

**REGULATION OF ELECTRICITY
TRANSMISSION AND DISTRIBUTION
2023 – 2027**

**DRAFT DETERMINATION
EXECUTIVE SUMMARY**

January 2023

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Glossary of Terms and Definitions

Annual Investment Return	The report to be submitted by the service provider which details its performance on capital projects against allowed capital expenditure projects.
Annual Revenue Requirement	The annual revenue that is required to meet expenses.
Automated Metering Infrastructure (AMI)	Metering technology that comprises several elements used for billing and other customer centric functions, for example outage management.
Benchmarking	The comparison of the performance of various utilities, providing similar services, in a specific area/field (financial / technical / operational).
British Thermal Units (BTU)	The amount of heat required to increase the temperature of one pound of water by one degree Fahrenheit, at a constant pressure of one atmosphere.
Building Block Approach	The approach to deriving forecast revenue requirements that is the sum of a return on the regulatory asset base including net new investment (return on assets), a return of the regulatory assets base (depreciation) and efficient operating, maintenance and administrative costs.
Business Plan	The submission that sets out the service provider's views of the rates/price limits requested for the duration of the regulatory control period and its reasons for them.
Customer Average Interruption Duration Index (CAIDI)	It represents the average time required to restore service. It is calculated by dividing the total interruption durations by the total number of outages.
Capex	The money spent to buy, maintain, or improve the service provider's fixed assets, such as buildings, vehicles, equipment, or land.

Cost of Capital	The minimum return that providers of capital require to induce them to invest.
Cost Pass-Through	Component of incentive regulation that caters for uncontrollable costs. (See Uncontrollable Cost)
Cross-Subsidy	The subsidisation of a particular customer group by another group.
Demand	The rate at which electric energy is delivered to or by a system or part of a system at a given instant or averaged over any designated interval of time. Generally expressed in kilowatts (kW), megawatts (MW), or gigawatts (GW).
Demand Charge	A fee based on the peak amount of electricity used during the billing cycle.
Demand Side Management (DSM)	Programs to influence the amount or timing of customers' energy use.
Depreciation	A measure of the consumption, use or wearing out of an asset over the period of its useful economic life. It is also referred to as Return of Capital.
Discounted Cash Flow	A method used to value investment by adjusting the estimated future cash flows, for the time value of money. It is utilized in Net Present Value analysis.
Economic Life	The economic life of an asset is the period for which an asset remains useful.
Efficiency Carryover Mechanism	A mechanism that provides the service provider with a continuous incentive to achieve efficiency gains.
Energy Conservation	Using less energy, either by greater energy efficiency or by decreasing the types of applications requiring electricity or natural gas to operate.
Energy Efficiency	Using less energy (electricity and/or natural gas) to perform the same function at the same level of quality. Programmes designed to use

	energy more efficiently by doing the same with less.
Financial Indicators	Financial ratios (such as gearing, interest cover and dividend cover) used to measure the financial performance of a company.
Gearing	A service provider's net debt expressed as a percentage of its total capital.
Gigawatt hours (GWh)	A measure of consumption that is equivalent to 1,000,000 Watt hours.
Inclining Block Tariffs	A tariff structure where the incremental unit price increases as the level of consumption increases.
Indexation	The policy of connecting prices, costs, wages etc. to rises in the general price level, retail prices or other measures of prices (inflation).
Interim Determination	A condition that allows the regulator to make, in any year during the regulatory control period adjustments to the price limits for relevant changes of circumstances, provided these are material.
Investment Programme	A schedule of planned investment (network and non-network related) to be undertaken to provide continuing services to customers.
Independent Power Producer (IPP)	A private entity that operates a generation facility and sells power to electric utilities for resale to retail customers.
Kilojoule (KJ)	A joule is a measure of work or energy in the International System of Units. A kilojoule is 1,000 joules.
Kilowatt (kW)	This is a measure of demand for power.
Kilowatt-hour (kWh)	A measure of consumption. It is the amount of electricity that is used over some period of time, typically a one-month period for billing purposes.
Kilovolt (kV)	The equivalent of 1,000 volts.

Load	An end use device or customer that receives power from an energy delivery system. Load should not be confused with Demand, which is the measure of power that a load receives or requires. (See Demand).
Logging Up and Down	An adjustment that takes place at the end of the regulatory control period to reflect differences in cost from the original determination.
Marginal Cost	The cost to the utility of providing the next (marginal) kilowatt-hour of electricity, irrespective of sunk costs. A distinction is often made between Short Run Marginal Cost (SRMC) is the change in total cost when an additional unit of output is produced and at least one cost input remains fixed. Long Run Marginal cost (LRMC) is the change in total cost when an additional unit of output is produced and all input costs are variable.
Megawatt-hour (MWh)	The unit of energy equal to that expended in one hour at a rate of one million watts.
Net Present Value (NPV)	The economic value of a project, at today's prices, calculated by netting off its discounted cash flow from revenues and costs over its full life.
Nominal Terms	Values expressed in the year of occurrence but ignoring changes in the purchasing power of money.
Opex	Operating Expenditure (comprising day-to-day running costs).
P ₀ adjustment	A permanent percentage reduction in prices as a result of efficiency gains that have been achieved by the utility.
Peak Load or Peak Demand	The electric load that corresponds to a maximum level of electric demand within a specified period.

