



**FIJIAN COMPETITION AND CONSUMER COMMISSION**

**ELECTRICITY TARIFF METHODOLOGY**

**16 SEPTEMBER 2019**

## 1. Introduction

1. This document represents the Tariff Methodology and sets out the approach to be applied by the Fijian Competition and Consumer Commission (FCCC) in regulating the electricity tariffs. The Tariff Methodology would be revised as required to accommodate the changes to the electricity market structure.

## 2. Legal Framework

2. Electricity is a regulated industry under Section 4<sup>1</sup> of the FCCC Act 2010. Under the Fijian Competition and Consumer Commission (Control of Prices for Retail Supply of Electricity and Ancillary Services) Order 2017, the FCCC regulates:

*“the prices for the **retail supply** of electricity and services pertaining to the retail supply of electricity in all quantities, qualities and grades or classes”*

## 3. Key Objectives of the Tariff Methodology

3. In formulating the Tariff Methodology, a number of key principles/objectives needs to be considered. These principles represent the often-conflicting requirements of different stakeholders and inform the analysis and decisions around the most appropriate options and detailed pricing approaches adopted for Fiji. The tariff that is set must meet the following objectives:
  - a. Cover the costs of supply of electricity- if the utility is unable to cover its cost, then the continued supply would require the government to provide subsidies;
  - b. Encourage efficiency in providing electricity- FCCC can encourage the utility to be efficient in providing electricity by ensuring that the utility achieves the required revenue and that all unnecessary expenditure that is controllable is monitored and controlled by the utility;
  - c. Promote efficient consumption- the regulated tariff would imply that the customers on the other hand understand the value of electricity and as such control their usage

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<sup>1</sup> As per Section 4 of FCCC Act 2010, a regulated industry is defined as an industry that is engaged in the supply of electricity, water, sewage, post, broadcasting, telecommunications, ports or civil aviation services and any other industry that is declared under Section 5 to be a regulated industry.

efficiently, as eventually the customers have to pay for electricity at the end of the month based on their usage;

- d. Address affordability for poor households; and
- e. Ensure environmental sustainability- ensure that the utility obliges with their Power Development Plan that shall be approved via Capital Expenditure sought for renewable energy projects.

#### 4. Tariff Methodology Overview

- 4. In the regulation of the electricity tariffs, there are essentially three (3) key aspects to consider:
  - a. Allowable revenue requirements- the level of revenues that the regulated entity is allowed to recover to cover prudently incurred costs plus a fair return to the investors;
  - b. Tariff Structure- the different tariff components and any differentiations applied, as well as the allocation of costs to different tariff components and/or customer categories; and
  - c. Tariff Level- the pricing levels of the different tariff components.

#### 5. Revenue Requirement

- 5. As noted above, the revenue requirement is based on the overall level of charges for the regulated entity. This encompasses the determination of relevant costs incurred by the business plus the allowed return. The projected costs are based on the forecast sales and production plan for the year(s) in question.
- 6. The formula for the allowed revenue requirement is set out below:

$$\mathbf{AR = (RAB \times ROR) + D + Fuel \& IPP + OPEX - Non-Tariff Revenue \pm Recon Adjustments}$$

where:

AR	= Allowed Revenue
RAB	= Regulatory Asset Base
ROR	= Rate of Return
D	= Allowed Depreciation expense associated with the RAB
Fuel & IPP	= Fuel cost and IPP payment
OPEX	= Allowed Operating Expenses for the tariff period under review

Recon Adjustments = Adjustments to account for differences between actual and forecasts in formula elements from a preceding tariff period or periods

7. A description associated with each of the items in the regulatory formula are set out below:

## 5.1 Regulatory Asset Base (RAB)

### 5.1.1 Allowed Assets in the RAB

8. The RAB covers all the assets employed by the regulated entity in the production and supply of electricity on which it is allowed to earn a return. It is comprised of three elements: the opening RAB, Capital expenditure added to the RAB and Depreciation of assets deducted from the RAB.

$$RAB_t = RAB_{(t-1)} + Capex_t - Depreciation_t$$

9. The following are the conditions associated with determining whether assets may be included in the RAB:

- a. Assets must be long-term in nature and must be used and useful for the generation for the generation, transmission or distribution of electricity;
  - (i) Used and useful means that the assets should be in a condition to supply demand in the short-term (that is within 12 months) and long-term in nature means that the assets will remain used and useful for a term exceeding 12 months.
- b. **RAB Opening Balance-** The opening balance of the RAB includes all the fixed assets of the utility (depreciated value) and includes net working capital.
- c. **Capital Expenditure-** Capital expenditure will contribute to RAB as it is spent / incurred (i.e. capital work-in-progress will be included). Capital expenditure not related to the generation, transmission or distribution of electricity will not contribute to RAB for tariff determination purposes (e.g. telecommunication licenses / permits). Capital expenditure that partly relates to the generation, transmission or distribution of electricity will contribute pro rata to RAB for tariff determination purposes.

