of capital and therefore posits that the criteria established for the cost of debt calculation should accommodate a similar forward-looking approach. The Company considers that the existing methodology of calculating the cost of debt using historical data and variable interest

[2] Schedule 3, paragraph 30 (b) of the Licence

rates 'at a point in time', is not prudent nor in line with the forward-looking approach of the Revenue Cap mechanism. As such, JPS believes that an appropriate mechanism should be developed and agreed to ensure that all prudently forecasted exposures are accorded the appropriate treatment.

2. The OUR's proposed approach does not provide for the ongoing recovery of prudently incurred financing expenses. Instead, consistent with the practice in the previous Rate Reviews, the historical test year amount is the amount that is recovered in the revenue requirement.

3. The OUR's proposed approach assumes all debt on JPS' balance sheet is homogenous. JPS' balance sheet loan portfolio is denominated in three (3) currencies: the Euro, United States and Jamaican Dollars, with the respective interest rates, representing the devaluation risk of the currency. Therefore, the use of a weighted average borrowing cost of debt for long-term debt applied to a USD denominated Asset Base ignores this risk and implicitly places an exposure on the utility through the normalization of inherent currency risk.

4. As at end of May 2018, approximately 45% of JPS's long-term debts have variable interest rate linked with then-effective LIBOR. JPS considers it reasonable and strategic to retain long-term debts with variable interest rates, which results in benefits to customers derived from a lower WACC due to historic lower LIBOR over a decade. It is however, important to clarify that future variability in the LIBOR will have a financial impact on JPS. Based on our assessment, there exists a legitimate concern not addressed by the Z-factor as it appears that the OUR has the discretion to rule that the pursuit of fixed or variable rate debt rests within JPS' management control.

Given the above, JPS is proposing that the cost of debt be calculated using: (1) a forward-looking approach to financing; (2) a methodology that incorporates the all-in cost of debt; (3) a methodology that provides for multicurrency debt stock and its attendant interest rate differential; and (4) a methodology that accounts for variability in interest rates on floating rate debt. JPS is further proposing two options to treat with interest rate variability: (a) variable to fixed rate swap; and (b) an annual adjustment to the Cost of Debt through the establishment of a long-term interest rate "reference curve."

2.3.2 JPS Proposals for Cost of Debt Final Criterion

1. **Forward-looking Approach**
   In keeping with the stipulation in the Licence that ***"the forward looking revenue cap principle affords the funding for the initiatives contained in the Business Plan"***, JPS proposes a forward looking approach, wherever possible, to establish each component of its cost of capital. See

Proposal 4 below, for one example of how this principle could be applied to the treatment of the weighted average cost of debt.

2. All in Cost of Debt

JPS is proposing that the "All-In-Costs" associated with the issuance of debt are included in the weighted average cost of debt calculation. The "All-In-Cost" that JPS would normally incur includes; commitment fees, arrangement fees, due diligence fees, legal expenses, breakage costs and refinancing fees and are amortized over the life of the loan. This request will ensure the ongoing recovery of prudently incurred financing expenses as opposed to the existing historical test year amount recovered in the revenue requirement. Alternatively, for the avoidance of doubt, JPS is requesting the explicit provision for recovery of all prudently forecasted "All-In-Costs" through the revenue requirement over the five (5) year rate review period.

3. Multicurrency Debt/Interest Rate Differential

Where JPS has a significant portion of debt in foreign currency relative to its functional currency, for example, greater than 10%, the criteria would need to reflect an appropriate methodology to equate interest rate differentials.

4. Variability of Interest Rates

a. Variable to Fixed Rate Debt Swap

JPS' debt portfolio is comprised of both fixed and variable obligations. Under this construct JPS faces potential exposure on the variable debt portion over the five (5) year rate review period, as the allowed cost of debt will be set at a point in time i.e. an average as at December 31, 2018. Understandably, JPS considers and seeks to obtain the swap rates for its existing variable interest rate debt for predetermined fixed interest rates debt in order to mitigate against the adverse upward movement of these variable interest rates. The Company therefore proposes that:

(i) the predetermined fixed interest rates shall be the base for calculating the weighted average cost of debt. JPS' will seek to engage local commercial lenders over the next ten (10) months in order to propose the most competitive fixed interest rate facility; and

(ii) at each Annual Rate Review, the Cost of Debt shall be adjusted in the event the variable interest rates of existing loans exceed/fall short of the predetermined fixed interest rates or exceed/fall short of the interest rate of a newly borrowed loan.

It is JPS' belief that this methodology would be a fair estimation of the Cost of Debt. JPS acknowledges that further discussions with the OUR will be required to develop a mechanism

that allows for this.

b. Annual Adjusted Cost of Debt to "Reference Curve"

JPS considers and seeks to:

(i) establish a long-term "reference interest curve," in accordance of which the Cost of Debt shall be then adjusted at each annual Rate Review under 2019-2024 Revenue Cap mechanism; and

(ii) at each Annual Rate Review, the Cost of Debt shall be adjusted in case variable interest rates of existing loans exceed/fall short of the "reference interest" or an interest rate of a newly borrowed loan exceeds/falls short of the "reference interest."

Consequently JPS is proposing that Paragraphs 3.4.1 be reworded as follows:

3.4.1 Consistent with the practice in previous Rate Reviews, the OUR proposes that the cost of debt should be based on the weighted average borrowing cost for JPS' long-term debt. However, this weighted average costs of debt should be based on:

a) "All-In-Costs" associated with the issuance of debt including commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees; and

Criterion 1:
In presenting information on the cost of debt for the 2019 – 2024 Rate Review, JPS shall be required to provide a schedule showing the weighted average interest rate of its long-term debt. The schedule shall be based on the company's audited financial position as at 2018 December 31 and shall include:
a) A list of all its long-term debt and their corresponding amounts

b) The associated interest rate and financing fees for each loan

c) The computation of the weighted average interest rate

b) A forward looking approach which takes into account expected changes in Interest Rates during the 5 Year rate review period including equivalent fixed rate for variable using "Fixed Rate Debt SWAP equivalent.

2.4 Rate of Return on Equity

Criterion 2:
a) In computing the ROE, it is proposed that JPS should use the CAPM methodology based on the formula below:

$$\boldsymbol{Rate\ of\ Return\ on\ Equity}=\boldsymbol{R_f}+[\boldsymbol{\beta}*(\boldsymbol{TMR}-\boldsymbol{R_f})]+\boldsymbol{CRP}$$

Where;
Rf = Risk free rate
β = Beta
TMR = Total Market Return
CRP = Country Risk Premium

b) In addition, the following should be observed with regards to the data used in the ROE calculation:

i. R_f shall be the U.S. long-run historical average return on bonds (1998-2018, real);

ii. β shall be based on the latest information in Professor Damodaran's Power Sector data base;

iii. The Mature Market Equity Risk Premium shall be computed indirectly by subtracting the risk free rate (R_f) from the Total Market Return (TMR)

iv. The Real TMR is the arithmetic average of long-run historical data of U.S. Market (1900-2018)

v. The CRP shall be derived from the one (1) year average of the bond yield spread of the eight (8) year Jamaican sovereign bond and the US 10-year Treasury bond.

2.4.1 JPS' Response

JPS supports the use of the CAPM methodology, given that it is based on the theory that equity investors are compensated for their exposure to undiversifiable market risk and represents mutually agreeable methodology in calculating the ROE. JPS is, however, proposing:

a) Particular changes in respect of the CAPM equations; and

b) Adjustment to the data set used as input into the formula

The data to support JPS' cost of equity estimate is primarily U.S.-based versus the global power sector data set utilized by the OUR for certain aspects of its proposal.

