Tariff methodology guidelines

September 2019

1 Definitions

"Customer Service" means the services that deal with customers and includes meter reading, meter maintenance, billing, revenue collection, customer service centres, call centres, complaint handling, among others.

"Distribution Network" means the distribution of electricity at voltage levels lower than Transmission

"Generation" means the generation of electricity

"Licensee" means the holder of a supply license issued by PURA according to The PURA Act of 2001

"Licensed Activity" means the supply of electricity, water and sewerage services, as defined by The PURA Act of 2001

"PURA" means the Public Utilities Regulatory Authority

"Tariff Period" means a multi-year period defined by PURA for which the determination of allowed revenues will be fixed

"Transmission Network" means the transmission of electricity at [33 kV] and above

2 Purpose of the Guidelines

These guidelines are written in accordance with the PURA Act of 2001. Information requirements of these Guidelines correspond to powers granted in Section 14.(1) of the PURA Act.

These guidelines detail the methodology and parameters that PURA has approved for Licensees in relation to allowed revenues and tariff designs for electricity, water and sewerage services. PURA will reject applications that are submitted using other methodologies and parameters unless reasonable justification is provided by Licensees to the satisfaction of PURA.

These guidelines should be read in conjunction with PURA's ***Guidelines For Retail Tariff Review Application For Electricity, Water and Sewage Services***. The latter detail the process for tariff applications whereas these ***Tariff Methodology Guidelines*** provide guidance on how allowed revenues and tariffs should be calculated.

3 Multi-year tariff formula

Price-cap

A price-cap shall be adopted for controllable cost items (see Section 9) (e.g., payroll costs) so that NAWEC's revenues will depend on the volumes sold. This implies that NAWEC's profits will increase if sales volumes increase above the forecast and will fall if sales volumes are below the forecast.

The capped tariff schedule shall be calculated, based on forecasts of sales by customer category in each year y, such that NAWEC and its businesses earn an allowed revenue R_t). The general form of the calculation of the allowed revenue is:

$$R_t = O\&M_t + DP_t + AR_e \times RAB_t + DB_t + AP_t + OA_t$$

Where:

$O\&M_t$ = Forecast O&M costs in year t

DP_t = Forecast depreciation costs in year t,

AR_e = Allowed return on equity (nominal, pre-tax)

RAB_t = Regulatory asset base in year t

DB_t = Debt interest cost in year t (this is a pass-through element)

AP_t = Other pass-through elements (fuel, IPP purchase costs)

OA_t = Outturn adjustment in year t

The tariff is then calculated, in simple terms[1], as $P_t = R_t$ / kWh.

Losses and allowed revenues

Tariffs shall be calculated based on the loss levels prescribed below and NAWEC shall be responsible when volumetric losses exceed the prescribed levels or will profit when volumetric losses are better than the prescribed levels.

For the Tariff Period 2020 to 2022, the following loss levels are prescribed:

- Electricity network technical losses – [18%]
- Electricity commercial losses – [2%]

[1] In practice the tariff schedule will be calculated such that the forecast revenue in each year is equal to the allowed revenue (R_t).

- Non-revenue water – commercial and technical losses [40%]

Earnings sharing mechanism

Profits achieved when NAWEC outperforms prescribed targets for costs or cost parameters will be shared within the Tariff Period between NAWEC in the proportions 100% to NAWEC and 0% to customers through reduced allowed revenues and tariffs. (i.e., there will be no sharing of profits).

4 Tariff Period

PURA has adopted a standard multi-year Tariff Period covering a period of three years. This period may be reviewed and revised by PURA from time-to-time prior to the start of each multi-year Tariff Period.

The standard multi-year Tariff Period shall normally begin on 1 January and end on 31 December three years later.

At the start of the Tariff Period, allowed tariffs shall be determined for each whole year within the three-year Tariff Period.

The next Tariff Period from the date of these guidelines [1 December 2019] will cover the period to 31 December 2022 and, if implemented before January 2020, will therefore cover a period of slightly more than [three] years. The allowed tariffs for the additional part year shall be calculated from the allowed revenue for the whole year 2019. (e.g., to calculate the tariffs to be applied on 1 October 2019, NAWEC would calculate the allowed revenues and tariffs for all of 2019 and apply them from 1 October 2019).

