Office of Utilities Regulation

Final Criteria
Jamaica Public Service Company Limited
2019 – 2024 Rate Review Process

OFFICE OF UTILITIES REGULATION

2019 March 14

DOCUMENT TITLE AND APPROVAL PAGE

1. DOCUMENT NUMBER: 2019/ELE/003/RUL.001

2. DOCUMENT TITLE: Final Criteria – Jamaica Public Service Company Limited: 2019 – 2024 Rate Review Process

3. PURPOSE OF DOCUMENT:

The Final Criteria outlines the targets, principles and methodologies to be applied by the Office of Utilities Regulation concerning certain tariff components in the 2019 – 2024 Rate Review process. In accordance with the provisions of the Electricity Licence, 2016, this Final Criteria in addition to the most recent Integrated Resource Plan (IRP) and the Base Year shall form the basis of the Jamaica Public Service Company Limited's Business Plan. The Business Plan together with the cost of service study shall comprise the justification for the rate proposal.

4. ANTECEDENT DOCUMENTS:

2018/ELE/013/CON.001	Proposed Criteria – Jamaica Public Service Company Limited 2019 - 2024 Rate Review Process Consultation Document	2018 May 01
2018/ELE/023/CON.002	Further Proposed Criteria – Jamaica Public Service Company Limited 2019 - 2024 Rate Review Process Consultation Document	2018 November 09

APPROVAL:

This document is approved by the Office of Utilities Regulation and this Final Criteria becomes effective as of 2019 March 14.

On behalf of the Office:

Ansord E. Hewitt
Director General

2019 March 14

ABSTRACT

On 2016 January 27, the Jamaica Public Service Company Limited (JPS) was issued a new licence, the Electricity Licence, 2016 (the Licence). The Licence introduced a number of changes in the regulatory framework governing the electricity sector. The two most notable changes are (1) the introduction of a revenue cap approach which replaces the price cap mechanism; and (2) the substitution of a forward looking approach to the calculation of the tariff for the historic test-year approach.

The forward looking approach requires that JPS' rates be based on, among other things, forecasted expenditure, revenue and demand. While such an approach allows for a better matching of JPS' activities with its revenues, it may be problematic if there are wide variances in the projections. Consequently, the Licence stipulates that rate setting ought to be based on JPS' Business Plan which should be guided by an Integrated Resource Plan produced by the Ministry responsible for energy and a Final Criteria developed by the Office of Utilities Regulation ("OUR/Office").

In arriving at the Final Criteria, the Licence requires the Office to publish its Proposed Criteria and consult with stakeholders. The Proposed Criteria and a Further Proposed Criteria was published on 2018 May 01 and 2018 November 09, respectively. Comments and inputs were received from stakeholders and these were taken into consideration by the OUR in arriving at this Final Criteria.

SUMMARY OF FINAL CRITERIA

Criterion 1: Cost of Debt

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

d) Prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating expenses.

Criterion 2: Computation of Rate of Return on Equity

a) In computing the ROE, JPS shall use the CAPM methodology based on the formula below:

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

Where;

R_f = Risk free rate

β = Beta

TMR = Total Market Return

CRP = Country Risk Premium

b) In addition, the following shall 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 2018, one (1) year average of the bond yield spread of the ten (10) year Jamaican sovereign USD denominated bond and the US 10-year Treasury bond.

Criterion 3: The Rate Base

a) Consistent with Schedule 3, paragraph 29 of the Licence, 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;

v. Other Assets; and

vi. Offsets which, refer to:

- Employee benefit obligations; and
- Deferred revenue.

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

d) The value of the Electricity Disaster Fund (EDF) assets as of 2018 December 31, 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 Rate Review period.

Criterion 4: Non-Fuel Operating Costs/Expenses

JPS in presenting its Non-fuel operating costs/expenses (OPEX) shall:

a) Clearly identify the improvement in efficiencies it expects to attain on it OPEX over the 2019 – 2024 Rate Review period and the Business Plan should clearly delineate JPS' plan to improve efficiency over the 2019 -2024 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 detailed calculations of the increases in depreciation expenses in 2019 and beyond in order that they may be taken into account in the Rate Review.

Criterion 5: Revenue Recovery

In presenting its billing data projections for the 2019 -2024 Rate Review period, JPS shall:

a) Employ the model delineated above to develop its projections, any adjustments made to the model proposed by JPS shall be supported by a clear and logical explanation;

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; and

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

Criterion 6: Revenue Cap 2019 – 2024 and Tariff 2019/2020

a) The revenue cap (RCy) for each year "y" of the Rate Review period shall be set during the 2019 – 2024Rate Review and will be determined as follow:

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

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

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

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

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

c) JPS shall clearly indicate all assumptions (including load factor) made along with rationale for their use in its billing data projections.

d) Revenues that are generated from customers through the sales of electricity services by way of special contracts, "Top-up", "Standby", Electric Power Wheeling or any other auxiliary services shall be treated as an offset to the total Revenue Requirement.

Criterion 7: Rate Design

a) The cost of service study shall form the basis of JPS' tariff design which, should aim as much as possible to meet the regulatory objectives of:
   i. Economic efficiency
   ii. Revenue adequacy
   iii. Cost reflectiveness
   iv. Non-discrimination
   v. Stability
   vi. Predictability
   vii. Policy objectives

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

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

Criterion 8: Productivity Improvement Factor

a) The Productivity Improvement Factor (PI-Factor) to be used in the annual adjustment of JPS' Revenue Cap shall be based on a DEA analysis, the results of which may be supported by other productivity improvement study approaches.

b) In the DEA analysis, CAPEX shall not be included as an input factor unless JPS provides a sound justification for doing so. Output factors may include kWh sales, customer count, network length and size of service area or any other justifiable variables.

c) JPS shall include an updated productivity study based on its latest audited financial statement in the 2019 – 2024 Rate Review application or the prior year's audited financial data if benchmarking data is not readily available from other jurisdictions. The updated productivity study shall be based on the DEA method using the approach proposed by the OUR or an approach which is very similar and can be justified by JPS.

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

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

Criterion 9: Quality of Service Standards

JPS shall be required in its 2019 – 2024 Rate Review application to:

a) Review its performance on all the EGS over the 2014 – 2018 Rate Review period. This should also include any challenges that were or are being faced in meeting the EGS performance criteria, as well as the proposed measures to mitigate 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) In the evaluation of JPS' proposal with respect to its quality of service standards, the Office shall take into account, among other things, relevant benchmarks, international best practices and customer specific data analyses in the introduction of new standards and the revision of existing targets.

d) Outline its proposed performance targets on the Overall Standards over the 2019 – 2024 Rate Review period. This shall 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.

Criterion 10: Annual Adjustment Mechanism

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

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

b) JPS shall provide the supporting schedules, documentation, calculations and relevant data to substantiate its Growth Rate proposals, including its derivation of USP_b and $USDS_b$.

Criterion 11: Q-Factor Adjustment

a) In the 2019 – 2024 Rate Review application, 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 Rate Review period**.**

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

Criterion 12: Y-Factor (System Losses) Adjustment

a) In the 2019 – 2024 Rate Review application, JPS shall submit its system losses proposals covering each of the 12-month adjustment intervals constituting the Rate 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.

c) In the 2019 -2024 Rate Review application, JPS shall submit its System losses proposals covering each of the 12-month adjustment intervals of Rate Review period and which shall include:

   i. Projected losses performance,
   ii. Proposed targets and responsibility factors
   iii. Proposed methodology to manage the financial impact of the Y- Factor

Criterion 13: Z-Factor Adjustment for Capital Investment

In the Annual Review, a Z-Factor adjustment arising from JPS' capital investment plan may be triggered by:

- Project delays
- Unimplemented projects
- Unplanned projects; and

- Changes in project scope

In the treatment of these special circumstances, the following procedures shall be observed:

a) Delays in the implementation of specified capital projects (Major Projects or Extraordinary Maintenance Projects) that result in a variation in expenditure of 5% or more of the annual expenditure for the project category in any given year, shall trigger a commensurate Z-Factor adjustment to the tariff in the following year.

b) If for any reason, JPS does not undertake an approved capital project in the Business Plan, a Z-Factor adjustment shall be made to remove the associated project cost from the Revenue Requirement.

c) Should a Major Project or an Extraordinary Maintenance Project arises and JPS demonstrates that such an expenditure could not have been reasonably anticipated, and the cost is greater than 10% of the projected capital expenditure for any given year relative to the previously agreed Business Plan, a commensurate adjustment to the tariff in the following year shall be made with the Office approval.

d) In the event of a change in the scope of a Major Project or an Extraordinary Maintenance Project in any given year that results in at least a 10% reduction in the original capital cost, the savings derived shall be shared in a 50:50 ratio with customers. Accordingly, this shall trigger a commensurate reduction in the tariff via the Z-Factor mechanism. Any change in scope of a project shall be subject to the OUR's approval.

Criterion 14: Fuel Tariff

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

a) The projected annual Heat Rate performance and proposed targets for each 12-month period (June – May) of the Rate Review period.

b) Supporting documentation, calculations and relevant data to support its Heat Rate projections and proposed targets.

Criterion 15: Business Plan

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 Process.

b) Consistent with in Schedule 3, paragraph 13 of the Licence, the 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); and
vii. Operating and maintenance expenses

Criterion 16: Financial and Regulatory Accounts

JPS shall submit in its 2019 – 2024 Rate Review application its:

a) 2018 Audited Financial Accounts

b) Embedded Cost of Service study which clearly shows cost allocations that reflect the functionalization and classification of cost, as well as the costs associated with its non-regulated business.

Criterion 17: Cost of Service & Load Research Studies

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.

Criterion 18: Project Proposal Information Requirements

JPS shall adhere to the guidelines for reviewing of proposed projects in the Business Plan outlined in section 7 of the Final Criteria, in the submission of each project in the Business Plan and all subsequent Annual Reviews within the Rate Review period.

Criterion 19: Construction Work In Progress (CWIP)

JPS shall submit in –the Business Plan a Construction Work in Progress (CWIP) schedule. This schedule shall allow for easy tracking of CWIP and shall include, but not be limited to, the following:

a) A description of all plants/facilities under construction
b) Construction commencement date
c) Project status
d) Percentage completion
e) Projected commercial operation date (COD)
f) The capital cost of each project
g) Opening CWIP balance of each project in each year

h) Annual accumulation of the carrying cost of each project based on progress of construction
i) Asset transfers from CWIP account after COD for each project

Table of Contents

ACRONYMS, ABBREVIATIONS AND DEFINITIONS

AFUDC	-	Allowance for Funds Used During Construction
Base Year	-	The latest twelve months of operation of the Licensed Business for which there are audited accounts adjusted to reflect: 1) Normal operation conditions, if necessary; 2) 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 the Business Plan. The Base Year shall represent the first year of the Business Plan
Business Plan	-	The five (5) year plan incorporating, among other things, the Final Criteria set by the Office and the Integrated Resource Plan (IRP) which forms the basis for the Rate Review Process to establish the non-fuel rates.
CAIDI	-	Customer Average Interruption Duration Index
CAPM	-	Capital Asset Pricing Model
CCGT	-	Combined Cycle Gas Turbine
CIS	-	Customer Information System
CPI	-	Consumer Price Index
CRP	-	Community Renewal Program
CRR	-	Community Renewal Rate
Criteria/Final Criteria	-	The set of targets, conditions, methodologies and principles, which are promulgated by the Office that will govern the Rate Review Process.
CWIP	-	Construction Work In Progress
dI	-	The annual growth rate in an inflation and devaluation measure
dPCI	-	The rate of change of the Revenue Target
EEIF	-	Electricity Efficiency Improvement Fund
EGS	-	Electricity Guaranteed Standards
FAC	-	Fuel Adjustment Clause

FCAM	-	Fuel Cost Adjustment Mechanism
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
H-Factor	-	This reflects the heat rate as defined by the Office of the power generated in Jamaica versus a pre-established yearly target in the Five (5) Year Rate Review determination by the Office.
IPP	-	Independent Power Producer
IRP	-	Integrated Resource Plan
JEP	-	Jamaica Energy Partners Limited
JPS	-	Jamaica Public Service Company Limited
KVA	-	Kilo Volt Amperes
KWh	-	Kilowatt-hours
Licence	-	The Electricity Licence, 2016
Licensed Business	-	The business of Generation, Transmission Distribution, Supply and Dispatch of electricity as carried out by the Licensee under the Licence.
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
OPEX	-	Operating Expenses (prudently incurred)
OUR Act	-	The Office of Utilities Regulation Act, 1995
PBRM	-	Performance Based Rate-Making Mechanism
PPA	-	Power Purchase Agreement
PPE	-	Property Plant and Equipment
Project Model	-	A file in Excel format, which specifies, inter alia, all costs and costing assumptions used in determining the projects that are being proposed in the Business Plan.
Q-Factor	-	This is the annual allowed price adjustment to reflect changes in the quality of service provided by the Licensee to its customers. The Office shall measure the quality of service versus the annual target set in the Five Year Rate Review determination.
RE	-	Renewable Energy
Rate Review Process	-	The five (5) year rate setting process of the Office to determine the non-fuel rates to be charged by the Licensee as well as the targets related to the Licensee's performance.
Rate Review period	-	The five (5) year period being considered in the Rate Review Process.
Regulatory Accounts	-	The reports on the financial and operational performance of the Licensee in such detail and format as designed by the Office.
Revenue Cap	-	The revenue requirement approved in the last Rate Review Process as adjusted for the rate of change in non-fuel electricity revenues (dPCI) at each Annual Adjustment date as set out in Exhibit 1 of Schedule 3 of the Licence.
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
TOU	-	Time of Use
WACC	-	Weighted Average Cost of Capital
Y-Factor	-	This reflects the achieved results versus the long-term overall system losses.
Z-Factor	-	This reflects adjustment to the non-fuel rate due to special circumstances. The Z-factor is the allowed percentage increase in the Revenue Cap due to any of special circumstances delineated in the Licence.

1. INTRODUCTION

1.1 On 2016 January 27, the Jamaica Public Service Company Limited (JPS) was issued a new licence, the Electricity Licence, 2016 (Licence), which fundamentally changed the regulatory framework and the methodology for the Rate Reviews and the calculation of the tariff. The two most notable changes in the Licence arise from (1) the introduction of a revenue cap approach which replaces the price cap mechanism; and (2) the substitution of a forward looking approach to the calculation of the tariff for the historic test-year approach.

1.2 While this new rate review methodology has the advantage of being more proactive in its orientation, it relies to a significant degree on the capacity of the utility and the regulator to forecast with a fair degree of accuracy, customers' preferences; technological developments; changes in input prices; the nature of competition within the industry, as well as the trajectory of key macroeconomic variables and other elements.

1.3 Against, this background the Rate Review Process is a rigorous and time consuming one, which in order to be effective must begin at least two (2) years prior to the actual submission of the Rate Review application by JPS. A key part of the Rate Review process is the publication of the Proposed Criteria and Final Criteria fifteen (15) months and nine (9) months respectively, before the submission of JPS' Rate Review application.

1.4 The Rate Review Process is conducted at five (5) year intervals and the next such review is scheduled for 2019 April. The Final Criteria is designed to provide guidance to JPS with respect to the elements of the tariff mechanism that are integral to the Rate Review Process. In this respect, it provides a channel for stakeholders in the industry to discuss critical issues related to the tariff, thereby minimizing the risk for significant disputes after the rates are determined by the Office of Utilities Regulation (Office/OUR).

1.5 In arriving at the Final Criteria, the Licence requires that the Office publishes the Proposed Criteria and consults with stakeholders. Accordingly, the Proposed Criteria was published on 2018 May 01. Based on the comments received from stakeholders and a further review by the OUR, it became apparent that there were gaps in the Proposed Criteria which ought to be addressed. Specifically, these gaps related to: (1) guidelines for the assessment of projects in the Business Plan; and (2) the data requirement for construction work in progress (CWIP). Accordingly, the OUR took the position that it was necessary and prudent to rectify these deficiencies and issued the Further Proposed Criteria[1].

[1] Further Proposed Criteria - Jamaica Public Service Company Limited 2019 -2024 Rate Review Process Consultation Document (Document No. 2018 /ELE/023/CON.002 dated 2018 November 09

1.6 Comments were received from stakeholders on the Further Proposed Criteria. After giving due consideration to these comments along with those previously received for the Proposed Criteria, the OUR has arrived at the Final Criteria.

Structure of the Final Criteria

1.7 This Final Criteria is structured into eight (8) main sections as set out below:

1) Introduction

2) Legal and Regulatory Framework – discusses the Office's authority to conduct JPS' Rate Review Process.

3) Criteria: Five-year Rate Review Process – identifies the basis on which the utility's tariff will be established for the five (5) year period 2019 -2024.

4) Criteria: Annual Review Targets – addresses the proposed methodology to be used in the determination of the targets comprised in the Annual Revenue Target.

5) Criteria: Fuel Cost – examines how the OUR intends to set the heat rate target associated with the monthly fuel rate.

6) Supporting Documents –outlines additional information that JPS should provide in its Rate Review application.

7) Criteria: Business Plan – outlines the guidelines for reviewing proposed projects in the Business Plan.

8) Criteria: Construction Work In Progress (CWIP) – discusses the treatment of CWIP.

2. LEGAL AND REGULATORY FRAMEWORK

2.1 The primary legislative instruments governing the electricity sector in Jamaica are the Office of Utilities Regulation Act (OUR Act), the Electricity Act, 2015 and the Licence.

2.2 Pursuant to section 4(1) of the OUR Act, the OUR regulates prescribed utility services in Jamaica. Specifically, pursuant to section 4(1) (a) of the OUR Act, the Office has regulatory authority over, inter alia, the generation, transmission, distribution and supply of electricity.

2.3 Section 4(3) of the OUR Act provides, inter alia, that the Office in the performance of its functions thereunder may *"undertake such measures as it considers necessary or desirable to:*

a) "…
b) protect the interests of consumers in relation to the supply of a prescribed utility service;
c) …
d) promote and encourage the development of modern and efficient utility services…"

2.4 In addition, specific to the electricity sector, section 4(d) of the Electricity Act, 2015 provides that "the Office shall regulate the electricity sector generally." The Electricity Act, 2015 defines the Jamaican electricity market as a "Single Buyer" model and designates JPS as the Single Buyer. According to section 2 of the said Act, the Single Buyer (the sole owner of the national grid), is obliged to purchase electricity generated by independent power producers ("IPPs") and persons having net billing arrangements.

2.5 Pursuant to Condition 2 of the Licence, the generation of electricity may be carried out by several players in the industry, including JPS. However, Condition 2 further states that JPS has the exclusive right to transmit, distribute and supply electricity throughout Jamaica until 2027 July 8.

2.6 With regard to the fixing of rates, section 11 of the OUR Act provides that except in instances where *"an enabling instrument specifies the manner in which rates may be fixed by a licensee or specified organization"*:

> *"(T)he Office may, either of its own motion or upon application made by a licensee or specified organization … or by any person, by order published in the Gazette prescribe the rates or fares to be charged by a licensee or specified organization in respect of its prescribed utility services".*

2.7 More specifically, Condition 15 (1) and (2) of the Licence, which deal with price controls, provide as follows:

> *"1. The Licensee is subject to the conditions in Schedule 3.*

2. The rates to be charged by the Licensee in respect of the Supply of electricity shall be subject to such limitation as may be imposed from time to time by the Office."

2.8 Schedule 3 of the Licence, which is predicated on the revenue cap principle, sets out the principles and process of establishing rates for JPS. The revenue cap principle outlined in Schedule 3 of the Licence is as follows:

"The basis of rate setting shall be the revenue cap principle which looks forward at five (5) year intervals and involves the de-coupling of kilowatt hour sales and the approved revenue requirement."

2.9 Schedule 3, paragraphs 6 to 9 of the Licence outline the filing of JPS' Rate Review application. Paragraph 6 reads as follows:

"The Licensee shall file with the Office proposed non-fuel rate schedules and shall demonstrate that the non-fuel rates proposed for the various rate categories will generate the non-fuel requirement on average over the five year rate review process."

2.10 Thereafter, the Office, within ten (10) working days of the submission of the Rate Review application, shall indicate its acceptance or rejection of the application. The Rate Review exercise begins in earnest upon acceptance of the rate filing and pursuant to Schedule 3, paragraph 26, the OUR is mandated to make a determination within one hundred and twenty (120) days after acceptance of the application.

2.11 Pursuant to Schedule 3, paragraph 10, the publication of an Integrated Resource Plan (IRP) by the responsible ministry, the establishment of the Criteria by the OUR and the development of a Business Plan by JPS are critical to the five-year rate setting process. Paragraph 10 reads as follows:

"The Business Plan, the most recent Integrated Resource Plan ("IRP"), the published final criteria, the Base Year and the cost of service study shall comprise the justification for the rate proposal of the Licensee."

2.12 Schedule 3, paragraphs 11 and 12 stipulate as follows:

"11. The criteria published by the Office shall include but not be limited to the following:

- *Anticipated change to the demand for electricity;*
- *The productivity improvement;*
- *Allowed return on equity ("**ROE**"); and*
- *All annual targets.*

"12. The published final criteria, the most recent IRP and the Base Year shall form the basis of the Business Plan."