The CAPM methodology being used and proposed by JPS can be summarized by the following equation:

$$r_s = r_f + \beta[MRP] + \lambda[CRP]$$

Where;

r_f	**Risk Free Rate**
β	Levered Beta
MRP	Market (or Equity) Risk Premium
CRP	Country Risk Premium
λ	JPS Exposure to Country Risk
r_s	**Cost of Equity for JPS**

The risk-free rate is the required return on a risk-free asset. The levered beta coefficient measures JPS' equity returns correlation with the overall market. The market risk premium is the markup over the risk-free rate that is required to induce the marginal investor to hold a stock of average market risk and the country risk premium is required when a country's legal, socioeconomic and institutional infrastructure differs from the US or Western Europe

The aforementioned parameters would properly capture the relevant business and financial risks for JPS, as if located and doing business in the U.S. However, since JPS faces particularized risks that would not be captured by analyzing a business with access to U.S. capital markets and U.S. public institutions, a country risk premium is required. JPS' utility assets are considered sunk and irreversible and cannot be re-deployed in order to avoid and manage country risk exposures. New York University's Professor Damodaran has suggested an exposure ratio (which he calls lambda) as the country risk analog to the beta that measures a company's exposure to market risk. Lambda therefore represents the relative exposure of the JPS' revenues, assets, or profits to country risk[3]. This added exposure is the reality for JPS' investors as it relates to the impact of pronounced socio economic variables such as illegal abstraction of electricity.

Just as companies can vary from the average beta=1.0 company with regard to market risk, so too can companies in a country vary from a lambda=1.0 in their exposures to country risk. Professor Damodaran suggests a lambda as follows:

$$\lambda = \frac{\%\ JPS\ Revenues\ in\ Jamaica}{\%\ Average\ Jamaica\ Stock\ Revenues\ in\ Jamaica}$$

[3] Damodaran (2002) Investment Valuation: Tools and Techniques for Determining the Value of Any Asset (2e) (New York: John Wiley). See, esp., p. 169.

The following table summarizes the OUR's Proposed ROE Approach vs. JPS Proposed ROE Approach 2019-2024

CAPM Parameter	2019 -2024 OUR Proposal	OUR Rationale	2019 -2024 JPS Proposal	JPS Rationale
Risk Free Rate (R_f)	10-Year Treasury Bond	U.S. long-run historical average return on bonds (1996-2016, real assuming it reverts to the mean	30-Year Treasury Bond (Blue Chip Financial Forecast)	JPS recommends using the Blue Chip Financial Forecasts that concludes the 30-year U.S. Treasury bond will yield around 4.0% to 4.5% as of 2019. While JPS agrees with the OUR's risk free rate of 4.5%, the inflation factor of 2% possibly understates inflationary risks.
Beta (β)	Professor Damodaran's Power Sector data	No rationale provided by the OUR	Five (5) year beta for all U.S. electric utilities from Bloomberg Un-levered beta based on capital structure Simple average of un-levered beta Re-levered beta to JPS' (50:50) capital structure	There exists convergence with the OUR's computed Beta of .75, however JPS proposes that further discussions are required with the OUR to establish a more comparable proxy group for JPS for calculating Beta.
Market Equity Risk Premium (ERP)	Computed indirectly by subtracting the risk free rate (Rf) from the Total Market Return (TMR) Real TMR is the arithmetic average of long-run historical data of U.S Market (1900-2016)	TMR eventually returns to the mean Less volatile than implied equity risk premium	Computed using FERC's two-stage forward-looking implied cost of equity estimation for the average U.S. stock	JPS disputes the OUR's historical analysis capturing the average unchanging realized returns for ERP. JPS is of the belief that investor expectations are forward-looking, and must be demonstrated in the calculation of ERP. This view is supported by Prof. Damodaran, "what investors ultimately care about is the equity risk premium for the future. Consequently, the approach that has the best predictive power should be given more weight[4]."
Country Risk Premium (CRP)	1 and 3-year average of the bond yield spread of the 8-year Jamaican sovereign bond and the US 10-year Treasury bond.	The period over which the average is computed should align with the rate review period	Average of the bond yield spread of the 20 and 10-year Jamaican sovereign bond and the U.S. Treasury 20 and 10 year bond. Implied Lambda λ = 1.10	JPS recommends using the spread of the 20 and 10-year Jamaican & US bonds over a 3 years average. JPS recommends a lambda = 1.10 as a conservative estimate. The OUR implicitly uses lambda = 1.00 in its computations.

[4] Damodaran- Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2015 Edition

Further to the rationale provided in the proposed approach above, JPS would like to highlight the two (2) main areas of divergence from the OUR's proposal that impinge on JPS' ability to earn a ROE that is fair and reasonable.

Equity Risk Premium

1. JPS supports using a forward-looking analysis that is more consistent with investors' expected return, and is consistent with the forward-looking Revenue Cap mechanism of the 2016 Operating Licence. It is also consistent with the principles outlined in the OUR Consultation Document (see ¶ 1.1, Table 2 ("ROE should be forward looking"). The OUR's methodology ignores investors' expected return, and solely based its analysis on a retrospective historical basis.

2. JPS' proposed DCF 2-stage methodology has been adopted in other regulatory jurisdictions. Specifically, in the Federal Energy Regulatory Commission (FERC) Docket No. EL11-66-001 Opinion No. 531 Order on Initial Decision, the Commission ordered the adoption of the 2-stage DCF methodology in all ROE proceedings for public utilities henceforth. The Commission states on page 8, lines 24-25 of Docket No. EL11-66-001:

   "For the reasons discussed, we find that the ROE in this proceeding, as well as in future public utility cases, should be based on the same DCF methodology the Commission has used in natural gas pipeline and oil pipeline cases for many years—the two-step, constant growth DCF methodology, or two-step DCF methodology."

3. JPS proposed DCF 2-stage methodology is also consistent with the ruling of the Illinois Commerce Commission (ICC), a utility regulator in the US State of Illinois, which ordered the adoption of the 2-stage DCF in the Nicor Gas 2008 Order Docket No. 08-0363.

4. The OUR's ERP of 5.9% based on a historical arithmetic average is considerably low. A change in averaging period from 1900-2016 to 1920-2016 would produce a total market return of 7% upwards. As noted in point 5 below, JPS' forward-looking analysis produces an ERP of 6.6%. The Company considers it unreasonable to select specific historic episodes in history where the (backward-looking) ERP is substantially below the forward-looking ERP.

5. The Ibbotson 2018 publication for a US Small Cap Utility produced a total return of 16.5% using the arithmetic average[5], which is materially higher than the 5.9% being proposed by the OUR. For the reasons discussed above, JPS is of the view that its recommended ERP of 6.6% has passed the litmus test. The Company therefore requests the OUR's favourable consideration in its deliberation of the Final Criterion for ROE.

[5] Ibbotson, R. G. (2018). 2018 SBBI Yearbook: U.S Capital Markets Performance by Asset Class 1926-2017. Duff & Phelps

Country Risk Premium

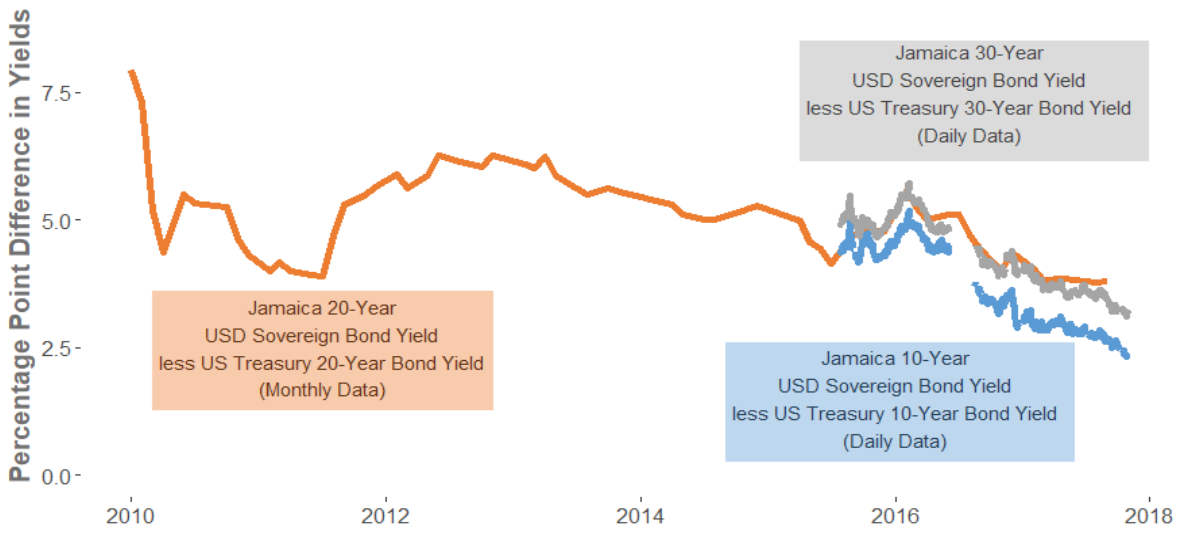
1. As is consistent with the 2018 OUR Consultation Document, JPS relied on the sovereign spread approach as being most reasonable. **Figure 1** below**,** shows the results of the computations for different maturity bonds. The Jamaica 20-year bond has the longest history, and the average yield difference is approximately 5.26% since 2009. Since the beginning of 2015, the average has been 4.4%. The yield differential on the 10-year bond is the lowest, with an average of 3.6% since 2015.