Performance Indicators Report	The annual report published by the RIC that assesses T&TEC performance using targets originally established in PRE1.
Rate of Return	The annual income and capital growth from an investment, expressed as a percentage of the original investment.
Real Terms	The value of money expressed in constant dollar terms.
Regulatory Asset Base (RAB)	The value of the regulated business assets used to derive forecast revenue requirement under the building block approach. The RAB is used for regulatory price setting purpose only and is different to the value that the utility may adopt for accounting purposes. The RAB is updated for new capital expenditure, depreciation and disposals.
Regulatory Control Period/ Regulatory Period/ Control Period/ Price Control Period	The period covered by a price determination made by the regulator.
Retail Price Index (RPI)	The general index of retail prices published by the Central Statistical Office (the CSO).
Revenue Requirement/s	A forecast of the revenue required over a regulatory control period.
RPI-X Regulation	A form of regulation that involves setting price caps that are measured relative to the RPI.
System Average Interruption Duration Index (SAIDI)	It indicates the total duration of interruption for the average customer during a predefined period. It is commonly measured in minutes or hours of interruption. It is calculated by dividing the total number of interruption durations by the total number of customers.
System Average Interruption Frequency Index (SAIFI)	It indicates how often the average customer experiences a sustained interruption over a predefined period. It is calculated by dividing the number of customer interruptions by the total number of customers served.

Sunk Cost	In economics, a sunk cost is a cost that has already been incurred, and therefore cannot be avoided by any strategy going forward.
Supervisory Control and Data Acquisition (SCADA)	A category of software applications for controlling industrial processes, which requires the gathering of data in real time from remote locations to control equipment.
Time-of-Use (TOU) Rates	The pricing of electricity based on the estimated cost of electricity during a particular time block.
Transformer	A device for reducing or increasing the voltage of an alternating current.
Transmission Network	The network used for transmission of high voltage electricity through high voltage overhead power lines, transformers and other high voltage equipment and installations, from the point of receipt from the electricity producers or interconnection electricity lines to the point of delivery.
Trigger Event	A materiality threshold to limit cost pass-throughs to events that have a significant impact on the service provider's costs, while avoiding the risk of introducing a cost-plus regulation regime. A one percent materiality threshold is considered to be reasonable and is typically used.
Uncontrollable Costs	Disaggregating electric utility service into its basic components and offering each component separately for sale with separate rates for each component. For example, generation, transmission and distribution could be unbundled and offered as discrete services.
Unders and Overs account	A notional account that is used to track the actual revenues of the service provider against forecast revenues at the end of each financial year of the control period.
Weighted Average Cost of Capital (WACC)	The average of cost of debt and cost of equity capital, weighted according to the balance of

debt and equity which finances the utility's assets.

X-factor

This can either be used as an efficiency factor or as a smoothing factor.

EXECUTIVE SUMMARY

INTRODUCTION

The Regulated Industries Commission (RIC) is responsible for regulating the Water and Wastewater Sector and the Electricity Sector in Trinidad and Tobago. This Price Review, for the control period 2023-2027, concerns the Trinidad and Tobago Electricity Commission (T&TEC), the sole electricity transmission and distribution operator, and follows almost 11 years after PRE1. In the intervening years, the financial circumstances of T&TEC deteriorated to the extent that it was unable to meet its commitments. Therefore, the completion of this review and the implementation of new rates should have a positive effect on the overall operations of T&TEC, thereby leading to improved services to customers.

T&TEC is a “natural monopoly”, which if left unregulated may be inefficient and impose tariffs that are too high. The RIC’s mandate is not only to protect the interest of consumers, but also to ensure that T&TEC can fulfill its obligations and deliver reliable and safe electricity services. Its responsibilities include establishing methodologies and principles by which revenues and tariffs are set to recover from its customers its operational costs and investment needs to ensure that it can maintain and improve the quality of service.

THE CONTEXT OF THE REVIEW

The RIC is required to take account of a wide range of factors, in making its decisions, to ensure that it achieves a balance between the needs and interests of different stakeholders affected by these decisions. The review of rates and charges for T&TEC is occurring at a challenging time. On the one hand, the world faces the daunting task of mitigating the effects of climate change, while on the other hand the global economy is struggling to cope with high energy prices and supply chain disruptions. In respect of worsening climate issues, the responsibility devolves to all citizens to demonstrate awareness that conservation of electricity is one factor which can assist in reversing this trend. As regards the global economy, it had started to emerge from the recessionary impact caused by the pandemic (COVID-19), only to be set back by the Russia/Ukraine War.

In virtually all countries the poor have become poorer, and the middle class is struggling to maintain the status quo. Trinidad and Tobago, as a net exporter of energy products, has been better placed to cushion some of these impacts. According to the Review of the Economy 2022 “the country has been learning to live with the COVID-19 virus, the Trinidad and Tobago economy is now on a path to recovery and growth, amidst concerted efforts towards rebuilding what was detracted by the pandemic.” However, media reports in Trinidad and Tobago paint a different picture. There are frequent reports of citizens complaining about increased food prices and their inability to meet their monthly household needs. These are the major circumstances that the RIC has had to navigate while conducting its review. Among its main responsibilities, the RIC must ensure the affordability of electricity prices, and provide T&TEC with the funding necessary to provide reliable and quality services to the public. The unenviable challenge for the regulator is how to set prices that would allow T&TEC to provide reliable services and still make these services affordable to citizens.

The purpose of the Review is to determine an appropriate level of allowed revenue for T&TEC, and the level and structure of tariffs that will be paid by customers. In setting the allowed revenue and tariffs, the RIC’s objectives are to ensure that:

- the service provider operating under prudent and efficient management can earn sufficient return to finance necessary investment. In doing so, the RIC wants to ensure that the service provider’s planned investments are necessary and provide value for money for customers;
- the interests of customers are protected, in the short and long-term, by ensuring that services are reliable and provided at the lowest possible cost; and
- appropriate incentives are provided for the service provider to improve its efficiency where possible, and that most of the savings that result from efficiency gains are passed through to customers.

This Draft Determination puts forward the RIC’s proposed decisions on T&TEC’s revenue and incentives for the second control period (2023-2027), to be known as PRE2. T&TEC’s costs and performance over the first control period, PRE1 (2006-2011) are also examined to assess these against this regulatory settlement.