2.13 Schedule 3, paragraphs 19 and 20 set out the timeline within which the Proposed Criteria is to be developed, consulted on and the publication of the Final Criteria. The said paragraphs read as follows:

"19. At least fifteen months before the commencement of the Rate Review, the Office shall publish the proposed criteria for the next Rate Review process.

20. No later than twelve (12) months before the rate review, the Office shall initiate a consultative process by which the criteria should be arrived at. The Licensee and other stakeholders shall be afforded sixty (60) days to respond and comment on the criteria. Taking these responses and comments into consideration, the Office shall publish the final criteria no later than nine (9) months before the rate review."

3. CRITERIA: RATE REVIEW PROCESS

3.1 Publication and Consultation

3.1.1 The Licence stipulates that the Rate Review Process is to be conducted at five (5) year intervals, and shall be done in accordance with the revenue cap principle. Pursuant to the provisions of the Licence, the next Rate Review Process is scheduled for 2019 April. The Licence also outlines the "Pre-Rate Review Process activities", which is designed to facilitate transparency and efficiency in the Rate Review exercise. Based on the provisions of the Licence, the activities and timelines are summarized in Table 01 below:

Table 01 – Pre-Rate Review Activities and Timelines as Prescribed by the Licence

	ACTIVITY	DATE	BEFORE REVIEW (Months)	RESPONSIBLE AGENCY
A	Publication of IRP	2018 Jan	15	MSET
B	Publication of Proposed Criteria	2018 Jan	15	OUR
C	Consultation on Proposed Criteria			
C1	Commencement of Consultation	2018 Apr	12	OUR
C2	Feedback	2018 Apr - Jun	12 - 10	JPS/Stakeholders
C3	Publication of Final Criteria	2018 Jul	9	OUR
D	Submission of Rate Review Application	2019 Apr	-	JPS

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 IRP. Having regard to the fact that the initial publication of the Proposed Criteria was meant to facilitate consultation with stakeholders and, in view of the continued delay in the publication of the IRP, the OUR took the decision to proceed directly to the consultation process without the benefit of the IRP. Hence, the Proposed Criteria was published on 2018 May 01. However, a number of issues arose out of the Consultation which revealed that there were serious gaps in the Proposed Criteria. Consequently, the OUR considered it prudent to rectify these deficiencies by way of the Further Proposed Criteria on 2018 November 05.

3.1.3 The Final Criteria is the outcome of the consultation from the Proposed Criteria and the Further Proposed Criteria.

3.2 Revenue Requirement

3.2.1 The Licence defines Revenue Requirement as the non-fuel cost that the Licensee should recover through the non-fuel rates. This is so because the fuel cost net of efficiency adjustments is passed on directly to customers through the tariffs.

3.2.2 The Revenue Requirement under the revenue cap principle comprises two (2) main elements:[2]

a. The Return on investment (ROI) for the Licensed Business;[3] and

b. Recovery of all prudently incurred expenses of the Licensed Business including:

i. Non-fuel operating costs/expenses
ii. Depreciation
iii. Taxes

3.2.3 The Revenue Requirement may be expressed as follows:

$$RR = ROI + OPEX + D + T$$

Where:

RR	= Revenue Requirement
ROI	= Return on investment; and
OPEX	= Non-fuel operating costs/expenses (prudently incurred)
D	= Depreciation
T	= Taxes

3.2.4 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.

3.3 Return on Investment

3.3.1 The ROI is the product of the utility's Rate Base (RB) and its Weighted Average Cost of Capital (WACC). Mathematically, this may be expressed as:

$$ROI = RB \; x \; WACC$$

Where:

RB	= Rate Base
WACC	= Weighted Average Cost of Capital

[2] Schedule 3, paragraph 27 of the Licence

[3] The ROI is the net investment (Rate Base) in the Licensed Business multiplied by the WACC to calculate the capital recovery. The calculation of the Rate base is set out in Schedule 3, paragraph 29 of the Licence.

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[4]:

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

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.

3.4 Cost of Debt

3.4.1 Consistent with the practice in previous Rate Reviews, the cost of debt should be based on the weighted average borrowing cost for JPS' long-term debt. The approved cost of debt in the 2014 – 2019 Rate Review was 8.07%.

3.4.2 All prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating costs/expenses.

3.5

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

d) Prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating expenses.

Rate of Return on Equity

[4] Note, $\left(\frac{D}{D+E}\right)$ represents the 'gearing ratio'.

3.5.1 In all previous Rate Reviews conducted by the OUR, the Capital Asset Pricing Model (CAPM) approach has been the methodology used for the determination of JPS' approved Return on Equity (ROE). While there has been acceptance on the part of both JPS and the OUR of the CAPM approach, there have been disagreements with respect to the interpretation and application of specific components of the methodology. In this regard, the OUR engaged the services of global economic consultant, NERA Economic Consulting, in 2017 to provide advice on an appropriate approach to the determination of the ROE for JPS.

3.5.2 In keeping with the requirements of Schedule 3, paragraph 30 (c) of the Licence, the OUR in carrying out the assessment of the ROE, sought and obtained guidance from the Bank of Jamaica (BOJ). In addition, JPS was consulted during the exercise and the OUR shared the results of the study with the company and the Ministry of Science, Energy and Technology (MSET).

Comparison of ROE Methodologies

3.5.3 The OUR at the outset made no assumptions with regards to the use of the CAPM approach. As such, the CAPM approach was compared with the Dividend Growth Model and the Market to Asset Ratios method. Arising from this exercise, the OUR concluded that the CAPM model remains the most appropriate model for estimating JPS' ROE for the following reasons:

- CAPM has very ***strong theoretical underpinnings*** that are supported by empirical evidence for explaining stock returns, including those in emerging markets.
- The ***practicality of its use in the Jamaican context*** particularly, as it relates to access to relevant data.
- It affords ***balanced regulatory discretion*** regarding the estimation of the parameters in the CAPM formulation.

3.5.4 In general, the data required for estimating the ROE under the CAPM is readily available and the application of different methodologies for estimating individual parameters has been extensively debated in international regulation. In this regard, the CAPM methodology allows JPS and the OUR to draw on international best practice in the calculation of the ROE.

The Computation of the ROE

3.5.5 It is worth noting that the CAPM model now being applied by the OUR deviated in some respects from the one employed by the OUR in the 2014 – 2019 Rate Review. Table 02 below provides a comparison of the proposed approach to the CAPM calculation of ROE versus the approach employed by the OUR in the 2014 – 2019 Rate Review.

Table 02: The Proposed ROE Approach vs. the Approved 2014 – 2019 Rate Review Approach

CAPM Parameter	2019 – 2024 OUR Proposal	Rationale	2014 – 2019 Rate Review	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	20-year Treasury Bond	• Used a point in time estimate instead of historical data to reflect the fact that ROE is forward-looking • Suggested the tenure of the bond should reflect the investment duration (life) of JPS assets
Beta (β)	Professor Damodaran's Power Sector data		Five (5) year beta for all U.S. electric utilities from Bloomberg database.	• Adjusted to include only power utilities • Excluded energy and infrastructure funds, renewable energy suppliers and manufacturers and oil and gas exploration and distribution firms
Mature Market Equity Risk Premium (MMRP)	Computed indirectly by subtracting the risk free rate (R_f) 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	S&P 500 implied equity risk premium	• Accepted JPS' proposal • ROE should be forward looking so implied equity risk premium was more reflective of market expectations
Country Risk Premium (CRP)	1 and 3 year average of the bond yield spread of the 10 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	Spread between Jamaican sovereign bond and US 10-Year Treasury bond as at end of test year (Dec 31, 2013) The OUR determined the return on a 10-year Jamaican sovereign bond by constructing a yield curve.	• Used a point in time estimate instead of historical data to reflect the fact that ROE is forward-looking • Accepted JPS proposal to multiply the CRP by beta

3.5.6 By applying the proposed approach delineated in Table 02 and based on the latest data available in 2017, JPS nominal ROE was computed to be in the range of 11.9% to 13.2%. The CAPM parametric values are shown in Table 03 below.

Table 03
2017 ROE Range for JPS compared to OUR 2014 Estimate

	2017			
	Low	**High**	**OUR 2014**	**2017 Approach**
Gearing	50%	50%	50%	OUR estimate for 2014
Tax rate	33%	33%	33%	Jamaica 2017 corporate tax rate
Real Risk-free rate	2.5%	2.5%	-	US long-run historical average of bond returns
Nominal Risk-free rate	4.5%	4.5%	2.9%	Real RfR inflated by US medium-term 2% inflation target
Equity Risk Premium	5.9%	5.9%	5.0%	US long-run historical average of stock returns
Total Market Return	8.4%	8.4%	7.9%	*Calculation: sum of Risk-free Rate and ERP*
Country Risk Premium	3.10%	4.20%	5.58%	1Y Avg and 3Y Avg of Difference between Jamaican and US sovereign bond yields
Unlevered Beta	0.43	0.45	0.49	Current and 6Y Avg beta from Damodaran global utilities (power) comparators
Levered Beta	0.72	0.75	0.88	*Calculation*
Return on Equity (based on NERA CRP formula)	**11.9%**	**13.2%**	**-**	***Calculation***
Return on Equity (based on OUR 2014 CRP formula)	**11.0%**	**12.1%**	**12.2%**	***Calculation***

Source: OUR/NERA analysis

Criterion 2:

a) In computing the ROE, JPS shall use the CAPM methodology based on the formula below:

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

Where;

R_f = Risk free rate

β = Beta

TMR = Total Market Return

CRP = Country Risk Premium

b) In addition, the following shall 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 2018, one (1) year average of the bond yield spread of the ten (10) year Jamaican USD denominated sovereign bond and the US 10-year Treasury bond.

3.6 The Rate Base[5]

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 2019 – 2024 Rate Review period and are deemed useful in providing electricity services to its customers. The

[5] Schedule 3, paragraph 29 of the Licence

Rate Base shall be based on the approved net book value of the company's assets for the period 2019 – 2024 as informed by the Business Plan.

Criterion 3:

a) Consistent with Schedule 3, paragraph 29 of the Licence, the Rate Base shall be computed as follows:

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

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 this 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;

v. Other Assets; and

vi. Offsets which, refer to:

- Employee benefit obligations; and
- Deferred revenue.

c) Electricity Efficiency Improvement Fund (EEIF), System Benefit Fund (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 2018 December 31.

d) The value of the Electricity Disaster Fund (EDF) assets as of 2018 December 31, 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 Rate Review period.

3.6.2 For the avoidance of doubt, as provided in the Licence:

1. The current portion of long term debt (CPLTD) shall 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)[6], since provision is made in the Rate Base for Construction work in progress (CWIP)[7].
3. Customer contributed assets or assets that are not a normal part of JPS' revenue stream but are financed through the tariffs or other means approved by the OUR shall not be included in the company's rate base. Such assets would include those acquired through, the EEIF, the SBF, Bogue Plant Reconfiguration Fund or any similar fund.

Reporting of Property Plant and Equipment

3.6.3 At the time of filing its Rate Review application, JPS shall submit its fixed asset register, in a format (preferably Excel format) that separates each asset into its various asset class/sub-categories. That is, property plant and equipment shall be broken down into its respective sub-categories namely: land and buildings, production (generation) plant and equipment, transmission and distribution plant and equipment, general plant and machinery, computer equipment, office fixtures and fitting and CWIP.

3.7 Non-Fuel Operating Costs/Expenses

Non-Fuel Operating Expense:

3.7.1 In keeping with paragraph 31 of Schedule 3 of the Licence, Non-fuel operating costs means "*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...*"

[6] AFUDC represents the net cost for the period of construction of borrowed funds used for construction purposes and a reasonable rate on other funds when so used.

[7] CWIP represents the balance of funds, which are invested in the utility plant under construction but not yet placed in service.

3.7.2 From a regulatory perspective any item of cost to be included in the company's OPEX for the purposes of establishing the Revenue Requirement, must be necessary and prudently incurred. In addition, under the Revenue Cap regime, it is expected that JPS will achieve operational efficiencies over time. In light of this, JPS shall be required to clearly identify the improvement in efficiencies it expects to attain on its OPEX; and same shall be reflected in the Business Plan to be filed with the Office.

OPEX attributable to Random Factors

3.7.3 Inevitably, some operating expenses of the Licensed Business will arise from sporadic or unplanned events such as storms, foreign exchange losses/gains and changes in tax policy. Such events may have significant implications for the profitability of the Licensed Business. Random events that impact the company's costs are provided for through:

a) The Annual Revenue Target Mechanism

b) The Z-Factor component of the Revenue Cap mechanism

c) The Electricity Disaster Fund (EDF)

3.7.4 In this regard, JPS will not include any provision in its OPEX forecasts on account of random events.

Taxes

3.7.5 The Licensed Business is required to pay a variety of taxes, including General Consumption Tax (GCT), import taxes, income taxes and property taxes. These taxes are all included in allowed operating expenses since they are payable under the law.

Power Purchase Cost

3.7.6 Schedule 3, paragraph 31 of the Licence specifies that power purchase costs are a component of the non-fuel operating costs and is therefore correctly an operating expense. However, it is recognized that operating expenses can be classified into two categories; "production" and "non-production" costs. For reasons of transparency and accuracy in the attribution of cost, it is sometimes necessary to separate these costs by way of a decoupling mechanism. One purpose for employing such a mechanism is to isolate the cost over which the utility actually has control in the short run (i.e. the period between rate cases).[8]

3.7.7 Currently, non-fuel power purchase cost is an embedded component in JPS' non-fuel tariff and fluctuations in the monthly non-fuel power purchase costs are addressed via adjustments to the fuel rate. However, the fact that these costs are embedded in the non-fuel tariff and the annual adjustment to the tariff by growth rate (dI) is not usually in sync with the escalation

[8] Regulatory Assistance Project (RAP); "Revenue Regulation and Decoupling: A Guide to theory and Application" November 2016. http://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decoupling-guide-second-printing-2016-november.pdf

factors in the various power purchase agreements (PPAs), which may lead to under or over-recovery of power purchase costs.

3.7.8 Given that the non-fuel power purchase cost is recognized as a part of JPS' OPEX, even though it is out of the control of JPS, it should be decoupled from other non-fuel costs and treated as a direct pass through on customers' monthly bill.

Depreciation

3.7.9 The regulatory literature defines depreciation, essentially, as the decline in or loss of value in an asset. Depreciation is also a systematic and rational accounting process that is used to allocate (not valuate) tangible capital assets less salvage value (if any), over the estimated useful life of the item. The costs are allowed operating expense, which results in the reduction of the Rate Base.

3.7.10 Condition 15 (5) of the Licence provides as follows:

> "*Annual depreciation allowance shall be computed by applying reasonable annual straight line depreciation rates to the value of property, plant and equipment stated at book value…"*

3.7.11 In addition, Schedule 3, paragraph 32 of the Licence also makes provisions for the derivation of the depreciation component to be:

> *"…calculated by applying annual depreciation rates, as provided at Schedule 4 (as may be updated from time to time in accordance with this Licence), to the gross value of the individual plant assets accounts included in the approved Rate Base*[9]."

3.7.12 In an Extraordinary Rate Review submission to the OUR on 2016 October 25, JPS claimed that changes in its depreciation rates set out in Schedule 4, which were introduced in the Licence, had resulted in a cost impairment of US$13.4M in 2016 and incremental depreciation expenses amounting to US$15.1M over the period 2017 – 2018.

3.7.13 In the Extraordinary Rate Review 2017 Determination Notice[10], the OUR determined that JPS was entitled to recover the said cost impairment and incremental depreciation expenses up to 2018 December 31, in its tariff. However, the final decision on the magnitude of the adjustment was delayed until the 2017 Annual Review. In the Annual Review 2017 Determination Notice[11], compensation was effected by way of an adjustment to the Revenue Requirement.

3.7.14 Notably, the incremental depreciation for 2019 and beyond is still to be addressed. The Office in Determination 1 of the Extraordinary Review 2017 Determination Notice stated that *"[a]ll projected increases in depreciation expenses in 2019 and beyond shall be*

[9] See Schedule 4 of the Licence – Schedule of Rates for Depreciation

[10] Jamaica Public Service Company Limited Extraordinary Rate Review 2017 Determination Notice, Document No. 2017/ELE/001/DET.001 dated 2017 February 1

[11] Jamaica Public Service Company Limited Annual Review 2017 & Extraordinary Rate Review – CPLTD: Determination Notice, Document No. Ele 2017/ELE/006/DET.003 dated 2017 August 31

addressed in future Five Year Rate Reviews". Therefore, the 2019 – 2024 Rate Review shall also take into account, the incremental depreciation arising from the changes to the depreciation schedule in 2016.

3.7.15 Further, in the Extraordinary Review 2017 Determination Notice, the Office concluded that:

> *"Based on the evidence that the existing depreciable lives in Schedule 4 of the Licence 2016 may be predicated on an analysis that is less than robust, JPS shall be required to conduct a new depreciation study following guidelines established by the OUR. Such a study is to be conducted prior to its application for the 2019 Five Year Rate Review.*[12]*"*

This study is to be filed with the OUR on or before 2019 April 30.

Criterion 4:

JPS in presenting its Non-fuel operating costs/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 shall 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 detailed calculations of the increases in depreciation expenses in 2019 and beyond in order that they may be taken into account in the Rate Review.

3.8 Revenue Recovery

[12] Determination 2, ibid 9

3.8.1 The Licence mandates that JPS' Revenue Requirement shall be recovered through the rates approved by the OUR.[13] JPS, as in the case of many electric utilities, recovers its revenues over three different billing variables:

1. Energy consumption – kWh
2. Power demand – kVA
3. Number of customers

3.8.2 Pursuant to the Licence, JPS' tariff will now be based on a five (5) year forecast rather than a one (1) year historical test year regime which existed previously. Therefore, the billing variables assume greater significance when compared to previous Rate Review exercises, particularly, because of the change from the price cap regime to the revenue cap methodology. In this regard, the over or under projection of the billing variables may result in JPS' profit falling outside of an acceptable band which could put excessive pressure on the review process by way of Z-Factor adjustments or Extraordinary Rate Reviews within the Rate Review period.

3.8.3 In addition, the rapid development in renewable technologies and changes in consumer energy preferences could make the conventional forecasting tools used in the Jamaican context less reliable.

3.8.4 Against this background, the OUR in the last quarter of 2017 with the assistance of MSET engaged the services of forecasting experts, Manitoba Hydro International Limited (MHI), to review the OUR's demand forecasting methodology. This review primarily focused on kWh sales, since kVA demand is derived from it and customer numbers are generally (but not always) derived from simple interpolation. A consultative approach was adopted in the review and both JPS and MSET participated in the exercise.

3.8.5 The methodology adopted by the OUR in developing the long term demand forecasts, incorporates the following three (3) steps:

1. The employment of a model that uses a combination of extrapolation, statistical and econometric approaches in forecasting the model variables for each rate class.
    a. Rates 10, 20, 40 and 60 customer categories are based on projections of number of customers multiplied by projected unit consumption (average consumption) for the rate class.
    b. Rate 50 sales forecast is derived from a regression analysis of total sales. Table 04 below provides a summary of the final factors used to develop the base forecast of the number of customers and unit consumption for each rate class or, in the case of Rate 50, total consumption.

[13] Schedule 3, paragraph 28

2. The computation of gross system losses by adding net system losses to station use. The model projected net system losses and station use from extrapolated trends, but also considered JPS' system loss reduction plans and JPS' stated objective of reducing station use over time[14]. Each component of gross system losses is allocated to the rate classes to derive gross electricity kWh consumption.
3. The derivation of projected system peak demand, using the following methodology:
    a. The estimation of the system load factor from recent historical trends, which is held constant across the forecast horizon.
    b. The computation of the peak demand for each year, by dividing the projected gross generation by the number of hours in the year multiplied by the system load factor.
    c. The estimation of the contribution of each rate class to the system peak, using JPS' 2009 load research information (coincident and non-coincident peak data).
    d. Adjustments to the system peak contributions through a reconciliation process which adjusts the non-coincident and coincident factors[15].

[14] See the MHI's Report dated 2018 XXX (p.72-73) for the proposed plans for system losses reduction and its allocation between its various sub-components (i.e. Station Use, Technical Low Voltage Losses, Technical Medium Voltage Losses and Unbilled (Non-technical) Losses)

[15] See the MHI's Report (p.74-75) for the details

Table 04: Summary of Variables used in Demand Forecast Model

Rate Class	No. of customers	Unit (Average) consumption	Total Consumption	Comments
Residential (R10)	▪ Number of households	Average consumption extrapolated from average growth between 2005 and 2016	Number of customers × Average consumption	Rate Class is divided into: • Block 1 – Consumption ≤ 100kWh/month • Block 2 Consumption > 100kWh/month Analysis completed for each block and then aggregated MHI conducted a demographic analysis to forecast growth in the number of households.
Small Commercial (R20)	Population over age 15	▪ Wholesale and retail trade per capita ▪ Government services per capita	Number of customers × Average consumption	The forecasts of consumption for two (2) large interchange customers were done separately and then aggregated with the total consumption for the other Rate 20 customers
Large Commercial LV (R40)	Customer growth rate estimated from historical trend	▪ Mining and Quarrying component of GDP growth rate ▪ Hotel and restaurants component of GDP growth rate ▪ Electricity and Water Supply component of GDP growth rate	Number of customers × Average consumption	
Large Commercial LV (R50)			Producers of Government Service as a component of GDP	Total consumption was adjusted for expected changes in load due to analysis of expansion and demand reduction plans supplied by JPS' key account customers
Street Lighting (R60)	Customer growth rate extrapolated from trend from 1997 - 2016	Urban population growth rate	Number of customers × Average Consumption	Forecast of total sales was adjusted for expected reduction in sales due to the street light replacement programme which is expected to be completed by 2021

3.8.6 Based on the methodology outlined above, the demand forecast (kWh) by rate class for the period 2016 – 2040 was derived (see Table 05 below). These results represent the base case and may be adjusted/updated through the OUR-MSET-JPS consultative process.

