

**QUALITY OF SERVICE STANDARDS  
ANNUAL PERFORMANCE REPORT  
2007**

**ELECTRICITY TRANSMISSION AND  
DISTRIBUTION SECTOR**

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## **EXECUTIVE SUMMARY**

Under Section 6 of Act No. 26 of 1998, the Regulated Industries Commission (RIC) is empowered to prescribe standards of service, monitor and ensure compliance, and impose sanctions for non-compliance. In carrying out its mandate, the RIC implemented Quality of Service Standards (QSS) for the Electricity Transmission and Distribution Sector on April 7, 2004. The RIC receives information from the service provider on a monthly, quarterly and annual basis, which assists in the monitoring of the service provider's performance with respect to the implemented standards.

This is the fourth Annual Performance Report by the RIC. This report describes the levels of service provided by the Trinidad and Tobago Electricity Commission (T&TEC) against the established Quality of Service Standards, over the four quarterly periods from January to December 2007. The report assesses the performance of T&TEC in each of the Guaranteed and Overall Standards, provides reasons for poor performance, and compares the performance with that of the previous year, 2006.

### **Performance Summary**

#### **Performance under Guaranteed Standards**

Guaranteed standards are those which set service levels that must be met in each individual case by the service provider. These standards also carry compensatory payments to the affected customers if the utility fails to provide the level of service required. At present, six (6) Guaranteed Standards exist for T&TEC.

T&TEC's performance is assessed by examining its compliance rates for the Guaranteed Standards. Generally, in 2007, T&TEC's performance improved, with fewer breaches of the Guaranteed Standards than in 2006. The only Guaranteed standard for which T&TEC achieved full compliance was GES 4 (Making and Keeping Appointments). Of the remaining five Guaranteed Standards, GES 1 (Response and Restoration Time) and GES 3 (Reconnection after Payment of Overdue Amount) were the only ones in which T&TEC maintained a compliance rate of over 99%. T&TEC's performance under GES 2 (Billing Punctuality) plummeted further,

with the average compliance rate for Non-Residential customers moving from 47.7% in 2006 to 10.2% in 2007. No claims were received under GES 5 (Time to Credit Compensatory Payments) during 2007 and hence there was no opportunity to assess T&TEC's performance under this standard.

For the year 2007, the most breaches (72.6% of the 14,623) of the Guaranteed Standards occurred in GES 2. GES 1 was the second highest contributor, registering 25.7% of the total breaches, followed by GES 6 (Connection to Supply), with 1.2% of the total.

In 2007, T&TEC should have incurred payments of over \$439,000 to compensate customers for the 14,623 breaches that occurred. However, there were no payments since customers made no claims, thereby nullifying the effectiveness of the Guaranteed Standards Scheme. The measures recommended by the RIC in its **Final Determination** on T&TEC's Rate Review Application have been implemented, but they have not been sufficient to encourage customers to use the system designed for their benefit. The way forward is therefore one of automatic compensatory payment, which the RIC will be seeking to implement when it reviews its Quality of Service Standards.

The following table presents the assessment of T&TEC's performance against the established Guaranteed Standards for 2007.

**Table I - Compliance under Guaranteed Standards**

<b>Code</b>	<b>Service Description</b>	<b>Performance Measure</b>	<b>2007 Compliance Rates (%)</b>
GES1	Response and restoration time after unplanned (forced) outages on the distribution system.	Time for restoration of supply to affected customers	99.9
GES2	Billing Punctuality (new customers)	Time for first bill to be mailed after service connection:	
		(a) Residential	49.4
		(b) Non-Residential	10.5
GES3	Reconnection after payment of overdue amounts or agreement on payment schedule	Time to restore supply after payment is made (All customers)	99.5
GES4	Making and keeping appointments	Where required, appointments will be made on a morning or afternoon basis	99.4
GES5	Compensatory payment	(i) Time to credit compensatory payment after non-compliance	N/A
		(ii) Time to complete investigation, determine liability and make payment after receiving a claim.	N/A
GES6	Connection to supply:		
	Under 30 metres	Service drop and meter to be installed	99.9
	30 to 100 metres	(a) Provision of estimate (subject to all documents being provided)	94.8
	30 to 100 metres	(b) Complete construction (after payment is made)	80.5
	100 to 250 metres	(a) Provision of estimate (subject to all documents being provided)	93.5
	100 to 250 metres	(b) Complete construction (after payment is made)	70.7

## **Performance under Overall Standards**

Overall standards are those which cover areas of service where it is not appropriate or feasible to give individual guarantees, but where the expectation is that the utility will provide pre-determined minimum levels of service. These standards generally relate to the reliability of service affecting a group of customers. Nine (9) Overall Standards currently exist for T&TEC.