In addition to the base Tariff Period, automatic pass-through mechanisms have been defined in these Guidelines for implementation every six months, as discussed below.

Within the Tariff Period, at the end of each calendar year, an ex-post evaluation shall be conducted annually during the tariff period following the methodology presented below in these guidelines. In case of a part year, for the ex-post assessment, the allowed revenues and tariffs shall be calculated pro-rata with the number of months remaining in that part year (e.g., if the new tariff is applied on 1 October 2019, the allowed revenue will be calculated as the allowed revenue for 2019 x 3/12 but adjusted for the pass-through costs and the allowed tariffs then calculated).

5 Business unit and cost breakdown

NAWEC shall submit applications for allowed revenues and tariffs for the following business units:

- Electricity generation

- Electricity transmission and distribution
- Electricity customer services:
    - Costs that are avoided when using electricity vendors
    - Other electricity supply costs
- Water
- Sewerage

Electricity customer services relate to those costs required to deal with customers and include meter reading, meter maintenance, billing, revenue collection, customer service centres, call centres, complaint handling, etc.

Electricity costs shall be split into the Greater Banjul Area (GBA) and Provincial Areas (all areas outside of GBA combined).

Electricity service costs should be further sub-divided into two categories:

- The services that are avoided by NAWEC when electricity is supplied through a licenced vendor using pre-payment metering. This will typically include retail services such as retail outlets and complaint handling.
- Other customer service costs such as meter reading, billing, revenue collection, etc.

All expenses, assets, and investment plans shall be separated as accurately as reasonably possible into the above activities and sub-categories.

6 Assumed contractual and monetary flows

A fictional electricity "supply" business unit will be used in the allowed revenue calculations for the purposes of consolidating or aggregating the total allowed revenues for electricity that will be charged to end-use customers and electricity vendors. The fictional electricity supply business will enter into fictional contractual arrangements that will result in fictional money flows, as follows.

The fictional electricity supply business will:

- purchase electricity from NAWEC's generation business, IPPs and imports
- purchase network services from NAWEC's network business
- purchase customer services from NAWEC's customer service business
- if applicable, export electricity

The fictional supply business will have no costs of its own.

The water and sewerage business units will also buy electricity from NAWEC's fictional supply business and may sell water to the electricity generation business. Smaller inter-business unit transfers (e.g., sewerage charges for electricity offices) may be ignored unless they are already accounted for in business unit costs.

For the purposes of calculating allowed revenues for the NAWEC businesses, PURA and other levies and VAT shall **not** be applied to transfers between the businesses. Note, that if NAWEC's water/sewerage business is separated from NAWEC, VAT and other levies may actually be chargeable on transfers between the companies.

7 Components of the allowed revenue

PURA has approved the building blocks approach to determining the allowed revenue requirements of Licensees.

The revenue requirements represent the total revenues of each business unit:

- Operating and maintenance costs
- Return of assets (depreciation)
- Equity return on net fixed assets
- Interest cost of debt
- Value added tax (VAT), PURA levies and other levies
- Provision for bad debts
- Other revenues (e.g., revenues from exports of electricity) which are deducted from the allowed revenues
- Depending on the regulatory methodology, taxes on profits

The allowed revenues for each of the NAWEC business units will be presented as total annual monetary values (millions of Dalasi). The tariffs should then be designed such that, in combination with forecasts of volumetric sales by category, they achieve these annual allowed revenues (discussed in Section 3 below).

For information purposes the allowed revenues by business unit should also be presented as Dalasi per kWh, Dalasi per m^3 of water and Dalasi per estimated m^3 of wastewater. The methodology for calculating allowed revenues per volumetric unit is described below (Section 19).

Data templates will be provided to the Licensee to facilitate data submission. Accompanying the data templates is a document containing data reporting instructions which describes the data templates in greater detail and describes the data format required.

The following sections of these guidelines describe PURA's approved methodology and parameters relating to each of the building block components making up the allowed revenues and the allowed revenues per kWh or per m^3.

