



PERFORMANCE MONITORING AND REPORTING FRAMEWORK

Classification : Consultation Document
Distribution : Public/Stakeholders
Reference No. : ER/06/05
Publication Date : May 2005

Table of Contents

Page No.

1. Introduction	1
1.1 Background	1
1.2 Objectives of the Document	1
1.3 Importance of Performance Monitoring and Reporting.....	1
1.4 Written Submissions and Comments.....	2
2. The Need for Performance Monitoring and Reporting	3
3. Principles and Scope for the Design of a Performance Reporting Framework	4
4. Reporting and Verifying Information	6
5. Process for Finalizing the Performance Monitoring and Reporting Framework	7
Appendix I: Performance Indicators for the Electricity Sector	8
Appendix II: Performance Indicators for T&TEC (detailed).....	11

1. INTRODUCTION

1.1 Background

The Regulated Industries Commission (RIC) is, among other things, responsible for establishing the principles and methodologies for determining rates, monitoring the performance and efficiency of the service providers and setting and enforcing standards of service. Section 6 (1) (d) of the Act specifically requires the RIC to carry out studies of efficiency and economy of operation and of performance by service providers and publish the results thereof. In carrying out its responsibility, the RIC must take the initiative in monitoring and assessing service provider's performance in various areas. Performance monitoring and reporting is an integral tool for the fulfilment of this mandate.

It is useful to note that there are various options available to a regulator for incentivising service providers. These options include establishing quality of service standards, setting of an X factor (productivity offset), instituting efficiency carryover mechanisms, and establishing performance monitoring and reporting. Each of these, in their own way, provide incentive to service providers to improve efficiencies and outperform targets set by the regulator.

1.2 Objective of the Document

This document discusses the process for the establishment of a Performance Monitoring and Reporting (PMR) framework for the electricity sector. It also identifies appropriate performance indicators, which would be included in the performance monitoring and reporting framework. Further, it seeks the public's comments/suggestions on the issues raised in the document.

1.3 Importance of Performance Monitoring and Reporting

Irrespective of the regulatory approach taken, information on the services being provided is essential for the economic regulation of network industries. In fact, in the absence of effective competition and customer choice, monitoring and reporting of service performance will operate as a transparent customer protection measure. The PMR regime will also provide incentives for service providers to maintain and improve quality by providing information to customers, the media and stakeholders enabling them to critically assess performance. In addition, the measures of performance established at the beginning of the control period would be

subsequently compared with actual performance at the end of the regulatory period. Furthermore, the exercise will be a starting point from which more comprehensive and regularly updated analysis can be undertaken, providing stakeholders with improved information to assess the performance of the service provider. This is critical as data on performance indicators so far have been collected in an *ad-hoc* and fragmented manner.

1.4 Written Submissions and Comments

The RIC strongly supports the involvement of customers, service providers and other stakeholders in the establishment of the most effective performance monitoring and reporting framework. Consequently, this draft performance monitoring and reporting framework is being released for public comment prior to being finalised. Timeframe for the submission of comments on the draft performance monitoring and reporting framework is as follows:

- Release of this Consultation Document - June 6, 2005
- Written Comment to this Document - June 21, 2005

The RIC will also hold a public workshop. The purpose of the workshop will be to provide an overview of the performance indicators and answer any questions. The questions/comments raised at the workshop will be summarized and made available on the RIC's website.

Comments and suggestions may be submitted to:

Executive Director
Regulated Industries Commission
Furness House
Cor. Wrightson Road and Independence Square
Port-of-Spain, Trinidad.

Telephone: 1(868) 625-5384; 627-7820/0821/0503
Fax : 1(868) 624-2027; 624-9396
Email : ricoffice@ric.org.tt
Postal Address: P.O. Box 1001, Port of Spain, Trinidad.

Copies of this document are available from the RIC Information Centre and the RIC website: www.ric.org.tt

2. THE NEED FOR PERFORMANCE MONITORING AND REPORTING

The identification, determination and monitoring of performance indicators is an integral tool in the evaluation of the performance of the utilities. The main objective of PMR, therefore, is to provide comprehensive information to stakeholders about the services they receive while at the same time provide incentives for service providers to improve their performance relative to other utilities by highlighting the variation of performance. The performance reporting will be a starting point from which more comprehensive and regularly updated analysis can be undertaken, thereby providing stakeholders with improved information to assess the performance of the utility.

In short, the PMR can be a significant performance driver and a useful tool for:

- informing customers and other interest groups about the level of service they are receiving;
- providing information and data for developing regulatory standards where required and for on-going assessment of compliance with such standards;
- informing the decision-making processes of regulators; and
- identifying baseline performance of service providers as well as comparing relative performance with other utilities.