In 2007, there was full compliance by T&TEC with four (4) out of the nine (9) Overall Standards, namely OES 1 (Line faults repaired within 48 hours), OES 3 (Frequency of meter testing), OES 4 (Frequency of meter reading) and OES 7 (Number of complaints by type). For the other five Overall Standards, breaches continued to occur during the period under review. Although there was improved performance under the three categories of OES 6 (Response to customer queries/requests), the performance is not acceptable. The worst performance was under OES 8 (Prior notice of planned outages) where the compliance level dropped from 61% in 2006 to an average of 48% in 2007. Performance under OES 9 (Correction of low/high voltage complaints) improved to over 98%. **Table II** presents the assessment of T&TEC's performance against the established Overall Standards.

The RIC continues to liaise closely with the Service Provider to encourage it to strive for greater efficiency and effectiveness in its service to customers. In doing so, the list of Standards is being reviewed, and a revised set of relevant standards is being developed.



**Table II - Compliance under Overall Standards**

<b>Code</b>	<b>Description</b>	<b>Required Performance Units</b>	<b>2007 Compliance Rate (%)</b>
OES1	Line faults repaired within a specified period (for line faults that result in customers being affected)	100% within 48 hours	100
OES2	Billing punctuality	98% of all bills to be mailed within ten (10) working days after meter reading or estimation	88
OES3	Frequency of meter testing	10% of industrial customers' meters tested for accuracy annually.	100
OES4	Frequency of meter reading	(a) 90% of industrial meters should be read every month	100
		(b) 90% of residential and commercial meters read according to schedule	100
OES5	System revenue losses (difference between energy received and energy for which revenue is derived)	7.5 % of total energy delivered to customers	0
OES6	Response to customer queries/requests (written) (i) Time to respond after receipt of queries.	Within 5 working days	89
	(ii) Time to complete investigation and to communicate final position	Within 15 working days of inquiry	52
	(iii) Time to complete investigation and communicate final position if third party is involved (e.g. insurance claim.)	Within 30 working days after third party actions completed	39
OES7	Number of complaints to TTEC by type: (a) Billing queries	500 telephone and/or written complaints per 10,000 customers per annum	100
	(b) Voltage Fluctuations/Damage	300 telephone and/or written complaints per 10,000 customers per annum	100
	(c) Street Lights/Poles/Disconnections/Other	1000 telephone and/or written complaints per 10,000 customers per annum	100
OES8	Prior Notice of planned outages	At least 72 hours (3 days) advance notice of planned outages 100% of the time	48
OES9	Correction of Low/ High Voltage complaints	All voltage complaints to be responded to within 24 hours.	99.9
		All voltage complaints to be rectified within 15 working days.	98

## **SECTION 1      INTRODUCTION**

This is the fourth Annual Performance Report of the Regulated Industries Commission on the Quality of Service Standards for the Electricity Transmission and Distribution Sector. Section 6 of the Act empowers the RIC to prescribe standards of service and impose sanctions for non-compliance. Standards of performance are important elements in the regulatory framework, as they serve to protect the interests of the customers of the service providers in key service areas. The Quality of Service Standards for the Electricity Transmission and Distribution Sector were implemented on April 7<sup>th</sup>, 2004.

### **1.1      Purpose of Document**

The purpose of this report is to present an assessment of the performance of the Trinidad and Tobago Electricity Commission with respect to the established Quality of Service Standards over the four quarterly periods from January to December 2007. The information utilized in this report has been supplied by T&TEC.

### **1.2      Structure of Document**

The remainder of this document is structured as follows:

- Section 2 reviews the performance of T&TEC in each of the Guaranteed and Overall Standards;
- Section 3 presents a summary and conclusions;
- Appendix 1 presents tables of the Guaranteed and Overall Standards with a description of the required performance units, and the compensatory payment levels for each standard;
- Appendix 2 presents a table and charts showing the compliance rates of the T&TEC with respect to the Guaranteed and Overall Standards for Electricity Transmission and Distribution for the period April 2004 to December 2007.