8 Real or nominal prices

Costs and prices used for the allowed revenue calculation shall be in nominal terms. (i.e., they will take account of forecasts of appropriate cost or price inflation).

The inflation indices used in the calculations shall be clearly shown in NAWEC's tariff submission.

9 Controllable and non-controllable costs

NAWEC shall, as a minimum, differentiate costs between those over which NAWEC has a high degree of control costs and those over which it has little control. PURA accepts that most cost items are generally partially controllable and partially non-controllable, and some judgement is required to categorise them.

Controllable cost items will be fixed at the start of the Tariff Period for the duration of the Tariff Period. This means, for example, that at the start of the Tariff Period payroll costs would be fixed each year for the next three years and the resulting allowed revenues for each year would not be changed if the outturn payroll costs turn out to be higher or lower than the fixed amounts.

Non-controllable costs items will be forecast at the start of the Tariff Period but the allowed revenue applied in each year of the Tariff Period will be allowed to be adjusted depending on the actual/outturn non-controllable cost. A typical non-controllable cost is the international price of diesel fuel used for power generation.

PURA proposes that the following items shall be treated as non-controllable:

- The cost of diesel (heavy fuel oil and distillate fuels)
- The purchased cost of electricity from independent power plants
- Exchange rates
- Interest on long-term loans

Although capital expenditure is controllable by NAWEC, it should be treated as non-controllable for the purposes of calculating the allowed revenue. Only those investments that are actually made within the Tariff Period will be included in the regulatory asset base (RAB) rather than the investments that are forecast to be made at the start of the Tariff Period.

All other cost items will be treated as controllable and fixed for the duration of the Tariff Period.

10 Guidance applicable to all cost items

Costs and assets must be consistent with a competitive market

Costs and assets included in the allowed revenue calculation must be:

- necessary for NAWEC to perform the regulated activity
- related to the licensed activity (costs or assets relating to other activities unrelated to electricity, water or sewerage should be excluded)
- lowest lifetime cost consistent with reasonable levels of reliability and standards of performance
- prudently incurred after careful consideration of available options

NAWEC should present information demonstrating that high-standard procurement policies are adopted and implemented.

Costs relating to NAWEC subsidiary businesses

Where NAWEC purchases equipment or services from a NAWEC subsidiary company, the price of the equipment or services purchased from that company should be demonstrated by NAWEC to be no greater than the market price.

For transfer prices between the business units (see Section 22), the prices should be approved by PURA.

Shared costs

Some costs will not be identified in the accounting system (chart of accounts) as belonging to the activities described in Section 5. Inevitably some costs cut across various licensed activities and business units. These costs may be split in the allowed revenue calculation pro-rata with staff numbers. (e.g., headquarter costs could be split depending on the relative share of employees in the five businesses).

Loans and debt servicing costs

Interest costs are passed through in the allowed revenue formula. However, loans may not be attributed to specific businesses or may be attributed to the purchase of certain assets but such attribution is arbitrary (for example, a loan for an electricity generation project may mean that NAWEC can fund water investments from retained earnings or other equity). NAWEC may therefore propose a basis of allocation of loans to businesses

that does not necessarily reflect the type of asset but, instead, reflects a reasonable debt/equity split for that business.

11 Operation and maintenance

Within each of the Business Units, NAWEC shall provide a detailed breakdown of projected O&M costs for each year of the Tariff Period. NAWEC shall provide:

- Information on historical cost trends for each of the main cost categories including the cost drivers (e.g., network maintenance costs may depend on the length of network in operation)
- Justifications to explain the projected costs over the Tariff Period including information on the projected cost drivers (e.g., length of the network in operation).

Reference may be made to KPIs agreed in the Performance Contract between NAWEC and the Ministry of Finance and may be used where applicable to estimate costs in the allowed revenue calculation.

NAWEC should demonstrate in its submission or through references to supporting documents the measures that it proposes to take to lower costs.

O&M costs shall be submitted in data templates provided by PURA and separated by the business activities.

12 Return of assets (depreciation)

Depreciation shall only be included in the calculation of allowed revenues for assets that are included in the Regulatory Asset Base (RAB). Note, as discussed in Section 13, this may **exclude** some assets that are included in NAWEC's asset base for statutory accounting or taxation purposes such as, for example, assets that were developed using customer contributions or grants[2].