2. The OUR's proposal mismatches the maturities by comparing the Jamaican 8-year bond vs. United States 10-year bond. JPS' comparison of the Jamaican 20 and 10 year bonds vs. United States 20 and 10-year bond accurately matches both country's sovereign bond maturities. This approach is also indicative of the life of JPS' long-term capital investments.

3. The OUR's 1 and 3-year average of the sovereign spread is inconsistent with the rate review period and favourably selects the "best years" for yield-chasing investors post-2009 global financial crisis.

4. JPS has received guidance that its Lambda is in the range of 1.60, however, JPS is amenable to a Lambda of 1.10 as a conservative estimate of the added country risk, provided there is alignment on all other variable in the ROE construct.

Figure 1



JPS' proposed CAPM results as outlined in Table 2

Table 2

		JPS Current (2014)	*OUR Study*		*JPS Recommended*	
			Low	**High**	**2019-2024 Position**	**Comments**
[1]	Gearing	50%	50%	50%	50%	Agreement with OUR
[2]	Tax Rate	33.33%	33.33%	33.33%	33.33%	Agreement
[3]	Real Risk-Free Rate		2.5%	2.5%		(JPS did not use.)
[4]	Nominal Risk-Free Rate	2.9%	4.5%	4.5%	4.5%	Agreement
[5]	Equity Risk Premium	5.0%	5.9%	5.9%	6.6%	JPS recommends forward-looking ERP.
[6]	Required Market Return	7.9%	8.4%	8.4%	11.45%	(Neither party used directly.)
[7]	Avg. Country Risk Premium	5.58%	3.1%	4.2%	4.5%	JPS recommends a 3-year average spread.
[8]	Lambda (Exposure to CR)		1.00	1.00	1.10	λ of 1.10 is very conservative
[9]	Country Risk Premium		3.1%	4.2%	4.95	[7] * [8]
[10]	Unlevered Beta	0.49	0.43	0.45		
[11]	Levered Beta	0.88	0.72	0.75	0.75	Convergence
[12]	Required Return on Equity	12.25%	11.8%	13.1%	14.40%	[4]+[11]*[5]+[9]

For some of the key parameters, JPS agrees that OUR's Consultation Document values are reasonable. The main areas of disparity are:

(1) The Equity Risk Premium in row [5] of the table above. The OUR concludes that the Equity Risk Premium is 5.9%. However, JPS' forward-looking analysis of the implied cost of equity for the average stock (S&P 500) shows that the ERP is 6.6% and represents JPS' conservative estimate.

(2) The exposure to country risk, as measured by lambda in line [8]. The OUR implicitly uses 1.00 in its computations, while JPS' conservative estimate of the risks it faces is 1.10.

Consequently, JPS is proposing that Criterion 2 be adjusted and worded as follows

Criterion 2:
In computing the ROE, JPS proposes that the CAPM methodology be based on the formula below:

$$r_s = r_f + \beta[MRP] + \lambda[CRP]$$

Where;

Rf = Risk free rate

β = Beta

MRP = Market (or Equity) Risk Premium

CRP = Country Risk Premium

λ = JPS Exposure to Country Risk (expressed in Lambda)

r_s = Cost of Equity for JPS

In addition, the following should be observed with regards to the data used in the ROE calculation:

- ***i) JPS supports the computation of the nominal Rf using 30-Year Treasury Bond (Blue Chip Financial Forecast)***
- ***ii) JPS proposes β (Beta) is calculated using Five (5) year beta for all U.S. electric utilities from Bloomberg, pending the establishment of a more comparable proxy group.***
- ***iii) JPS recommends the computation of the Equity Risk Premium using FERC's two-stage forward-looking implied cost of equity estimation for the average U.S. stock***
- ***iv) JPS proposes a Country Risk Premium computation using the 3-year average of the bond yield spread of the 20 & 10-year Jamaican sovereign bond, and the U.S. Treasury 20 and 10-year bond.***
- ***v) JPS considers a Lambda λ equal to 1.10 as a conservative approach.***

2.5 Rate Base

Criterion 3:
a) Consistent with Schedule 3 (29) of the Licence 2016 the Rate Base shall be computed as follows:

$$\textit{Rate Base} = \textit{Property Plant and Equipment} + \textit{Intangible Assets} + \textit{Working Capital} + \textit{Long Term Receivables} + \textit{Other Assets} - \textit{offsets}$$

b) The components of the Rate Base identified in the above formula shall be as follows:

i. The Property Plant and Equipment ("PPE") ; along with the net book value of the company's assets it shall also include construction work in progress; offset by; impaired assets, customer financed assets (including Electricity Efficiency Improvement Fund assets), rural electrification assets, less revaluation balance/capital reserve;

ii. Intangible Assets (i.e. assets that are not physical in nature e.g. copyright, software licences)

iii. The working capital (i.e. accounts receivable + cash & short term deposits + tax recoverable + inventory – account payable – customer deposits – bank overdraft – short term loans) deployed;

iv. Long Term Receivables; and

v. Other Assets

vi. Offsets which, refer to:

- Employee benefit obligations; and
- Deferred revenue.

c) EEIF, SBF and other customer contributed assets shall not be included in the rate base but JPS will be required to list these assets along with their net book value as of December 31, 2018.

d) The value of the Electricity Disaster Fund (EDF) assets as of December 31, 2018 shall be clearly stated and shall not be included in the rate base. JPS shall also clearly identify the forecasted value of EDF assets for the 2019 – 2024 period.

Extract from the OUR's proposed criteria, Section *3.6.1: "The Rate Base is the value of the net investment in the Licensed Business. JPS' Rate Base includes the assets that are in use, will be expected to be in use over the 5-year Rate Review period and are deemed useful in providing electricity services to its customers. The Rate Base shall be based on the* ***approved net book value*** *of the company's assets for the period 2019 – 2024 as informed by JPS' Business Plan".*

The Rate Base should represent the relevant costs associated with JPS' property, plant and equipment/Intangible assets and employed in the Licensed Business to carry out the activities of the Generation, Transmission, Distribution, Supply and Dispatch. Adjustments would relate to items such as

customer financed assets (as noted above) or revaluation. It should be noted that there are no approved net book value for the future period. See proposed methodology below in Section 2.5.2

2.5.1 JPS' Response:

2.5.1.1 Criterion 3 is consistent with Schedule 3 (29) of the Licence 2016, which indicates that the Rate Base shall be computed as follows: ***Rate Base = Property, Plant & Equipment + Intangible Assets + Working Capital + Long Term Receivables + Other Assets – Offsets***

2.5.1.2 JPS would like to provide clarity on the following items identified as offset items relating to **Property, Plant and Equipment**:

1. Impaired assets – These assets would already have been written down within the existing net book value.
2. For the avoidance of doubt, customer financed assets are considered to be those assets which have been financed through the collection of tariffs, which would include assets acquired through:
    - Electricity Efficiency Improvement Fund
    - System Benefit Fund
    - Bogue Plant Reconfiguration Fund

    These assets will not be included in the Rate Base and JPS will provide a list of these assets along with their net book value as of December 31, 2018.
3. Rural electrification assets – JPS understands this to be a reference to assets acquired under terms from the Rural Electrification Programme (REP) and its successor agency the National Energy Solutions Ltd (NESOL). We disagree with the exclusion of these assets from the Rate Base, as these were acquired with JPS funds and are all JPS' assets and therefore should be included as part of the Rate Base.

2.5.1.3 **Working Capital**: whereas there is no objection to the working capital formula, we interpret working capital **deployed** to represent JPS' overall working capital requirements based on the average monthly working capital over the five (5) year Rate Review period.

1. This should be reflective of the overall working capital needs of the organization to adequately fund its activities over the corresponding rate period. This will be derived consistent with a forward looking business plan.