THE PROCESS

The publication of this Draft Determination follows a lengthy period of engagement with the public and the service provider during which twenty (20) papers were released/published for public comment. The engagement involved the assessment/analysis of multiple submissions by the service provider on both its historic and forecast costs, numerous meetings with the service provider to clarify its submissions, site visits, and the benchmarking of the service provider's costs and performance against other utilities. The RIC also engaged the shareholder, the Government of Trinidad and Tobago (GORTT) on key matters.

THE FRAMEWORK

Section 48 of its Act Chapter 54:73 mandates that reviews be conducted every five (5) years or where the licence issued to the service provider prescribes otherwise, at such shorter intervals as it may determine. The five-year control period ensures that customers are protected, while offering the service provider a clear and stable environment to make the necessary investments to ensure a modern and efficient network and high levels of service.¹

As with PRE1, the RIC has adopted an incentive-based model to determine the service provider's allowed revenue. This approach ensures that the service provider can, through efficient operation, earn a fair return on capital and meet its operating costs. The service provider's costs and revenues are taken as fixed for a five-year period. If the service provider spends more than it is allowed, it bears the cost but if it spends less than what it is allowed, through improvements in efficiencies, it can keep the surplus made in any one year for a period of five years as a means of incentivising efficiency. Customers benefit over time by the progressive decrease in costs allowed at subsequent price reviews.

The RIC sets operating expenditure (Opex) and capital expenditure (Capex) based on the plans submitted by the service provider, and through a combination of assessment of specific underlying costs of the service provider and benchmarking. The service provider is required to manage its Opex and Capex within the allowed levels. The RIC monitors expenditure and conducts a review

¹ Some regulators have begun to employ longer price controls, for example, the Office of Gas and Electricity Markets (Ofgem) has moved to an eight-year regulatory period.

at the end of the control period to ensure that costs were efficiently incurred, and the Capex was necessary and prudent. The review of both Opex and Capex takes into account windfall gains and losses.

REVIEW OF COSTS AND PERFORMANCE DURING PRE1

The RIC compared the performance and expenditure incurred by T&TEC during PRE1, 2006-2011, against the levels approved by the RIC for that period. In general, T&TEC's Opex exceeded what was allowed by the RIC in all but the final year of the control period. Overall, T&TEC's outturn² surpassed the RIC's allowed Opex by 5.6%, in nominal terms. T&TEC's proposed Opex for the first control period was \$11,258 million and the RIC's approved Opex allowance was \$10,353 million. In essence, T&TEC was given an efficiency challenge to reduce expenditure by \$906 million in PRE1, but the actual Opex outturn was \$11,030 million.

With respect to Capex, T&TEC spent far more than the amount allowed on its Capex programme. The RIC approved a total of \$800 million to be spent on 107 identified projects over the entire control period. During the period, T&TEC spent approximately \$1,944.04 million, of which \$738.60 million was spent on Government projects which were ring-fenced (not included in the RIC's approved Capex) and \$1,205.44 million was spent completing 69 RIC approved projects. In fact, T&TEC's expenditure addressed 64% of the RIC's approved projects and was \$405.44 million more than the quantum that the RIC allowed.

The increased level of expenditure on Capex maintenance and network renewal projects during PRE1, coupled with T&TEC's response to many of the incentive mechanisms put in place by the RIC, led to an improvement in the quality of supply that customers received. Overall, there was a general improvement in the reliability of T&TEC's network, particularly in the latter three years of the control period, as evidenced by improved SAIFI, SAIDI and CAIDI metrics³ (table ES1 below). Overall, as can be observed in table ES1 below, there was a general improvement in the

² Outturn is the actual expenditure incurred by the Service Provider.

³ **SAIFI** (System Average Interruption Frequency Index) indicates how often the average customer experiences a sustained interruption over a predefined period.

SAIDI (System Average Interruption Duration Index) indicates the total duration of interruption for the average customer during a predefined period.

CAIDI (Customer Average Interruption Duration Index) represents the average time required to restore service.

reliability of T&TEC's network, as values for SAIFI, SAIDI and CAIDI were less than at the beginning of the control period.

Table ES1: Network Reliability Indicators 2006–2011

Indicator	2006	2007	2008	2009	2010	2011	*NAU
SAIFI (number)	9.93	10.1	6.94	5.5	6.61	5.68	1.1
SAIDI (minutes)	996	1020	603	487	563	486	90
CAIDI (minutes)	100	100	93	87	85	86	82

***Median values for North American Utilities (NAU) according to IEEE Standard 1366-1998. These were included as the nearest available comparators.**

The RIC proposes to continue with most of its existing incentive mechanisms for the forthcoming five-year period. Additional incentive mechanisms have also been included such as a Direct Revenue Adjustment to improve service to customers that experience a reduced level of service (“worst-served customers”). Under this mechanism the RIC proposes a target of no more than three (3) interruptions per month in any area of the country to improve service to worst-served customers over PRE2. The total incentive payment to T&TEC for this mechanism will be capped at \$7.5 million during the relevant year, and the total penalty for this mechanism will be capped at \$10 million during the relevant year.

APPROVED REVENUE FOR 2023-2027

The revenue approved by the RIC for recovery through tariffs during the 2023-2027 period is shown in table ES2 below. The approved revenue is determined after the RIC makes adjustments for efficiencies to ensure that only efficient costs are recovered through tariffs.

The RIC's approved revenue requirement, exclusive of NGC debt, is \$2,818.02 million lower than T&TEC's proposal over the five-year regulatory control period. This difference reflects a number of decisions including:

- reduction in forecast of operating expenditure (\$1,512.12 million);
- reduction in generation costs (\$181.26 million);
- reduction in fuel costs (\$528.22 million); and
- reduction in depreciation charges (\$444.74 million).