Table 05 – Demand forecast results by Rate Category 2016-2040

	Sales in GWh							Total	Generation	Peak (MW)	Peak (MW)	Load
Year	Rate 10	Rate 20	Rate 40	Rate 50	Rate 60	Others	Total	Losses	Requ. (GWH)	Calculated	Adjusted	Factor
2016	1,079	599	784	626	71	25	3,184	1,178	4,362	655	656	76.0%
2017	1,097	601	787	614	71	26	3,196	1,167	4,363	656	656	76.0%
2018	1,115	604	801	596	72	27	3,215	1,100	4,315	649	649	75.9%
2019	1,134	607	828	578	74	28	3,249	1,040	4,289	645	645	75.9%
2020	1,154	612	850	561	76	28	3,281	980	4,261	641	641	75.9%
2021	1,175	616	883	555	79	29	3,337	927	4,264	641	642	75.9%
2022	1,192	625	919	555	81	30	3,403	904	4,307	647	648	76.0%
2023	1,210	634	954	557	84	31	3,471	881	4,352	653	654	76.1%
2024	1,229	644	989	564	87	32	3,545	858	4,403	660	661	76.1%
2025	1,248	653	1,024	576	90	33	3,624	836	4,460	668	669	76.2%
2026	1,267	664	1,060	594	93	34	3,712	815	4,527	678	679	76.3%
2027	1,287	674	1,096	618	96	35	3,806	796	4,602	689	689	76.3%
2028	1,308	684	1,131	647	99	36	3,904	789	4,693	702	702	76.4%
2029	1,329	696	1,165	682	101	36	4,010	781	4,791	716	717	76.4%
2030	1,351	709	1,198	722	104	37	4,121	773	4,894	730	731	76.5%
2031	1,373	722	1,232	763	107	38	4,236	765	5,001	746	747	76.5%
2032	1,391	737	1,266	803	110	39	4,347	755	5,102	760	761	76.6%
2033	1,410	753	1,300	844	113	40	4,460	744	5,204	774	775	76.7%
2034	1,429	770	1,335	886	116	41	4,576	764	5,340	794	795	76.8%
2035	1,448	786	1,371	928	119	42	4,694	783	5,477	814	814	76.8%
2036	1,468	803	1,407	970	122	43	4,811	803	5,614	833	834	76.9%
2037	1,487	819	1,443	1,013	125	43	4,931	822	5,753	853	854	77.0%
2038	1,508	836	1,480	1,056	127	44	5,051	843	5,894	873	874	77.0%
2039	1,528	853	1,517	1,100	130	45	5,174	863	6,037	894	895	77.1%
2040	1,550	870	1,554	1,144	133	46	5,297	884	6,181	915	916	77.1%
Average annual growth Rates in percentages												
2016 - 2020	1.7%	0.5%	2.0%	-2.7%	1.6%	3.3%	0.8%	-4.5%	-0.6%	-0.6%	-0.6%	0.0%
2020 - 2025	1.6%	1.3%	3.8%	0.5%	3.5%	2.9%	2.0%	-3.1%	0.9%	0.9%	0.9%	0.1%
2025 - 2030	1.6%	1.6%	3.2%	4.6%	3.0%	2.5%	2.6%	-1.6%	1.9%	1.8%	1.8%	0.1%
2030 - 2035	1.4%	2.1%	2.7%	5.1%	2.7%	2.3%	2.6%	0.3%	2.3%	2.2%	2.2%	0.1%
2035 - 2040	1.4%	2.1%	2.5%	4.3%	2.3%	2.0%	2.4%	2.4%	2.4%	2.4%	2.4%	0.1%
2016-2040	*1.5%*	*1.6%*	*2.9%*	*2.5%*	*2.6%*	*2.6%*	*2.1%*	*-1.2%*	*1.5%*	*1.4%*	*1.4%*	*0.1%*
2016-2033	*1.6%*	*1.4%*	*3.0%*	*1.8%*	*2.8%*	*2.8%*	*2.0%*	*-2.7%*	*1.0%*	*1.0%*	*1.0%*	*0.1%*
2016-2030	*1.6%*	*1.2%*	*3.1%*	*1.0%*	*2.8%*	*2.9%*	*1.9%*	*-3.0%*	*0.8%*	*0.8%*	*0.8%*	*0.0%*

Criterion 5:

In presenting its billing data projections for the 2019 – 2024 Rate Review period, JPS shall:

a) Employ the model delineated above to develop its projections, any adjustments made to the model proposed by JPS shall be supported by a clear and logical explanation;

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; and

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

3.9 Revenue Cap 2019 – 2024 and Tariff 2019/2020

3.9.1 Schedule 3, paragraph 6 of the Licence requires that JPS demonstrates that its proposed non-fuel rates for the various rate categories will generate the non-fuel Revenue Requirement on average over the Rate Review process. It is on this basis that the OUR will establish the Revenue Requirement and an annual revenue cap (RC) for each of the five (5) years of the Rate Review period and the tariffs for 2019/2020.

3.9.2 The approved non-fuel revenue requirement for each year of the Rate Review period shall be determined by the OUR following an analysis of the Business Plan and financial model.

3.9.3 The OUR, in establishing the revenue caps over the Rate Review period, is mindful of a key regulatory objective of maintaining price stability. In this regard, while the Revenue Requirement for each year between 2019 & 2024 will be established on the basis of the Business Plan, the revenue cap for each year is designed to ensure that:

1) Non-fuel rates for the various rate categories will generate the non-fuel Revenue Requirement on average over the Rate Review period; and

2) The tariffs are relatively stable from year to year.

3.9.4 In light of this, the following outlines how the annual caps (RC) are to be derived:

The average tariff over the Rate Review period, denoted as *T*, is decomposed into three components:

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

The computation of each of the components is given as follows:

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

$$\mathrm{T_{KVA}} = \frac{\sum_y \frac{RR_y^{KVA}}{(1+wacc)^y}}{\sum_y \frac{KVA_y}{(1+wacc)^y}}$$

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

Where,

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

RR^{kVA}_y = the revenue requirement to be recovered through kVA charges for year y RR^{C}_y = the revenue requirement to be recovered throw 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.

3.9.5 The revenue cap RC_y for each year "y" in the Rate Review period will then be computed as:

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

3.9.5 In order to protect customers from delays in the implementation of JPS' capital expenditure programme, Schedule 3, paragraph 46(d) (iii) of the Licence stipulates:

"where the Licensee's capital & special program expenditure are delayed and such delay results in a variation of 5% or more of the annual expenditure, the Z-factor adjustment will take into consideration the over-recovery of such expenditures plus a surcharge at the WACC;"

3.9.6 In addition, Schedule 3, paragraph 48 states that the failure by the Licensee to undertake activities in its capital programme should be treated as follows:

"If the Licensee does not undertake the investment activities stated in the Business Plan on an annual basis, subject to a variation of 5% of the annual expenditure, the Office shall adjust the next year's rates commensurate with the present value amount that was given to the Licensee in the rate but was not utilized for the investment activities…"

3.9.7 On the other hand, to protect JPS from unplanned increase in its capital expenditure programme, Schedule 3, paragraph 46(d)(v) states that the Z-factor adjustment is necessary,

"where the Licensee demonstrates and the Office agrees that an extra-ordinary level of capital expenditure or a special programme is required (i.e. greater than 10% for any given year relative to the previously agreed five-year Business Plan)"

3.9.8 For the avoidance of doubt, in all instances where there are variations in the capital expenditure programme, the adjustments to the tariff shall be consistent with classification of projects (i.e. Major Project, Extraordinary Maintenance Project and Minor Project) delineated in Section 4.5.

3.9.9 Pursuant to section 14 of the OUR Act, JPS may enter into special contracts for the supply of electricity. In such instances, the recoverable revenues (actual or projected) from customers with special contracts, shall be an offset to the total Revenue Requirement.

3.9.10 Condition 12 of the Licence mandates JPS to implement an Electric Power Wheeling service for customers with an annual average demand in excess 1 MVA in accordance with such terms and conditions as are approved by the Office. Given, the nature of Electric Power

Wheeling services which involves imbalances between supply and demand, JPS will be required to provide "Top-up" or "Standby" services to power wheeling customers.

3.9.11 Recoverable revenues from the use of the system by way of "Top-up" or "Standby" services or any other auxiliary services shall be treated as outside of the total Revenue Requirement. These categories of services shall be included in the Revenue Requirement and tariff basket when sufficient billing and cost data becomes available.

3.9.12 Revenues projected by JPS to be earned through the sale of electricity based on special contracts between JPS and its customer shall be deducted from the total Revenue Requirement.

Criterion 6:

a) The revenue cap (RCy) for each year "y" of the Rate Review period shall be set during the 2019 – 2024 Rate Review and will be determined as follow:

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

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

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

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

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

c) JPS shall clearly indicate all assumptions (including load factor) made along with rationale for their use in its billing data projections.

d) Revenues that are generated from customers through the sales of electricity services by way of special contracts, "Top-up", "Standby", Electric Power Wheeling or any other auxiliary services shall be treated as an offset to the total Revenue Requirement.

3.10 Rate Design

3.10.1 In developing its proposed rates, the Licence prescribes that JPS follow the following rate design principles[16]:

1. Cost reflectiveness
2. Economic efficiency
3. Non-discriminatory cost allocation and transparency
4. Compliance with all applicable rules and regulation
5. Consideration of GOJ policy directives with respect to the electricity sector

3.10.2 In addition, as a matter of Prudent Utility Practice, JPS should also aim as much as possible to meet the following, often conflicting regulatory objectives[17]:

1. Revenue adequacy
2. Stability and predictability
3. Simplicity

3.10.3 As a part of its Rate Review application, JPS is required to conduct and submit a cost of service study. This study shall be used as the basis for establishing tariffs for each rate class which (with the possible exception of prepaid customers), shall at minimum include customer charges and non-fuel energy charges. Standard and Time of Use (TOU) demand charges shall also be incorporated for applicable rate classes. 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) distributed generation (renewable and thermal)
b) electric vehicles
c) wheeling customers
d) auxiliary interconnection customers
e) stand-by service
f) Prepaid customers.

3.10.3 JPS may also propose social tariffs and any special economic development tariffs that it may deem necessary[18]. However, where such tariffs are proposed, JPS must provide a full justification stating why the tariff is necessary.

[16] Schedule 3, paragraph 36 of the Licence
[17] Eurelelectric (2013). *Network Tariff Structure for a Smart Energy System*.
[18] Condition 14 of the Licence and section4(4A)(b) of the OUR Act

Criterion 7:

a) The cost of service study shall form the basis of JPS' tariff design which, should aim as much as possible to meet the regulatory objectives of:
   i. Economic efficiency
   ii. Revenue adequacy
   iii. Cost reflectiveness
   iv. Non-discrimination
   v. Stability
   vi. Predictability
   vii. Policy objectives

b) JPS rate design shall include but not be limited to proposed tariffs for distributed generation (net billing customers), 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.

3.11 Productivity Improvement Factor

3.11.1 Notwithstanding the absence of an explicit X-Factor in the PBRM, Schedule 3, paragraph 11 of the Licence stipulates that the Final Criteria shall include the productivity improvement ("the Productivity Improvement Factor (PI-Factor))[19]. In keeping with this provision, the Office through the Caribbean Development Bank engaged the consulting firm, DNV GL, to provide advice on tariff productivity improvement for the electricity sector. JPS and other electricity sector stakeholders were consulted and they provided data and feedback on the study.

3.11.2 Arising from that productivity improvement study, the OUR has developed a methodology for incorporating a PI-Factor into the revenue cap system[20].

3.11.3 The methodology for the calculation of the PI-Factor shall be as follows:

[19] The PI-Factor is referred to as the X-Factor in other jurisdiction

[20] For more details on the study see "Tariff Productivity Improvement Advice for the Electricity Sector – Jamaica" prepared by DNV GL hereafter called the "Productivity Report".

1. An efficiency target for the utility based on a benchmarking analysis is computed by using Data Envelopment Analysis (DEA). Table 06 below provides a summary of the input and output factors employed in the DEA model. The utilities included this benchmarking analysis are described in Annex 1 of the Productivity Report.

Table 06: DEA Model Input/ Output Specification

Scale:	**Variable Return to Scale**	
Input Factors:	OPEX	Operating costs/expenses these include staff cost, maintenance expenses, cost of supply services
Output Factors:	Sales [kWh]	The total electricity that is delivered to customers
	Customers (#)	Total number of customers
	Network Length (km)	Total length of network (includes overhead lines and underground cables)
	Supply Size Area (km^2)	The area size in which the distribution companies' serves

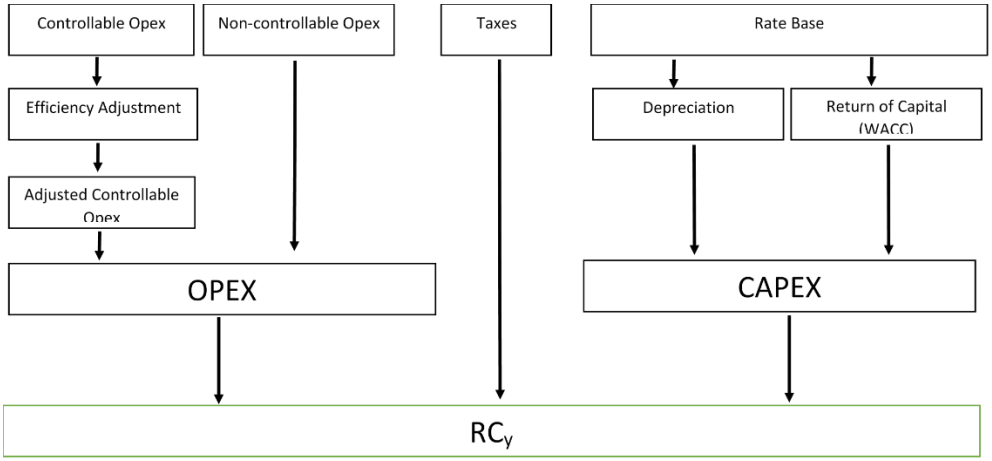
The results of the DEA analysis provide a measure of JPS' level of efficiency, which along with other considerations, will be used by the Office to determine an efficiency target (E_T). The Office will determine the number of years over which this target should be achieved (Y_{ET}). The Office will utilize these two factors (E_T and Y_{ET}) and any considered cap on productivity improvement in determining the final PI-Factor. The Office reserves the right to consider other benchmarking tools such as partial benchmarking in determining the annual PI-Factor adjustment.

2. JPS' controllable OPEX established by the Office for the base year, will be adjusted by the PI-Factor to determine the adjusted controllable OPEX for each year "y" of the Rate Review period (that is, in 2020 - 2023). The controllable OPEX includes items such as payroll costs, maintenance expenses, administrative overheads and bad debt expenses. Section 6.2.3 of the Productivity Report delineates the computation of the adjusted controllable OPEX for each year of the Rate Review period. **Error! Reference s ource not found.**Figure 01 below provides a graphical summary of the proposed methodology for computing the adjusted OPEX. Note that the numbers included in Figure 01 are for illustration only and are not to be interpreted as the Office's proposals. Also, in addition to the PI-Factor adjustment, the OPEX is adjusted for a factor which is a weighted average of the projected sales, demand and customer number growth rates.

3. Finally, the Revenue Requirement (RR_y) for each year, "y" of the Rate Review period shall be computed by adding the adjusted controllable OPEX for that year to the other components of the revenue requirement for that year. These include:
   - Non-controllable OPEX (e.g. interest and financing expenses, sinking fund contribution)
   - Capital Expenditure (Depreciation and return on capital)
   - Taxes (Grossed Up)
   - Revenue offsets and other adjustments (e.g. Carib Cement Revenues)

Figure 01 illustrates the process used to derive RR_y.

Figure 01: Buildup of Revenue Cap[21] (RR_y)



3.11.4 JPS is required to update the OUR's productivity approach using audited data for the base year. The update shall include updated input factor and output factors data as described in Annex 1 of the Productivity Report and a re-computation of the efficiency score using an appropriate set of utilities including those proposed in Annex 1 of the Productivity Report. JPS is also required to submit a partial benchmarking analysis which shall include analysis of:

- OPEX per kWh sold
- OPEX per kWh generated
- OPEX per customer

[21] Note that in this particular interpretation of the revenue requirement depreciation is treated as a component of CAPEX rather than OPEX.

3.11.5 In the case of any suggested changes or improvements to the OUR's approach, JPS should clearly state why each change/improvement is necessary and provide theoretical and/or empirical justification to support its arguments.

Criterion 8:

a) The Productivity Improvement Factor (PI-Factor) to be used in the annual adjustment of JPS' Revenue Cap shall be based on a DEA analysis, the results of which may be supported by other productivity improvement study approaches.

b) In the DEA analysis, CAPEX shall not be included as an input factor unless JPS provides a sound justification for doing so. Output factors may include kWh sales, customer count, network length and size of service area or any other justifiable variables.

c) JPS shall include an updated productivity study based on its latest audited financial statement in the 2019 – 2024 Rate Review application or the prior year's audited financial data if benchmarking data is not readily available from other jurisdictions. The updated productivity study shall be based on the DEA method using the approach proposed by OUR or an approach which is very similar and can be justified by JPS.

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

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

3.12 Quality of Service Standards

3.12.1 Quality of service delivered by the utility is important since it determines the level of satisfaction and customers' experience while consuming a service. An important dimension to the delivery of quality service is the establishment of Guaranteed and Overall Standards. These standards represent minimum service level agreements between the OUR and the utility companies to ensure value to customers.

3.12.2 Currently, JPS is held accountable to fifteen (15) Electricity Guaranteed Standards (EGS) spanning among other things:

- Access to service
- Response to emergency
- Customer complaints/Queries

- Reconnections and disconnections
- Estimated bills
- Meter replacements

3.12.3 These EGS focus on dimensions of service quality which are:

a) Important to consumers;
b) Controllable by the utility; and
c) Measurable by the regulator

3.12.3 A breach of an EGS results in a compensatory payment to the affected customer/account that may trigger either an automatic compensation by the utility provider, or alternatively, the affected customer may be required to submit a claim to be compensated.

3.12.4 While the Overall Standards do not offer a compensatory payment to customers where specified service levels are not met, JPS is required to monitor and report on its performance to the OUR. The Overall Standards covers service delivery areas that include:

- Restoration of service after planned and unplanned outages
- Percentage of line fault repairs after report being made
- Frequency of meter testing
- Responsiveness and effectiveness of call centre representatives

3.12.5 The Rate Review Process provides an opportunity for the evaluation and improvement of the existing Quality of Service Standard Schemes. Consequently, JPS shall be required to assess the company's performance over the 2014 - 2018 Rate Review period and indicate its recommendations with respect to the current schemes.

3.12.6 During the 2019-2014 Rate Review Process, the OUR in consultation with JPS, will review the Guaranteed and Overall Standards in accordance with the terms and conditions set out in Condition 17 of the Licence.

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 – 2018 Rate Review period. This should also include any challenges that were or are being faced in meeting the EGS performance criteria, as well as the proposed measures to mitigate 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) In the evaluation of JPS' proposal with respect to its quality of service standards, the Office shall take into account, among other things, relevant benchmarks, international best practices and customer specific data analyses in the introduction of new standards and the revision of existing targets.

d) Outline its proposed performance targets on the Overall Standards over the 2019 – 2024 Rate Review period. This shall 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 those challenges.

4. CRITERIA: ANNUAL TARGETS

4.1 Annual Adjustment Mechanism

4.1.1 A revenue cap is a mechanism that establishes the maximum allowed revenue, a regulated entity can earn in a given year, while creating the incentive for it to maximize profit by reducing cost. The main difference between the revenue cap and the price cap is that *"if the actual number of units sold differ from the number of forecast units, this will be corrected in*

the following year to ensure that only the allowed revenue is collected.[22]*"* As such, the customers bear the demand or volumetric risk under revenue cap regulation.

4.1.2 Additionally, revenue cap can create the framework within which the utility is allowed to set prices and this has the potential for promoting more efficient pricing.

4.1.3 Revenue caps are deemed to be appropriate under conditions where:

a) there is a high degree of predictability in forecasting demand, as this decreases the risk of price volatility; and

b) fixed cost expressed as a proportion of total cost is high. In this regard, the utility would not have a perverse incentive to manipulate the demand forecast to maximize profit in the short run.