2. The Working capital factors should include:

- Accounts Receivables, Inventory, Cash and short-term deposits (excluding the EDF), Tax recoverable
- Less Payables, Customer deposits, taxes payable, Bank overdraft and Short term loans

2.5.1.4 Criterion 3b (vi) Offsets which, refer to **Employee Benefit Obligations;** and Deferred Revenue

The costs associated with the Employee Benefit Obligations (i.e. Sick Leave) or any deferred revenue have already been excluded from PPE/Intangible assets and the other elements of the Rate Base and therefore no further offset would be necessary.

2.5.2 Rolling Forward the Rate Base

An asset base will need to be defined for each one of the five years and in the Rate Review period. The Rolling Forward Mechanism for computing the Asset Base for each year in the Rate Review period is not defined in the proposed criteria and should be included in the Final Criteria. The following mechanism is being proposed below:

The rate base at the start of the review period, K_0, in line with the definition included in paragraph 29 of Schedule 3 to the Licence, can be defined as:

$$K_0 = PPE_0 + Intangible_0 + WC_0 + other\ assets_0$$

Where:

PPE_0: property plant and equipment, inclusive of construction work in progress, offset by: impaired assets, customer financed assets at the start of the revision period;
$Intangible_0$: Intangible assets at the start of the revision period;
WC_0: working capital at the start of the revision period calculated as account receivable operating cash +tax recoverable + inventory+ long term receivables -account payable-customer deposits-bank overdraft) at the start of the revision period;
$other\ assets_0$: other assets that satisfy the prudency and used and useful criteria.

The Rate Base at the end of each period will be computed as:

$$K_t^F = K_t^I + CAPEX_t - D_t + \Delta WC_t$$

Where:

K_t^I: is the initial asset base at year t;
$CAPEX_t$: are the capital expenditures approved for year t.
D_t: annual depreciations of assets included in the rate base in year t including any possible disposal of assets;

ΔWC_t: changes in working capital:

$$\Delta Account\ receivable_t + \Delta operating\ cash_t + \Delta tax\ recoverable_t + \Delta inventory_t + \Delta long\ term\ receivables_t - \Delta account\ payables_t - \Delta customer\ deposits_t - \Delta bank\ overdraft_t$$

Then, for each period

$$K_t^I = K_{t-1}^F$$

The Rate Base at the beginning of the period will be equal to the Rate Base at the end of the previous period.

JPS is proposing that Criterion 3.6.2 be reworded as outlined below:

For the avoidance of doubt, as provided in the Licence, it is important to note that:

1. ***The current portion of long term debt (CPLTD) should not be an off-set in the Rate Base, since this is part of the long term funding of the Licensee; and***
2. ***The Revenue Requirement shall not include any Allowance for Funds used during Construction (AFUDC)[5], since provision is made in the Rate Base for Construction work in progress (CWIP)[6].***
3. ***Customer contributed assets are considered to be those assets which have been financed through the collection of tariffs, which would include assets acquired through:***
    - ***Electricity Efficiency Improvement Fund***
    - ***System Benefit Fund***
    - ***Bogue Plant Reconfiguration Fund***

JPS is proposing the insertion of a paragraph 3.6.3 as follows:

Working Capital should be reflective of the overall working capital needs of the organization to adequately fund its activities over the corresponding rate period. This should be derived consistent with a forward looking business plan, and should include:

- ***Accounts Receivables, Inventory, Cash and short-term deposits (excluding the EDF), Tax recoverable***
- ***Less Payables, Customer deposits, taxes payable, Bank overdraft and Short term loans***

2.6 Operating Expenses

Criterion 4:
JPS in presenting its Operating expenses (OPEX) shall:
a) Clearly identify the improvement in efficiencies it expects to attain on it OPEX over the Rate Review period and the Business Plan should clearly delineate JPS' plan to improve efficiency over the rate review period.

b) Exclude from its OPEX any component associated with random events.

c) Provide details of all taxes payable by the company

d) Provide details on its power purchase costs which shall be decoupled from other operating expense to allow for a direct pass-through to customers

e) Perform its depreciation calculation on the basis of a revised deprecation schedule approved by the OUR based on a depreciation study done by the company in 2018.

f) Provide detail calculations of the increases in depreciation expenses in 2019 and beyond in order that they may be taken into account in the Rate Review.

2.6.1 JPS' Response

2.6.1.1 Paragraph 3.2 of the Proposed Criteria indicates that the Revenue Requirement includes the recovery of "prudently incurred **operating** expenses" as opposed to "prudently incurred expenses" as noted in subparagraph (b) of paragraph 27 of Schedule 3 to the Licence.

The proposed criteria then attempts to define operating expenses as noted in Section 3.7. In the interest of consistency with the Licence, the Final Criteria must retain the definitions included in paragraphs 31-34 of Schedule 3 to the Licence.

2.6.1.2 Criterion 4a of the proposed criteria indicates that the efficiencies gained on expenses should be demonstrated through the Business Plan. However, the definition of expenses must be consistent with paragraph 32 of Schedule 3 to the Licence as indicated.

i. Criterion 3.7.1 includes depreciation expenses, however, depreciation is a function of specific rules (and rates) and therefore would not be impacted by efficiency adjustments. The proposed criterion also omits any discussion on finance costs, even though these are considered prudently incurred in the Licence.
ii. In terms of the requirement that JPS identifies the "improvements in efficiency" it expects to attain in operating expenses, it is important to point out that this is not consistent with

the X-Factor mechanism included in the Proposed Criteria. In particular, the Proposed Criteria states in Section 3.11.3 Productivity Improvement Factor point 2:

"JPS´ controllable OPEX established by the Office for the base year, will be adjusted by the X-Factor to determine the adjusted controllable OPEX for each year "y" of the rate review period (2020-2023)".

OPEX can be determined using a base year and a Productivity Factor or include efficiency gains in the projections but not both.

2.6.1.3 Criterion 4b indicates that JPS should exclude from its OPEX any component associated with random events. JPS agrees, however, that this is specifically as it relates to costs which can be recovered through: (1) Electricity Disaster Fund, (2) Z-Factor or (3) Annual Revenue Target.

2.6.1.4 Criterion 4c – JPS will provide details of all taxes payable by JPS. This, however, would be specific to those taxes that would be recognised in the Income Statement, such as corporation taxes, property taxes, minimum business tax and payroll taxes (JPS' portion).

2.6.1.5 Criterion 4d – JPS has no objection to the provision of the details for the Power Purchase Agreement Costs. The OUR has indicated that the purpose of the "decoupling" is to create a specific tariff for Power Purchase expenses as compared to the current use of an embedded tariff. The design of the tariff should still take into consideration the cost fluctuations and the ability of JPS to recover variations in cost.

2.6.1.6 Criterion 4f – JPS will provide detail of its deprecation calculations as part of the 5-year Business Plan submission. The depreciation rates requirement in the proposed criteria should be consistent with the provisions of the Licence as indicated in Condition 15, paragraph 5.

JPS is proposing the following:

1. ***Paragraph 3.7 be labelled : Non-Fuel Operating Expense***
2. ***The description for Paragraph 3.7.1 be replaced by the following:***

*Non-fuel Operating Costs (**$OPEX$**)*
In ¶31, the license states that:

"31. Non-fuel operating costs: All prudently incurred costs which are not directly associated with investments in capital plant and other operating costs, which shall include but not be limited to, salaries and other costs related to employees; operating costs of generation, transmission and distribution and supply facilities; power purchase costs and other related costs including but not limited to working capital and credit support charges incurred under approved PPAs, fuel supply agreements and other

related infrastructure arrangements; interest and other financial costs on other borrowings and working capital requirements not associated with capital investment; foreign exchange results loss/(gain); rents and leases on property associated with the Licensed Business; taxes which the Licensee is required to pay other than income taxes of the Licensee; and other costs which are determined to be reasonably incurred in connection with the Licensed Business.

As indicated in Criteria 1, JPS' preference is for all financing costs including commitment fees, arrangement fees, due diligence fees, breakage fees, and legal expenses be included in the "All In" cost of debt. However, in the absence of such treatment, these financing costs should be included in the Non-Fuel Operating costs.