Regulatory audits are generally conducted to complement the performance reporting framework, which ensures that accurate and reliable information is reported.

The RIC poses the following question for public response:

- ***Should the RIC establish a Performance Reporting Regime as set out in this framework?***

3. **PRINCIPLES AND SCOPE FOR THE DESIGN OF A PERFORMANCE REPORTING FRAMEWORK**

Performance indicators mean different things to different stakeholders. Consumers want to be assured that certain benchmarks are being met and there is a continuing quality improvements in the services provided by the utilities. On the other hand, Shareholders, Board and Executive Management usually show interest in the indicators that affect the bottom line of the organization. That interest is prompted by their concern to ensure improvements that lead to enhance cost effectiveness. Consequently, the scope and the set of indicators could vary significantly. The RIC contends that the PMR framework should have regard to the following principles:

- performance indicators need to be defined and collected on a consistent basis to provide a valid measure of performance as well as to allow reasonable comparisons overtime and with other utilities;
- performance indicators should be meaningful and relevant and must relate to key issues relating to both organization and its customers and must reflect local conditions;
- the performance reporting framework should focus on a reasonable range of meaningful indicators and should draw on existing performance indicators to minimize the costs of collecting information and aid comparison; and
- the accuracy and reliability of information provided must be verifiable.

It is generally accepted that a well-run utility should provide efficient service to all customers at prices which are generally affordable and which allow the utility to recover efficient costs and finance new investment. There are five broad characteristics of such a utility: efficient operations and maintenance; financial sustainability; efficient and effective capital investment; responsiveness to customers; and accountability to owners. Assessing achievement of each characteristic can generally be determined by reference to appropriate indicators/targets that measure utility performance.

Consequently, the PMR framework should broadly cover the following major areas:

- **baseline explanatory data** (for example, customer number and network length);

- **quality of supply**;
- **network reliability and efficiency** (for example, losses and interruptions);
- **customer responsiveness and service** (for example, response to service disruptions and complaint handling);
- **financial performance**; and
- **affordability**, including prices.

Whenever possible, the performance-reporting framework should include qualitative information.

The draft performance indicators for the electricity sector are set out at **Appendix I**. Further, a detailed list of performance indicators for T&TEC is set out at **Appendix II**. This list provides definitions, units of measurement and time period for reporting of the specified indicators.

Once a potential set of performance indicators have been identified, the next step is to establish clear and common definitions for performance indicators to ensure that the information reported is consistent overtime and that it allows for comparison with other utilities on a fair and reasonable basis. This would require that indicators be collected on an internationally consistent basis while still recognizing the need for any special local conditions.

The RIC invites comments on:

- *The proposed principles and scope for the design of a Performance Reporting Framework.*
- *The proposed list of performance indicators for T&TEC as set out in Appendix II.*

4. REPORTING AND VERIFYING INFORMATION

Following the development of performance indicators, the RIC will establish reporting and verifying mechanisms (i.e. the frequency of collection and reporting and the processes for verifying information). The arrangement could broadly be as follows:

- service provider report information quarterly/annually electronically using standardized templates;
- the RIC analyses reported data and produces a draft report for the service providers to verify; and
- the RIC then publicly releases the finalised report, covering data for the relevant quarterly/annual period.

Monitoring of the indicators specified in this document would require significant data reporting. The indicators will be reported in a combination of monthly, quarterly and annual reports. The data will be processed and published as measures of performance.

For performance reporting to be credible, the information must be accurate and reliable. This will be achieved by the use of regulatory audits to verify that processes are in place to collect, analyse and report information and that accurate and reliable information is being reported. Audits will be undertaken, as necessary, prior to the release of the performance report. **The RIC Act (Sections 6 (d), 56-60) explicitly provides for the RIC to collect information, to verify the quality of information, and publish information.**

The annual report to be entitled “PMR Report” will be released by the RIC in the month of July every year. This timeframe is deliberate, since allows for sufficient time to receive and utilise the audited financial statements of the service provider.

The RIC is fully aware that performance indicators and definitions should be stable over time to facilitate the collection of time-series data and allow trends in performance to be monitored. However, it should be recognized that it will be necessary to review the performance indicators over time to ensure that they take into account future developments and that they remain relevant and meaningful. The RIC will, therefore, undertake periodic reviews of the indicators.

The RIC poses the following question for public response:
- Should the RIC publish its PMR Report in July of each year?