4.1.4 In order to make adjustment to the revenue cap for inflation, exchange rates and variations from volumetric and efficiency targets, it is vital to have annual adjustments to the revenue cap. Under the Licence, the annual adjustment mechanism is captured in the following equation:

$$\mathrm{ART_y} = \mathrm{RC}_y(1 + (\mathrm{dI} + \mathrm{Q} \pm \mathrm{Z})) + \left(\mathrm{RS_{y-1}} + \mathrm{SFX_{y-1}} - \mathrm{SIC_{y-1}}\right) * (1 + \mathrm{WACC})$$

Where:

$\mathrm{ART}_y = Allowed\ Revenue\ Target\ for\ current\ year (i.e., y)$

$\mathrm{RC}_{y-1} = the\ Approved\ Revenue\ Cap\ for\ previous\ year\ (i.e., y-1)$

$\mathrm{dI} = change\ in\ inflation$

$\mathrm{Q} = the\ quality\ of\ service\ improvement\ factor$

$\mathrm{Z} = the\ exogenous\ factor$

$\mathrm{RS_{y-1}} = Adjustment\ for\ previous\ year\ Revenue\ under/over - recovery$

$\mathrm{SFX_{y-1}} = Adjustment\ for\ previous\ year\ Net\ Foreign\ Exchange\ Losses$

$\mathrm{SIC_{y-1}} = Adjustment\ for\ Net\ Interest\ Income\ on\ unpaid\ Customer\ bills$

$\mathrm{WACC} = the\ Weighted\ Cost\ of\ Capital$

[22] Alexander, Ian & Shugart, Cris, "Risk, Volatility and Smoothing: Regulatory Options for Controlling Prices" p.11; retrieved from: http://regulationbodyofknowledge.org/wp-content/ uploads/ 2013/03/ Alexander Risk Volatility_ and.pdf on 2016-02-23

4.1.5 It is important to note that although a Productivity Improvement factor (or PI-Factor) is not explicitly included in the annual adjustment formula above, provision is made for annual efficiency adjustments in the Licence.

4.2 Inflation Adjustment Factor (dI)

4.2.1 The inflation adjustment factor (dI) is the component in annual adjustment mechanism that keeps JPS' Revenue Requirement constant in real terms. The growth rate (dI) represents the changes in the value of the Jamaican dollar (JMD) against the United States dollar (USD) and the inflation in the cost of providing electricity products and services.

4.2.2 Specifically, dI is:

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

Where:

EXb	=	Base US exchange rate at the start of the Rate Review period.
EXn	=	Applicable US exchange rate at Adjustment Date.
INFUS	=	Change in the agreed US inflation index as at 60 days prior to the Adjustment Date and the US inflation index at the start of the Rate Review period.
INFJ	=	Change in the agreed Jamaican inflation index as at 60 days prior to the Adjustment Date and the Jamaican inflation index at the start of the Rate Review period.
USPb	=	US portion of the total non-fuel expenses as determined from the Base Year.
USDSb	=	US debt service portion of the non-fuel expenses as determined from financials in the Base Year of the rate setting period.

Criterion 10:

a) In the Annual Review exercises between the 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, including its derivation of USP_b and $USDS_b$.

4.3 Q-Factor Adjustment

4.3.1 With respect to the Q-Factor, Schedule 3, paragraph 46(a) of the Licence provides as follows:

> *"The Q-Factor … is the annual allowed price adjustment to reflect changes in the quality of service provided by the Licensee to its customers. The Office shall measure the quality of service versus the annual target set in the 5-year rate review determination."*

4.3.2 For the 2017/2018 annual rate adjustment period, the OUR evaluated the reliability performance of JPS' system based on prescribed output measures (reliability indicators). However, the OUR recognized that there were lingering issues relating to the collection and accuracy of JPS' system outage data. This data set is critical to the regulatory review process as it involves the validation of JPS' proposed reliability indicators, required for the establishment of the Q-Factor baseline and by extension, the implementation of the Q-Factor incentive scheme. JPS' response to these issues will be critical in setting the final criteria for the Q-Factor to be used in the 2019 – 2024 Rate Review. In light of this, the OUR has provided additional information with respect to the data improvement strategy and the Outage Management System (OMS) data quality and process improvements for 2019-2024 Rate Review in Annex 2 herein.

4.3.3 The Licence prescribes three (3) quality indices for the determination of the Q-Factor, SAIFI, SAIDI and CAIDI. The definitions of these indices, as set out in the Licence, are consistent with the accepted IEEE Standard 1366 – 2012 and the "IEEE Guide for Electric Power Distribution Reliability Indices" (IGEPDR)[23].

[23] See Annex 1 attached hereto for definitions

4.3.4 JPS shall not be penalized under the Q-Factor mechanism for IPP generation outages, unless the cause of the IPP generation outage(s) is/are due to fault(s) on the part of JPS.

4.3.5 In establishing the Q-Factor target, Schedule 3, paragraph 37 of the Licence, stipulates that *"…All targets set should be reasonable and achievable taking into consideration the Base Year, historical performance and the agreed resources included in the five (5) Year Business Plan, corrected for extraordinary events. The Office shall take into consideration the role of the GOJ in addressing the non-technical aspect of the system losses that are not entirely within the control of the Licensee."*

4.3.6 Further, targets should be set, normally, at the Rate Review Process for each of the five (5) years and broken out year by year.[24]

Criterion 11:

a) In the 2019 – 2024 Rate Review application, 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 Rate Review period.

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

4.4 Y-Factor (System Losses) Adjustment

4.4.1 In all previous Rate Reviews conducted by OUR, the methodology for determining JPS' system losses target was predicated on a simple system that distinguished the technical losses target from the non-technical target and the application of the established target to the company's fuel rate. With the introduction of the Licence, a new approach to the establishment of the system losses targets has been established. In essence, this new methodology:

- Recognizes that JPS is not completely responsible for all of the non-technical losses, as there is a socioeconomic dimension to this aspect of losses;
- Does not allow JPS system losses incentive/penalty payment to fluctuate with the vagaries of the fuel market. As such, the losses incentive/penalty mechanism is now anchored to the non-fuel tariff rather than the fuel tariff; and
- Allows for annual rather than monthly incentive/penalty adjustments.

[24] Paragraph 39 of Schedule 3 of the Licence

4.4.2 In keeping with Schedule 3 of the Licence, the system losses differential between the target and the actual has been disaggregated into three components:

a) Technical losses (Ya): TL
b) Non-technical losses fully under JPS' control (Yb): JNTL
c) Non-technical losses partially under JPS' control (Yc): GNTL

4.4.3 The Responsibility Factor (RF) is critical to the determination of the portion of the non-technical losses under Yc for which JPS is held accountable. The portion of system losses for which JPS is held accountable is the product of Yc and the Responsibility Factor[25]. The total system losses for which the company is held accountable, may be expressed in percentage term as:

$$Y_{y-1} = Ya_{y-1} + Yb_{y-1} + Yc_{y-1}$$

Where:

Ya_{y-1} = (Technical losses target – Actual Technical losses)

Yb_{y-1} = (Controllable Non-technical losses target – Actual controllable non-technical losses)

Yc_{y-1} = (Partially controllable Non-technical losses target – Actual partially controllable non-technical losses)*RF

And, y-1 refers to the event in the previous year

4.4.4 In translating system losses to a monetary value, the total system losses differential (Y_{y-1}) must be multiplied by Actual Revenue Target in the previous year (ART_{y-1}) which may be expressed as:

$$TULosy\text{-}1 = Y_{y-1} * ART_{y-1}$$

4.4.5 Notably, the system losses adjustment construct delineated above is a symmetrical incentive/penalty mechanism. If JPS underperforms, it will be penalized since its revenues would be reduced. Alternatively, if the company out-performs the targets in aggregate terms, then it will receive additional compensation by way of higher revenues.

4.4.6 According to Schedule 3, paragraph 37 of the Licence, the Office is empowered to set system losses targets for JPS, which should:

- Be reasonable and achievable;
- Take into consideration the Base Year and historical performance;
- Take into account agreed resources included in the Business Plan;

[25] See Annex 3 for further information on the definition of system losses

- Incorporate correction for extraordinary events (where necessary);
- Give due recognition of the role of the GOJ in addressing the non-technical aspect of the system losses that are not entirely within the control of JPS.

4.4.7 In support of the system losses criterion below, there is the need to identify the general areas of focus and the specific requirement that will be employed in the regulatory assessment of system losses in Annex 3 hereof.

Criterion 12:

a) In the 2019 – 2024 Rate Review application, JPS shall submit its system losses proposals covering each of the 12-month adjustment intervals constituting the Rate 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.

c) In the 2019 – 2024 Rate Review application, JPS shall submit its System losses proposals covering each of the 12-month adjustment intervals of Rate Review period and which shall include:
   i. Projected losses performance,
   ii. Proposed targets and responsibility factors
   iii. Proposed methodology to manage the financial impact of Y-Factor

4.5 Z-Factor Adjustment for Capital Investment

4.5.1 While the Z-Factor, in general, addresses adjustment to the annual Revenue Requirement arising from 'special circumstances'[26], given the sensitivity of revenue cap mechanism to capital cost further clarifications regarding the treatment of JPS' investments over the Rate Review period is necessary.

[26] "Special circumstances" is defined in Paragraph 46 (d)(i) of Schedule 3 of the Licence

4.5.2 As defined in section 7 of this Final Criteria, JPS' capital investment projects shall be classified in three (3) categories:

a) *Major Projects*: this refers to non-routine capital projects valued at US$10 Million or more. These projects shall be clearly identified in JPS' capital investment plan, but shall be assessed for Z-Factor adjustments on their individual merit;

b) *Extraordinary Maintenance Projects*: this refers to non-routine capital projects related to routine plant replacements and overhauls valued at US$10 Million or more. These projects shall be clearly identified in JPS' capital investment plan, but shall be assessed for Z-Factor adjustments on their individual merit;

c) *Minor Projects*: this refers to non-routine capital projects valued at US$10 Million or more. These projects shall be clearly identified in JPS' capital investment plan, but shall be assessed for Z-Factor adjustments collectively.

4.5.3 In order to ensure that the annual assessment of capital projects is consistent, fair and unambiguous, JPS' shall submit its capital investment projects in the Business Plan in a manner that conforms to the guidelines specified in Annex 5. Furthermore, if any project straddles two (2) Rate Review periods the following shall apply:

- the full capital investment cost should be clearly stated;
- the activities and cost component belonging to each review period identified; and
- project costs associated with the current review period only shall be included in the tariff.

4.5.4 Z-Factor adjustments to the Revenue Requirement triggered by the assessment of JPS' capital projects shall involve adjustments to the original depreciation expense and the rate of return on investment while giving due consideration to the time value of money.

<u>Project Delays</u>

4.5.5 The Z-Factor adjustment shall be triggered where there is a delay in a Major Project or an Extraordinary Maintenance Project in any given year that results in variation of at least 5% of the annual expenditure for each project category.

4.5.6 The Z-Factor adjustment shall be triggered where there is a delay in Minor Projects as a whole in any given year that results in variation of at least 5%, of the annual expenditure for minor capital projects.

<u>Unimplemented Projects</u>

4.5.7 If for any justifiable reason, JPS decides that it is no longer necessary to implement an approved project in the Business Plan during the prevailing Rate Review period, a Z-Factor adjustment shall be made to remove the associated project cost from the Revenue Requirement.

Unplanned Projects

4.5.8 Where there is a need for a Major Project or an Extraordinary Maintenance Project in any given year, which was not envisaged in the approved Business Plan, and if such a project results in an increase in capital expenditure of at least 10% of the projected capital expenditure for that given year, then the project shall trigger a Z-Factor adjustment. The determination whether the unplanned project is needed, or required, is subject to the OUR's approval.

Changes in Project Scope

4.5.9 Where there is a change in the scope of Major Project or an Extraordinary Maintenance Project in any given year that results in a reduction in the project cost by at least 10% of the projected capital expenditure, a Z-Factor adjustment shall be made. The Z-Factor adjustment shall result in 50% of the savings being passed on to customers for the remainder of the Rate Review period. Any change in the scope of a project shall be subject to the OUR's approval.

Criterion 13:

In the Annual Review, a Z-Factor adjustment arising from JPS' capital investment plan may be triggered by:

- Project delays
- Unimplemented projects
- Unplanned projects; and
- Changes in project scope

In the treatment of these special circumstances, the following procedures must be observed:

a) Delays in the implementation of specified capital projects (Major Projects or Extraordinary Maintenance Projects) that result in a variation in expenditure of 5% or more of the annual expenditure for the project category in any given year, shall trigger a commensurate Z-Factor adjustment to the tariff in the following year.

b) If for any reason, JPS does not undertake an approved capital project in the Business Plan, a Z-Factor adjustment shall be made to remove the associated project cost from the Revenue Requirement.

c) Should a Major Project or an Extraordinary Maintenance Project arises and JPS demonstrates that such an expenditure could not have been reasonably anticipated, and the cost is greater than 10% of the projected capital expenditure for any given year relative to the previously agreed Business Plan, a commensurate adjustment to the tariff in the following year shall be made with the Office's approval.

d) In the event of a change in the scope of a Major Project or an Extraordinary Maintenance Project in any given year that results in at least a 10% reduction in the original capital cost, the savings derived shall be shared in a 50:50 ratio with customers. Accordingly, this shall trigger a commensurate reduction in the tariff via the Z-Factor mechanism. Any change in scope of a project shall be subject to the OUR's approval.

5. CRITERIA: FUEL TARIFF

5.1 Fuel Tariff

5.1.1 Fuel accounts for a significant portion of the cost associated with the production of electricity, particularly given the fact that approximately 95% of electricity generation in Jamaica come from imported fossil fuel sources. In this regard, the total fuel cost is sensitive to the volatility of global fuel prices and the instability of the Jamaican dollar on foreign exchange markets. Given the degree of this risk, fuel costs net of efficiency adjustments are passed through directly to electricity customers via the monthly tariff on a per kilo-watt-hour (kWh) basis.

5.1.2 Schedule 3, Exhibit 2 of the Licence states that the fuel cost per kilo-watt-hour (net of efficiencies) shall be calculated monthly based on the *"total fuel computed (inclusive of fuel additives) to have been consumed by the Licensee and Independent Power Producers (IPPs) in the production of electricity"*.

5.1.3 The equation as outlined in the Licence is as follows:

$$F = \frac{F_m}{S_m}$$

Where:

F	=	Monthly Fuel Rate in J$ per kWh rounded to the nearest one-hundredth of a cent applicable to bills rendered during the current Billing Period[27]
F_m	=	Total applicable energy cost per period
S_m	=	the kWh sales in the Billing Period.

The kWh sales in the billing period is the actual kWh sales occurring in the previous calendar month.

[27] See Annex 4 for the components of the fuel cost pass through

5.2 H-Factor (Heat Rate) Adjustment

5.2.1 The OUR will evaluate the heat rate in accordance with Schedule 3, paragraph 40 of the Licence taking into consideration the system conditions and plans for the Rate Review period. 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 H-Factor target (i.e. register a lower actual heat rate) and penalizes the company for under-performing (i.e. register a higher actual heat rate).

5.2.2 Under the FCAM, the monthly Fuel Cost Pass Through ($\boldsymbol{F_m}$) is:

$$\boldsymbol{F_m = [IPPs\ Fuel\ Cost + (JPS\ Fuel\ Cost \times H)]}$$

Where the H-Factor is:

$$H = \left(\frac{\boldsymbol{JPS\ Heat\ Rate\ Target\_Thermal}}{\boldsymbol{JPS\ Heat\ Rate\ Actual\_Thermal}}\right)$$

5.2.3 Based on FCAM formula above, the monthly derived fuel rates allow JPS to pass through its monthly total fuel costs to electricity customers on a dollar for dollar basis subject to adjustment by an efficiency factor related to its actual heat rate versus the H-Factor target. The calculated monthly rates are also adjusted to account for movements in the exchange rate between the United Sates dollar (USD) and the Jamaican dollar (JMD).

5.3 H-Factor (Heat Rate) Evaluation

5.3.1 To determine the reasonableness of JPS' H-Factor proposals and to determine the H-Factor targets for the price control period, the approach set out below will be employed by the OUR.

1) An initial review of JPS' H-Factor proposal including all supporting schedules to ascertain adequacy and completeness of the submission before acceptance of the proposal.

2) Upon acceptance of the H-Factor proposal, the OUR will embark on a comprehensive evaluation of the proposal guided by the legal and regulatory framework. This is required to validate the reasonableness of the projected annual Heat Rate performance and proposed targets for each twelve (12) month period of the Rate Review period, as

well as the degree to which they are consistent and achievable with the System configuration at the respective times.

3) Such H-Factor evaluation may include detailed simulations of the entire generating system, incorporating the inputs and assumptions defined in the H-Factor proposal and information requirements. This may require a full generation assessment using generation simulation software.

4) Generation simulations and analyses conducted will be based on economic generation dispatch principles, taking into consideration credible generation and transmission system constraints.

The OUR will engage the JPS on these matters/methodologies prior to JPS making its submission in 2019 April.

5.3.2 In this regard, JPS will be required to submit detailed information, among other things, in relation to system load, generation system, transmission system as well as other data outlined in Annex 4.

Criterion 14:

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

a) The projected annual Heat Rate performance and proposed targets for each 12-month period (June – May) of the Rate Review period.

b) Supporting documentation, calculations and relevant data to support its Heat Rate projections and proposed targets.

6. CRITERIA: SUPPORTING DOCUMENTS

6.1 Business Plan

6.1.1 In light of the forward-looking nature of the revenue cap regime, JPS rates are to be set based on the company's five (5) year outlook outlined in the Business Plan. This is critical for three (3) main reasons:

a) It provides JPS with a tool that aligns its activities with its goals within the regulatory framework;

b) It is a means of holding the company accountable for its actions in the Rate Review period;

c) It provides an objective basis for the regulator to assess whether the utility is efficient in the management of its resources and prudent in its operations.

6.1.2 It is expected that the Business Plan will present a market analysis, sales and customers service strategies, a corresponding funding requirement and a financial projection. Table 07 below shows some of the issues the OUR expects JPS to address in the Business Plan.

Table 07 – Suggested Features to be Included in JPS' Business Plan

FEATURES	COMPONENTS
Performance Review	• Operational Performance – Reliability, Quality, Heat Rate, System Losses • Asset Performance – Production, T &D Plant maintenance and asset condition • Efficiency – Organization and Financial Performance
Strategic Direction of the Utility	• Assessment of Current Conditions and Priority Issues • Strategic Goals • Alignment with Customer Needs • Key Planning Assumptions
Service Obligations and Target Outputs	• Customer Satisfaction, Reliability, Heat Rate, Losses Targets • Other Business KPIs

Capital Expenditure and Investment Forecast	• Capital Program Summary
	  ○ Generation
	  ○ Transmission
	  ○ Distribution
	  ○ IT
	  ○ General Plant
	• Program Development and Investment Drivers (e.g. growth, replacement/maintenance, enhancements, statutory, efficiency improvement)
	• Program Development Methodology
	• Cost Estimation Methodology
	  ○ Capital cost estimation
	• Key Assumptions
	• Large Projects Justification
	  ○ Description of Project
	  ○ Substantiated Need for Project
	  ○ Analysis of Options
	  ○ Cost Estimate
	  ○ Rate Impact and other Customer Impacts

Operations and Maintenance Budget Forecast	• Overview of Budgeted O&M Cost Components (e.g. Payroll & Employee Benefits, Third Party Services etc.) • HR Resource Strategy • Procurement Strategy
Financial Strategy	• Financing Requirements • Financing the Plan • Risk and Uncertainty Management
Customer and Stakeholder Impact	• Bill Impact • Other Customer Benefits/Cost

6.1.3 In addition, for regulatory purposes, the Business Plan shall conform to the conditions delineated in Schedule 3, paragraph 13 of the Licence.

Criterion 15:

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 Process.

b) Consistent with in Schedule 3, paragraph 13 of the Licence, the 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); and

vii. Operating and maintenance expenses

6.2 Financial and Regulatory Accounts

6.2.1 Critical to the effective regulation of infrastructure services, such as electricity, is a framework which facilitates the periodic publication of accounting statements that explicitly support the regulatory function. In modern utilities, financial reporting involves the presentation of aggregate information that is designed primarily to meet the needs of management and shareholders. These reports, while useful in a general way, do not provide sufficient details for the regulator. Consequently, it is essential that utilities generate reports that allow for the analysis of costs and revenues, as well as the evaluation of assets employed, in a way that is consistent with effective regulation.

6.2.2 The provisions of the Licence requires JPS to include its Rate Review application, the latest audited financial accounts.[28] In previous Rate Reviews, JPS consistently included its latest audited financial report as a part of its rate submission. For the 2019 -2024 Rate Review, JPS shall be required to submit, along with its Audited Financial Accounts, a set of Regulatory Accounts.

6.2.3 According to Condition 5(2) of the Licence:

[28] Schedule 3, paragraph 17 of the Licence and the definition of Base Year.

"*The Licensee shall maintain such Regulatory Accounts as may reasonably be specified by the Office consistent with generally accepted accounting principles and the EA*[29]."