## SECTION 2      PERFORMANCE ASSESSMENT FOR THE PERIOD JANUARY TO DECEMBER 2007

### 2.1    Guaranteed Standards

Guaranteed standards are those which set service levels that must be met in each individual case by the service provider. These standards also carry compensatory payments to the affected customers if the utility fails to provide the level of service required. They generally relate to the relationship between the utility and the individual customer. At present there are six (6) Guaranteed Standards existing for T&TEC.

#### **GES 1: Response and Restoration Times of Supply.**

A measure of a utility's efficiency is its response time to trouble calls and its ability to quickly restore supply. This standard seeks to ensure that T&TEC responds promptly to any unplanned outage and restores supply in the shortest time possible. In order to analyse T&TEC's performance under this standard, the frequency of unplanned outages must first be examined. There was a total of 11,894 unplanned outages for 2007. It can be seen from **Table 1** that the number of unplanned outages varied throughout the year with a low of 745 in February, and a peak of 1168 in June.

**Table 1 - No. of unplanned outages for the period January to December 2007**

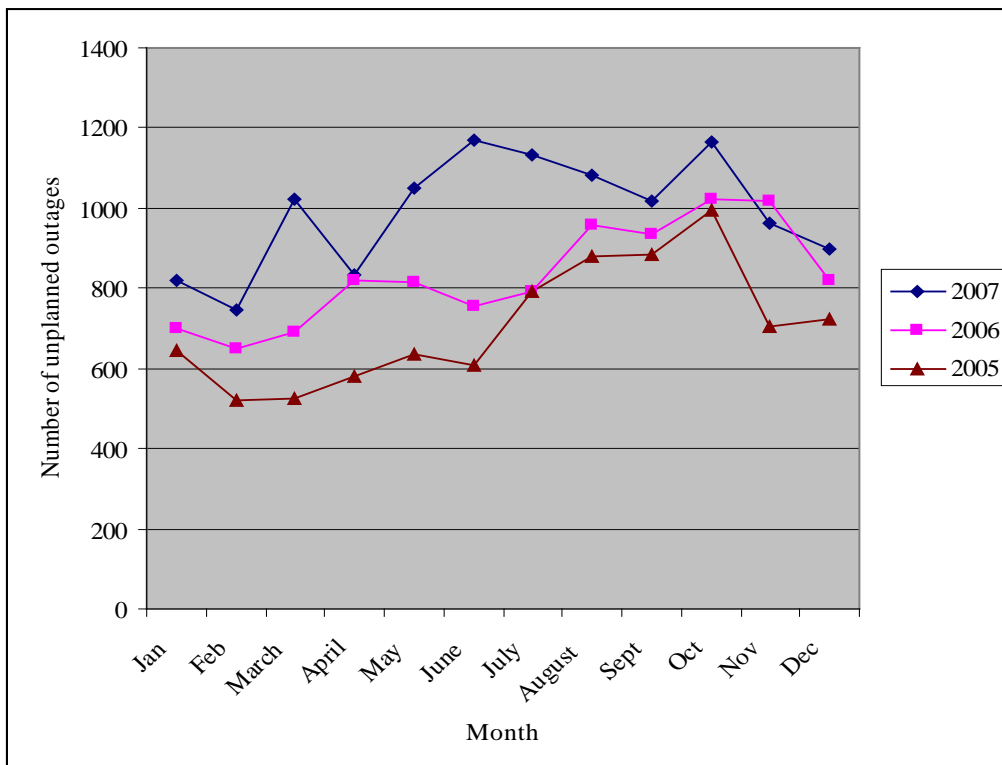
Area	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total 2007	Total 2006	Total 2005
North	169	167	163	165	177	202	195	207	200	260	157	152	<b>2214</b>	<b>2289</b>	2561
South	238	239	406	329	363	366	316	262	267	283	191	176	<b>3436</b>	<b>2427</b>	1943
Tobago	77	64	57	64	81	102	146	125	89	88	88	111	<b>1092</b>	<b>873</b>	940
East	124	123	170	141	244	203	230	276	250	328	337	238	<b>2664</b>	<b>2331</b>	1204
Central	213	152	226	134	183	295	244	211	214	208	188	220	<b>2488</b>	<b>2062</b>	1852
<b>Total 2007</b>	<b>821</b>	<b>745</b>	<b>1022</b>	<b>833</b>	<b>1048</b>	<b>1168</b>	<b>1131</b>	<b>1081</b>	<b>1020</b>	<b>1167</b>	<b>961</b>	<b>897</b>	<b>11894</b>		
Total 2006	700	649	692	819	817	754	794	958	937	1024	1017	821		<b>9982</b>	
Total 2005	647	522	524	582	636	607	791	880	886	995	705	725			<b>8505</b>