Table ES2: Requested & RIC's Approved Revenue Requirements, 2023–2027 (\$Mn)

	T&TEC REQUESTED	RIC APPROVED	2023	2024	2025	2026	2027
Conversion Cost	9,492.37	9,311.11	1,764.99	1,788.45	1,896.88	1,917.48	1,943.31
Fuel Cost	10,564.19	10,035.97	1,752.22	1,859.74	2,023.37	2,139.51	2,261.13
T&D Cost	6,620.61	5,108.49	1,005.40	1,043.21	1,038.00	1,022.40	999.48
Depreciation	1,844.44	1,399.70	279.27	279.02	280.55	280.03	280.83
Return on Capital	1,466.88	1,447.90	282.97	287.35	290.00	291.82	295.76
Return on Working Capital	140.33	12.63	1.53	1.54	1.56	3.99	4.01
Less: Revenue from Non-Tariffs*	1,000.00	1,005.00	201.00	201.00	201.00	201.00	201.00
Unsmoothed Revenue Requirement before NGC Debt	29,128.82	26,310.80	4,885.38	5,058.31	5,329.36	5,454.23	5,583.52
Add: NGC Debt	-	1,157.42	-	-	-	578.71	578.71
Unsmoothed Revenue Requirement	29,128.82	27,468.22	4,885.38	5,058.31	5,329.36	6,032.94	6,162.23

*This includes dividend income from Powergen, capital contribution, pole and transformer rentals.

The RIC has made provision for the repayment of NGC debt of \$3,832.5Mn accrued up to August 2022. The RIC is proposing that this debt can be repaid over a 10-year period with a moratorium of three years commencing from 2023. The decision to provide a moratorium is intended to lessen the impact of this debt on starting tariffs. Consequently, the RIC has included \$1,157.42 million in this review period, which covers a portion of the outstanding sum payable to the NGC for natural gas purchased over the period 2019-2022.

Table ES3 below shows the net capital expenditure (Capex) approved by the RIC for the 2023-2027 period.

Table ES3: Requested and Approved Capex, 2023–2027 (\$Mn)

	T&TEC Requested	RIC Approved
Transmission – Refurbishment and Replacement	272.2	212.0
Transmission & Sub-transmission – Development	98.0	32.4
Distribution	596.9	526.4
Street Lighting	57.9	54.6
Other Network Related	27.0	26.2
Non-Network Related	1,186.7	825.7
Total	2,238.7	1,677.3

Source: T&TEC and RIC computations

The RIC’s allowed Capex for PRE2 is \$1,677.3 million, which is \$561.4 million, or 25% less than that requested by T&TEC. The difference reflects a number of decisions, including:

- reduction of Capex for projects that were deemed not to be prudent⁴ ;
- exclusion or ring-fencing of projects to be funded by Government;
- revaluation of expenditure on projects that were too loosely defined, and lacking supporting information and project detail;
- adjustment for expenditure on projects with similar scopes of works/materials but with inconsistencies in costing; and
- exclusion of expenditure for projects whose duration extended beyond the second control period, and inclusion of only the costs associated with the parts of the project works which will terminate within the control period.

The Capex outturn will be reviewed at the end of PRE2, and only efficient and necessary Capex will be added to the regulatory asset base (RAB). The RIC has also included mechanisms not only to incentivise the timely delivery of Capex but also to provide incentives to discourage “gaming” (and reward honesty in Capex forecasting).

⁴ Prudency establishes whether the decision to invest is wise, given the particular and specific circumstances at the time.

In addition to the above reductions in Opex and Capex, the RIC also requires that the service provider deliver additional efficiency savings of 2% annually (non-cumulative), the benefits of which will be passed on to customers within the 2023-2027 period. These efficiency savings amount to \$104.25 million, and will be determined by the service provider as they have not been specified by the RIC.

Capital expenditure which is deemed to be prudent and efficient, over the regulatory control period, is added to the regulatory asset base (RAB), and this results in higher depreciation charges and capital costs. The RIC's approved depreciation charge is \$1,399.70 million for the second control period, which compares to T&TEC's request of \$1,844.44 million. The difference is primarily due to the lower capital expenditure allowance by the RIC.

The RIC recognises that the service provider will have to access the capital market to fund its Capex programme and is aware of the importance of providing regulatory certainty. Equally important is the adaptation of the regulatory model to changing circumstances, particularly in times of uncertainty. The RIC has allowed a return on capital to remunerate debt based on a forward-looking rate and has approved a return on capital of 5.1% which when applied to the RAB equates to an allowance of \$1,447.90 over the 2023-2027 period. The RIC believes that its decision to allow the return on capital of 5.1% will support strong credit quality and efficient funding of the investment programme in the short to medium term.

The RIC's decisions for PRE2 provide significant incentives for T&TEC to encourage improvements in operational efficiency. However, there is also the potential reward to the service provider of retaining any efficiency savings beyond those required by the RIC for a rolling five-year period.

DRAFT PRICE DETERMINATION

The Draft Determination in respect of electricity transmission and distribution services will apply for the five-year period 2023 to 2027:

1. Tariffs for Transmission and Distribution Services

For the first year of the regulatory control period 2023-2027, the RIC has proposed a tariff structure and prices for each customer class (see table ES4), which would be escalated annually by applying the RPI-X formula.