Section 46 of the Electricity Act, 2015 provides that JPS *"…shall, at all times, keep the accounts for its generation, transmission, distribution and activities separate and distinct from each other and from accounts kept by it in respect of any other part of its undertaking or business."*

6.2.4 Consequently, the OUR has issued a consultation document to set up the regulatory framework for accounts separation[30]. These Regulatory Accounts are important for the following reasons:

1. measuring the relationship between cost and price of the products/services offered by the utility;
2. monitoring the utility's return on the products/services regulated under the revenue cap;
3. identifying cross-subsidies if and where they may exist across customer categories and products/services; and
4. ensuring that there is proper alignment of cost and price for transactions between the regulated utility and related entities

6.2.5 It is anticipated that JPS will prepare separated accounts as a key component of its 2019 – 2024 Rate Review application. The account separation shall be conducted in accordance with the rules established by the OUR and the approved Accounting and Cost Allocation Manual to be developed by JPS.

Criterion 16:

JPS shall submit in its 2019 – 2024 Rate Review application its:

a) 2018 Audited Financial Accounts

b) Embedded Cost of Service study which clearly shows cost allocations that reflect the functionalization and classification of cost, as well as the costs associated with its non-regulated business

6.3 Cost of Service & Load Research Studies

6.3.1 The starting point in assessing the reasonableness of the rates to be charged by a utility is to evaluate the cost of providing the services, that is, through a cost of service study. The

[29] EA refers to the Electricity Act, 2015

[30] NPRM: Accounts Separation Guidelines for Jamaica Public Service Company Limited, Document No. 2018/ELE/008/NPR.01 dated 2018 April 18

objective of the cost of service study is to apportion all costs required to serve customers among each customer class in a fair and equitable manner. There are two broad approaches to conducting a cost of service study: (1) the embedded cost of service approach, and (2) the marginal cost of service approach.

6.3.2 An embedded cost of service study takes the total Revenue Requirement and allocates it among customer classes. The marginal cost study analyzes how the cost of the System would change to provide an incremental increase in service. Typically, marginal cost is below average cost and thus, pricing at marginal cost would not allow the utility to recover its full cost. Therefore, a revenue reconciliation to the approved Revenue Requirement of the company is also required.

6.3.3 Economic theory suggests that rate design should be based on marginal cost since it provides efficient price signals. This is consistent with the approach that the OUR has promulgated for rate design in previous Rate Review determinations and, as such, JPS is required to submit a long run marginal cost (LRMC) cost of service study to support its tariff design in the 2019 – 2024 Rate Review application.

6.3.4 The LRMC cost of service study shall include:

a) the LRMC of generation, transmission by feeder type and distribution 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;

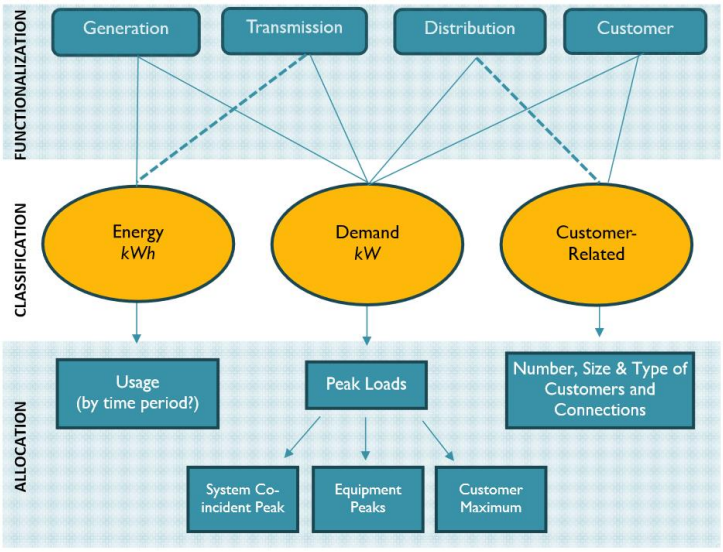
b) the short run marginal cost (SRMC) (energy and other variable O&M) at generation, transmission, and at distribution and supply;

c) the economic cost of supply (covering customer service and facilities and administration and general function), expressed as (a) capacity cost (cost/kw/year) or/and fixed charge per month, (b) energy and other variable O&M cost (cost/kWh), and (c) as a composite of (a) and (b) cost/kWh at generation, at transmission, at distribution and supply; and

d) The process for marking up the marginal cost to allow for full cost recovery.

6.3.5 JPS shall also submit an embedded cost of service study, which shall be used to establish average costs for each rate class. Both the embedded and the LRMC cost of service study shall include detailed reports on the cost functionalization, classification and allocation process of the major electricity system components as illustrated in Figure 02 below.

Figure 02: Functionalization, Classification and Allocation Process



6.3.6 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 at minimum a relative precision of peak hour demand estimate of plus or minus 10% at a 90% confidence level.

6.3.7 In submitting its Rate Review application, JPS shall submit a load research study report utilizing at least twelve (12) months of load research data to justify the computation of cost allocation factors such as class coincident peak demand, class non-coincident peak demand and other relevant data required to establish cost allocation factors.

Criterion 17:

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.

7. CRITERIA: GUIDELINES FOR REVIEWING PROPOSED PROJECTS IN THE BUSINESS PLAN

7.1. Project Proposal Information Requirements

7.1.1 To enable the OUR to properly assess the projects presented in the Business Plan, JPS shall classify all relevant capital projects in the following three (3) categories:

a) *Major Projects*: this refers to non-routine capital projects valued at US$10 Million or more. These projects shall be clearly identified in JPS' capital investment plan, and shall be assessed for Z-Factor adjustments on their individual merit;

b) *Extraordinary Maintenance Projects*: this refers to non-routine capital projects related to routine plant replacements and overhauls valued at US$10 Million or more. These projects shall be clearly identified in JPS' capital investment plan, and shall be assessed for Z-Factor adjustments on their individual merit. The only distinction between a Major Project and an Extraordinary Maintenance Project is that the former is non-routine in nature while the latter is not; and

c) *Minor Projects*: this refers to non-routine capital projects valued at less than US$10 Million. Each Minor Project shall be clearly identified in JPS' capital investment plan, but shall be assessed for Z-Factor adjustments collectively (i.e. based on the performance of all projects in the Minor Project category as a whole).

7.1.2 Projects with expenditure already in construction work in progress (CWIP) prior to 2019, and slated to be commissioned in 2019, shall be excluded from all categories of capital projects identified above.

7.1.3 JPS' shall provide plausible justification for all the elements of its capital investment plan. Projects shall be guided by one or more of the following objectives:

1. **Efficiency**: Improvement of JPS' key business activities through the installation of new assets and advanced systems that result in cost reduction and the enhancement of reliability (such investment would include loss reduction and reliability improvement strategies).
2. **Growth**: Capital additions and system reconfigurations designed to serve incremental system demands. This includes additional connection requirements such as extension of the power delivery systems to facilitate new connections.
3. **Maintenance/Replacement**: Investments to maintain the current productive capacity of the assets through preventative, predictive and corrective measures.
4. **Statutory**: Capital expenditures required to comply with relevant electricity sector regulation and statutory requirements in the operation of the power system.

5. **Upgrade**: Capital expenditures to improve or extend the capacity of existing assets to better meet system demand.

7.1.4 In the Business Plan, JPS shall provide the information summarized in Table 08 below for the three (3) project categories identified in section 7.1.1 above.

Table 08 – Project Classification and Information Matrix

Project Type	A Descript. of Facilities	B Specs. & Design	C Project Site	D Implem. Schedule	E Cost Estimate	F Models	G Risk	H Procurement Activities
Major Project								
Efficiency	✓	✓	✓	✓	✓	✓	✓	✓
Growth	✓	n/a	✓	✓	✓	✓	✓	✓
Replacement	✓	✓	n/a	✓	✓	✓	✓	✓
Statutory	✓	n/a	n/a	✓	✓	✓	n/a	✓
Upgrade	✓	✓	✓	✓	✓	✓	✓	✓
Extraordinary Maintenance								
Routine Replacement	✓	n/a	n/a	n/a	✓	✓	n/a	n/a
Overhaul	✓	n/a	n/a	n/a	✓	✓	✓	n/a
Minor Projects								
Efficiency	✓	✓	✓	n/a	✓	✓	✓	n/a
Growth	✓	✓	n/a	n/a	✓	n/a	✓	n/a
Replacement	✓	n/a	n/a	n/a	✓	n/a	✓	n/a
Statutory	✓	n/a	n/a	n/a	✓	n/a	n/a	n/a
Upgrade	✓	✓	n/a	n/a	✓	✓	✓	n/a

7.1.5 JPS shall provide adequate information in its Annual Review filling to allow the OUR to accurately assess the capital expenditure, the degree of project implementation and the cost, time and design deviations from the original plan.

7.2. Components of Project Proposal Information Requirements

Consistent with Table 08 above, JPS shall, depending on the specific project category, provide the information set out below in the filing of in its 2019 -2024 Rate Review application.

A. Description of Facilities:

7.2.1. JPS shall be required to set out the following for each project:

a) Justification for the project.

b) Project scale, scope and timing.

c) Description of proposed technology and track record of proposed technology in similar operating environment (for new technologies that JPS has not implemented in the past).

d) Major systems, sub-systems and type of equipment.

B. Specifications and Design

7.2.2. With regard to the specification and design of the project, the following information is required for efficiency, growth and upgrade projects:

a) Proposed design and configuration.

b) Specifications for the proposed project facilities, including specifications for the major systems and equipment including, manufacturer, model, ratings, and applicable codes/standards.

c) Available drawings and general layout plans relating to the proposed project facilities.

C. Project Site

7.2.3. With regard to project site (Site), the following is required:

a) Location.

b) Site description including Site maps and data.

c) Description of access route to Site.

D. Proposed Implementation Schedule

7.2.4. The Business Plan shall include:

a) A detailed project implementation schedule shall be provided for all Major Projects, showing all project tasks, milestone activities, timelines and resources, to support and confirm project progress and completion within the proposal timeframe.

b) A summary schedule showing major project milestones shall be provided for all Extraordinary Maintenance Projects.

c) The project implementation schedules shall be submitted in a functional electronic "Gantt Chart" compatible with Microsoft Projects software.

E. Project Cost Estimate

7.2.5. The follow information is required for the proposed project capital cost:

a) Description of methodology used to estimate the capital cost of each project and the soundness of such cost estimates.

b) The proposed capital cost should be disaggregated into the major capital cost components, including any capitalized operation and maintenance (O&M) costs and contingency costs. This should also be reflected in the project model.

c) The major capital cost components should be fully broken out into their constituent elements, particularly the construction cost.

d) Documentation providing evidence of the scope of supply and services from proposed vendors and suppliers, including price quotations, where applicable.

F. Project Models

7.2.6. For all Major Projects and Extraordinary Maintenance Project proposals, JPS shall include the following project models developed in Microsoft Excel.

a) *Financial/Economic Analysis Model:* This model should include, financial/economic assumptions, methodology, sensitivity analysis, Internal Rate of Return (IRR), Net Present Value (NPV), etc., and analysis demonstrating the economic and financial feasibility of the proposed project.

b) *Cost-Benefit Analysis Model:* This should include project-specific cost-benefit analysis demonstrating the cost effectiveness and value of the proposed project to the electricity system.

c) *Rate Impact Assessment (RIA) Model:* A project's RIA model should analyze and show the impact of a proposed project on average retail electricity rates.

G. Project Risk Assessment and Due Diligence

7.2.7. The Major Project and Extraordinary Maintenance Project proposals shall include:

a) Description of potential risks that could impact the implementation and operation of each proposed project.

b) Proposed mitigation strategies to address project risks.

c) Sensitivity analysis using project models and contingency analysis for risk assessment to inform decision-making.

H. Procurement Activities

7.2.8. Procurement activities to support the implementation of approved projects shall be consistent with the following:

a) Procurement activities shall transparent, reasonable and prudent manner.

b) In procuring such services, JPS shall endeavour to employ competitive tender processes consistent with national guidelines, international standards and industry best practices.

c) The procurement approach for each project, shall encompass specific sets of technical and commercial requirements with clearly defined evaluation/selection criteria.

d) For transparency and regulatory monitoring purposes, the OUR reserve the right to request of the JPS to submit the evaluation report at the time of procurement of approved projects.

7.3. Project Implementation Requirements

In the Annual Review or Rate Review Process prior to the implementation of the project, the following details of each project should be provided in JPS' submissions.

Project Logistics

7.3.1. With respect to project logistics, JPS shall in its Annual Review submissions provide:

a) Details of proposed arrangements for supply, installation and commissioning of Major and Extraordinary Maintenance Projects.

b) Evidence of relevant arrangements to ensure the availability of the required inputs to support the proper and timely implementation of a project.

Engineering, Procurement and Construction (EPC) Arrangements

7.3.2. Where applicable, the OUR may request that JPS provide information on its Engineering, Procurement and Construction (EPC) Arrangements for certain projects. The information would include:

a) Details of potential Engineering, Procurement and Construction (EPC) arrangements;

b) Experience of EPC contractors; and

c) Qualifications and experience of project team.

7.3.3. Notwithstanding JPS' responsibility to provide relevant and comprehensive updates on the implementation of approved Business Plan projects in its Annual Review submissions, the company is required to notify the OUR as soon as it recognizes that there will be a major delay, abandonment or change in the scope of a project.

7.4. Regulatory Monitoring of Approved Projects

The implementation of approved projects will involve several milestone activities expected to be completed within defined timeframes. As such, there will be need for on-going regulatory monitoring, up to the point of commercial operations. After successful project implementation, monitoring will shift to the operations phase. JPS shall submit to the OUR quarterly and annual status updates on all projects showing, among other things, major milestones achieved and breakout of costs incurred during projects implementation.

Criterion 18:

JPS shall adhere to the guidelines for reviewing of proposed projects in the Business Plan outlined in this section 7 of the Final Criteria, in the submission of each project in the Business Plan and all subsequent Annual Reviews within the Rate Review period.

8. CRITERIA: CONSTRUCTION WORK IN PROGRESS (CWIP)

8.1. CWIP represents the balance of funds invested in utility plant under construction, but not yet placed in service. According to Schedule 3, paragraph 29 (a) of the Licence, the Rate Base should be calculated using Property, Plant and Equipment ("PPE"), inclusive of construction in progress. This condition allows JPS to recover a portion or all of the carrying costs of new plant assets being built prior to the plant actually entering service. However, with the inclusion of CWIP in the Rate Base, allowance for funds used during construction (AFUDC) will be excluded from the Revenue Requirement.

8.2. CWIP shall only be included for projects that will result in items of PPE, subject to the asset recognition principle under International Accounting Standard (IAS 16), which is included in the International Financial Reporting Standards (IFRS). The determining factor of whether an activity will require processing as CWIP depends on whether tangible assets are involved and the project is to be capitalized.

8.3. To facilitate a complete evaluation of the proposed Rate Base for the 2019-2024 Rate Review Process, the projected CWIP costs to be included in the company's PPE as prescribed by the Licence, shall be supported by an adequate and structured CWIP schedule, encompassing all plants/facilities under construction.

Criterion 19:

JPS shall submit in the Business Plan a Construction Work in Progress (CWIP) schedule. This schedule shall allow for easy tracking of CWIP and shall include, but not be limited to, the following:

a) A description of all plants/facilities under construction
b) Construction commencement date
c) Project status
d) Percentage completion
e) Projected commercial operation date (COD)
f) The capital cost of each project
g) Opening CWIP balance of each project in each year
h) Annual accumulation of the carrying cost of each project based on progress of construction
i) Asset transfers from CWIP account after COD for each project

ANNEXES

ANNEX 1 – Proposed Methodology for Computing Controllable OPEX

Year:	Unit	0	1	2	3	4	5	6	7	8	9	10
Green cells are data cells												
Yellow cells are policy decisions												
1. Policy decisions												
Opex starting level	USD	147,736										
Long-term target	%	53%										
Achievement period	years	15										
Cap on annual X	%	3.0%										
2.Resulting efficiency target												
Implied X-factor (computed)	%	4.1%										
X-factor (implicit)	%	3.0%										
3. Efficient opex (exc. demand growth)	USD	147,736	143,304	139,005	134,835	130,790	126,866	123,060	119,368	115,787	112,313	108,944
4. Demand growth projections												
Sales MWh	%		1.91%	2.06%	2.21%	2.14%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%
Demand MW	%		1.91%	2.06%	2.21%	2.14%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%
Customer number	%		1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%
5. Revenue shares												
Sales MWh	%	50%										
Demand MW	%	25%										
Customer number	%	25%										
6. Weighted average demand growth			1.8%	1.9%	2.0%	2.0%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
7. Efficient opex (inc. demand growth)		**147,736**	**145,858**	**144,164**	**142,646**	**141,072**	**140,161**	**139,257**	**138,358**	**137,465**	**136,578**	**135,697**

ANNEX 2 – Q-Factor Definitions, Strategy & Derivations

A2.1 Definitions

For the annual Q-Factor adjustment, Exhibit 1 of Schedule 3 of the Licence provides as follows:

> *"The Q-factor should be based on three quality indices until revised by the Office and agreed between the Office and the Licensee:*
>
> *SAIFI–this index is designed to give information about the average frequency of sustained interruptions per customer over a predefined area*
>
> $$SAIFI = \frac{Total\ number\ of\ customer\ interruptions}{Total\ number\ of\ customers\ served}$$
>
> *(Expressed in number of interruptions (Duration > 5 minutes) per year)*
>
> *SAIDI–this index is referred to as customer minutes of interruption and is designed to provide information about the average time that customers are interrupted*
>
> $$SAIDI = \frac{Customers\ interruption\ durations}{Total\ number\ of\ customers\ served}$$
>
> *(Expressed in minutes)*
>
> *CAIDI–this index represents the average time required to restore service to the average customer per sustained interruption. It is the result of dividing the duration of the average customer's sustained outages (SAIDI) by the frequency of outages for that average customer (SAIFI).*
>
> $$CAIDI = \frac{Customer\ interruption\ durations\ or\ SAIDI}{Total\ number\ of\ interruptions\ or\ SAIFI}$$
>
> *(Expressed in minutes per interruption (Duration > 5 minutes))*
>
> *Until revision by the Office the quality of service performance should be classified into three categories, with the following point system:*
>
> - *Above Average Performance (Greater than 10% below target) — would be worth 3 Quality Points on either SAIFI, SAIDI or CAIDI;*
> - *Dead Band Performance (+ or – 10% of target) — would be worth 0 Quality Points on either SAIFI, SAIDI or CAIDI; and*

- *Below Average Performance (Greater than 10% above target) — would be worth -3 Quality*
  Points on SAIFI, SAIDI or CAIDI.

Until revision by the Office, the adjustment factors that would be assigned to cumulative quality points scores for the three reliability indices as follows: If the sum of the quality points for:

- *SAIFI, SAIDI, and CAIDI is 9, then Q = +0.50%*
- *SAIFI, SAIDI, and CAIDI is 6, then Q = +0.40%*
- *SAIFI, SAIDI, and CAIDI is 3, then Q = +0.25%*
- *SAIFI, SAIDI, and CAIDI is 0, then Q = 0.00%*
- *SAIFI, SAIDI, and CAIDI is -3, then Q = -0.25%*
- *SAIFI, SAIDI, and CAIDI is -6 then Q = -0.40%*
- *SAIFI, SAIDI, and CAIDI is -9 then Q = -0.50%"*

A2.2 Data Improvement Strategy

Since 2013, JPS has made significant strides in addressing its outage data quality issues. This includes the implementation of an Outage Management System (OMS) to enable the company to accurately collect and record system outage data. According to JPS, the OMS is currently integrated with its existing Geographic Information System (GIS), and has exhibited reasonable performance. However, there have been prevailing issues with the OMS recorded outage data. These were evident in the OUR's review of the 2014 - 2016 outage data sets, which revealed a number of instances of duplicate outage events, outage events with negative duration, incorrectly classified outage events, among other things. Consequently, this induced significant errors in the calculation of the prescribed quality indices. Recognizing these concerns, JPS reportedly took corrective measures by engaging the OMS vendor to rectify the identified anomalies. This included the formulation of a "Rule Based Management" approach to address existing and other potential issues that may emerge. JPS asserted that the established rules are necessary for calibration purposes when outage characteristics are abnormal.

As a result of these hurdles and interventions, the full implementation of the OMS was delayed. These conditions also impacted the quality and reliability of the OMS recorded data required for the evaluation of the Q-Factor. Accordingly, since then, there has been no credible basis for the establishment of the Q-Factor baseline, thus preventing a definitive determination on the Q-Factor adjustment system.

A2.3 OMS Data Quality and Process Improvements for Rate Review

The information requirements pertaining to JPS OMS data and improvements, shall include among other things, the following:

1) Evidence indicating that all outstanding OMS data issues are corrected;
2) Evidence indicating that OMS/GIS interface problems are fixed;
3) Report on the review and update of the existing "Rule Based Management" approach, including the "*Rules Base Data Dictionary*", used to normalize outage data. This must be done in consultation with the OUR;
4) Report addressing JPS designated "Non-Reportable" outages, including scope, total number of these outages, nature of outages, reason for classifying outages as non-reportable, efforts to reduce or eliminate them;
5) Report addressing the following:
   a) Review and update of "Customer-to-Feeder" mapping, in terms of accuracy (%), completeness (%), actual number of customers per feeder and feeder sections, number of customers linked to switching devices, etc.;
   b) Review and update of "Transformer-to-Feeder" mapping, in terms of accuracy (%) and completeness, actual number of transformers per feeder and feeder sections, etc.;
   c) Review and update "Customer-to-Transformer" mapping, in terms of accuracy (%) and completeness (%), actual number of customers per transformer, etc.;
   d) Transformer Mapping.