2.7 Revenue Recovery: Demand Forecasts

Criterion 5:
In presenting its billing data projections for the Rate Review period 2019 - 24, JPS shall:
a) Employ the model delineated above to develop its projections;

b) Disaggregate its gross losses projection before allocation to each rate class into:

i. Station Use

ii. Technical Low Voltage Losses

iii. Technical Medium Voltage Losses

iv. Unbilled (Non-technical) Losses

c) Provide annual projections for sales-kWh, demand-KVA and number of customers by rate categories;

d) Clearly indicate all assumptions (including load factor) made along with rationale for their use in its billing data projections.

2.7.1 JPS' Response

1. Manitoba Hydro International's methodology presented in Criterion 5, which is to be used for the long-term projection of JPS' billing parameters is accepted on the premise that it will be amended through a consultative process between JPS and the OUR to account for anomalies and/or omissions identified. These include but are not limited to the following:
    - Demand-KVA (or power factor estimates that can be used in conjunction with the kWh projection to calculate KVA demand),
    - kWh sales for the new rate 70 category,

- Time of Use (TOU) kWh energy and KVA demand break out for the large customer groups (Rate 40, Rate 50 and Rate 70),

2. The proposed criteria does not state how special customer contracts are to be accounted for in the revenue recovery process. JPS believes that the Final Criteria should clearly state how these customers are to be treated within the revenue recovery framework.

3. Manitoba Hydro International's methodology currently incorporates the impact of wheeling on large customer loads. However, it does not reflect a methodology by which the associated wheeling revenue should be incorporated in the revenue requirement process. JPS believes that the Final criteria should clearly state how the wheeling charges are to be treated within the revenue recovery framework.

2.8 Revenue Cap

Criterion 6:

a) The revenue cap (RCy) for each year "y" of the Rate Review period shall be set during the2019 Rate Review and will be determined as follow:

$$\boldsymbol{RC_y = T_{kWh} \cdot kWh_y + T_{kVA} \cdot kVA_y + T_C \cdot C_y}$$

b) The average kWh tariff (T_{kWh}), kVA tariff (T_{kVA}) and average customer charges (T_C) is determined by:

$$\mathbf{T_{kWh} = \Sigma_y RR_{kWh_y} / \Sigma_y kWh_y}$$
$$\mathbf{T_{kVA} = \Sigma_y RR_{kVA_y} / \Sigma_y kVA_y}$$
$$\mathbf{T_C = \Sigma_y RR_{C_y} / \Sigma_y C_y}$$

c) Delays on any specified capital project that results in a variation in expenditure of 5% or more in any given year shall trigger a commensurate adjustment to the tariff in the following year.

d) Failure by JPS to undertake any specified capital project that results in a variation in expenditure of 5% or more in any given year shall trigger a commensurate adjustment to the tariff in the following year.

e) Should an extraordinary capital expenditure or special project arise and it can be demonstrated that such an expenditure could not have been reasonably anticipated, with the Office's approval *and where the cost is greater than 10% for any given year relative to the previously agreed five year Business Plan* in any given year, this shall trigger a commensurate adjustment to the tariff in the following year.

f) Clearly indicate all assumptions (including load factor) made along with rationale for their use in its billing data projections.

2.8.1 JPS' Response

2.8.1.1 Paragraph 6 of Schedule 3 to the Licence states that: " the Licensee shall file with the Office proposed non-fuel rate schedules and shall demonstrate the non-fuel rates proposed for the various rate categories will generate the non-fuel revenue requirement on average over the five-year rate review process". As such, JPS would define non-fuel tariff rates based on the Revenue Requirement established. In addition, JPS concurs with the OUR that the Revenue Requirement will be established based on the Business Plan.

2.8.1.2 JPS recommends the following modification to the average kWh tariff (T_{kWh}), average kVA tariff (T_{kVA}), and the average customer charges (T_C) to include a discount factor to ensure there is no under-recovery or over-recovery of revenue.

The following modifications are given as follows:

1. Average kWh Tariff – T_{kWh}
2. Average kVA Tariff – T_{kVA}
3. Average Customer Charges -- T_c

$$T_{kWh} = \frac{\sum_y \frac{RR_y^{kWh}}{(1+wacc)^y}}{\sum_y \frac{kWh_y}{(1+wacc)^y}}$$

$$T_{kVA} = \frac{\sum_y \frac{RR_y^{kVA}}{(1+wacc)^y}}{\sum_y \frac{kVA_y}{(1+wacc)^y}}$$

$$T_C = \frac{\sum_y \frac{RR_y^{C}}{(1+wacc)^y}}{\sum_y \frac{C_y}{(1+wacc)^y}}$$

Where,

RR_y^{kWh} = the revenue requirement to be recovered through kWh charges for year y;

RR_y^{kVA} = the revenue requirement to be recovered through kVA charges for year "y"

RR_y^{C}= the revenue requirement to be recovered through customer charges for year y.

And,

kWh_y, kVA_y and C_y are the forecast of energy consumption, kVA demand and customer count respectively for each year "y" in the rate review period.

The revenue cap RC_Y for each year "y" in the rate review period will then be computed as:

$$RC_y = T_{kWh} * kWh_y + T_{kVA} * kVA_y + T_c * C_y$$

2.8.2 Capital Expenditure

Section 3.9.8 of the proposed criteria states that "For the avoidance of doubt, in all instances where there are variations in the capital expenditure programme, the adjustments to the tariff shall be project specific. In other words, the adjustment will be done on a project by project basis and not on the aggregation of projects."

JPS strongly objects to Section 3.9.8, as it unreasonably exposes JPS and would incentivize JPS to rigidly execute its capital programme even if circumstances dictate the need for changes.

The proposal by the OUR is inconsistent with the Licence, which measures the performance of capital programmes on an overall expenditure basis and not on a project specific basis. Additionally, the industry is dynamic and the planning of detailed projects will be subject to several variations such as pricing, asset condition, system demand, supply chain changes and project economics. The IRP, which is a key input, is currently not available and even when it becomes available is expected to be a dynamic and integral document that informs JPS' Capex. Therefore, the capital expenditure is likely to change during the rate review period as energy policy position evolves to reflect the latest technology available in the market and other changes. It is unrealistic to expect that projects planned for five years could maintain a tolerance level of 5% or less on forecasted costs.

It is on this basis that ***JPS proposes the following:***

1. ***A capital investment plan will be included in the 2019-2024 submission as part of the Business Plan. This would outline the projected capital investment, business cases, timing and indicative costing for projects for each of the five years and serve as the basis to develop rates. This would outline the programme of capital investments but not represent the final schedule and costing.***

2. ***At the end of the year prior to the investment year (e.g. December 2019 for 2020), the Company will submit the detailed project plans and cost estimates for investment activities for the year***

ahead. JPS proposes that any under or over recovery pursuant to paragraphs 46 d(v) and 48 of Schedule 3 to the Licence should be evaluated against the aggregate capital investment for the year presented in these annual plans.

3. ***JPS recommends an amendment of section 3.9.8 in the Final Criteria to incorporate 1 & 2 above.***

4. ***Changes to part d of the Criteria are recommended, as specified below:***

d) ***Failure by JPS to undertake its capital investment activities as agreed at the start of the year that results in a variation in expenditure of 5% or more in any given year shall trigger a commensurate adjustment to the tariff in the following year.***

2.9 Rate Design

Criterion 7:

a) The cost of service study shall form the basis of JPS' tariff design which, should aim much as possible to meet the regulatory objectives of:

i. Economic efficiency

ii. Revenue adequacy

iii. Cost reflectiveness

iv. Non-discrimination

v. Stability; and

vi. Predictability.

b) JPS rate design shall include proposed tariffs for distributed generation, electric vehicles, power wheeling and auxiliary interconnection, stand-by service and prepaid customers.

c) JPS should provide a full justification to support any proposals for social or economic development tariffs.

2.9.1 JPS' Response

2.9.1.1 While we agree to the development of tariffs for wheeling customers, auxiliary interconnection customers, stand-by service, prepaid customers, and distributed generators (net billing customers), the current framework does not support the creation of tariffs for electric vehicles and distributed generators generally. In order to undertake a cost reflective cost of service study in relation to these two areas, JPS would require a comprehensive plan or model which captures stakeholder input, including the Government of Jamaica and the OUR. Additionally, there is uncertainty surrounding the extent of the qualifying parameters and framework for customers that would fall within the category of thermal distributed generators to whom any such tariff would be applicable. Furthermore, as regards to tariffs for electric vehicles, a cost of service study would also need to factor in load uptake and the implementation of the appropriate metering and charging infrastructure..