Table ES4: Tariffs for 2023

Rate Class		Energy Charge (\$/kWh)	Customer Charge (\$)	Demand Charge (\$/KVA)
Residential (Monthly) kWh Range			7.50	NA
0	200	0.28		
201	700	0.40		
701	1400	0.54		
>1400		0.68		
Commercial (Monthly)				NA
B1*		0.62	35.00	
B2**		0.67	35.00	
High Density (Monthly)				
C1		0.6269	50.00	93.00
C2		0.5858	50.00	93.00
C3		0.5487	50.00	93.00
C4		0.5114	50.00	93.00
Industrial (Monthly)				
D1		0.3453	50.00	86.75
D2		0.3859	50.00	88.50
D3		0.3418	50.00	79.37
D4		0.2877	50.00	68.90
D5		0.2756	50.00	63.74
E1		0.3305	100.00	96.90
E2		0.3305	100.00	95.74
E3		0.3305	100.00	93.63
E4		0.3305	100.00	92.30
E5		0.3305	100.00	91.33
Public Lighting (Monthly)				
Street Lights		82.50		
Traffic Lights		71.50		
Recreation Grounds		306.50		

*B1 (formerly B) customer

** B2 (formerly B1) customers have a minimum monthly bill of 5000kWh.

2. Regulated Miscellaneous Services

The following miscellaneous services are already regulated by the RIC and the prices for these services in year 1 of PRE2 are set out in table ES5 below:

Table ES5: Regulated Miscellaneous Services and Charges from 2023

Miscellaneous Service	RIC's Proposed Charge (\$)
Meter Check at customer's request: <ul style="list-style-type: none">- If found in working order- If found defective	246.00 No charge
Visit for non-payment of account	297.00
Install meter and reconnect secondaries	246.00
Reconnect, disconnect and/or change meter	246.00
Reposition of secondaries	246.00
Change and/or reposition meter	246.00
Disconnection for non-payment	297.00
Reconnection after disconnection for non-payment	150.00

T&TEC will be required to submit a detailed breakdown of the typical costs to provide the miscellaneous services, that are on the current list, by the end of the second year of PRE2. At the same time, T&TEC must submit a customer impact analysis that shows the impact of any changes on vulnerable/low-income groups. The information will be assessed to determine whether new charges for miscellaneous services are to be applied from the mid-point of PRE2.

3. New Regulated Charges

The RIC has decided that HV isolation, temporary supply and transformer rentals should be regulated going forward. In the interim therefore, **T&TEC will continue to apply the charges that were set for these services as shown in table ES6. Transformer rental services are to continue at existing rates.**

Table ES6: New Regulated Charges

New Miscellaneous Service*	Interim (2023) Charges TT\$
HV isolation during normal working hours	4,689.36
HV isolation during weekends and public holidays	16,300.44
Direct single phase temporary supply	3,024.7
Direct three phase temporary supply	5,718.41
Temporary Supply (URD) "Stick in meter"	2,131.44

***Transformer rentals to continue at existing rates**

By the end of the second year of PRE2, **T&TEC will be required to submit a detailed breakdown of the typical costs to provide HV isolation, temporary supply, and transformer rental services.** This information will form the basis upon which the RIC may determine new charges to be applied by the mid-point of PRE2.

Overall Impact of proposed Tariffs

The RIC has assessed the impact of its first-year rates for PRE2 on the three main customer categories (residential, commercial and industrial). The impact on individual customers (within these three broad categories) will be dependent on their actual monthly consumption. Notwithstanding, some of the overall impacts are as follows:

- **Residential customers** at the lower consumption levels (for example, 200 kWh per month) will see an increase of 15% and receive a bill of \$63.50 monthly. Residential customers whose average consumption is 627kWh per month, for instance, will receive a bill of \$234.30 per month or an 18% increase when compared on a two-month basis. Since the residential tariff structure is an inclining block, it should be noted that the

percentage increases in monthly bills can vary for customers whose consumption fall within the higher tiers. For instance, consumers who are currently using 3000kWh bi-monthly will experience a 36% increase over a two-month period, while those using 4000kWh bi-monthly will see a 49% increase.

- **Commercial (B1) customers** will see an increase in their bills in the range of 50%-60%. Commercial customers whose average consumption is 1,361 kWh per month, for instance, will see an increase of 51% and receive a bill of \$878.82 per month. **Commercial (B2) customers** will experience an increase in their monthly bills of approximately 10%-11%.
- **Industrial customers** depending on their particular class, will experience an increase ranging between 72% and 126%.
- **Impact on household expenditure and welfare** – in establishing these rates, the RIC remained within the United Nations guidelines on the percentage of income that should be spent on utilities. In each case, the RIC has attempted to set rates which would not exceed the international guidelines regarding the percentage of income that should be spent on utilities.
- **Impact on Country's Competitiveness** – despite the proposed increases, and on the assumption that electricity costs have been averaged to represent 1.5% of total costs across industries, the expectation is that the increased costs of electricity would not have a major impact on total operating expenses of different industries in the country.
- **Financial Impact on the Service Provider** – the tariff increases will deliver two major outcomes for T&TEC: a healthy and sustainable financial outcome, and a specified capital works programme. The proposed tariffs also meet the financial viability criteria, as required under the RIC Act.

4. Tariff Implementation 2024-2027

Tariff structure

The RIC has proposed a tariff structure and prices for each customer class, which would be escalated annually by applying the RPI-X formula, with no further rebalancing of prices within the regulatory period without the approval of the RIC. T&TEC is thus to set prices for year t such that the reasonable forecast annual revenue (ARR_t) received from the service complies with the following formula in **Box ES 1**:

Box ES 1: Formula for Establishing Annual Revenue Requirement

$$*ARR_t \leq [(1 + RPI) + (1 - X_t)] \times ARR_{t-1} + U$$

Where:

Year t	X_t
2023	2.7%
2024	2.7%
2025	2.7%
2026	2.7%
2027	2.7%

ARR= Annual Revenue Received from Services.

ARR_{2023} = \$5,078.29 million.

RPI means the Retail Price Index and has been fixed for the purpose of the RIC's calculation at 1.1% per year.