A2.4 Derivation of JPS Quality Indices

In accordance with the provisions of the Licence, the prescribed quality indices required for the calculation of the Q-Factor are SAIFI, SAIDI and CAIDI. Notwithstanding, for information and monitoring purposes, the OUR also requires JPS to report on Momentary Average Interruption Frequency Index (MAIFI) as well. 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. The relevant computations shall show, among other things, the following:

1) The average monthly value of SAIFI, SAIDI, CAIDI and MAIFI, based on the annual outage data sets specified above;
2) The average annual value of SAIFI, SAIDI, CAIDI and MAIFI, based on the annual outage data sets specified above;
3) Stage restoration;
4) Daily Total Customer Count;
5) Customer Minutes Loss (CML); and
6) Other relevant information.
7) Major Event Days (MED) for reference but not will not be applied to the Q-Factor.

ANNEX 3 – System Losses -Definitions, Strategy & Derivations

A3.1 Definitions

Losses in an electric utility System are generally measured as the difference between the amount of electrical energy generated and the energy delivered to the loads (customers), and in practice include losses due to theft. Energy losses tend to occur at all levels of the System, from generation, through T&D, to the supply to customers inclusive of metering systems. The total System losses for any given period is usually expressed as a percentage of total energy input to the System (net generation) and can be computed as follows:

System Losses (%) = [(Electricity to System (MWh) – Total Electricity Billed (MWh))/Electricity to System] X 100

System losses can be divided into two main categories:

- Technical Losses (TL); and
- Non-technical Losses (NTL).

Technical Losses

TL are mainly due to power dissipation in the System's electrical components such as transmission and distribution (T&D) lines, measurement systems and other auxiliary systems. These are inherent in the operation of the power System and can be computed and reduced to an optimum level.

Non-Technical Losses

NTL are caused by actions external to the power system and consist primarily of electricity theft, errors in accounting, metering, billing and customer information systems. NTL are more difficult to measure and are often inaccurately accounted for by the electricity system operator. Non-technical losses tend to have several perverse effects, some of which are manifested when legitimate electricity customers who are billed for accurately measured consumption and regularly paying their bills to the electric utility company, are required to subsidize those users who do not pay for their electricity consumption.

Accurately accounting for the quantities of electricity consumed by users is critical to the efficient operation of an electric utility as this impacts revenues, and by extension, the financial viability of the company. Given this dynamic, the utility should be encouraged to keep System losses at minimal levels.

A3.2 General Areas of Focus

1. System losses data requirements
2. Energy Losses Spectrum (ELS):
    a. Rolling twelve (12) months methodology for computation

   b. Inclusion of the actual system losses performance for the said billing month of the ELS in MS Excel format showing the relevant calculations
   c. Include usual display of TL across the value chain
   d. More information on the estimation of energy losses due to illegal users
3. Decomposition of System losses in lowest sub-components
4. Causation Factors
5. Allocation of Losses approach
6. CIS System and data recording approach – inconsistencies in data reporting, customer count, sales etc.
7. Integrity of JPS database and data management system – details on system used by JPS to manage System losses data
8. System loss calculation methodology – sales figures used (billed vs total sales)
9. Measurement methodologies – Technical Losses (TL) and Non-technical Losses (NTL)
10. Proper accounting for station service energy usage
11. Reconciliation of Peak and net generation on net basis
12. Metering requirements – customer and check meters, communication and calibration issues
13. Effectiveness of previous technological measures to reduce NTL
14. Customer-to-transformer mapping and customer-to-feeder mapping
15. Network visibility – network intelligence, communication systems, DMS, etc.
16. Internal Controls – credibility of related systems, reconciliation process for recovered energy
17. The human element
18. Regulatory/utility perspective on the Rolling ten (10) year system losses targets

A3.3 Energy Loss Spectrum

With respect to JPS' System losses, the ELS refers to the methodology used for the categorization and quantification of electricity losses over a designated time period. Essentially, the ELS provides a breakdown of the various categories of losses which are currently derived based on System performance data using a 12-month rolling average computation.

On a practicable basis, the ELS informs the over-arching strategy to measure, manage, mitigate and monitor System losses.

Application of ELS

- At the 2014-2019 Rate Review, it was established that the ELS at December of each year prior to a Rate Review or Annual Review will be the foundational basis for assessment of JPS' System losses performance and derivation of the relevant targets going forward.

- This approach remained in effect after the implementation of the Electricity Licence, 2016 despite the losses being segregated into three (3) distinct components. Importantly, the application of the ELS was a major factor in OUR's determinations on JPS' System losses targets at the 2016, 2017 and the 2018 Annual Review.

- For the 2019-2024 Rate Review, the ELS as defined shall continue to be the main –basis for evaluation of JPS' System losses performance to inform the setting of the relevant targets.

Structure and Composition of ELS

For submission to the OUR, the ELS shall be structured as follows:

- The total and component losses shall be calculated using a twelve (12) month rolling average computation, both on a percentage (%) and kWh basis.
- The ELS shall be developed and presented in MS Excel.
- The ELS shall clearly show the Energy Balance in KWh for the year ending 2018 December, including net generation, electricity sales and total electricity losses.
- The TL component shall be fully disaggregated into: Transmission Network Losses, Primary Distribution Line Losses, Distribution Transformer Losses, and Secondary Distribution Line Losses. These losses shall be reported on a percentage and kWh basis.
- Inclusion of the actual System losses performance for the each billing month in the 12 month rolling period.
- For NTL due to each category of metered customers, the ELS shall indicate the number customers, bill sales and other relevant information.
- For NTL defined as "Unquantified, JPS shall provide sufficient details of its approach to estimate this element of the losses.
- For NTL purportedly caused by "Illegal Users", JPS shall provide details of the methodology used to estimate these losses, including the basis for estimating the total number of Illegal Users.
- Allocations for JNTL and GNTL shall NOT be included in the ELS.

Submission of ELS to the OUR

- Prior to the submission of the 2019-2024 Rate Review Application, JPS shall submit the 2018 December ELS to the OUR with the details requested in this criteria, for regulatory review.
- The ELS as at of December of each subsequent year during the 2019-2024 Regulatory period, shall be submitted to the OUR in accordance with the regulatory reporting requirements.

Modification to ELS

- No modification to the ELS shall be undertaken by JPS without prior consultation with the OUR.

A3.4 Requirements for Evaluation of Technical Losses

Transmission Losses

- Breakdown of TL losses for each transmission line, substation transformer, and other relevant equipment/apparatus.
- Measurement and modelling approach – including optimal power flow simulations, security contingency, etc. based on system present and projected future configuration
- Details on verification process

Primary Distribution Losses

- Breakdown of losses for each feeder, transformer, and other relevant equipment
- Measurement and modelling approach – including simulations as applicable
- Energy balance validations

Secondary Distribution Losses

- Breakdown of losses where possible,
- Measurement approach

Optimality

- Assessment to determine optimal TL level based on system configuration in 2024 and 2029

TL Loss Reduction Strategy

- Details of JPS TL Loss reduction plans and programmes

A3.5 Determination on Technical Losses Target

Following a comprehensive review and evaluation of JPS TL proposals, the OUR will make its determination on JPS' TL target as prescribed by the Licence. In making its determination, the OUR will take into consideration, among other things, the following:

- JPS' long-term TL reduction plan, including investment levels, use of advanced technologies, projected impact, and initiatives listed above;

- The results of TL optimization simulations and analyses referenced above;
- Benchmarking analysis; and
- The impact of existing and future Distributed Generation (DG)

A3.6 Requirements for Evaluation of Non-Technical Losses

NTL as defined above continues to be problematic for the Jamaican Electricity System for various reasons. Notwithstanding, these losses can be largely avoided by JPS if appropriate measures are implemented to eliminate or substantially reduce them. It is clear that the major portion (approximately 70%) of the overall System losses is attributed to NTL, which has several perverse consequences. In recognition of these undesirable effects, urgent and robust action is required to prevent further escalation and ultimately their elimination. From, an economic perspective, the realization of tangible reductions in NTL would be a favourable outcome for JPS in terms of its overall efficiency and financial sustainability. Meaningful reductions in NTL also provide added benefits, such as releasing overburdened capacity to enable JPS to satisfy its service obligations under the Licence. While such considerations are recognized, it must be noted that certain treatment of these losses tends to result in inefficient pricing driven by the burden of cross-subsidization. This is usually manifested in a way that customers who are billed for legitimate usage and regularly paying their bills are required to subsidize those users who illegally abstract electricity.

Classification of JPS' Non-Technical Losses

According to JPS' System losses data and ELS, total NTL are due to energy losses which occur in three main areas:

- NTL caused by Billed customers (RT10, RT20, RT40&50, and RT60)
- NTL that are Internal to JPS operations and "Unquantified" energy losses
- NTL due to illegal users (non-customers)

According to Schedule 3, paragraph 38 of the Licence, the total NTL should be divided into two categories:

- The aspect of NTL that are within the control of JPS - designated by JPS as "JNTL"
- The aspect of NTL that are not totally within the control of JPS – designated by JPS as "GNTL"

A3.7 Regulatory Treatment of Non-Technical Losses

Treatment of NTL will take into account, among other things, the following:

- Full breakdown of each component of NTL to support robust evaluation of these losses and the causation factors;
- Accuracy of total customer count and number of customers in each rate class;
- Proper estimation of "Illegal Users";
- Verification process – methodology to determine energy, particularly at the distribution level. This may involve the use of transformer check meter readings, and other approaches;
- Scope for large-scale utilization of automated metering infrastructure, including large customers' check meters;
- Approach for distribution of NTL into JNTL and GNTL; and
- JPS NTL Loss reduction plans and programmes.

A3.8 Regulatory Position on JPS' NTL

In the 2018-2019 Annual Review Filing, JPS asserted that the company agreed with the OUR's position on the NTL components listed below, and conceded that it is accepting full responsibility (100%) for each.

- Rate 60 - Streetlight/Stoplight/Interchange
- Rate 40, 50 & 70 - Large C&I customer class
- Rate 20 - Medium C&I customer class
- Unquantified NTL

This position means that these categories of NTL will NOT be factored in the targets to be determined for JNTL and GNTL.

Based on existing regulations, established regulatory principles and the OUR's decisions on NTL in previous Determination Notices, the OUR's position on JPS' NTL for the 2019-2024 Rate Review period will be as follows:

<u>NTL due to Rate 60 Service</u>

- NTL due to Rate 60 service will be treated as being totally within JPS' control.
- Accordingly, this component of NTL will be allocated as: JNTL = 100%, GNTL = 0%.

<u>NTL due to Rate 40, 50 &70 (Large C&I)</u>

- NTL due to the Rate 40, 50 & 70 customer classes will be considered to be totally within the control of JPS.
- As a result, this component of NTL will be allocated as: JNTL = 100%, GNTL = 0%.

NTL due to Rate 20 (Medium C&I)

- NTL due to the Rate 20 (Med C&I) customer class will treated as being totally within the control of JPS.
- That is, JNTL = 100%, GNTL = 0%.

NTL due to Rate 20 (Small C&I)

- Given the number of customers in this category and limited visibility and limited deployment of advanced of metering technology, the OUR may allocate a portion of these losses to JNTL and GNTL. However, the allocations to JNTL and GNTL will be influenced by JPS' dataset on the nature and causes of these NTL obtained from field investigations, as well as the company's long-term NTL reduction programmes.

NTL to due Rate 10 (Residential)

- Given the number of customers in this category and limited visibility and limited deployment of advanced of metering technology, the OUR may allocate a portion of these losses to JNTL and GNTL. However, this allocation will be influenced by JPS' dataset on the nature and causes of these NTL obtained from field investigations, as well as the company's long-term NTL reduction programmes.

NTL due to Illegal Users

- This component of the NTL, largely reflects electricity losses that are deemed to be not totally within the control of JPS. Based on the nature and sources of these NTL, they will be largely apportioned to GNTL. However, this allocation will be influenced by, among other things, the following conditions:
    - Relevant System performance data;
    - JPS' dataset on these NTL obtained from field investigations;
    - Proper characterization of these losses;
    - The methodology used to estimate total number of Illegal Users and level of losses; as indicated in the composition of the ELS set out above; and
    - JPS' proposed curtailment strategy.

NTL defined as Unquantified Losses

- This component of NTL stems from JPS' actions or inactions in the management of its internal operations and processes. As such, these "Unquantified" NTL will be fully allocated to JPS. That is, JNTL = 100%, GNTL = 0%.

Summary

The OUR positions outlined above on the treatment of NTL, means that NTL due to, Rate 60, Rate 40, 50 &70, Rate 20 (Medium C&I) customer classes, and "Unquantified" NTL, will NOT be factored in the targets to be determined for JNTL and GNTL.

A3.9 Distribution of NTL into JNTL and GNTL

- The distribution of NTL into JNTL and GNTL to support the determination of the relevant targets for the 2019-2024 Review period, will be guided by the OUR's position on NTL outlined above.
- JPS' proposed targets for JNTL and GNTL shall be substantiated by the reasonable distribution factors.
- To support proper evaluation of the proposed NTL distribution and targets, JPS shall in its 2019-2024 Rate Review Application, submit at least three (3) years of data on the sources and modes of NTL detected during field investigations.
- Evidence should be provided to demonstrate the authenticity of the data.
- Technical and statistical evaluation of the data will be conducted by the OUR to ensure proper allocation to JNTL and GNTL.

A3.10 Determination on Non-Technical Losses Target

Based on review and evaluation of JPS' NTL proposals, the OUR will make its determination on the NTL targets as prescribed by the Licence. In making its determination, the OUR will take into consideration, among other things, the following:

- The OUR positions on the treatment of NTL outlined above.
- JPS' long-term NTL reduction plan, including investment levels, use of advanced technologies (Smart Meter deployment), and projected impact.
- The initiatives of the GOJ in addressing the aspect of NTL that are not entirely within the control of JPS.
- Relevant System performance data and field investigation data on NTL.
- Benchmarking analysis

A3.11 Determination on Responsibility Factor

In determining the responsibility factor (RF), the OUR will take into consideration, among other things, the following:

- Nature and causes of the losses
- JPS long-term Loss reduction plan and GOJ intervention
- Actions to be undertaken by JPS and resource allocation
- External factors that could affect losses
- Information obtained during consultations with JPS and GOJ

ANNEX 4 – Fuel Cost & Heat Rate

A4.1 Monthly Adjustment to Fuel Rates

Regarding the monthly adjustment to fuel rates, Schedule 3, Exhibit 2 of the Licence, provides as follows:

> *"A. Alternative 1 Fuel Cost Adjustment Mechanism*
>
> *The cost of fuel per kilo-watt-hour (net of efficiencies) shall be calculated each month on the basis of the total fuel computed (inclusive of fuel additives) to have been consumed by the Licensee and Independent Power Producers (IPPs) in the production of electricity. Effective January 1, 2016, this will be calculated each month based on the Licensee's generating heat rate as determined by the Office at the adjustment date and the IPPs generating Heat Rate as per contract and system losses, as determined by the Office at the adjustment date, applied to the total net generation (the Licensee and IPPs). Effective July 1, 2016, this will be calculated each month based on the Licensee's generating heat rate as determined by the Office as at June 30, 2016 (and each succeeding rate review date) and the IPPs generating as per contract."*
>
> *The cost of fuel per kilo-watt-hour shall be computed on a monthly basis under the appropriate rate schedule in the following manner having regard to the applicable efficiency adjustments and effective dates as outlined in the paragraph:*
>
> *"**F = Fm/Sm***
>
> *Where:*
>
Billing Period	=	*The billing month during the effective period for which the adjusted fuel rates will be in effect as determined by the Office.*
F	=	*Monthly Fuel Rate in J$ per kWh rounded to the nearest one-hundredth of a cent applicable to bills rendered during the current Billing Period*
Fm	=	*Total applicable energy cost for period*

Components of the Fuel Cost Pass-through

> *The total applicable energy cost for the Billing Period is:*
>
> *(a) the cost of fuel, adjusted for the determined heat rate and system losses up to June 30, 2016, and which fuel is consumed in the Licensee's generating units or burned in generating units on behalf of the Licensee or incurred in*

relation to the Licensee's contractual obligation, such as but not limited to the minimum take-or-pay obligation under a gas supply agreement, for the preceding calendar month plus;

(b) the fuel portion of the cost of purchased power (including IPPs), adjusted for the contract Heat Rate, for the said preceding calendar month; and

(c) an amount to correct for the over-recovery or under-recovery of total applicable energy cost for a billing period, such amount shall be determined as the difference between the actual total applicable energy cost for a given month adjusted for the determined heat rate … and the fuel costs billed for such month, using … fuel costs and fuel weights.

(d) An amount to correct for the over-recovery or under-recovery of the non-fuel portion of the purchased power. This amount shall be determined as the difference between the actual IPP non-fuel cost for a given month and the estimated base non-fuel IPP charge billed to customers for such calendar month.

S_m = *the kWh sales in the Billing Period.*

The kWh sales in the billing period is the actual kWh sales occurring in the previous calendar month.

The Fuel Rate Adjustment including the Schedule for the application of the fuel charge to each rate class, shall be submitted by the Licensee to the Office ten (10) days [prior to the end of the month just preceding the applicable billing month] and shall become effective on the first billing cycle on the applicable billing

A4.2 Heat Rate Target Evaluation Data Requirement

a) <u>System Load Data</u>
   i. System information requirements for the rate review period, shall include:
   ii. Projected monthly net generation and peak demand for the 2019-2024 price control period, consistent with published final criteria related to electricity demand;
   iii. Chronological load data (2018) for creation of Load Duration Curve (LDCs)

b) <u>Existing Generation System – JPS and IPPs</u>
   Information requirements for existing conventional and RE generation plants, shall include:
   i. Status report on all operational generating units in the System;
   ii. Existing thermal generating plants technical & operational capabilities (JPS & IPPs):

- Output capability – minimum and maximum operating levels (gross and net), dependable capacity, etc.,
- Plant efficiency - heat rate curves, average heat rates, incremental heat rate,
- Ramp rates within the specified operating range,
- Utilization levels - minimum sustained production level, capacity factor, etc.,
- Operating reserves, spinning reserve requirements, constraints on reserves
- Equivalent availability, forced outage rates (FORs), scheduled maintenance days;

iii. Existing RE generation facilities (JPS & IPPs) – installed and contracted capacity, projected monthly net generation, capacity factor, capacity degradation factor, efficiency, output variability, etc.;

iv. Technical and operational constraints on generating units, including capacity deration (JPS & IPPs);

v. Network constraints;

vi. JPS generating units' retirement schedule;

vii. The most current heat rate test which must be in accordance with the provisions of the Generation Code;

viii. Variable O&M cost (US$/MWh) projections for each generating unit for each year of the rate review period;

ix. Fuel cost (US$/MWh) projections for each generating unit for each year of the rate review period; and

x. Any other information relevant to the Heat Rate evaluation.

c) Net Billing Data

Aggregate net energy output for the net billing (SOC) generating facilities.

d) Committed Generation Projects Due for Commissioning Within Rate Review Period

Information requirements for conventional and RE generation facilities scheduled for commissioning within the Rate Review period, which will also impact Heat Rate performance, shall include the following, as applicable:

Performance Characteristics

i. Contracted/dependable capacity (MW);

ii. Projected monthly and annual net generation (MWh);

iii. Contracted heat rate (point) or heat rate curve;

iv. Output Capability - minimum and maximum output level;

v. Capacity Factor (monthly and annually);

vi. Annual capacity degradation; and

vii. Equivalent availability, FOR, scheduled maintenance days;

Cost Data

i. Variable O&M costs and indexation;
ii. Fuel costs and indexation, as applicable; and
iii. Start-up costs, as applicable.

e) Transmission System Data
   i. Annual maintenance plan for the transmission system for each year of the Rate Review period; and
   ii. Planned reinforcement or expansion of the transmission system during the 2019-2024 Rate Review period.

f) Annual Generation Maintenance Schedule
   i. Annual maintenance schedule for the entire generation system for each year of the Rate Review period; and
   ii. Projection of daily demand, daily available capacity and daily reserve margin in MS Excel format

g) Bogue CCGT Heat Rate Calculations with NG/ADO
   i. JPS' monthly heat rate calculations for Bogue CCGT when operating on NG/ADO must be clearly shown; and
   ii. Supporting evidence for input parameters must be provided

h) Generation Dispatch Files
   i. Description of JPS' generation dispatch computer simulation model;
   ii. Full data set of all dispatch assumptions/inputs used in the generation dispatch simulation model, including system constraints, to derive the daily generation dispatch projections for each month of the Rate Review period;
   iii. The simulated daily generation dispatch of all available thermal generating units (JPS & IPPs), for each month of the Rate Review period as extracted from JPS' generation dispatch model (in the same file format of the model).