- d. **Granted/ Subsidised Assets-** There would be no adjustment for for historically granted assets before 31 December 2019 (next audited balance sheet). In the future, if the regulated entity directly receives assets that are not paid or funded by the utility and these granted assets become part of the company's fixed asset base, they will not contribute to the RAB for tariff determination purposes. Partially paid for and funded assets may be included on a proportional basis.
  
- e. **Impairments and Revaluations-**The RAB, along with the regulated entity's asset base more broadly, will remain subject to ordinary impairment testing as part of the annual audit process. Should the regulated entity and the auditor determine that an impairment is required, then this impairment will be taken into consideration in calculating RAB (i.e. RAB will be reduced) for tariff determination purposes.

In the event that the regulated entity conducts an upward revaluation of its asset base, the revaluation amount will not contribute to a higher RAB for tariff determination purposes. The revaluation reserve will not earn a return on capital. The valuation reserve does not represent an investment towards cost of service; rather it's an adjustment to bring the asset values to the current replacement costs.

- f. **Strategic Land Purchases-** Where the regulated entity acquires the land for the purpose of specific projects (either generation, transmission or distribution of electricity), this will contribute to RAB for tariff determination purposes. However, should the regulated entity acquire land for long-term strategic purposes but without a specific project/purpose, this land will not contribute to RAB for tariff determination purposes until such time as the project / purpose is clear.

### 5.1.2 Accumulated Depreciation

- 10. The total accumulated depreciation is deducted from the historical cost accounting valued assets to obtain the RAB on which to calculate the return. Accumulated depreciation is the cumulative straight-line depreciation of regulated assets provided for under the definition of allowed assets.

## 5.2 Rate of Return

11. The rate of return shall be calculated using the Weighted Average Cost of Capital (WACC). The WACC is an estimate of the investors' required rate of return for a given risk level associated with an investment made in an entity.
12. There are essentially two main sources of capital namely: through debt or equity. Both methods have an associated cost– interest payments and dividends respectively. The process of determining a reasonable return estimates the appropriate return for each source of capital. The cost of capital is weighted by their respective contributions to the total capital base.
13. The WACC is a calculated as a **nominal pre-tax** figure and is determined according to the following formula:

$$\text{WACC} = \text{Rd} \times \text{Gearing \%} + (1 - \text{Gearing \%}) \times \text{Re} / (1 - t)$$

where:

Rd = Cost of Debt

Re = Cost of Equity

t = Corporate tax rate for the period

### (i) Cost of Debt

The cost of debt (Rd) represents the return a company provides to its debtholder in exchange for the debt. It is also a measure of compensation for risk exposure that lenders face when borrowing funds to a company. The cost of debt is based on weighted average costs of debt for the regulated business under review. Where the regulated entity raises corporate debt, then the actual cost of debt charge to the regulated activity must fairly reflect the risks of each regulated activity.

### (ii) Cost of Equity

The return of equity (Re) is determined using the Capital Asset Pricing Model (CAPM). Under the CAPM, the cost of equity is defined as the risk-free rate and the product of an individual firm's equity beta and the equity risk premium. The CAPM method estimates the rate of return as a function of the investment risk relative to the aggregate equity market risk. If the risks are the same then the expected return is equal to the expected return on equities.

The formula for calculating the cost of equity is shown below:

$$Re = Rf + (\beta \times MRP)$$

where:

Rf = Risk free rate, this is generally proxied by the Government's cost of borrowing

MRP = Market Risk Premium

$\beta$  = Equity Beta

### **(iii) Risk-free Rate**

The risk-free rate is the interest rate that an investor would require to willingly invest in an asset without any risks. The risk-free rate is a market-wide parameter and applies to all firms operating in the same country. Government bonds are widely considered to be the lowest risk investment instrument in a particular market.

### **(iv) Market Risk Premium**

The market risk premium is the difference between the total market return and the risk-free rate, both of which may be observed in, or calculated from, market data. It represents the additional return required by an investor holding a representative portfolio of all firms in the economy over the risk-free rate.

### **(v) Equity Beta**

The Equity Beta measures the non-diversifiable business risk which investors face when investing in a specific stock relative to the risk on the market portfolio. Thus, all else being equal, a highly geared firm might be expected to have a higher equity beta than a lower geared firm.

### **(vi) Gearing**

Gearing refers to the percent of debt in the company's capital structure. The proposed tariff methodology is based on the premise that the tariff application will be evaluated against a "target" rather than "actual" gearing percentage. The benefits of this approach are:

- a. It incentivises the utility to maintain an optimum capital structure; and
- b. It removes the burden on the regulator to oversee the detailed funding strategy and approaches of the utility.