X = The efficiency factor

U = Unused charge. T&TEC will be permitted to carry over any unused change in charges from one year to the following years.

The overall side constraint is set at $(RPI + X) = 3.80\%$.

* The formula is a slight variation from the standard $(1 + RPI - X)$ formulation. This different version can assist in correcting, to some extent, for differences in forecast and actual RPI having any impact on the operation of the price control mechanism.

Side Constraint

The overall side constraint is set at $(RPI + X) = 3.8\%$.

5. Tariff Implementation

T&TEC's Board must write to the RIC if for any reason a decision is taken not to charge the maximum determined price, providing reasons for its decision. Further, T&TEC must report on an annual basis on the implementation of the tariffs. In this regard, a written report must also be provided on whether the RIC's recommendations/directives that are made in its pricing policy reviews have been implemented, and reasons must be given for any non-implementation thereof.

6. Annual Price Approval Process during the Control Period

- At least three months prior to the beginning of each year of the regulatory control period, T&TEC must submit proposed tariffs to apply from the start of each year of the regulatory control period for verification of compliance by the RIC.
- T&TEC must ensure that its proposed tariffs comply with RIC's established principles.
- T&TEC must, if requested by the RIC, provide additional information and resubmit or revise its proposed tariffs.
- The RIC must inform T&TEC in writing whether it has verified T&TEC's proposed tariffs as compliant with the relevant established principles.
- The proposed tariffs will be deemed to have been verified as compliant by the end of the three months from the date of receiving T&TEC's Annual Tariff Approval Submission.
- T&TEC must inform customers of the new tariffs at least two weeks before implementation through publication in at least one daily newspaper in circulation in Trinidad and Tobago.
- T&TEC is prohibited from introducing new tariffs and/or tariff components during the regulatory control period other than those approved by the RIC.

7. Trigger Event

The trigger event will apply only if a situation imposes a total annualised cost of more than 1% of revenue.

Directives and Decisions

Apart from the new tariffs and charges which are being proposed for PRE2, the RIC will mandate T&TEC to comply with the undermentioned directives. The RIC will assess T&TEC's compliance with directives as a basis for determining whether to approve annual increases.

A. Meter Checks

T&TEC is required to provide a free meter check every four (4) years instead of every five (5) years.

B. Service Deposits (SD)

For residential and commercial customers requesting a new account, T&TEC can increase the SD from the existing \$95.00, to the value of one month's average bill for customers within the respective class based on an average monthly kWh consumption of 627kWh for residential customers and 1,361 kWh for commercial customers. This SD is to be retained by T&TEC for one year (12 months), and thereafter returned to the customer. T&TEC and RIC to discuss how this will be implemented.

For industrial customers requesting a new account, T&TEC can increase the SD to the value of one month's average bill (the higher of 75% reserve capacity or minimum kVA consumption). This SD can be retained by T&TEC for one year (12 months), and thereafter returned to the customer. T&TEC and RIC to discuss how this will be implemented.

C. Time of Use Tariffs (TOU)

T&TEC is required to undertake and complete a comprehensive study on the feasibility of the implementation of TOU rates 24 months after the start of PRE2 and provide the RIC with a report on its findings for further discussion and agreement on implementation.

D. Electric Vehicles

At present, individual EV owners can charge at home subject to the applicable charges for residential customers.

i. Upgrade to Local Network

Where upgrades to the local network are required to facilitate EV charging on a commercial basis or for a private fleet of EVs (more than 2 EVs), the costs associated with same will conform to the principles outlined in the RIC's Capital Contribution Policy (2022).

ii. Installation of a Separate Meter

Where customers own a private fleet of EVs (more than 2 EVs), a separate meter should be installed, and the costs associated with same be borne by the customer.

iii. Public EV charging

Customers (commercial or industrial) who wish to offer public EV charging will have the relevant rate (and its components) applied to them, inclusive of any demand charge. Therefore, all non-residential charging stations are to be billed at commercial (which do not carry a demand charge) or higher rates depending on the rating category applicable to that customer.

E. Operating and Performance Efficiency

i. Payments to NGC

The RIC strongly recommends that T&TEC remains current in settling its debt related to gas usage. Therefore, the following measures will apply:

- T&TEC should promptly provide the RIC with a quarterly report, including details related to the status of payment to NGC and provide details of its intention to cure any breaches in its payment to NGC; and

- Should T&TEC be unable to cure its breaches, the RIC will, after discussions with T&TEC, make a decision as to whether or not it will make adjustments to T&TEC allowed expenditure for this line item.

ii. Payroll costs

- T&TEC is required to submit a detailed report to the RIC, within 18 months of the publication of the Final Determination for PRE2, indicating what steps had been taken and the initiatives it proposes to improve efficiency with respect to the size and composition of its transmission and distribution (T&D) crews. T&TEC must also outline the changes to be made, in the future, regarding the composition of its crews for typical construction and maintenance jobs of the utility.

iii. Service/Maintenance

The RIC will require **T&TEC to submit its actual cost in this expenditure category annually.**

iv. Prescriptive Annual Targets

T&TEC will be required to share with the RIC evidence of its initiatives to improve efficiency. T&TEC will be required to undertake a study of Opex cost efficiency and present the report to the RIC within 30 months of the publication of the final determination. Some of the areas that should be included in the study are:

- unit cost of faults per km;
- unit cost of tree cutting; and
- non-network Opex cost per unit.

v. Reporting Framework for Opex

During its review of Opex the RIC experienced some challenges attributable to the lack of clear separation of some cost items by activity and the need for Opex costs to be broken down into individual costs/activity. To address these issues

and as part of its efforts to ensure that T&TEC improves the quality and reliability of its Regulatory Accounts (RAGs), **the RIC will be collaborating with T&TEC to establish a more comprehensive reporting framework for Opex costs.**

F. Capital Expenditure

Capex Reporting Framework

To improve the monitoring and reporting on projects to the RIC the following will apply:

- Implementation of a system of regular engagement with T&TEC to monitor Capex projects and ensure that Capex spend is in line with the RIC's allowances.
- Establishment of a semi-annual reporting framework in which T&TEC will be required to submit Capex reports which are suitable for public release. Specifically, these reports must include information on the status of projects; particular attention is to be paid to timing and cost variances. The format of these reports will be determined by the RIC inclusive of the level of granularity.
- Provision of detailed data on **each project** annually (to be called **Annual Investment Return**). The information to be submitted in the Return will include:
 - forecast and actual project spend for the year;
 - explanations of financial variances; and
 - physical progress of the project against defined milestones.