2.9.1.2 The OUR is reminded that JPS previously shared the terms of reference of the current cost of service study, and JPS was not required by the OUR to capture providing electric service to electric vehicles or thermal distributed generators. This cost of service study is currently well advanced. We recommend that the OUR takes this opportunity to facilitate the creation of the necessary framework to support the future design of tariffs for both of these categories of potential customers.

2.9.1.3 Accordingly, JPS proposes that the section 3.10.3 be amended to provide the following:

"The proposed rate structure should clearly identify the tariffs for each rate class (existing and proposed) and shall include but not be limited to proposed tariffs for:

a) wheeling customers;
b) auxiliary interconnection customers;
c) distributed generator (net billing customers);
d) stand-by service;
e) prepaid customers."

2.9.1.4 Additionally, paragraph (b) of Criterion 7 should also be amended as follows:

"JPS rate design shall include but not be limited to proposed tariffs for distributed generation (net billing customers), wheeling customers, auxiliary interconnection customers, stand-by service and prepaid customers."

2.10 Productivity Improvement Factor

Criterion 8:
a) The productivity improvement factor or (X-Factor) to be used in the annual adjustment of JPS' revenue cap shall be based on a DEA analysis.

b) In the DEA analysis, only OPEX should be considered as the input factor, CAPEX shall not be included unless JPS provides a sound justification for doing so. Output factors should include kWh sales, customer count, network length and size of service area.

c) JPS shall include an updated productivity study based on its latest audited financial statement in the 2019 – 2024 Rate Review submission. The updated productivity study shall be based on the method proposed by the OUR.

d) The OUR will utilize the results of the updated productivity study to determine the productivity improvement factor (X-Factor) for the Rate Review period.

e) JPS' controllable OPEX for 2020 – 2023 shall be adjusted by the X- Factor and a factor which is the weighted average of the projected sales, demand and customer number growth rates.

2.10.1 JPS' Response

2.10.1.1 JPS agrees with the OUR in Section 3.11 of the Proposed Criteria that Schedule 3, paragraph 11 of the Licence does not include an explicit X-Factor. Therefore in respect of this Criterion, JPS wishes to establish that the Productivity Improvement as established by the Licence, is not the same as the X-Factor, and therefore requests:

1. That all reference to an X-factor in Paragraphs 3.11.1-4 be removed/amended to eliminate the word X-factor
2. Parts (a), (d) and (e) of Criterion 8 be corrected to eliminate the reference to the X-Factor;

2.10.1.2 As had been discussed with the OUR, JPS' review of the Productivity Study conducted by the OUR consultants (DNV-GL) has highlighted some formal errors in terms of both methodology and data. The formal errors identified are as follows:

- Use of wrong PPP values for certain companies
- Inclusion of companies with missing data in the sample
- Not using PPP conversion factor for countries using USD outside of the United States
- Overstating JPS´ OPEX value (improper allocation of common costs)

2.10.1.3 The requirement to use the 2018 data – latest audit financial statement – is not feasible due the statutory filing schedule required by the Licence, as well as the availability of data from other sources. JPS' submission will therefore be based on the 2017 data.
As a pre-requisite to any update of the DNV-GL Study, JPS requires access to, and has requested, the 2016 data sources used in the DNV-GL Study. The data requested are as follows:

1. The specific sources for each variable associated with their respective countries from the DNV-GL report.
2. The allocation of the cost items used in the DNV-GL report. JPS has been unable to reproduce a match between items such as operating expenses, network length and the number of customers. We have not been able to cross reference the information used in the study.
3. The methodology for the distribution of shared costs for each of the utilities.
4. The model underpinning the study.

2.10.1.4 JPS also seeks clarity on what constitutes staff costs and the components of administrative overheads. In addition, JPS is proposing that the productivity improvement be determined prior to the April 2019 submission to incorporate the value in our Financial Model and Business Plan.

JPS recommends that the Final Criteria indicates that the pool of appropriate utilities be determined by applying criteria specified by JPS to utilities including, but not limited to, those proposed in Annex 1 of the Productivity Report.

The proposed mechanism for projecting controllable OPEX – i.e. adjustment by the X-Factor and a factor which is the weighted average of the projected sales, demand and customer number growth rates is inconsistent with the provisions requiring JPS to incorporate productivity improvements into their projections of OPEX in the Business Plan. As mentioned above, we propose to eliminate the reference to Opex projections based on efficiency gains in the Business Plan included in Criteria 4.

2.10.1.5 The Proposed criteria Section 3.11.3 states that: "The results of the DEA analysis provide a measure of JPS' level of efficiency, which along with other considerations, will be used by the Office to determine an efficiency target (E_T). The Office will determine the number of years over which this target should be achieved (Y_{ET}). The Office will utilize these two factors (E_T and Y_{ET}) and any considered cap on productivity improvement in determining the final X-Factor".

The OUR should specify in the Final Criteria the "other considerations" that will go into the Office's setting of the efficiency target.

JPS recommends that the efficiency target and the number of years over which the target should be achieved must be determined by the productivity study. The Final Criteria should clearly indicate that the target be limited to the regulatory period only.

2.10.1.6 The proposed criteria Section 3.11.3 states that: "The Office reserves the right to consider other benchmarking tools such as partial benchmarking in determining the annual X-Factor adjustment." JPS again objects to the use of an X-factor mechanism. The multiplicity of factors – the incorporation of productivity improvements in Opex projections that will be adjusted by the X-Factor and another weighted average factor along with the Office's reservations of a right to consider other possible options introduces a high degree of regulatory uncertainty and a lack of clarity in the setting of this critical target.

The Final Criteria should state clearly whether the productivity factor will be based on DEA, benchmarking or a hybrid of DEA and Benchmarking. If it is the latter, it should define the weighting and specify how the productivity improvement will be determined using a combination of the two.

Section 3.11.4 states that JPS is also required to submit a partial benchmarking analysis which shall include OPEX per kWh generated, however the DNV-GL study focussed solely on Transmission and Distribution utilities.

As such, ***JPS wants to understand the basis for including this partial benchmarking analysis.***

2.11 Quality of Service Standards

Criterion 9:
JPS shall be required in its 2019 - 2024 Rate Review application to:
a) Review its performance on all the EGS over the 2014 – 2019 Rate Review period. This should also include any challenges that were or are being faced in meeting the performance criteria for these standards, as well as the proposed measures to mitigate against those challenges.

b) Indicate any proposed changes, it deems appropriate, to the EGS Scheme and provide the rationale for its proposal. This should include the proposal for the development of a List of Exemptions to the Guaranteed Standard.

c) Outline its proposed performance targets on the Overall Standards over the 2014 – 2019 Rate Review period. This should also include any challenges that were or are being faced in meeting the performance criteria for existing standards as well as the proposed measures to mitigate against those challenges.

2.11.1 JPS' Response

This proposed criterion does not address the approach of the OUR in achieving some of the Licence provisions relating to the process for the periodic review of the service standard regime. JPS recommends that the following be addressed in the Final Criteria:

1. The period to be covered in the Guaranteed Standards (GS) and Overall Standards performance reviews is 2014-2018. The Proposed Criteria extends the review to 2019, the year of the filing.
2. The Final Criteria should explicitly outline the consultation process and schedule that the Office intends to pursue to give fulfilment to Conditions 17.5 and 17.7 of the 2016 Licence.
3. In outlining a schedule for the requisite consultation, the Final Criteria should acknowledge that the Licence anticipates that the consultation, any contemplation of changes to the standards scheme and communication of these decisions should be done in a timely manner. Under the forward-looking revenue cap mechanism this should be prior to the finalisation of JPS' 2019-2024 Business Plan to facilitate incorporation of the outcomes. This allows for orderly planning and forecast, and avoids the possibility of having to trigger the specific Z factor provision for GS (Sch. 3: 46 d (vi)) under the Licence.
4. The Final Criteria should specify the criteria against which JPS' performance and proposals are to be evaluated. These could include benchmarks, international best practices and customer specific data analysis (surveys, complaints etc.) that will be relied on for guidance in the possible revision of existing standards, the setting of new ones and/or performance targets and the level and mechanism of compensation.
5. Criterion 9 (c) should be revised to read – "…overall standards over 2019-2024" instead of 2014-2019

3 Proposed Criteria: Annual Targets

3.1 Annual Adjustment Mechanism

Criterion 10:
a) In the Annual Review exercises between the 5-Year Rate Reviews, JPS' Revenue Requirement (before adjustments) shall be preserved in real terms by the Growth Rate (dI) equation:

$$dI=(EX_n-EX_b)/EX_b\{USP_b+INF_{US}(USP_b-USDS_b)\}+INF_{us}(USP_b-USDS_b)+(1-USP_b)INF_J$$

a) JPS shall provide the supporting schedules, documentation, calculations and relevant data to substantiate its Growth Rate proposals.