5. PROCESS FOR FINALIZING THE PERFORMANCE MONITORING AND REPORTING FRAMEWORK

After considering responses to this consultative document, the RIC will finalise and release the draft performance framework on its website and will hold a public workshop soon thereafter. As stated earlier, the main purpose of the workshop will be to provide an overview of the performance indicators and definitions and answer any questions. Written comments on the draft performance framework will also be considered if the interested groups/individuals are unable to attend the workshop.

The comments received at the workshop and any written comments received in response to the draft performance framework will be considered by the RIC in the final set of performance indicators to apply to the service providers.

The RIC will release the final performance-reporting framework to apply to the service providers soon thereafter.

The tentative timeframe for the release of the final performance monitoring and reporting framework is as follows:

- Written comments to this Consultative Document - June 21, 2005
- Release of the draft PMR Framework - July, 2005
- Public Workshop - July, 2005
- Release of the final PMR Framework - August, 2005

Summary of Issues Raised for Comment and Response:

The RIC poses the following question for public response:

- ***Should the RIC establish a Performance Reporting Regime?***

The RIC invites comments on:

- ***The proposed principles and scope for the design on a Performance Reporting Framework.***
- ***The proposed list of performance indicators for T&TEC as set out in Appendix II.***

The RIC poses the following question for public response:

- ***Should the RIC publish its PMR Report in July of each year?***

**PERFORMANCE INDICATORS FOR THE
ELECTRICITY SECTOR**

Baseline Explanatory Data

Number of Electricity Customers by Class and Area

Number of Kwh Sales by Area

Length of Electricity Main by Type and Area

Heat Rate

Kwh Generated

Load Factor

Peak Demand

Electricity Supply/Demand Balance

Availability Factor

Electricity Coverage

Electricity Quality

Low/High Voltage Complaints (all causes) by Area

Network Reliability and Efficiency

Electricity Supply Interruptions per 100 Km of Electricity Main

Average Frequency of Electricity Customer – interruptions

Electricity Supply Interruptions restored within 5 hours (% of interruptions)

Average Duration of Electricity Customer Interruptions (Minutes)

Average Electricity Customer minutes off supply

Customers experiencing more than 5 unplanned interruptions (per 1000 customers)

Average response time to interruptions (Minutes)

System Losses

Customer Responsiveness and Service

Calls to emergency phone line (% answered in 30 seconds)
Written complaints not responded to within 10 working days
Complaints received (per 100 customers)
Complaints by major type

Financial Performance

Total Revenue (by category)
Total Expenditure (by major category)
Depreciation
Operating Profit (deficit)
Finance Costs
Unit Operational Costs (M³ electricity produced)
Labour Costs as a percentage of operational costs
Receivables by Customer Class
Revenue Collection Ratio
Collection Period
Current Ratio/Working Ratio/Operating Ratio
Debt Service Ratio
Capital Expenditure
Interest Charges
Long Term Debt
Capital Output Ratio
Capital Labour Ratio

Affordability

Tariff for Electricity Services by Category

Customer Accounts

Restrictions for non-payment of Bills (all customers)