The Annual Investment Return is to be supported by the submission of quarterly returns to facilitate ongoing monitoring of T&TEC's Capex.

- Establishment of fixed dates by which T&TEC must meet and achieve Capex-related Directives.
- Conduct of a mid-term review of Capex at the RIC's discretion.

- Implementation of a Capex Safety Net – this allows for the review of the Capex allowance where the Capex underspend/overspend in any given year of the control period, is greater than 20% of the allowed Capex.
- Employment of Public Disclosure of Non-Compliance and/or Public Register notices on the RIC’s website. Through these notices, the RIC will publish the occurrences and the manner in which T&TEC has not complied with any targets set for its achievement, inclusive of allowed capital investment projects.

To ensure that tariff revenue will not be used for purposes other than those specified in PRE2, the RIC proposes that the Board of T&TEC provide self-certification assurances, in writing, for projects listed under the heading “Use of Tariff Revenues”. This will provide a documented commitment (certification assurances) by T&TEC’s Board to fulfil regulatory mandates, and to desist from using tariff revenues for activities not approved by the RIC.

Capex Forecasts in Subsequent Price Reviews

To improve the quality of Capex submissions and to treat with the issues that had arisen in PRE1, or may arise in future, relating to **T&TEC’s execution of the allowed capital programme, the RIC may require:**

- The use of a self-assurance process, the details of which must be submitted by T&TEC to the RIC at the time of a submission of a Business Plan, in which there is an assurance by T&TEC’s Board that Capex projections accurately reflect the underlying information base. This is an internal process which does not necessarily entail external scrutiny or assurance.
- The employment of a “Reporter” (independent consultant/engineer) to interrogate T&TEC’s Capex plan, and whose findings will be considered in the RIC’s assessment of the service provider’s proposals. The service provider will pay the Reporter’s costs, but the Reporter is approved by the RIC and will be responsible to the RIC.
- The development and submission of detailed Asset Management Plans, alongside longer-term capital investment plans, with a view to assess how

T&TEC's proposed Capex relates to, and corresponds with, same. The RIC may also require the service provider to include in its business plan a review of "unit cost" trends, where possible.

- The continuation of detailed *ex-post* efficiency reviews of T&TEC's performance with respect to capital expenditures.

G. Incentive and Performance Monitoring

Performance Indicator Report

The RIC will continue to monitor the performance indicators and quality of service standards introduced in PRE1 and to publish T&TEC's performance accordingly in the RIC's Performance Indicator Report. As such, T&TEC will be required to provide information to the RIC as required for the preparation of the Report.

Reliability Improvements

Reliability improvements must be a central operational issue for T&TEC. The utility should undertake various measures to maintain and improve reliability, which can include:

- instituting monthly management meetings in each area;
- a change of practice whereby outages are planned for half a day instead of a whole day, where possible and feasible;
- greater utilisation of live line working techniques alongside strict adherence to highest levels of safety practices; and
- setting performance targets for each area, and increasing supervisory and operational staff awareness of the real financial cost of customer interruptions and lost service hours.

The RIC requires T&TEC to report semi-annually on its efforts in this area.

Improving service to worst-served customers

T&TEC must undertake appropriate measures to reduce the level of outages experienced by customers in worst served areas. T&TEC will be required to

meet a target of no more than three (3) interruptions per month, in any area of the country, to improve service to worst served customers over PRE2. The RIC will implement the Direct Revenue Adjustment mechanism for the “Number of Customer Interruptions per month” (Interruptions Incentive Scheme) to ensure that this target is met. **The total incentive payment to T&TEC for this mechanism will be capped at \$7.5 million during the relevant year and the total penalty for this mechanism will be capped at \$10 million during the relevant year.** The RIC will make an annual adjustment to T&TEC’s allowed revenue prior to setting/approving T&TEC’s tariffs for each subsequent year. The mechanism will commence from the start of the third year of the control period, thereby giving enough time for T&TEC to put systems in place (inclusive of an appropriate system to facilitate the submission of quarterly reports to the RIC).

Customer Service and Responsiveness

- The RIC has initiated the process of establishing the appropriate call centre metrics for T&TEC. The RIC considers the key performance indicators (KPIs) listed below, which fall under Service Responsiveness to be of critical importance:
 - *Service level* – This metric commonly defines X amount of output in Y amount of time. It is often used as a good indicator of customer service quality.
 - *Average handle time* – one of the most commonly measured metrics. It indicates the length of time an agent spends working on a task and, therefore, cannot deal with a new work item.
 - *Average speed of answer* – a metric that shows the amount of time it takes for an agent to answer a typical call once it has been routed to the contact centre, that is, from the ring tone up until the time an agent answers the call.
 - *Call Abandonment Rate* – the percentage of inbound phone calls that are abandoned by customers before speaking to an agent. The rate is usually a reasonable gauge of the customer service experience.

Once the KPIs are established **T&TEC will be required to report quarterly to the RIC on its performance and thereafter the RIC will publish T&TEC's performance periodically.** The project of establishing Call Centre Metrics for T&TEC is anticipated to be completed in 2023 and is expected to be implemented in the second year of PRE2.