The number of outages in October was also quite high, 1167, and similar patterns of lows and highs were observed in previous years. In 2006, the number of outages for February and October were 649 and 1024 respectively. Similarly, in 2005, the lows and highs were 522 and 945 for February and October respectively. This pattern of disruption is consistent with the weather patterns observed over the last several years. February is usually the height of the dry season, while for the last few years October has been the month with extreme bad weather.

**Figure 1** shows that the number of unplanned outages occurring monthly has continued to increase over the years from 2005 to 2007. There was a 17% increase from 2005 to 2006, and a 19% increase from 2006 to 2007. Reasons submitted by T&TEC for the unplanned outages included:

- Blown transformer fuses;
- Extreme bad weather;
- Burst Low Voltage and High Tension wires;
- Slack connections on Low Voltage mains; and
- Fallen trees.

**Figure 1 – Unplanned Outages for 2005 to 2007**



These reasons all indicate that the existing maintenance program for the distribution network needs to be revised.

GES 1 requires that supply be restored to affected customers within 12 hours after an unplanned outage on the distribution system.<sup>1</sup> Failure to do so constitutes a breach of this standard. Additionally, a breach is also registered for each further 12-hour period, up to a maximum of 36 hours that the service is not restored. An unplanned outage experienced by a customer is referred to as an outage incident. It should be noted that some customers might have experienced several outage incidents within the period, each of which, if not restored within a 12-hour period, would count as a breach. **Table 2** below shows the number of customer outage incidents and the number of breaches.

**Table 2 - Response and Restoration Times of Supply, 2007**

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (2007)
Total no. of customer outage incidents	226,991	223,660	230,090	204,948	271,737	296,140	361,150	340,042	306,652	310,271	252,756	250,572	3,275,009
Total no. of customer outage incidents of duration greater than 12 hours (breach)	199	78	0	15	99	83	193	808	312	1,320	343	310	3,760
Percentage breach (%)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.1	0.1	0.11
Compliance Rate (%)	99.99	100	100	100	100	100	99.99	99.98	99.99	99.96	99.99	99.99	<b>99.89</b>

In 2007, there were 3,760 breaches recorded for this standard, with the peak of 1,320 occurring in October. The figure was almost double the highest number of breaches (687) that occurred in 2006. During the months of August and October 2007 there were outages that were restored after 36 hours. In August, fifty customers in Tacarigua were affected for almost 38 hours because

<sup>1</sup> The time that the outage occurred is taken as the time the report is received by T&TEC.

of the unavailability of the ‘pole hole borer’ during the shift in which the trouble report was made. In October, the situation was slightly more challenging; twenty customers in Petit Valley were affected for 8 days by a burst Low Voltage wire, the repair of which T&TEC claimed was difficult because of the trees and bamboo in the area. Another twenty-five customers in Diego Martin were also adversely affected for 5 days as a result of an inaccessible blown transformer fuse.

Some other reasons submitted for lengthy restoration times included:

- Area inaccessible because of extreme bad weather and poor terrain;
- Time report was received;
- Location and terrain made access difficult;
- Crime hot spots; and
- Industrial action.

While there were over 3 million outage incidents, only 3760 breaches occurred in 2007, indicating that 99.9% of the outage incidents were restored within 12 hours. T&TEC maintained the same level of compliance as in 2006 (**Table 3**).