### **5.3 Depreciation Expense**

14. The depreciation expense component of the allowed revenue is calculated on the historical cost of the RAB over the useful economic life of the asset.

### **5.4 Fuel & IPP Cost Component**

15. The Fuel and Independent Power Producers cost component in the revenue requirement includes the costs associated with the direct purchase of goods and services required for the production and distribution of electricity.
16. These costs will fluctuate from month to month depending on international fuel prices, hydrology, and IPP output and are largely outside of the regulated entity's control.
17. A review of the Fuel & IPP cost component and other cost indices will be annually undertaken where adjustment of tariffs would be adopted where a major change is noted for the recovery of such costs.

### **5.5 Allowable Operating Expenses (OPEX)**

18. Allowable operating expenses relates to all expenses that are incurred in the production and supply of electricity. These costs include normal operating expenditures, maintenance costs, manpower costs, and overheads (centrally administered charges).
19. The qualifying criteria for these expenses are as follows:
  - a. Expenses must be incurred in the normal operations of production and supply of electricity, including an acceptable level of refurbishment, repairs and maintenance costs;
  - b. Expenses must be prudently and efficiently incurred after careful consideration of available options;
  - c. Expenses must be incurred in an arm's length transaction. The regulated entity must have a competitive procurement policy and demonstrate to the regulator that it has been strictly adhered to in its procurement processes;
  - d. For any exogenous factors, expenses incurred under extraordinary circumstances consideration shall be given to spreading such expenses over a number of years;



- e. Expenses on advertising not related to the core business of supplying electricity will be disallowed; and
- f. Any other extraordinary expenditure will require justification for consideration.

20. In the future, incentive mechanisms to reduce controllable costs will be built over time.

#### **5.5.1 Self-Insurance**

21. To mitigate the adverse impact of natural disasters such as cyclones and drought and the subsequent provision of electricity services, the regulated entity shall hold reserves as a self-insurance fund.

22. Submissions for extra-ordinary events to address natural disasters can be made by the regulated entity for an ad-hoc review for temporary relief through tariff adjustments.

#### **5.5.2 Cost Forecasts and Quality of Service**

23. When determining the allowable expenses, forecasts of 'reasonable costs' are used and efficiency adjustments may be made after benchmarking. The forecasts would be based on indicators such as:

- a. Cost of Fuel and Independent Power Producers;
- b. Sales/ number of connections;
- c. Analysis of performance with historical levels; and
- d. Benchmarked unit costs against other utilities and/or agreed efficiency targets during the up-coming tariff award period.

24. Furthermore, growth forecasts into energy consumption, peak energy demand and customer numbers are also important inputs into the derivation of the new tariff level. Future expenditure requirements are driven partly by expected growth in peak demand and customer numbers while the translation of the revenue requirement into the tariff level relies on forecasts of energy consumption, customer numbers and contract demand.

#### **5.6 Non-Tariff Revenue**

25. Non-tariff revenues are other revenues that the regulated entity earns from the same cost base. Not deducting them would effectively allow the regulated entity to recover some of its costs twice, once through tariffs and once through other revenue streams.

26. In the revenue requirement, non-tariff revenues are deducted from the operating costs.

## 5.7 Reconciliation Adjustments

27. It is recognised that the costs that make up the revenue requirements are based on projections and assumptions that may not match the actual figures that materialise. This exposes the regulated entity to the risk of revenue under-recovery or over-recovery and resultant inadequate or excessive returns. In addition, there may be costs associated with other risks that need to be incorporated.

28. The regulatory formula includes a reconciliation adjustment component that allows for adjustments to the revenue requirement by which over or under recovery associated with risks that are largely beyond the control of the regulated entity may be addressed.

29. The Reconciliation Adjustment would take account of:

- (i) Adjustment of the revenue requirement for differences between the projected and actual electricity sales at each periodic tariff review;
- (ii) Adjustment of Fuel & IPP costs and OPEX variances between the forecast and actual costs in the preceding four years at each periodic tariff review;
- (iii) Adjustment for any significant differences between forecast and actual CAPEX in the preceding four years at each periodic tariff review, particularly in cases where planned capex projects were never carried out;
- (iv) Extraordinary Tariff Adjustment, outside of the usual tariff cycle. The cost of the exceptional event would be passed through to the tariff, although FCCC as the regulator may opt to smooth the impact over multiple years. The exceptional event would be (a) not readily foreseeable, (b) was largely outside of the entity's control, and (c) has significant impacts on the entity's financial position.