A4.3 JPS Heat Rate Model

A comprehensive heat rate model in MS Excel will be required to substantiate the projected monthly heat rates for each year of the rate review period, which shall include, among other things, the following:

1) Proper quantification in terms of "volume unit" and "energy unit" of the input fuel energy forecasted to be supplied to each JPS thermal generating unit in each month of the Rate Review period;
2) Heating value (HHV and LHV) of each fuel type applicable to each JPS thermal generating unit;
3) The projected monthly net generation (MWh) of each available generating unit (conventional and RE) to be supplied to the system subject to the generation dispatch process, for each year of the Rate Review period;
4) The projected monthly average heat rate (kJ/kWh) for each JPS thermal generating unit derived from the generation dispatch optimization process, for each year of the rate review period; and
5) Proposed annual average Heat Rate targets to be applied monthly during the price control period subject to the selected Heat Rate target methodology reflected.
6) The Heat Rate model must clearly show all calculations and formulas, connecting outputs to inputs.

ANNEX 5 – SUMMARY OF THE STAKEHOLDER'S RESPONSES: The Proposed Criteria and Further Proposed Criteria & OUR Comments

The Proposed Criteria

#	Stakeholder Responses	OUR Comments
	CACU	
1	**Revenue Requirement**	
	CACU states that the calculation of the ROE seems rather complicated and that it should really be done based on what is happening in the local economy and not influenced by what is happening in economies external to Jamaica. The "Risk Adjusted Return on Capital" (RAROC) could be a guide in setting the ROE. Some companies in Jamaica have ROE in excess of 20%. The CACU would support an ROE of 13%.	Jamaica's economy is small and open Economy and as a result it is influenced by external economic factors. The Capital Asset Pricing Model (CAPM) proposed is an internationally accepted method for calculating the ROE associated with foreign investment. Further, international consultant, NERA, was engaged to conduct a thorough review of valuation models including the DCF method. NERA concluded that the CAPM method was the most suitable for application in Jamaica given its simplicity and the availability of data. The model accounts for local conditions by including the country risk premium. The CAPM model calculates the expected ROE given the risk that the investor faces of putting his money in the particular investment so, it is implicitly "risk adjusted". Additionally, given that the majority of JPS' shares are owned by foreign investors it would not

#	Stakeholder Responses	OUR Comments
		be reasonable to compute the ROE solely based on the conditions in the local market. Indeed, to confine consideration to local condition would be to ignore the reality that the pool for attracting investment is much wider than Jamaica.
	The criteria proposal for calculating the Cost of Debt, the WACC, the Rate Base and Operating Expenses appear to be straightforward. CACU is in agreement.	The OUR acknowledges CACU's acceptance of the cost of debt and WACC calculation.
	CACU sees no justifiable reason why the depreciation study should not be filed with the OUR by 2018 December 31 and recommends that for the avoidance of doubt Criterion 4 clearly identifies a specific date in 2018 by which the depreciation study is to be filed with the OUR.	The Jamaica Public Service Company Limited Extraordinary Rate Review 2017 Determination Notice (Doc. 2017/ELE/001/DET.001) states that "JPS shall be required to conduct a new depreciation study following guidelines established by the OUR. Such a study is to be conducted prior to its application for the 2019 Five Year Rate Review." JPS completed the required depreciation study in the 3rd quarter of 2018 and the Final Study was submitted to the OUR on 2018 October 08.
2	**Revenue Recovery**	
	CACU expressed concern about the actual data on which the Manitoba Hydro International demand forecast was modelled. CACU was of the view that the time series went back too far (2005).	For technical reasons using a limited time series data adversely affects the outcome in econometric modelling which was the forecast methodology used. The OUR therefore disagrees with CACU on this point. CACU Load Research CACU comment is not unreasonable. However, the 2009 data set was the best information available at

#	Stakeholder Responses	OUR Comments
	The JPS' 2009 load research that was used in the research is considered old should be revised.	the time. Since then JPS submitted an up to date Load Research Study (i.e. in 2019 January). JPS is expected to update the load forecast utilizing the most recent data available prior to its rate review submission.
3	**System Losses in the Business Plan**	
	CACU noted that the specifications given in Annex 3 for addressing Technical Losses are very detailed, while there is very little detail specified as to what JPS is to address in respect of Non-Technical Losses. CACU believes that the OUR must review the sections of the document dealing with losses and put forward more details as to the type of information that JPS will need to provide in respect of mitigating Non-Technical Losses. JPS should include in its Business Plan well thought-out strategies for addressing losses that are not fully in JPS' control.	Annex 3 – System Losses-Definitions, Strategy & Derivations was revised and the concerns raised by the CACU has been addressed.
	JPS	
1	**5 Year Rate Review Process**	
a	**Revenue Requirement (RR)**:	OUR has adjusted the criteria to accord with the License. The word "operating" was removed from the sentence identified by JPS.

#	Stakeholder Responses	OUR Comments
	The proposed criteria outline in 3.2.2: "According to the provisions of the Licence, the RR under the revenue cap principle comprises two (2) main elements: 1. The 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 RR 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).	
	For 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	The OUR has no objection to JPS' proposed phrasing of the paragraph in question. Accordingly, the Criteria has been adjusted to accord with wording proposed by JPS.

#	Stakeholder Responses	OUR Comments
	ii. Depreciations iii. Taxes For 3.2.4 JPS proposes the following wording" "In delineating the Criteria, the four components of the RR will be examined, starting with the Rate of Return followed by the approved operating expenses."	
	For every year "t", the required revenues (RRAt) should cover the operating and maintenance expenses (a.k.a. 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.	The formula in the Criteria has been simplified to make it more comprehensible to the general public. Accordingly, the Criteria sates "The Revenue Requirement may be expressed as follows: $RR = ROI + OPEX + D + T$ Where: RR = Revenue Requirement ROI = Return on investment; and OPEX = Operating expenses (prudently incurred) D = Depreciation T = Taxes

#	Stakeholder Responses	OUR Comments
	1. Return on Investment There is a formal error in the formula to estimate 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:*** $$\mathbf{WACC_{(pre-tax)} = r_D * \left(\frac{D}{D+E}\right) + \frac{r_E}{(1-t)} * \left(\frac{E}{D+E}\right)}$$	The OUR has accepted there was an error in the formula for the pre-tax WACC and has made the necessary correction to reflect $\frac{r_E}{(1-t)}$
	2. Cost of Debt a. JPS argues that there are problems associated with the current approach for estimating the cost of debt. The company considers that the existing methodology of calculating the cost of debt using historical and variable interest 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. b. 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 RR.	The Office rejects JPS' arguments on the basis that the proposed methodology is one that is contemplated in the License. Schedule 3, paragraph 30(b) of the Electricity License states that "the interest rate will reflect the weighted average interest rate in place for the latest audited financial statements, corrected for known material changes in the funding structure related to refinancing or new PPE capital outlay…." This clause of the Licence is very specific in how the interest rate should be calculated. As such the OUR sees no need for a special provision for exposure to the market arising from the variable nature of some of JPS' debt instruments. In other words, while the Licence allows for the full recovery of the cost of debt at the outset of the review it does not envisage exempting the utility from the obligation of judicious management of its risks. JPS' proposal seem to contemplate a mechanism for adjustment of revenues in future annual reviews to actualize costs. This is against the spirit of incentive regulation and is likely to result in increased

#	Stakeholder Responses	OUR Comments
	c. The OUR's proposed approach assumes all debt on JPS' balance sheet is homogenous. The portfolio is comprised of Euro, USD and JAMD. 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. d. As at end of May 2018, approximately 45% of JPS's long-term debts have variable interest rate linked with then-effective LIBOR. While JPS considers it reasonable and strategic to retain long-term debts with variable interest rates which brings in benefits to the 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.	cost to consumers in the long as there would be little incentive for JPS to optimize its debt portfolio. JPS also argued that not all its debts are denominated in USD and as such using a weighted average borrowing cost applied to a USD rate base ignores the currency risk. The OUR notes that this is a valid observation, however, JPS is compensated for FX losses in the annual adjustment mechanism and should manage the risk exposure between the various exchange rates it employs in transacting its business. The OUR therefore maintains its position in Section 3.4.1 that: "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". Further, the OUR reiterates that as stated in Section 3.4.2: "All prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating expenses."
	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;	See response above.

#	Stakeholder Responses	OUR Comments
	(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 WACC through the establishment of a long-term interest rate "reference curve."	
	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 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.	The OUR is of the view that the costs associated with the issuance of debt i.e. due diligence fees, breakage costs and refinancing fees while they are a necessary aspect of acquiring debt, do not yield future economic benefits and as such, are properly seen as operating costs rather than capital costs. In this respect, they tend to distort the actual cost of debt. The OUR therefore rejects JPS' proposal and stipulates that these financing costs should be included in the non-fuel operating expenses. (See response above.)
	3. Rate of Return on Equity	

<table>
<tr><th>#</th><th>Stakeholder Responses</th><th>OUR Comments</th></tr>
<tr><td></td><td>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;
<table><tr><td>r_f</td><td>Risk Free Rate</td></tr><tr><td>$\boldsymbol{\beta}$</td><td>Levered Beta</td></tr><tr><td>$\boldsymbol{MRP}$</td><td>Market (or Equity) Risk Premium</td></tr><tr><td>$\boldsymbol{CRP}$</td><td>Country Risk Premium</td></tr><tr><td>$\boldsymbol{\lambda}$</td><td>JPS Exposure to Country Risk</td></tr><tr><td>r_s</td><td>Cost of Equity for JPS</td></tr></table></td><td>The OUR by way of a competitive bidding process engaged the services of an experience and competent Financial Expert, NERA Economic Consulting, to provide an assessment of, and advise on the Methodology and Computation of the Return on Equity.

In compliance with the requirements in Schedule 3 of the JPS Licence the OUR through its consultants, NERA, sought guidance on the ROE from the Bank of Jamaica. The Ministry of Science Energy and Technology (MSET) and the JPS both actively participated in the consultative process.

The OUR has broadly accepted the approach and methodology that was recommended by NERA and as such the CAPM formula remains as follows:
$$\boldsymbol{ROE\ (Real) = R_f + [\beta * (TMR - R_f)] + CRP}$$
As regards JPS' comments, the following response are in order:

a. The OUR accepts JPS' proposed beta ($\boldsymbol{\beta}$) which is to be derived from Five (5) year beta for all U.S. electric utilities from Bloomberg database. The approach reflects greater consistency than the use of a global beta, since the "mature market" under consideration is the US electricity market and not the global electricity market.

b. In terms of the bond that should be used for the risk free rate (R_f); intuitively the length of the bond should me matched with the investment life of the assets but given</td></tr>
</table>

#	Stakeholder Responses	OUR Comments
	$$\lambda = \frac{\%\ JPS\ Revenues\ in\ Jamaica}{\%\ Average\ Jamaica\ Stock\ Revenues\ in\ Jamaica}$$ Implied conservative λ = 1.10 JPS argues that the OUR implicitly uses lambda = 1.00 in its calculations. *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.*	that longer duration bonds are usually less liquid, some amount of illiquidity premium is usually included. Most analyst use either the 10 year or 20-year bond in CAPM valuation. While JPS proposes a 30-year bond, the OUR is of the view that the 20 Year bond provides a suitable proxy, all things considered. c. The OUR maintains that the use of historic rates as a forecast for the Equity Risk Premium is reasonable. In fact, this is the dominant approach to forecasting in general and forms the backbone of multivariate analysis. d. The OUR notes that JPS' adopts a CAPM-Lambda formulation originally proposed by Damodoran. However, based on the examination of the formulation by others, the evidence is not conclusive that it is applicable. The fact that a company earns most of its revenues in Jamaican dollars doesn't mean it is more exposed to country risk than others since this is addressed by other compensating mechanisms in the tariff. For example, JPS is compensated for foreign exchange losses unlike others in Jamaica. Additionally, the revenue cap, plus the Z-Factor provision also provides JPS with more certainty in its revenue stream – a certainty many Jamaican companies do not have.

#	Stakeholder Responses	OUR Comments
	4. Rate Base. 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), since provision is made in the Rate Base for Construction work in progress (CWIP). 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	The OUR has accepted JPS' proposal to include a third bullet point in Paragraph 3.6.2, with some modification. As such Section 3.6.2 now reads as follows: "For the avoidance of doubt, as provided in the Licence, it is important to note that: 4. 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 5. The Revenue Requirement shall not include any Allowance for Funds used during Construction (AFUDC)[31], since provision is made in the Rate Base for Construction work in progress (CWIP)[32]." 6. Customer contributed assets or assets that are not a normal part of JPS' revenue stream but are financed through the tariffs or other means approved by the OUR

[31] AFUDC represents the net cost for the period of construction of borrowed funds used for construction purposes and a reasonable rate on other funds when so used.

[32] CWIP represents the balance of funds, which are invested in the utility plant under construction but not yet placed in service.

#	Stakeholder Responses	OUR Comments
	• 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	shall not be included in the company's rate base. Such assets would include those acquired through, the Electricity Efficiency Improvement Fund, the System Benefit Fund, Bogue Plant Reconfiguration Fund or any similar fund. The OUR sees no need to include JPS' proposed insertion in Paragraph 3.6.3 since that proposal is already captured in the formula presented in Criteria 3 in keeping with the provision of Licence.
	5. Operating Expenses 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: <u>Non-fuel Operating Costs (OPEX)</u> 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	In keeping with JPS' proposal Section 3.7 has re-labelled "Non-Fuel Operating Expenses". Additionally, the OUR has replaced the original Paragraph 3.7.1 with the one proposed by JPS. The replacement replicates paragraph 31 of Schedule 3 of the Licence.

#	Stakeholder Responses	OUR Comments
	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.	JPS' comment on financing cost has been taken on board and is now captured Paragraph 3.4.2 as follows: "All prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating expenses."
	6. Revenue Recovery: Demand Forecasts 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:	The OUR agrees that the MHI model parameters for the forecast of demand, should be updated through a consultative process between OUR and JPS.

#	Stakeholder Responses	OUR Comments
	• 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	Treatment of Special customer contracts (eg. Carib Cement Revenues) is to be treated as revenue offsets and is address in sections 3.9.12 and 3.11.3 (1) as follows: a. Section 3.9.12 _ "Revenues projected by JPS to be earned through the sale of electricity based on special contracts between JPS and its customer shall be deducted from the total revenue requirement" b. Section 3.11.3 (3) _ "Finally, the revenue requirement (RRy) for each year, "y" of the Rate Review period shall be computed by adding the adjusted controllable OPEX for that year to the other components of the revenue requirement for that year. These include: • Non-controllable OPEX (e.g. interest and financing expenses, sinking fund contribution) • Capital Expenditure (Depreciation and return on capital) • Taxes (Grossed Up) • Revenue Offsets and other adjustments (e.g. Carib Cement Revenues)" Additionally, the treatment of wheeling charges is address at section 3.9.11 as follows: "Recoverable revenues from the use of the system by way of "Top-up", "Standby Electric Power Wheeling or any other auxiliary

#	Stakeholder Responses	OUR Comments
	should clearly state how the wheeling charges are to be treated within the revenue recovery framework.	services shall be treated as outside of the total revenue requirement. These special categories of service shall be included in the revenue requirement and tariff basket when sufficient billing and cost data becomes available."
	7. **Revenue Cap** 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.	The OUR concurs with JPS on this point. No action is required on the part of the OUR.
	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.	OUR accepts JPS' proposal with respect to the formulation of the average kWh tariff (TkWh), average kVA tariff (TkVA), and the average customer charges (Tc).

#	Stakeholder Responses	OUR Comments
	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 $$T_{kWh} = \frac{\sum_y \frac{RR_y^{kWh}}{(1+wacc)^y}}{\sum_y \frac{kWh_y}{(1+wacc)^y}}$$ $$T_{kVA} = \frac{\sum_y \frac{RR_y^{kVA}}{(1+wacc)^y}}{\sum_y \frac{kVA_y}{(1+wacc)^y}}$$ $$T_C = \frac{\sum_y \frac{RR_y^{C}}{(1+wacc)^y}}{\sum_y \frac{C_y}{(1+wacc)^y}}$$	

#	Stakeholder Responses	OUR Comments
	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: $$RC_y = T_{kWh} * kWh_y + T_{kVA} * kVA_y + T_c * C_y$$	
	8. 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. It is unrealistic to expect that projects planned for five years could maintain a tolerance level of 5% or less on forecasted costs.	Given the scale and scope of JPS projects the OUR has considered it prudent to classify the company's projects into three (3) categories. From a regulatory administrative point of view this is a more pragmatic approach to the monitoring required. In this respect a new section (i.e. 4.5) has been added and Section 3.9.8 now reads: "For the avoidance of doubt, in all instances where there are variations in the capital expenditure programme, the adjustments to the tariff shall be consistent with classification of projects (i.e. Major Poject, Extraordinary Maintenance Project and Minor Project) delineated in Section 4.5.."

#	Stakeholder Responses	OUR Comments
	Proposal ***JPS proposed 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.	JPS proposal taken as rendered in their comments would transform the performance based revenue cap tariff into an annual rate of return rate review exercise. This was never in the contemplation of the architect of the rate review mechanism. Furthermore, JPS proposal for annual adjustments to correct indicative forecasted costs leaves the incentive mechanism vulnerable to moral hazards. That said, the OUR recognizes that greater clarity was required in the Final Criteria regarding adjustments to the tariff arising from capital projects. Accordingly, Section 4.5 has been included in the Final Criteria to address this gap.

#	Stakeholder Responses	OUR Comments
	9. Rate Design 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"	JPS' proposed restatement of Section 3.10.3 differs from the original Proposed Criteria by way of the omission of proposed tariffs for "electric vehicles". The OUR takes the view that this potential dimension of JPS business is too important to be excluded from the Rate Review.
	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."	Consistent with the OUR's position on electric vehicles stated above, the proposed modification of Criterion 7 has been accepted except for the exclusion of "electric vehicles" tariffs. Paragraph (b) in Criterion 7 of the Final Criteria reads as follows: "JPS rate design shall include but not be limited to proposed tariffs for distributed generation (net billing customers), electric vehicles, power wheeling and auxiliary interconnection, stand-by service and prepaid customers."

#	Stakeholder Responses	OUR Comments
	10. Productivity Improvement Factor 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;	Under the price cap regime, the "X-Factor" was defined as the offset to inflation resulting from productivity changes. The Licence now makes reference to "The productivity improvement", which the OUR in the draft Criteria denoted as the "X-Factor". For clarity and the avoidance of any misunderstanding the OUR has removed and replaced all references to the X-Factor with "The Productivity Improvement Factor ("PI-Factor") in the Final Criteria.
	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 OUR has taken note of JPS' desire to make a clear distinction between the X-Facto and the Productivity Improvement Factor. As such, inter alia, section 3.11.3 of the Final Criteria now reads; "The proposed methodology for the calculation of the PI-Factor is as follows: 1. An efficiency target for the utility based on a benchmarking analysis is computed by using Data Envelopment Analysis (DEA). Table 06 below provides a summary of the input and output factors employed in the DEA model. The utilities included this benchmarking analysis are described in Annex 1 of the Productivity Report…"

#	Stakeholder Responses	OUR Comments
	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.	In keeping with JPS suggestion that other considerations related to productivity improvement should be specified in Paragarph 3.11.3 of the Final Criteria has been amended as follows; "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). <u>The Office will determine the number of years over which this target should be achieved (Y_{ET}).</u> The Office will utilize these two factors (E_T and Y_{ET}) and any considered cap on productivity improvement in determining the final PI-Factor.
	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.	Again Paragraph 3.11.3 of the Final Criteria has been modified to reflect JPS' request for greater flexibility in the productivity improvement factor methodology; "The Office reserves the right to consider other benchmarking tools such as partial benchmarking in determining the annual PI-Factor adjustment."
	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 focused solely on Transmission and Distribution utilities. As such, **JPS wants to understand the basis for including this partial benchmarking analysis**.	Even though the data specified in the Criteria might not be employed directly in the development of the PI target, the OUR is of the view that the requested data will provide additional insight into the JPS network costs and the reasonableness of the production analysis. As indicated in the Final Criteria, "The Office reserves the right to consider other benchmarking tools such as partial benchmarking in determining the annual PI-Factor adjustment."

#	Stakeholder Responses	OUR Comments
	11. **Quality of Service Standards** JPS recommendations for inclusion 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	1. The OUR has taken note of JPS' comment. Accordingly, Paragraph 3.12.5 has been amended to read as follows: … "JPS shall be required to assess the company's performance over the 2014 - 2018 Rate Review period…" 2. Condition 17.5 and 17.7 of the 2016 Licence calls for the OUR to have consultation with JPS will review the Guaranteed and Overall Standards. In this regard, in recognition of the validity of JPS point Paragraph 3.12.5 has been added so as to indicate that such consultations will be done in "accordance with terms and conditions set out in Condition 17 of the Licence." 3. At present the OUR is not contemplating any changes to the Guaranteed or Overall Standards that would require any significant capital or O&M expenditure. However, if JPS intends to propose changes to these standards, the associated costs should be captured in its Business Plan. 4. As indicated above, the OUR is not contemplating any changes to the Guaranteed or Overall Standards at this point. However, as stated in Criterion 9 b) should JPS propose any change it should be supported by the rationale for its proposal, which would include benchmarks,

#	Stakeholder Responses	OUR Comments
	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.	international best practices and customer specific data analysis (surveys, complaints etc.) 5. Consistent with JPS' suggestion Criterion 9 (c) has been amended to read "2019-2024" instead of 2014-2019.
2	**Proposed Criteria: Annual Targets**	
	1. Annual Adjustment Mechanism $dI=(EX_n-EX_b)/EX_b\{USP_b+INF_{US}(USP_b-USDS_b)\}+INF_{us}(USP_b-USDS_b)+(1-USP_b)INF_J$ JPS is satisfied with the annual adjustment mechanism as it relates to dI as stated above.	The OUR endorses JPS' comment.
	2. Target Setting in relation to the determination of reasonable and achievable targets as per paragraphs 37 to 41 of Schedule 3 of the Licence, JPS has recommended that it should take into account the level of investments required, projects implemented and other factors that could impact the performance outcome relative to targets.	The OUR agrees with JPS on this point but sees no need to explicitly state it in this section of the document since it is entrenched in regulatory practice and is adequately covered in several places in the Criteria.