**Table 3 – Response and Restoration Times of Supply, 2005 – 2007**

<b>Item</b>	<b>TOTAL (2007)</b>	<b>TOTAL (2006)</b>	<b>TOTAL (2005)</b>
Total no. of customer outage incidents	3,275,009	3,135,244	4,264,739
Total no. of customer outage incidents of duration greater than 12 hours (breach)	3,760	3,301	24,567
Percentage breach (%)	0.11	0.11	0.58
Compliance Rate (%)	99.89	99.89	99.42

**GES 2: Billing Punctuality.**

This standard seeks to ensure a prompt and efficient billing process and as such requires that the first bill, after a new service connection, be mailed within 65 days for residential customers and 35 days for non-residential customers.

**Tables 4 and 5** indicate the performance and the compliance rate with this standard for residential and non-residential customers respectively. The increase in new residential customers during 2007 was just over 1%, which was significantly less than the 73% observed in 2006. This however, only enabled T&TEC to marginally improve its performance from an overall compliance of 45.9% to 49.4%. This performance is in no way satisfactory and T&TEC needs to do more to improve in this area.

**Table 4 - Billing Punctuality for Residential Customers**

Item		1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	TOTAL 2007	TOTAL 2006	TOTAL 2005
Number of new customers requesting supply	Residential	4665	3031	5999	7084	<b>20779</b>	20543	11880
No. of bills not mailed within 65 days (Residential) (breach)		2028	2586	2808	3086	<b>10508</b>	11110	82
Percentage breach (%)	Residential	43.5	85.3	46.8	43.6	<b>50.6</b>	54.1	0.7
Compliance Rate (%)	Residential	56.5	14.7	53.2	56.4	<b>49.4</b>	45.9	99.3

There was continuous and significant decline in the compliance rates for non-residential customers throughout 2007, with the 3<sup>rd</sup> and 4<sup>th</sup> quarters showing the worst performance under this standard, with the annual compliance falling from 47.7% in 2006 to 10.2% in 2007. **(Table5).**

**Table 5 - Billing Punctuality for Non-Residential Customers**

Item		1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	TOTAL 2007	TOTAL 2006	TOTAL 2005
Number of new customers requesting supply	Non-Residential	24	41	26	27	<b>118</b>	149	97
No. of bills not mailed within 35 days (Non-Residential) (breach)		20	35	25	26	<b>106</b>	78	9
Percentage breach (%)	Non-Residential	83.3	85.4	96.2	96.3	<b>89.8</b>	52.3	9.3
Compliance Rate (%)	Non-Residential	16.7	14.6	3.8	3.7	<b>10.2</b>	47.7	90.7

**GES 3: Reconnection after payment of overdue amounts or agreement.**

As a matter policy, T&TEC's would disconnect customers for non-payment of bills. Once the bill has been settled or some agreement has been reached on a payment schedule, T&TEC should demonstrate efficiency in its response to restore the service. This standard requires that the supply is reconnected within 24 hours after customers pay overdue amounts or make payment arrangements with T&TEC.

As shown in **Table 6**, the compliance rate remained constantly high for this standard over the period, with an overall compliance rate of 99.5%.

**Table 6 - Reconnection after Payment of Overdue Amounts or Agreement**

Item	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	TOTAL 2007	TOTAL 2006	TOTAL 2005
Total Disconnections	5590	5511	4444	3553	19,098	23,174	23,973
Customers making payments/arrangements	3683	3522	3590	3125	13,920	20,688	18,047
Number not reconnected within 24 hours	10	15	39	4	68	51	153
Percentage breach (%)	0.3	0.4	1.1	0.1	0.5	0.2	0.8
Compliance Rate (%)	99.7	99.6	98.9	99.9	<b>99.5</b>	99.8	99.2



For 2007, just about 73% of disconnected customers chose to make payments or arrangements rather than remain disconnected. T&TEC's disconnection crews continue the practice of revisiting the disconnected customers 2-3 weeks after disconnection if no payment or arrangement has been made to remove the service connection mains, thereby reducing the incidents of illegal usage.

#### **GES 4: Making and Keeping Appointments.**

There are instances when it is necessary for the utility to make appointments to visit customers' premises. It is important for both the utility and the customer that the appointment is kept. Unfortunately, in the event of an unkept appointment, it is usually the customer that is more greatly inconvenienced. This standard seeks to encourage T&TEC to further improve its overall customer service by requiring that 24 hours notice of inability to keep appointments be given to customers.