Depreciation allowances shall follow a straight-line approach as for statutory accounting. Assumed asset lives shall follow industrial standards and be proposed by NAWEC and approved by PURA.

[2] The RAB may also exclude assets that are deemed not to be used and useful but are nevertheless included in the statutory asset base. For example, if PURA determines that an asset is not used and useful and therefore excludes it from the RAB, then its value for accounting purposes could be positive if it has a resale value.

13 Return on assets

Regulatory Asset Base (RAB)

The RAB comprises the value of net fixed assets owned by the Licensee and used in the provision of the licensed service.

The allowed return on net fixed assets is required to provide an appropriate return to the equity holder(s). RAB is multiplied by the Weighted Average Cost of Capital (WACC) (see Section 14) which determines the annual allowance under the 'equity return on assets' building block.

The RAB shall consist only of assets used in the provision of the licensed activity. The assets should be prudently designed and competitively procured and/or constructed.

The RAB shall be calculated annually within the Tariff Period to account for the cumulative depreciation of assets as well as the addition of new assets in accordance with an investment plan approved by PURA.

Prudent investments

Large investments made by NAWEC with values exceeding GMD 500 million shall be proposed by NAWEC to PURA, including economic justification, for approval by PURA before inclusion in investment plans approved by the NAWEC Board. Where such assets have been approved by PURA and subsequently procured by NAWEC following the procurement policies consistent with legislation and with statutory regulations, those investments shall be assumed by PURA to have been prudently made and the investments shall be recognised by PURA in the RAB. Smaller investments may be made by NAWEC without PURA prior approval but may be excluded from the RAB if they cannot be shown to have been prudently made.

Determining RAB

The RAB is determined by the historical cost of the asset base and calculated on an annual basis. The value is equal to the **original value of the licensee's assets after subtracting accumulated depreciation**. Once an asset has been fully depreciated it is to be removed from the RAB.

Rehabilitation

In the case where major renovation or rehabilitation aimed at extending the usable life of an asset is conducted, the new value of the asset shall be equal to the cost of the rehabilitation work plus the remaining net value. All requirements regarding competitive procurement and/or construction and the requirement to be prudently made shall also apply to rehabilitation investments.

Asset additions

Forecasts of asset additions shall normally assume that assets are added mid-year.

Capital work-in-progress

New CAPEX during the forecast period follows the Construction Work in Progress (CWIP) principle which places the asset into the RAB as the capital expenses are incurred. This allows the licensee to make a return on the asset value during construction. However, depreciation of the asset does not commence until the asset is commissioned.

Grant funded assets

Assets that are strictly grant funded for the benefit of end consumers shall not be included in the RAB and shall not be depreciated.

It should be noted, however, that assets may be granted to the Government of Gambia for electricity, water or sewerage related activities but the Government may provide that money to NAWEC as equity in the expectation of obtaining a return on equity. In determining whether such assets are grant funded for the purposes of inclusion in the RAB, it is necessary to identify the intention of the Government and whether the funds are treated as equity in NAWEC accounts or as grants.

The intention of grant providers should also be determined. Occasionally, grants may be provided on the condition that the assets financed through those grants are charged at full-cost to customers. This condition may be imposed, for example, to avoid market distortions. In such cases, PURA will allow the assets to be included in the RAB.

Assets that are funded by grants would normally be included in the asset base used to present statutory accounts or to calculate tax. The RAB and the statutory asset base will therefore differ in this respect.

Customer funded assets

As for grant funded assets, those connection assets that are paid for by customers but transferred to NAWEC shall not be included in the RAB nor shall depreciation charges associated with those assets be included in the allowed revenue calculation.

Where customers pay for part of the asset, only the part of the asset that is funded by NAWEC shall be included in the RAB.

Where a standard connection charge or fee is charged to customers and that standard connection does not cover the full cost of the connection, NAWEC may request that the balance of the connection cost is included in the RAB.