#	Stakeholder Responses	OUR Comments
	3. Q factor: Reliability 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. JPS requests that the requirement for MAIFI to be removed from the Final Criteria.	The OUR has taken note of JPS' comment and Section 4.3.4 of the Final Criteria states as follows: "JPS shall not be penalized under the Q-Factor mechanism for IPP generation outages, unless the cause of the IPP generation outage(s) is/are due to fault(s) on the part of JPS." Even though MAIFI is not a component of the Q- factor mechanism, the OUR still considers the index to be critical to a robust assessment of system reliability. Consequently, the OUR maintains as stated in Annex 2 that JPS shall report on this index.
	4. Y-Factor (System Losses) Adjustment 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**.	The OUR, in response to JPS' comment has amended Paragraph 4.3.5 of the Final Criteria to reflect the language in Schedule 3, paragraph 37 of the Licence. In addition, Annex 3 has been reinforced to more fully address the concerns regarding the details of determining the losses target.

#	Stakeholder Responses	OUR Comments
	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**	The OUR has no objection to the inclusion of JPS proposal in Criterion 12, except for (iii) for which the language has be changed to say "Propose methodology to **manage** the financial impact of Y-Factor"
	5. 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.	The OUR will take into consideration the data from the DMS and other system data sources in the evaluation of technical losses target.
	6. Non-Technical Losses 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	The data set of causation factors and modes of losses among other data inputs will be taken into consideration in establishing the non-technical losses target.

#	Stakeholder Responses	OUR Comments
	e) Repeat occurrences	
	7. 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. In determining the considerations for target setting, 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.	Determination on RF will take into consideration the provisions of the licences and consultation with the relevant stakeholders on this issue. The mechanism outlined in the License does not contemplate this approach. Evidently, setting the target based on a range rather than a point unnecessarily complicates the incentive/penalty calculation. The Licence, with good reason, specifies the establishment of 5-year system losses targets. The OUR maintains that targets should be set in accordance with schedule 3 of the Licence.

#	Stakeholder Responses	OUR Comments
3	**Proposed Criteria: Fuel Cost**	
	1. H-Factor (Heat Rate) Adjustment 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 underperforming (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)."	After giving due consideration to JPS' comment Paragraph 5.2.1 of the Final Criteria has been revised to state: "The OUR will evaluate the heat rate in accordance with schedule 3, Paragraph 40 of the Licence taking into consideration the system conditions and plans for the ensuing five (5) year review period. 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 target (i.e. register a lower actual heat rate) and penalizes the company for under-performing (i.e. register a higher actual heat rate)."
	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.	In recognition of the validity of JPS suggestion, the criteria has been revised to include the allowance for consultation with the OUR on various methodologies prior to the submission. The insertion in Paragraph 5.3.1 reads … "The OUR will engage the JPS on these

#	Stakeholder Responses	OUR Comments
		matters/methodologies prior to JPS making its submission in 2019 April."
	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.	This issue was clearly addressed in the Sector Codes. Hence, the OUR does not see the need to duplicate it in the Final Criteria.
	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$**	The correction has been made. The Final Criteria now reflects what is represented in the license. Paragraph 5.1.3 reads: …."Fm = Total applicable energy cost for period"
4	**Supporting Documents**	

#	Stakeholder Responses	OUR Comments
	1. The JPS Business Plan 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.	The OUR maintains that the 2018 Year shall be used as the base year and the year for which the audited financials shall be submitted. In addition, 2019 will be consider Year 1, which is the first year of the Business Plan.
	2. Financial and Regulatory Accounts **Proposed Criterion 15b**: *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).* 1. As indicated in JPS' response to the Notice of Proposed Rule Making (*Accounts Separation Guidelines for JPS document in letter dated May 18, 2018 to Ambassador Peter Black, Secretary to the Office*), 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.	

#	Stakeholder Responses	OUR Comments
	2. The best estimate is that the year ending December 31, 2021 will be [the] 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).	The OUR has considered the points raised by JPS and adjusted Criterion 15 b as follows: **Criterion 15:** c) 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;
	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**	As indicated above JPS shall be required to submit its 2018 Audited Financial Accounts. However, the OUR recognizes the challenges associated with the submission of the 2018 Regulated Accounts. In this regard JPS shall be required to submit its "Embedded Cost of Service study which clearly shows cost allocations that reflects the functionalization and

#	Stakeholder Responses	OUR Comments
	be implemented for the 2022 Annual Filing based on the financial year ending December 31, 2021	classification of cost, as well as the costs associated with its non-regulated business" (see Criterion 16).
	3. Cost of Service and Load Research Studies 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.	The OUR considered the request and the respective changes have been made. Section 6.3.4 (a) of the Final Criteria now reads as follows: "…the LRMC of generation, transmission by feeder type and distribution 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." The OUR rejects this proposed change to Paragraph 6.3.6 and as such the Final Criteria still reads: "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. <u>The samples shall be selected to ensure at minimum a relative precision of peak hour demand estimate of plus or minus 10% at a 90% confidence level."</u>

The Further Proposed Criteria

#	Stakeholder Responses	OUR Comments
	JPS	
1	**Project Categorization Philosophy and the Project Categorization Matrix**	
	JPS proposes that its proposed Project Categorization philosophy and Project Categorization Matrix be incorporated in the final criteria as guidelines for the assessment of projects in the Business Plan.	The OUR has adopted and adapted the JPS proposed Project Categorization Matrix in the Final Criteria. This is captured in Section 7 of the Final Criteria.
2	**GUIDELINES FOR REVIEWING PROPOSED PROJECTS IN THE BUSINESS PLAN**	
	In addition to the concept of using the Project Categorization Methodology, to ensure that the level of detail requested for each project is appropriate and that the timing of the provision of such information is realistic, JPS is proposing the following adjustments to the information being requested: For Section 2.1, JPS proposes the following wording: "***To enable the OUR to properly assess the projects presented in JPS 2019-2023 Business Plan, a Project categorization philosophy should be adopted with projects classified into three major groupings as follows:***	After further consultation with JPS, the company's proposal for the treatment of Business Plan investments has been adjusted as follows: "To enable the OUR to properly assess the projects presented in JPS' 2019 -2023 Business Plan, JPS shall classify all relevant capital projects in the following three (3) categories: a) *Major Projects*: this refers to non-routine capital projects valued at US$10 Million or more. These projects shall be clearly identified in JPS' Capital Investment Plan, and shall

#	Stakeholder Responses	OUR Comments
	• ***Major Non-Routine;*** • ***Other Non-Routine*** • ***Maintenance.*** ***Each project should include the applicable information requirement set out in the Project Classification Matrix. Carry-over projects are excluded from this requirement.***"	be assessed for Z-Factor adjustments on their individual merit; b) *Extraordinary Maintenance Projects*: this refers to non-routine capital projects related to routine plant replacements and overhauls valued at US$10 Million or more. These projects shall be clearly identified in JPS' Capital Investment Plan, and shall be assessed for Z-Factor adjustments on their individual merit. The only distinction between a Major Project and an Extraordinary Maintenance project is that the former is non-routine in nature while the latter is not; *c) Minor Projects*: this refers to non-routine capital projects valued at less than US$10 Million. Each minor projects shall be clearly identified in JPS' capital investment plan, but shall be assessed for Z-Factor adjustments collectively (i.e. based on the performance of all projects in the Minor Project group as a whole). Projects with expenditure already in CWIP prior to 2019, and slated to be commissioned in 2019, shall be excluded from all category of capital projects identified above.

#	Stakeholder Responses	OUR Comments
	JPS will provide the required details to fulfil points (a), (b) and (d) outlined in the Further Proposed Criteria. Point (c) should be required for new technologies that JPS has not implemented in the past. JPS is therefore proposing the section 2.1.1 be reworded as follows: 2.1.1. "***Description of Facilities*** ***JPS shall be required to set out the following for each project:*** ***a) Justification for the project.*** ***b) Project scale, scope and timing.*** ***c) Description of proposed technology and track record of proposed technology in similar operating environment (for new technologies that JPS has not implemented in the past).*** ***d) Major systems, sub-systems and type of equipment***."	As indicated above JPS' proposal including the components pertaining to its characterization of the features of the projects have been adapted.
	The Specification and designs are appropriate for the project categories identified in the Project Categorization Matrix. JPS is therefore proposing the section 2.1.2 be reworded as follows: 2.1.2 ***"Specifications and Design*** ***With regard to the specification and design of the project, the following information is required for efficiency, growth and upgrade projects:*** ***a) Proposed design and configuration.***	See OUR's comment above.

#	Stakeholder Responses	OUR Comments
	b) Specifications for the proposed project facilities, including detailed specifications for the major systems and equipment including, manufacturer, model, ratings, and applicable codes/standards. ***c) Available drawings and general layout plans relating to the proposed project facilities.***"	
	Project Site information should be limited to (a), (b) and (c). Points (d), (e) and (f) should not be required for the approval and prudent monitoring of projects. JPS is therefore proposing that section 2.1.3 be reworded as follows: 2.1.3 "***Project Site*** ***With regard to project Site, the following is required:*** ***a) Location.*** ***b) Site description including Site maps and data.*** ***c) Description of access route to Site.***"	See OUR's comment above.
	The Proposed Implementation Schedule is appropriate to be provided in line with the Project Categorization Matrix. JPS is therefore proposing the section 2.2 be reworded as follows: 2.2 "***Proposed Implementation Schedule*** ***a) A detailed project implementation schedule shall be provided for efficiency projects, showing all project tasks,***	In keeping with JPS proposal Paragraph 7.2.4 has been inserted in the Final Criteria and reads as follows: JPS' Business Plan submission shall include: d) A detailed project implementation schedule shall be provided for all Major Projects, showing all project tasks, milestone activities, timelines and resources, to support

#	Stakeholder Responses	OUR Comments
	milestone activities, timelines and resources, to support and confirm project progress and completion within the proposal timeframe. ***b) The project implementation schedule shall be submitted in a functional electronic "Gantt Chart" compatible with Microsoft Projects software***."	and confirm project progress and completion within the proposal timeframe. e) A summary schedule showing major project milestones shall be provided for all Extraordinary Maintenance Projects. f) The project implementation schedules shall be submitted in a functional electronic "Gantt Chart" compatible with Microsoft Projects software.
	2.3 Agreed, the Annual Adjustment submission is an appropriate stage for project details for the projects slated to begin in the following calendar year.	The OUR agrees with JPS on this point and accordingly this is now covered in Section 7.3 of the Final Criteria.
	2.3.1 The points under Project Logistics are broad and subjective and should not be included. Where there are delays to execution timelines for a project, the OUR holds the right to request reports highlighting any logistics challenges that the specific project may face or is facing. J**PS is therefore proposing the elimination of section 2.3.1.**	Given that the information on logistics is to be provided at the review prior to the implementation of the project the OUR is of the view that the request for details is not unreasonable. Hence Paragraph 7.3.1 is retained: "7.3.1 With respect to project logistics JPS shall in its Annual Review submissions provide: a) Details of proposed arrangements for supply, installation and commissioning of Major and Extraordinary Maintenance Projects.

#	Stakeholder Responses	OUR Comments
		b) Evidence of relevant arrangements to ensure the availability of the required inputs to support the proper and timely implementation of a project."
	2.3.2 Details of the EPC arrangements are appropriate as they become available. Details surrounding sub-contracting, should appropriately be between the EPC and his client. JPS is therefore proposing the section 2.3.2 be reworded as follows: ***2.3.2 "Engineering, Procurement and Construction*** ***a) Details of potential Engineering, Procurement and Construction (EPC) arrangements*** ***b) Experience of EPC contractors.*** ***c) Qualifications and experience of project team***"	The OUR finds the argument reasonable and has worded the relevant section as follows: "Where applicable the OUR may request that JPS provide information on its Engineering, Procurement and Construction (EPC) Arrangements for certain projects. The information would include: d) Details of potential Engineering, Procurement and Construction (EPC) arrangements; e) Experience of EPC contractors; and f) Qualifications and experience of project team."
	2.3.3 While JPS would have no difficulty in demonstrating "that local labour considerations have been adequately addressed", JPS is confident that the OUR is more focused about the best available talent at a cost effective option and not simply the mode of engagement. That said, it is important to note that JPS as a matter of practice, in all instances, where it is possible and prudent to do so, utilises local labour and suppliers and could	In keeping with JPS' proposal the pertinent paragraph has been removed from the Final Criteria.

#	Stakeholder Responses	OUR Comments
	even offer to provide a reasonable forecast of local participation in major projects. **JPS is therefore proposing the elimination of section 2.3.3**.	
	2.3.5 An Environmental Impact Assessment (E.I.A) can be requested where it is a pre-requisite to construction start by environmental agencies on an as-available basis. This should satisfy points (a), (b) and (c). **JPS is therefore proposing the elimination of section 2.3.5.**	In keeping with JPS' proposal the pertinent paragraph has been removed from the Final Criteria.
	2.4 JPS recognizes that varying project costing details will be required for all projects; however, due to the dynamic nature of costing, JPS submits that the Annual Adjustment submission would be a more opportune time at which to provide the latest cost estimates for the projects slated to start in the upcoming calendar year. Note, the 5 Year Capital Investment Plan will incorporate the proposed estimates for each project at the time of the 5 Year Plan Capital Investment Plan's filing. 2.4.1 With the details provided in (a), (b), (c), this should this be limited to the suppliers of the top 10-15% of the project cost input or a random sample of the quotations as requested by the OUR.	The OUR does not agree that the Annual Adjustment submission is the opportune time at which to provide the latest cost estimates. In fact, the approach proposed opens the evaluation to moral hazards. Consequently, the Final Criteria states: "7.2.5. The follow information is required for JPS' proposed capital cost: a) Description of methodology used to estimate the capital cost of each project and the soundness of such cost estimates. b) The proposed capital cost should be disaggregated into the major capital cost components, including any capitalized operation and maintenance (O&M) costs and contingency costs. This should also be reflected in the project model.

#	Stakeholder Responses	OUR Comments
		c) The major capital cost components should be fully broken out into their constituent elements, particularly the construction cost. d) Documentation providing evidence of the scope of supply and services from proposed vendors and suppliers, including price quotations, where applicable."
	2.5 Financial and Economic models showing cost benefit analysis are appropriate requirements, guided by the Project Categorization Matrix. Rate Impact Assessments (RIA) are appropriate for Major Non-Routine Projects because of their potential rate impact. Any other (RIA) could be done for the portfolio of projects for a year showing an aggregate rather than project-level view of rate impact. JPS is therefore proposing the section 2.5 be reworded as follows: **2.5 "*Project Models*** ***JPS' Submission for Major Non-Routine projects shall include the following project models developed in Microsoft Excel.*** • ***Financial/Economic Analysis Model: This model should include, financial/economic assumptions, methodology, sensitivity analysis, Internal Rate of Return (IRR), Net Present Value (NPV), etc., and analysis demonstrating the economic and financial feasibility of the proposed project.***	The OUR has given due consideration to JPS' proposal and has modified the language in the paragraph as follows: "7.2.6 For all Major Project and Extraordinary Maintenance Project proposals, JPS shall include the following project models developed in Microsoft Excel. a) Financial/Economic Analysis Model: This model should include, financial/economic assumptions, methodology, sensitivity analysis, Internal Rate of Return (IRR), Net Present Value (NPV), etc., and analysis demonstrating the economic and financial feasibility of the proposed project. b) Cost-Benefit Analysis Model: This should include project-specific cost-benefit analysis demonstrating the cost effectiveness and value of the proposed project to the electricity system. c) Rate Impact Assessment (RIA) Model: A project's RIA model should analyze and show the impact of a proposed project on average retail electricity rates."

#	Stakeholder Responses	OUR Comments
	• ***Cost-Benefit Analysis Model: This should include project-specific cost-benefit analysis demonstrating the cost effectiveness and value of the proposed project to the electricity system.*** • ***Rate Impact Assessment (RIA) Model: A project's RIA model should analyze and show the impact of a proposed project on average retail electricity rates."***	
	2.6 Project Risk Assessments and Due Diligence will be provided in line with the Project Categorization Matrix. Point (c) is applicable where a project model is submitted. JPS is therefore proposing the section 2.6 be reworded as follows: ***2.6 "Project Risk Assessment and Due Diligence*** ***JPS' Submission for Major Non-Routine projects shall include:*** ***a) Description of potential risks that could impact the implementation and operation of each proposed project*** ***b) Proposed mitigation strategies to address project risks*** ***c) Application of project model for risk assessment and project due diligence to inform decision-making.***"	The OUR has taken JPS' comments into consideration and has modified the proposal as follows: "JPS' Submission for Major Non-Routine and major maintenance projects shall include:" a) Description of potential risks that could impact the implementation and operation of each proposed project b) Proposed mitigation strategies to address project risks c) Sensitivity analysis using project models and contingency analysis for risk assessment to inform decision-making."
	2.8 JPS is willing to provide a report on its procurement policy and process followed, and should the OUR desire, is willing to consider providing a sample on an ad-hoc basis, of the procurement details for projects. This should be sufficient to assess fairness of process. There should be no need for	JPS' proposal to eliminate Paragraph 2.8 of the Further Proposed Criteria has been rejected since, the OUR considers transparency and prudence to be important to the company's procurement activities. Consequently, Paragraph 7.2.8 reads as follows:

#	Stakeholder Responses	OUR Comments
	submission of the proposals evaluation report as this should only be necessary in the event of a challenge of the outcome of the process by an interested party and then, only with solid offered reasons. Alternatively, in the event the budget outturn is not consistent with the project details submitted and the OUR opts to review project execution, this information (evaluation report) should be seen as part of the proprietary project rights of JPS. **JPS is therefore proposing the elimination of section 2.8**	"7.2.8 Procurement Activities to support the implementation of approved Projects in JPS Business Plan shall be consistent with the following: a) They shall transparent, reasonable and prudent manner. b) In procuring such services, JPS shall endeavour to employ competitive tender processes consistent with national guidelines, international standards and industry best practices. c) The procurement approach for each project, shall encompass specific sets of technical and commercial requirements with clearly defined evaluation/selection criteria. d) For transparency and regulatory monitoring purposes, the OUR reserve the right to request of the JPS to submit the evaluation report at the time of procurement of approved projects."
	2.9 JPS is urging the OUR not to go beyond regulatory monitoring and move into project oversight. Given that regulatory monitoring involves taking snapshots at specific milestones along the way and oversight requires constant assessment and giving direction. JPS is of the view that it is ultimately accountable for project management, i.e. oversight and therefore is solely responsible for project governance and execution. It is expected that the OUR would not undertake	The OUR has taken note of JP' argument and has adjusted Section 7.4 to remove the reference to oversight. The section now reads: "The implementation of approved projects will involve several milestone activities expected to be completed within defined timeframes. As such, there will be need for on-going regulatory monitoring, up to the point of commercial operations. After successful project implementation, monitoring will shift to the operations phase. JPS shall submit to the OUR quarterly and annual status updates on all projects showing, among other things, major

#	Stakeholder Responses	OUR Comments
	project oversight but rather utilize regulatory monitoring to ensure JPS performs as represented. **JPS is therefore proposing the elimination of section 2.9**	milestones achieved and breakout of costs incurred during projects implementation."
3	**Construction Work in Progress (CWIP)**	
	In relation to section 3, in particular, paragraph 3.2 of the Further Proposed Criteria document dated November 9th emphasizes that for a project to be considered as Capital [Construction] Work in Progress (CWIP), the" …project must accord with (the) International Financial Reporting Standards (IFRS) definition of assets", which is consistent with the requirements of the Electricity Licence 2016. To provide sufficient comfort that our accounts, including our CWIP balances within property, plant and equipment have been prepared using IFRS, we conduct an annual financial statement audit using internationally recognised independent auditors who provide their opinion regarding the preparation of our accounts. Therefore, if the purpose of the information request in Criterion F2 is to make an assessment whether the CWIP agrees with the requirements of the Licence, then reliance should be placed on the audited financial statements and the opinion of our auditors. Additionally, to be consistent with response for the primary section, if we [JPS] are to provide information surrounding the	The OUR is not only requesting a schedule report of CWIP recorded in the financial statements but also a proposed CWIP schedule for approved projects. The section was amended as follows: "8.2. CWIP shall only be included for projects that will result in items of PPE, subject to the asset recognition principle under International Accounting Standard (IAS 16), which is included in the International Financial Reporting Standards (IFRS). The determining factor of whether an activity will require processing as CWIP depends on whether tangible assets are involved and the project is to be capitalized."

#	Stakeholder Responses	OUR Comments
	CWIP, it should be based on the materiality criteria established for the other projects.	