## 6. Tariff Structure

30. There are three principal cost categories applicable to the electricity supply industry that have a bearing on tariff structure namely:

- costs that vary with customer numbers and service intensity (\$\$/month);
- costs that vary with capacity/demand (kVA); and
- costs that vary with energy (kWh).

31. The integral part to setting a tariff is the method for allocating costs across categories of users. In regulating the tariff structure, overly prescriptive requirements have not been specified on the detailed tariff structures to be applied.
32. The basic principle to be employed by the regulated entity in structuring tariffs is to seek optimal cost-reflectivity by retaining these as tariff components and mapping the respective costs to them.
33. Once all costs have been allocated to customer classes, they are translated into unit rates. Rates are designed to recover the jurisdictional cost of service. While taking into account the cost incurred in serving a particular class of customers, the following principles are also considered in rate setting: cost reflectivity, promotion of efficient use, affordability, predictability, stability and transparency.

## **7. Regulatory Process**

### **7.1 Tariff Application and Review Procedure**

34. The tariff review cycle shall be for a period of four (4) years and should harmonise with the regulated entity's financial year. The timeframe for submission, review, approval and implementation of the revised tariff is as detailed as follows.
35. This is based on a minimum of four months or 16-week processing window from the time the regulated entity files its complete tariff proposal. However, this is subject to change based on the scrutiny of issues that need to be addressed and information level.

#### Week 1:

- (i) Once the regulated entity submits a filing, the filing will be entered in the FCCC website in a separate web page created to address the tariff filing issues and it would be available for the public to view along with any supporting documents, such as the approved least-cost expansion plan that underpins the tariff filing. Any confidential information would be redacted. If there are disputes between the regulated entity and FCCC staff on whether certain information is confidential, the Chief Executive Officer of the FCCC should resolve the dispute.
- (ii) The FCCC would form a staff group to begin analysing the filing. The responsibility of the team would be to audit and investigate the company's proposal and develop a counter-proposal to the utility filing during the four-month process.

Week 2:

- (i) Other stakeholders who want to formally participate in the review of the filing should register themselves with the FCCC staff.
- (ii) The FCCC would identify a liaison staff member for the regulated entity and for the stakeholders to interact with.

Week 3:

- (i) The regulated entity should make a formal presentation of its filing to all its stakeholders at a meeting convened by the FCCC staff. The purpose of the presentation is for the regulated entity to explain its proposal including why it needs a tariff changes, the drivers of the change, its assumptions and tariff determination methodologies etc.

Week 2- 12:

- (i) FCCC staff would analyse the filing, critically reviewing the data, assumptions and calculations.
- (ii) They as well as formal registered stakeholder groups would have the right to send data requests to the regulated entity to seek information on the filing. The regulated entity will have five working days to respond to the data requests. If more time is needed to respond, the regulated entity should notify FCCC staff.
- (iii) The data requests and the regulated entity responses would be posted on the FCCC webpage dedicated to the tariff filing case.

Week 9-12:

- (i) FCCC would seek input from the public. It could be in the form of comments submitted to the FCCC through its website, or through comments submitted at the forums to be conducted by the FCCC. Formal registered stakeholders can file written comments as well.

Week 13-16:

- (i) FCCC staff would form its position based on its own analysis and input from stakeholders.
- (ii) The draft Authorisation would be circulated to the regulated entity for comments.
- (iii) FCCC would present its position formally to the FCCC Board for its determination.
- (iv) Based on its determination, the FCCC would issue a formal Authorisation giving end-customers sufficient notice before the new tariffs are implemented.

Week 17:

- (i) The regulated entity would file compliance tariffs based on FCCC Authorisation.

## 7.2 Information Requirements

36. The general requirements for information includes not but limited to the following:

- a. Business Case Study supporting the need for tariff review;
- b. Proposed cost methodology and recommended rates including detailed breakdown on the cost per unit of providing electricity;
- c. Annual revenues under the existing tariffs for the past three (3) years and revenues under the tariffs which the regulated entity proposes to charge;
- d. Current revenue streams and list of products and services offered by the regulated entity;
- e. Audited Annual Reports for the regulated entity for the past five (5) years;
- f. Detailed Segmented Management Reports for the past five (5) years;
- g. Budgeted detailed Income and Expenditure Statement and Balance Sheet for the tariff period review with the assumptions and justifications made;
- h. Power Development Plan;
- i. Detailed Fixed Asset Register for the recent financial year;
- j. Details on the historical annual capital expenditures for the past five (5) years and capital investment plans for the next three (3) years;
- k. Explanation on the major drivers for the proposed expenditures and analysis showing the benefits and costs for each of the major capital projects; and
- l. Electricity Production and Sales volume report for the past (five) years including sales/demand forecast for each customer category and sub-categories for each year of the entire tariff period.