Where a standard connection charge or fee is charged to customers and the connection cost is provided as a grant to NAWEC, the RAB shall be reduced by the corresponding amount of the connection charge/fee. (e.g., if a connection costs $200, NAWEC receives a grant of $200 and charges the customer $100, the RAB shall exclude the value of the

connection, no depreciation charges shall apply and the RAB shall additionally be reduced by $100).

Again, as with grant funded assets, the statutory accounts and the regulatory accounts will differ with respect to the treatment of depreciation on customer funded assets.

14 Return on Capital

WACC

Note, WACC is not used directly in the calculation of allowed revenues and multi-year tariffs (except in relation to the Outturn adjustments – see Section 21) but is shown here for completeness. London Economics recommended that interest on long-term loans should be recovered at cost and this approach has been adopted. In this formulation of the return on capital, the cost of equity is calculated separately from the cost of debt.

In order to account for corporate tax, a nominal pre-tax WACC formula is applied. The formula inflates the return on equity component to account for tax payments on corporate profits. The pre-tax nominal WACC is calculated as follows:

$$WACC\ (pre-tax) = g * R_d + (1-g) * R_e * \frac{1}{(1-T)}$$

Where:

Component	Description
g	Actual share of debt in asset structure
R_d	Cost of debt (nominal)
R_e	Post-tax return on equity (nominal (i.e, including inflation))
T	Corporate tax rate

For the Tariff Methodology Guidelines, the following approach is used.

Cost of debt

In the formula above, the nominal cost of debt is g * R_d. For the forecast of the cost of debt component of the allowed revenues over the Tariff Period, the forecast of the actual cost of debt in **nominal** terms shall be provided (i.e., including inflation) to include NAWEC's actual debt and issued bonds.

The average cost of debt in nominal terms and the share of debt (g) in the total of debt + equity shall be provided by NAWEC in its tariff submission.

Allowed return on equity

The allowed return on equity shall be calculates as follows:

$$AR_e(pre-tax) = RAB * (1-g) * R_e * \frac{1}{(1-T)}$$

Where:

Component	Description	Parameter
AR_e	Allowed return on equity in nominal terms	-
(1-g)	Share of equity in debt + equity	To be provided by NAWEC
R_3	Post-tax, nominal return on equity	*To be provided by PURA*
T	Corporate tax rate	27%
π	Forecast inflation	To be provided by NAWEC

15 Bad debts

Provision for future bad debts

Provision may be made in the allowed revenue calculation for a reasonable level of bad debts that can be expected to be written off (e.g., 5%). NAWEC shall propose and justify the appropriate level of bad debt for each year of the Tariff Period based on historical levels taking account of the roll-out of pre-payment meters and KPIs agreed in NAWEC's Performance Contract with the Ministry of Finance.

The allowance for bad debts, expressed as a percentage of revenues required by the fictional supply business, shall be fixed for each year of the Tariff Period. (i.e., there will not be an outturn adjustment in relation to the actual levels of bad debts incurred).

The bad debt allowance in the allowed revenue calculation shall apply to that year (e.g., if the bad debt allowance in 2021 is 5% of total revenues, it will be assumed that 5% of revenues billed in 2021 will never be collected and that the revenue allowance will be increased by 5% to compensate[3]).

Note, as always, regulatory accounts can and will differ from statutory accounts.

Legacy bad debts

Bad debts that have been taken over by the Ministry of Finance and offset against NAWEC liabilities shall not be included in the allowed revenue calculation.

[3] Strictly speaking they are inflated by dividing by 0.95 in this example.

Other legacy bad debts incurred more than [3] years before the Tariff Period that cannot be recovered from customers and must be written off may be added to the allowed revenues in the first year of the Tariff Period (i.e., 2020 in the upcoming Tariff Period); this allowance will not apply to future Tariff Periods from 2023 and beyond.. Note, since bad debts are typically written off some time after the debts are incurred, the fixed bad debt allowance (e.g., 5%) already covers some legacy debts and the lag of [3] years is designed to reflect those legacy debts.

16 PURA levies and other taxes

PURA levies and other taxes on NAWEC approved by government and official bodies shall be added to the allowed revenues at current rates. (i.e., these levies will not be fixed and will be calculated each year depending on the level of those levies in those years).