Average Consumption by Class

Average Electricity Bill by Class

Percentage of domestic and non-domestic customers with instalment Plans

APPENDIX II

**PERFORMANCE INDICATORS
FOR T&TEC (DETAILED)**

Item	Category	Indicator	Definition	Units	Reporting Period
1.0	Aggregate Data				
1.1		Number of electricity customers by class and area	T&TEC's customer data		Yearly
1.2		KWh sales by area	T&TEC's customer data		Semi Annually
1.3		KWh purchased	The basic unit of electric demand, equal to 1,000 watt-hours.	KWh	Monthly
1.4		Total System Losses	Difference between MWh purchased and sold	MWh	Semi Annually
1.5		Number of connections and disconnections			Yearly
1.6		Peak demand	The maximum load during a specified period of time	MW	Yearly
1.7		Electricity coverage (i.e. Access to electricity)	$\frac{[\text{No. of customers (T\&TEC stats)}]}{[\text{No. of households in T\&T}]}$		Quarterly & Yearly
2.0	Financial				
2.1		Maintenance cost per kWh Sold	$\frac{[\text{Total annual maintenance costs (excluding capital cost)}]}{[\text{MWh sold}]}$	\$	Yearly
2.2		Cost of fuel per kWh	$\frac{[\text{Total costs of fuel}]}{[\text{Kwh generated}]}$	\$	Quarterly & Yearly
2.3		Cost of fuel (sales)	$\frac{[\text{Fuel costs}]}{[\text{Total utility revenues}]} \times 100$	%	Quarterly & Yearly
2.4		Revenue per kWh	$\frac{[\text{Total revenue from sales}]}{[\text{Total no. of Kwh sold}]}$	(\$)	Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
2.5		Internal manpower costs ratio	Annual internal manpower costs / annual running costs x 100.	%	Yearly
2.6		Energy costs ratio	Annual energy costs / annual running costs x 100.	%	Yearly
2.7		Depreciation costs ratio	Annual depreciation costs / annual capital costs x 100.	%	Yearly
2.8		Net interest costs ratio	(Interest expenses costs – interest income) / annual capital costs x 100.	%	Yearly
2.9		Sales revenues	(Sales revenues / annual revenues) x 100	%	Yearly
2.10		Total cost coverage ratio	Annual revenues / annual costs.	%	Yearly
2.11		Delay in accounts receivable	Year-end account receivable / annual sales revenues x 12.	months equivalent	Yearly
2.12		Investment ratio	Annual investments subject to depreciation / annual depreciation x 100.	%	Yearly
2.13		Debt service coverage ratio	Profit before interest and tax / (Interest + capital repayments).	%	Yearly
2.14		Operating ratio	$\frac{\text{Operating costs (including depreciation and interest)}}{\text{Operating revenue}}$	%	Yearly
2.15		Working ratio	$\frac{\text{Operating costs (excluding depreciation and interest)}}{\text{Operating revenue}}$	%	Yearly
2.16		Return on net fixed assets	Net operating income / net fix assets x 100.	%	Yearly
2.17		Return on equity	Profit after interest and tax / shareholders' equity x 100.	%	Yearly
2.18		Operating cost per customer	$\frac{\text{Total operating costs}}{\text{Total no. of customers}}$	(\$)	Yearly
2.19		Operating revenue per kWh	$\frac{\text{Total operating revenue}}{\text{Total no. of KWH sold}}$	(\$)	Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
2.20		Current ratio	$\frac{[\text{Current assets}]}{[\text{Current liabilities}]}$	%	Yearly
2.21		Quick Ratio	$\frac{[\text{Current assets - stock}]}{[\text{Current liabilities}]}$	%	Yearly
2.22		Return on capital employed	$\frac{[\text{Profit before interest and tax}]}{[\text{Capital employed}]} \times 100$	%	Yearly
2.23		Gearing	$\frac{[\text{Interest bearing debt}]}{[\text{Interest bearing debt + equity}]}$		Yearly
2.24		Creditors Payments	$\frac{[\text{Creditors}]}{[\text{Credit purchases}]} \times 12$	Monthly equivalent	Yearly
2.25		Total revenue	Operating revenue and other revenue for the period	(\$)	Yearly
2.26		Total expenditure	Operating expenses plus other expenses (Operating Expenses includes Generation, Transmission and Distribution, Administration and General, and Depreciation)	(\$)	Yearly
2.27		Operating profit	Revenue from the organization's regular activities, less costs, and expenses and before income deduction	(\$)	Yearly
2.28		Asset turnover	$\frac{[\text{Sales}]}{[\text{Capital employed}]}$		Yearly
2.29		Interest Cover	$\frac{[\text{Profit before interest and tax}]}{[\text{Interest}]}$		Yearly
2.30		Long term debt	Debt liabilities due in excess of one year	(\$)	Yearly
3.0	Network Reliability				
3.1		System average interruption frequency index (SAIFI) (Average number of sustained interruptions per customer)	Total number of reported customer interruptions greater than 1 minute duration / total number of customers served	Interruptions per year	Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
3.2		System average interruption duration index (SAIDI) (Average minutes off supply per customer)	Sum of each outage duration in minutes times the number of customers / total number of customers served	Minutes	Yearly
3.3		Customer average interruption duration index (CAIDI) (Average interruption duration)	$\frac{[SAIDI]}{[SAIFI]}$	Minutes	Yearly
3.4		Number of faults per 10km of distribution lines			Yearly
3.5		Number of faults per 20km of transmission lines			Yearly
3.6		Number of transmission and distribution circuit trip outs by voltage level			Yearly