3.1.1 JPS' Response

JPS is satisfied with the annual adjustment mechanism as it relates to dI as stated above.

3.2 Target Setting

JPS recommends in relation to the determination of reasonable and achievable targets as per paragraphs 37 to 41 of Schedule 3 to the Licence, should take into account the level of investments required, projects implemented and other factors that could impact the performance outcome relative to targets.

3.3 Q factor: Reliability

Criterion 11:

a) In the 2019-2024 Rate Submission, JPS shall include its proposed Q-Factor Baseline, projected annual quality of service performance, and proposed annual Q-Factor targets for each of the 12-month adjustment periods, during the five (5) year price control period.

b) JPS shall provide the supporting schedules, documentation, calculations and relevant data to substantiate its Q-Factor proposals.

3.3.1 JPS' Response

3.3.1.1 JPS agrees with the Licence definition for the three (3) quality indices for the determination of the Q-Factor, SAIFI, SAIDI and CAIDI, as these are consistent with the accepted IEEE standard 1366 -2012.

3.3.1.2 The IEEE standard does not include Generation in the determination of these indices, as the reliability are directly a measure of the T&D system. Condition 24 of the Licence - Technical and Service Standards - makes reference to the Transmission System and the Distribution System and the sector has standardised on EFOR as the standard for Generation reliability. The OUR has consistently included Generation outages, and for the 2017/2018 rate adjustment period, the OUR evaluated the reliability performance of JPS' system based on prescribed output measures - Generation, Transmission and Distribution systems (reliability indicators).

3.3.1.3 JPS is requesting that the Final Criteria defines the system as the Transmission & Distribution networks and clearly specify that the reliability indices will be based on Transmission and Distribution outages only.

3.3.1.4 Due to the unavailability of the IRP, some supporting schedules will be based on historical data and projected capital spend over the next 5 years, and may require updating once the final IRP is made available.

3.3.1.5 Provision of a "Force Majeure **Period**" should be included in the criteria review, consistent with Condition 11, Paragraph 2 of the Licence. This period should be applicable at the system and localized level.

3.3.1.6 Annex 2 to the proposed criteria: A derivation of JPS Quality Indices states that: "The quality indices, including MAIFI, shall be computed by JPS in accordance with the requirements of the Licence and supported by the IEEE Guide for Electric Power Distribution Reliability". However, no reference of MAIFI is made in the Licence. JPS' existing system allows MAIFI only be measured at the Feeder Circuit Breaker level.

C***onsequently, JPS requests that the requirement for MAIFI to be removed from the Final Criteria.***

3.4 Y-Factor (System Losses) Adjustment

Criterion 12:

a) In the Rate Review application, JPS shall submit its System losses proposals covering each of the 12-month adjustment intervals of 5-year review period and which shall include:
   i. Projected losses performance,
   ii. Proposed targets and responsibility factors

b) JPS shall provide the relevant supporting schedules, which document:
   i. The details of calculations;
   ii. Energy Loss Spectrum (ELS); and
   iii. All other relevant data to substantiate its System losses projections and proposed targets.

3.4.1 JPS' Response:

Criteria Section 4.4.6 echoes the Licence at Schedule 3 (37) in stating that the targets set by the OUR, should be "reasonable and achievable" and outlines the various factors to be taken into account by the Office in satisfying this requirement. To avoid subjectivity and add more regulatory predictability and certainty around this critical performance target ***JPS recommends that the OUR in the Final Criteria indicate how it intends to factor in the considerations outlined in Schedule 3 (37) of the Licence and Section 4.4.6 of the Proposed Criteria for target setting generally, and more specifically for Losses***.

As has been historically evident, the Losses penalty can have a significant negative financial impact on the Company; this, in spite of the amendment to the Licence (moving the losses penalty from fuel to non-fuel). The treatment of Losses, even with the allocation of responsibility, can, unless limited, still have an unpredictable and unsustainable financial impact, and by extension compromise the Company's ability to

fund Losses capital initiatives and the overall Losses reduction programme. Accordingly, JPS is proposing an additional factor to Criterion 12, which it is hoped that the OUR will favourably consider and agree; which factor would be reasonable in all circumstances to avoid a limitless penalty. One proposed methodology is that the penalty should not exceed a certain percentage of the projected net income in any given year.

JPS is proposing an amendment to Criterion 12 to include a third item (iii) as follows:

Criterion 12:

c) In the Rate Review application, JPS shall submit its System losses proposals covering each of the 12-month adjustment intervals of 5-year review period and which shall include:

i. Projected losses performance,

ii. Proposed targets and responsibility factors

iii. ***Propose methodology to limit the financial impact of Y-Factor***

3.4.2 Technical Losses

Based on the requirements outlined in Annex A3.3 for Primary Distribution Losses – "Measurement and modelling approach", JPS has started using the Distribution Management System (DMS) real time power flow information which will be fully available as of November 2018 and is the preferred approach as opposed to modelling. The DMS will utilize actual measurement data on the primary distribution network that will be used to compute the associated Technical Losses.

JPS proposes that the data from the DMS be used in determining the optimal level of technical losses for the primary distribution network.

3.4.3 Non-Technical Losses

In the past there have been inconsistencies in relation to which causation factors are directly attributable to Non-Technical Losses that are considered to be within JPS' control (Y_b.): JNTL (Proposed criteria section 4.4.2).

Therefore, JPS recommends that a finite list of loss causation factors (be deemed Y_b) be determined. This list is to be agreed through the established consultative process on Losses between the OUR and JPS ahead of the submission and should at minimum consider the following:

a) ***Nature of the loss incident***
b) ***Volume of loss incidents***
c) ***Ease of identification***
d) ***Ease of correction***
e) ***Repeat occurrences***

3.4.3.1 Responsibility Factor (RF)

JPS recommends that a methodology for the development of the RF be established through collaborative consultation with JPS and the OUR, and that include an approach whereby weighting, measurement and performance indicators are established for each element of RF.

Due to the dynamic nature of losses and the variability of the factors that impact losses, JPS proposes that the target set be within a range for each year and be reviewed annually.

In determining the considerations for target setting as outlined in Section 3.4.1.2 above, JPS would welcome the OUR's consideration to alternative target setting options:

a) For example, instead of setting a discrete value, that there be a range for each year (e.g.25.5% - 24.4%).

b) JPS would welcome the continuation of the approach adopted by the OUR in reviewing the System Losses targets annually based on the actual performance of the previous year and other factors impacting losses.

4 Proposed Criteria: Fuel Cost

4.1 H-Factor (Heat Rate) Adjustment

For the H-Factor (Heat Rate) Adjustment mechanism, the Proposed Criteria establishes:

Criterion 13:

In the 2019-2024 Rate Review application JPS shall submit the following:

a) The projected annual heat rate performance and proposed targets for each of the 12-month periods (June – May) for the five (5) year Rate Review period.
b) Supporting documentation, calculations and relevant data to support its Heat Rate projections and proposed targets.

4.1.1 JPS' Response:

The proposed methodology is accepted in principle as there are no adverse constraints that will jeopardize JPS' meeting the proposed criterion. In general, the proposed criterion is a reflection of the current operating regime. However, there is a need to revise the section in the proposed criteria 5.2.1, Heat Rate Adjustment and Annex 4.

4.1.1.1 *Paragraph 40 of Schedule 3 to the Licence provides that:* "The Office shall determine the applicable Heat Rate (whether thermal, system, individual generating plants of the Licensee or such other methodology) and the target for the Heat Rate."