For the purposes of calculating allowed revenues for the NAWEC businesses, PURA and other levies and VAT shall not be applied to transfers between the businesses.

17 Other revenues (deductions)

Forecasts of revenues from electricity, water and electricity services that use NAWEC's electricity, water and sewerage assets and other regulated resources (e.g., the export of electricity to neighbouring countries) shall be netted off the allowed revenues.

Revenues from non-regulated activities that do not use NAWEC's electricity, water and sewerage assets or other regulated resources (e.g., electricity, water and sewerage staff), shall be excluded from the allowed revenues.

18 Profit tax (corporation tax)

The return on equity calculation (see Section 14) already makes an allowance for profit or corporation tax and therefore there is no specific allowance for tax in the allowed revenue calculation for NAWEC.

19 Presentation of average volumetric charges

Average allowed revenues for each of the business units for each year of the Tariff Period shall be provided in the tariff submission per kWh or per m^3. For electricity, the kWh denominator for electricity shall be measured at the following points:

- Generation business – Point of entry to the transmission network;
- Transmission – Point of entry into distribution network (i.e., generation kWh less transmission losses);

Distribution – Meter readings of end-user (i.e., transmission kWh less distribution technical losses and commercial losses).

20 Automatic adjustment mechanisms

The automatic adjustments shall be implemented at six monthly intervals on 1 January and 1 July each year. Automatic adjustments shall be implemented for the following cost and income items:

- Fuel costs (HFO and LFO) for IPPs and NAWEC's own generation, converted to Dalasi
- IPP purchase costs, other than fuel, and import costs, converted to Dalasi
- Interest costs, converted to Dalasi

NAWEC will submit to PURA their calculations for automatic adjustments at least one month before the implementation date. PURA will approve the submissions within two weeks of submission. Where PURA disputes the calculations, an interim adjustment may be made until the disputed amount is agreed by PURA.

NAWEC will calculate their automatic adjustments using the following formula:

$$AT_t' = a * \frac{\sum(F_t' - F_t)}{E_t} + b * \frac{\sum(FI_t' - FI_t)}{E_t} + c * \frac{\sum(IO_t' - IO_t)}{E_t} + d * \frac{\sum(IR_t' - IR_t)}{E_t} + e * \frac{\sum(S_t' - S_t)}{E_t}$$

Where:

t, t′ t represents the next automatic adjustment period (six months).

a value with subscript t but without a dash represents the forecast made at the start of the Tariff Period (i.e., in 2019 in relation to the Tariff Period 2020-2022).

a value with a dash (i.e., t′) represents the latest forecast for the next automatic adjustment period (six months) (for example, for the automatic adjustment to be implemented on 1 July 2021, the forecast would be made in May 2021 and submitted to PURA on or before 1 June 2021).

AT_t' means the total adjustment to be added to the kWh component of the tariffs in the six-month period t.

E_t means forecast energy sales for period t made at the start of the Tariff Period in kWh (note, this is fixed at the start of the Tariff Period and does not change subsequently).

F_t' means NAWEC's expected fuel cost for period t as per latest forecast, in GMD.

F_t means NAWEC's forecast fuel cost prepared at the start of the Tariff Period, in GMD.

a is the expected average weighting of NAWEC's fuel cost in total Allowed Revenues over the Tariff Period (0 <= a < 1)

FI_t' means expected fuel costs of IPPs selling to NAWEC for period t as per latest forecast in GMD.

FI_t means expected fuel costs of IPPs selling to NAWEC prepared at the start of the Tariff Period, in GMD.

b is the expected average weighting of IPP fuel costs in total Allowed Revenues over the Tariff Period (0 <= b < 1)

IO_t' means expected other costs of IPPs, including IPPs located outside of the Gambia, selling to NAWEC for period t as per latest forecast, in GMD.

IO_t means expected other costs of IPPs, including IPPs located outside of the Gambia, selling to NAWEC prepared at the start of the Tariff Period, in GMD.

c is the expected average weighting of other IPP costs, including IPPs located outside of the Gambia, in total Allowed Revenues over the Tariff Period (0 <= c < 1)

IR_t' means NAWEC's interest costs for period t as per the latest forecast, in GMD.