3.7		Interruptions restored within 3 hours and 5 hours			Yearly
3.8		Supply interruptions per 100 connected customers			Yearly
3.9		Number of complaints on voltage levels per 100 connected customers			Yearly
3.10		Number of faults assigned to modifications at substations			Yearly
3.11		Disaggregation of causes for interruptions of supply: 1. Maintenance 2. New construction 3. User connection 4. Faults			Yearly
3.12		Average response time to interruptions		Minutes	Yearly
4.0	Affordability and other Economic Data				
4.1		Sales per employee (KWh)	$\frac{[Total\ KWh\ sales]}{[Number\ of\ employees]}$	(KWh)	Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
4.2		Sales per employee (\$)	$\frac{[\text{Total revenue form sales}]}{[\text{Number of employees}]}$	(\$)	Yearly
4.3		Customers per employee	$\frac{[\text{Total no of customers}]}{[\text{Total number of employees}]}$	Number	Yearly
4.4		Low/High voltage complaints by area		Number	Quarterly and Yearly
4.5		Consumption per capita (kWh)	$\frac{[\text{Total Kwh sales}]}{[\text{Total population}]}$	KWh	Yearly
4.6		Tariff for electricity services by category			Yearly
4.7		Restrictions for non payment of bills		Number	Yearly
4.8		Average consumption by class		KWh	Yearly
4.9		Average electricity bill by class		KWh	Yearly
4.10		Percentage of Customers with installment plans			Yearly
5.0	Customer Responsiveness and Service				
5.1		Calls to emergency phone Line(% answered in 30 sec.)			Quarterly and Yearly
5.2		Written complaints not responded to within 5 working days			Quarterly and Yearly
5.3		Complaints received (per 100 customers)			Quarterly and Yearly
5.4		Complaints by major type	Reporting on the major areas of complaint	Number	Quarterly and Yearly
6.0	Operational Indicators				
6.1		Operator effectiveness - Training requirements (Per generation unit)	$\frac{[\text{MWh lost due to operator caused outage}]}{[\text{MWh generated}]} \times 100$	%	Quarterly and Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
6.2		Performance of generation unit when most needed (Per generation unit)	$\frac{[\text{Output (MW) at each monthly peak}]}{[\text{Name plate rating}]}$	Number	Quarterly and Yearly
6.3		Spinning Reserves Availability Indicates how well the system responds to load increases	$\frac{[\text{Spinning reserves at each monthly peak}]}{[\text{System peak load}]} \times 100$	%	Quarterly and Yearly
6.4		Generator Performance under Peak Load	$\frac{[\text{The generator unit output (MW) at each monthly system load peak}]}{[\text{The unit's name plate rating}]}$		Quarterly and Yearly
6.5		Capacity Factor	$\frac{[\text{Annual electricity produced (MWh)}]}{[\text{Installed capacity (MW) x 8760 (period in hours)}]} \times 100$	%	Yearly
6.6		Load Factor When the capacity factor is approximately the same as the load factor, this is an indication that installed capacity matches demand.	$\frac{[\text{Annual electricity produced (MWh)}]}{[\text{Maxium load (MW) x 8760 (period in hours)}]} \times 100$	%	Yearly
6.7		Monthly System Peak Load Demand Indicates if monthly system peak loads are being met	$\frac{[\text{Available capacity (MW) at each monthly peak}]}{[\text{System peak load}]} \times 100$	%	Quarterly and Yearly
6.8		Generation Unavailability This indicates the generation capacity short fall due to forced or planned outages	$\frac{[\text{Unavailable capacity (MW) at each monthly peak}]}{[\text{System peak load}]} \times 100$	%	Quarterly and Yearly
6.9		Forced outage rate at monthly peak (per generator)	$\frac{[\text{unit rating (MW) x outage hours (hrs)}]}{[\text{installed capacity (MW) x period (hrs)}]}$		Quarterly and Yearly
6.10		Availability Factor Measures the availability of each unit after partial or full outages (both planned and forced) have been	$\frac{[\text{Total hours of operation of plant during the period}]}{[\text{Total length of period (hours)}]} \times 100$	Between 70% to 80% of the range, depending on system output factor %	Quarterly and Yearly

Item	Category	Indicator	Definition	Units	Reporting Period
		allocated Indicates whether sufficient capacity is available in the total system	Ratio of available to installed capacity		
6.11		Output Factor (per unit) Measures the extent to which each unit capability is used	$\frac{[\text{MWh generated in period}]}{[\text{Site rating on unit (MW)} \times \text{hours in period connected to system}]} \times 100$	%	Quarterly and Yearly
6.12		Realization of monthly system loads	$\frac{[\text{Available capacity (MW)}]}{[\text{System peak load at each monthly peak}]} \times 100$	%	Quarterly and Yearly
6.13		Inadequate generation capacity due to a forced or planned outages	$\frac{[\text{Unavailable capacity (MW)}]}{[\text{System peak load at each monthly peak}]} \times 100$	%	Quarterly and Yearly
6.14		Average Heat Rate (per unit) Measures the amount of energy needed to produce one KWh of electrical output. Provides information on how efficient the conversion from heat to KWh. The smaller the heat rate the greater the efficiency	$\frac{[\text{Total Energy content of fuel burned}]}{[\text{Net KWh generated by unit}]}$	kJ/KWh	Quarterly & yearly