JPS is requesting that considerations be given to: amending section 5.2.1, to reflect the full intent of the Licence that incorporates three methodologies. In this regard, JPS is recommending that H-factor as mentioned in section 5.2.1: the words "JPS Thermal Plants" be removed from this paragraph as well as make correction for "penalizes the company for under-performing (i.e. register a lower actual heat rate)" and that it be read as:

"The overall Heat Rate for the system is indicative of the efficiency with which the generating system converts fuel into electricity. Accordingly, the Fuel Cost Adjustment Mechanism (FCAM) sets a Heat Rate performance target for the conversion of fuel to energy for JPS. FCAM is a symmetrical incentive/ penalty mechanism which allows JPS to benefit financially if it outperforms the system target (i.e. register a lower actual heat rate) and penalizes the company for under-performing (i.e. register a higher actual heat rate)."

4.1.1.2 **Considerations:** in light of the recommended amendment to section 5.2.1, the following formulae applies:

Under the FCAM, the monthly Fuel Cost Pass Through (Fm) is:

Fm **= [IPPs Fuel Cost + (JPS Fuel Cost x H)]**

Where the heat rate adjustment (H) factor is;

- **H** = (JPS Thermal Heat Rate Target **/**JPS Thermal Heat Rate Actual)

Or

- **H =** (System Heat Rate Target **/**System Heat Rate Actual)

Or

- **H =** (System Thermal Heat Rate Target **/**System Thermal Heat Rate Actual)

Or

In keeping with paragraph 40 of Schedule 3 to the Licence which makes provision for other methodology, the Heat Rate for individual unit should be explicitly stated as a possible methodology.

Therefore H-Factor for Unit Heat Rate is:

- **H= (**JPS Unit Heat Rate Target**/**JPS Unit Heat Rate Actual**)**

JPS is recommending a modification in the Final Criteria to the Heat Rate evaluation process outlined under 5.3.1 to include consultation between the OUR on the various methodologies prior to the 2019 submission.

4.1.1.3 Annex 4 – Fuel Cost & Heat Rate: Generation Dispatch Files

JPS is recommending that the "OUR" should consider the addition to Section 4.2, (h): IPPs to update their fuel price on a weekly basis to ensure accuracy of monthly bills and accurate generation dispatch.

4.1.1.4 Fuel Cost Adjustment Mechanism

There is an error in the definition of the F*m* variable in the formula to calculate the monthly fuel cost pass through in section 5.1.3 in the proposed criteria.

JPS is requesting that the formula definition for the cost per fuel kilo-watt-hour be consistent with the definition in the Licence Exhibit 2 which reads:

Fm= Total applicable energy cost per period

OR

Fuel cost pass through for the given month in J$

5 Supporting Documents

5.1 The JPS Business Plan

Criterion 14:

a) JPS shall submit a Business Plan predicated on a five (5) year time horizon and this plan shall be the basis for the Rate Review.

b) Consistent with in Schedule 3, paragraph 13 of the Licence Business Plan shall include but not be limited to the following:

i. The matters listed in the published criteria;

ii. The most recent IRP;

iii. Investment activities;

iv. System loss mitigation activities and related funding requirements;

v. Grid Security;

vi. Annual targets for losses (Y-factor), heat rate (H-factor) and quality of service (Q-factor);

vii. Operating and maintenance expenses;

5.1.1 JPS' Response

The proposed criteria document outlines the following definitions:

- "Base Year" shall comprise the latest twelve months of operation of the Licensed Business for which there are audited accounts adjusted to reflect: (i) Normal operational conditions, if necessary; (ii) Such changes in revenues and costs as are known and measurable with reasonable accuracy at the time of filing and are demonstrated as part of a five year Business Plan. The Base Year shall represent the first year of the Business Plan; and that the
- "Business Plan" shall be a five (5) year plan incorporating the final criteria set by the Office, the Integrated Resource Plan (IRP) and forms the basis for the Rate Review process to establish the non-fuel rates;

5.1.1.1 The proposed features reflects the typical content of a robust business plan, and it follows international best practice, therefore JPS has no issue with this requirement.

JPS understands the Base Year is 2018. However, based on the timing of the completion of the 2018 audited financial statements (March 2019), the 2017 audited financial statements will be used. JPS will provide a copy of the 2018 audited financial statements at the earliest it becomes available. The Company further understands that 2019 represents Year 1 (i.e. the first year) of the Business Plan.

5.2 Financial and Regulatory Accounts

Criterion 15:
JPS shall submit as 2019 – 2024 Rate Review application its:
a) 2018 Audited Financial Accounts

b) 2018 Audited Regulatory Accounts (based on the Accounting Separation Rules established by the Office and consistent with the approved Accounting and Cost Allocation Manual).

5.2.1 JPS' Response

1. Proposed Criterion 15b - As indicated in JPS' response to the Notice of Proposed Rule Making[6], to be able to report in the level of detail and the manner requested will require several activities and modifications to how the Company currently operates. As a result, the Company would not be able to provide separated accounts for the 2019 Rate Review Application.

2. The best estimate is that the year ending December 31, 2021 will be first financial year for which separated accounts can be considered. JPS will discuss the partial implementation phases with the OUR for 2019 and 2020.

3. This and several other administrative concerns identified in the draft separation rules have been communicated in our correspondence of May 18, 2018 and June 27, 2018.

4. The activities surrounding the separation of the accounts will require sufficient time for the :

    i. Preparation of an Accounting and Cost Allocation Manual
    ii. Modification of accounting processes and procedures including adjustments needed to existing chart of accounts
    iii. Modifications to our IT system (Oracle Financials)
    iv. Potential changes to our overall structure (organizational redesigns).

JPS is requesting that the final Criterion should read:

JPS shall submit as 2019 – 2024 Rate Review application its:
a) 2017 Audited Financial Accounts

b) 2018 Preliminary Financial Accounts

c) Audited Regulatory Accounts (based on the Accounting Separation Rules established by the Office and consistent with the approved Accounting and Cost Allocation Manual) should

[6] JPS response to NPRM : Accounts Separation Guidelines for JPS document in letter dated May18, 2018 to Ambassador Peter Black, Secretary to the Office

be implemented for the 2022 Annual Filing based on the financial year ending December 31, 2021

5.3 Cost of Services and Load Research Studies

Criterion 16:
JPS shall submit as part of its 2019 – 2024 Rate Review application:
a) an embedded cost of service study based on the revenue cap for 2019

b) a study done on a bottoms up Long Run Marginal Cost basis with reconciliation to the revenue cap for 2019.

c) a load research study report detailing the sampling technique and methodology used in its programme as well as an analysis of the structure of demand over a typical day (weekdays, Saturday and Sunday) for each rate class.

5.3.1 JPS' Response

5.3.1.1 Section 6.3.4 states: "The LRMC cost of service study shall include:

a) the LRMC of generation, transmission by feeder type and distribution by feeder type and the supply of one unit of additional capacity to the power system at the peak period by main voltage levels;"

b) Including three (3) other requirements (b) to (d) with which JPS has no issues.

JPS, however, wishes to make clear the point raised regarding calculation of the LRMC by Distribution feeder type. This presents two (2) main challenges that would make this approach unfeasible.

1. The first is the issue of the unavailability of a demand forecast at this granular level. All demand projections thus far factors growth only as per customer class, which can be disaggregated into either medium voltage or low voltage customers. Therefore, it is this categorization of demand that will be used in determining the LRMC at the distribution level. It is also important to underscore that this approach is in line with the existing tariff structure for medium and low voltages customers, whereby customers at either the MV or LV are charged an identical tariff independent of the connection voltage.
2. The second point to note is that the configuration of JPS distribution network is not necessarily based on the hierarchy of voltages, that is a 12KV line is not necessarily located downstream of a 24KV line. Lines are constructed on the technical and economic merits relative to the already existing and historical grid configuration.

Consequently, JPS is recommending that Section 6.3.4 (a) be amended to read "The LRMC cost of service study shall include:

a) the LRMC of generation, transmission by feeder type and distribution medium and low voltage and the supply of one unit of additional capacity to the power system at the peak period by main voltage levels".

JPS is also recommending that Section 6.3.6 be amended to read as follows:

JPS shall also establish a load research programme to determine cost allocation factors, which will be used in both the embedded and LRMC cost of service studies. In carrying out its load research programme, JPS should ensure that interval data recorders (meters), which will enable the statistical estimation of demand by hour for each rate class, are installed at the premises of a selected sample of customers in each rate class. The samples shall be selected to ensure statistical precision of peak hour demand estimate.