IR_t means NAWEC's expected interest costs prepared at the start of the Tariff Period, in GMD.

d is the expected average weighting of NAWEC's interest costs in total Allowed Revenues over the Tariff Period (0 <= d < 1)

S_t' means expected government subsidies to NAWEC for period t as per latest forecast, in GMD.

S_t means expected government subsidies to NAWEC prepared at the start of the Tariff Period, in GMD.

e is the expected average weighting of government subsidies in total Allowed Revenues over the Tariff Period (0 <= e < 1).

a + b + c + d + e <= 1

The automatic adjustment will be combined with a true-up mechanism to correct for forecast inaccuracies (see Section 21).

Automatic adjustment calculations submitted to PURA shall provide:

- Forecasts of delivered fuel prices and exchange rates derived from recognised sources for the following 6 months
- Forecasts of the quantities of fuel to be used by power plants

- Forecasts of quantities and prices of power purchased from IPPs and the associated costs of fuel

- Interest costs in Delasi

NAWEC will also submit calculations reconciling actual outturns (delivered fuel costs converted to Dalasi, IPP payments, interest costs) with forecasts for the previous 6 months and correcting for errors in forecasting. Outturn adjustments relating to automatic adjustments shall be applied in the coming 6-month period.

21 Outturn adjustments

Except for the automatic adjustments in Section 20, outturn adjustments shall be applied annually for all other non-controllable components of allowed revenues.

Outturn adjustments (or true-ups) shall correct for mistakes in forecasts relating to:

- Interest on long-term debt

- Capital and rehabilitation expenditures and any revenue components linked to these (e.g., depreciation, return on assets)

- Tax rates and levies

- Revenue subsidies (if any)

NAWEC will submit to PURA their calculations for outturn adjustments to be applied in the following year within the Tariff Period at least one month before the implementation date (1 January of each of the 2nd and 3rd year of the Tariff Period). PURA will approve the submissions within two weeks of submission. Where PURA disputes the calculations, an interim outturn adjustment may be made until the disputed amount is agreed by PURA.

Outturn adjustments will also be carried forward into subsequent Tariff Periods (e.g., outturn adjustments from the Tariff Period 2020-2022 will be carried forward into the Tariff Period 2023-2025).

NAWEC may submit provisional calculations for outturns (e.g., in November 2020 NAWEC will not have the outturn for the year 2020 to be implemented in the year starting 1 January 2021) and further corrections may be made in the next year (e.g., in 2022).

Outturn adjustments may also allow for the opportunity cost of capital. For example, an over-recovery of GMD 0.25 in 2020 would be corrected by a downward adjustment of the average price in 2021 by (GMD 0.25 / (1 + WACC)).

22 Tariff designs

End-user tariffs

End-user tariff **designs** should, to the extent possible and recognising the constraints on metering and constraints on the ability of customers to respond to complex tariff designs, be reflective of the costs of serving customers taking account of those customers' time pattern and other patterns of consumption and the marginal cost of supplying specific categories of customers. Customers should be categorised so that customers with similar costs of supply are combined in the same category and charged similar tariffs.

End-user tariff **levels** should be set such that, to the extent possible, the revenue received by the business units is equal to the average tariff allowed by PURA for that business.

Cross-subsidies between customer groups

Notwithstanding the tariff design principles above, PURA may allow cross-subsidies between customer categories or customer groups in order to promote explicit government social, economic or industrial policies.

To the extent that some customer groups/categories may be asked to cross-subsidise other customer groups/categories, customers may be categorised for the purpose of providing them with a subsidy or taking a subsidy from them.

Cross-subsidies between electricity, water and sewerage

Cross-subsidies between electricity and water/sewerage or vice versa should be avoided to the extent possible.

Transfer prices

Transfer tariffs shall be calculated by NAWEC between the business units described in Section 5. Although no actual financial flows will occur within NAWEC, the cost of supplying each activity must be correctly determined and allocated.

Transfer tariffs may be simple unit charges (GMD/kWh, GMD/m^3) and calculated using the allowed revenues (see Section 7) divided by volumetric sales (see also Section 19).