- **T&TEC will also be required to undertake a Customer Satisfaction Survey, commencing from the third year of PRE2.** This survey must be administered by a third party but commissioned by the service provider, and should cover four areas: voltage complaints; unplanned outages; planned outages and new connections. These attributes will be used as a means of getting customer feedback on how the issue was dealt with, rather than the nature of the issue itself. A random sample of customers who dealt with the service provider in the previous six (6) months should be interviewed and the survey conducted annually. **A copy of the survey report is to be submitted to the RIC.**

System Losses

- The application of an incentive mechanism for managing the total system losses will be retained for PRE2;
- An annual reduction target, instead of a target to be achieved over the full regulatory period, is more practical and would encourage compliance with the set target. **T&TEC will incur a penalty of \$10 million for failure to achieve the annual reduction target in any given year;**
- The incentive mechanism for PRE2 will be implemented with the following features:
 - Calculate **Total System Losses** as: $1 - \left\{ \frac{\text{Energy Units Billed}}{\text{Energy Units Purchased}} \right\}$
 - Set the base value of total system losses for the next regulatory control period as the average monthly value computed over the year preceding the

commencement of the period, and set a target for an annual reduction in loss levels for the control period of 0.25%, towards an overall target of 6.75% for the period;

- Allow T&TEC to keep 90% of the gains if total system losses fall below the target set for that year, and share the gains at the end of the regulatory control period. However, given the current uncertainty about the measurement of losses, no incentive payment will be made until the data has been verified to be accurate;
- Require T&TEC to include in the capital expenditure programme, projects which entail:
 - The installation of appropriate metering/monitoring equipment at strategic locations of its network; and
 - Network modification to reduce the level of total system losses, which include but are not limited to shortening the lengths of long distribution lines and the installation of capacitors on feeders. The execution of these projects is to be given high priority during PRE2;
- Take into account the value of loss reduction equipment in the asset base when it is rolled forward to encourage investment in loss reduction equipment. The full cost incurred would be incorporated into the asset base if the annual target for actual total system losses is achieved, and the cost will be prorated for the partial achievement of the target. However, if the total system losses increase above the initial and successive values calculated by the RIC, T&TEC will be penalised by not having the value of installed loss reduction equipment included in the asset base, and a directive will be issued to institute loss reduction measures at no cost to customers in the following control period; and
- **T&TEC must report annually to the RIC on all the proposed initiatives taken to reduce losses beyond the investment in its capital programme.**

Guaranteed Payments

The RIC will continue to utilise the Guaranteed Standards Scheme. The current scheme, which was revised in 2021, includes a new overall standard which targets reliability indicators and modifies the guaranteed standards related to voltage irregularities and new connections of supply. **T&TEC must continue to comply with the range of reporting requirements under this Scheme.**

Performance Reporting:

T&TEC must employ an independent auditor to review its data collection and dissemination process, and to verify that the data and computations used to derive the values of the indicators are both valid and reliable. The auditor should be hired, and the report submitted by the third year of PRE2. The RIC will also ensure that the independent auditor's report is made public.

T&TEC must provide updates on performance indicators within the electricity bills of customers once annually. T&TEC will be required to include information on specific “traffic signal” indicators as shown in Table ES7 below:

Table ES7: List of Major Performance “Traffic Signal” Indicators

INDICATOR	What it Measures
Total System Losses (Transmission & Distribution)	The amount of electrical energy that is lost in the system
Current Ratio	Financial Health – Liquidity
System Average Interruption Frequency Index (SAIFI)	Reliability
Customers per Employee Ratio	Operational Efficiency of the company
Written Complaints Response Rate	Customer Responsiveness

H. Conservation

T&TEC should implement major initiatives for reducing households and businesses energy consumption. These initiatives can include:

- providing reasonably priced energy assessments, power saver kits and

advice; and

- rebates to small businesses/households installing small-scale solar photovoltaic (PV) systems.

I. Service Provider Support Programme

T&TEC must be proactive and assist customers who may be experiencing financial hardship before their situation reaches a crisis stage by:

- offering preventative measures such as payment plans; and
- assisting them in accessing the Government-sponsored support.

Additionally, the following measures to assist low-income groups should include:

- waiving of interest payments on outstanding accounts;
- protection from service termination (some forms of non-payment are not to be tolerated, such as illegal tampering of meters); and
- extended payment arrangements, such as the option of arranging alternative payment schedules and paying bills in smaller installments (this is to be agreed between the customer and service provider).

J. Energy Efficiency Programme

Reducing consumption can mitigate the impact of rising electricity costs. One way of achieving this is through customer education which is an important component of an efficiency programme. T&TEC will be required to continue and intensify its efforts in this regard, and report bi-annually on its efforts in this area.

K. Regulatory Accounting Guidelines

T&TEC must continue to submit regulatory accounts in the manner specified by the RIC. In an effort to assist T&TEC, the RIC has agreed to align the reporting requirement for financial information to T&TEC's statutory year-end accounts.

The RIC also proposes to publish relevant regulatory accounts and proposes to place such regulatory accounts (including information on other indicators) on its website

and make hard copies available on request. The RIC may also publish a condensed version of the regulatory accounts in a newspaper.

Finally, T&TEC must maintain reporting arrangements which provide information that can be verified. In this regard, **T&TEC will be required to provide a responsibility statement signed and dated by the Chief Executive Officer confirming that the information is true and properly reflects its activities.**

Furthermore, the RIC may require, from time to time, an independent assurance (audit) on information submitted. The required scope of any audit or other form of independent assurance will be specified by the RIC. The audit must be undertaken by an independent expert nominated and paid for by the service provider but approved by the RIC.