**Table 7 – Making and Keeping Appointments**

<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>TOTAL 2007</b>	<b>TOTAL 2006</b>	<b>TOTAL 2005</b>
No. of appointments arranged with customers	421	933	1372	1515	4,241	128	46
No. of appointments not kept within 30 mins of appointed time	0	2	0	22	24	0	0
No. of appointments cancelled/postponed with 24 hrs notice	2	0	4	15	21	0	0
Percentage breach (%)	0.0	0.2	0.0	1.5	0.6	0.0	0.0
<b>Compliance Rate (%)</b>	<b>100.0</b>	<b>99.8</b>	<b>100.0</b>	<b>98.5</b>	<b>99.4</b>	<b>100.0</b>	<b>100.0</b>

The RIC had previously expressed its concern to T&TEC about the seemingly few customer appointments (128 in 2006, 46 in 2005) that were made, given the utility's large customer base of over 375,000. T&TEC conducted training with representatives at its customer service centres and improvement on the recording of this information was noticed. There were 4,241 appointments made for 2007. Twenty-one (21) appointments were cancelled with the stipulated

notice, and twenty-four (24) appointments were not kept. This resulted in an overall compliance of 99.4%.

**GES 5: Compensatory Payments.**

The Guaranteed Standards Scheme not only sets prescribed levels of service, but also set penalties for failure to meet these levels. This standard limits the time to credit compensatory payment to the customer's account to 35 working days. It also requires that the time to complete investigation, determine liability and make payment after receiving a claim be within 35 working days.

There were no breaches of this standard for the period, since there were no claims made to T&TEC.

**GES 6: Connection to Supply.**

New customers are normally added to the system because of growth and expansion. Some of the new customers will be near existing utility infrastructure, while others may require additional work before the connection can be made. GES 6 seeks to standardize the time taken by T&TEC between receiving requests for new connection services and completing the actual connection in the following scenarios:

(i) For the request for connection less than 30 metres from the T&TEC's network, the service drop and meter should be installed within 3 working days.

(ii) For connections between 30 and 100 metres, the provision of an estimate (subject to all documents being provided) should occur within 5 working days. Complete construction after payment is made should take place within 15 working days.

(iii) For connections between 100 to 250 metres, the provision of an estimate (subject to all documents being provided) should occur within 7 working days. Complete construction after payment is made should take place within 20 working days.

As can be observed in **Table 8**, there was a 19% increase in the number of supply connections requested under Standard 6a (supply connections requested less than 30 metres). The overall compliance rate over the period improved from 94.3% in 2006 to 99.88% in 2007.

The number of requests for supply connections under Standard 6b (provision of estimates for supply connections between 30 to 100 metres) declined from 889 in the year 2006 to 534 in 2007. While the compliance rate for providing estimates declined during the year from 97% to 81%, the overall average compliance rate improved from 92.8% in 2006 to 94.8% in 2007.

Of the 534 requests for supply connections between 30 to 100 metres received in 2007, the necessary estimates were completed on time for 506 of these jobs, and 430 jobs were completed within 15 working days (Standard 6c). Overall the compliance rate for the provision of an estimate, improved from 92.8% to 94.8%; while the rate for completing the connection decreased from 88.1% (2006) to 80.5% (2007).

T&TEC's performance under Standard 6d (provision of estimates for supply connections from 100 to 250 metres) improved from an 82.0% compliance rate in 2006 to 93.5% in 2007. There were fewer requests for supply connections, which may have contributed to the improvement level of overall compliance.

There was a decline in the performance under Standard 6e, with twenty-seven (27) out of ninety-two (92) jobs not completed within 20 working days. The overall compliance rate decreased from 80.5% (2006) to 70.7% in 2007

**Table 8 - Connection to Supply**

<b>Guaranteed Standard Code GES 6</b>	<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>TOTAL 2007</b>	<b>TOTAL 2006</b>
6a	No. of supply connections requested <30m	2884	3557	3634	4248	14323	12028
	No. not connected within 3 working days (breaches)	1	3	9	3	16	687
	<b>Percentage breach%</b>	<b>0.03</b>	<b>0.08</b>	<b>0.25</b>	<b>0.07</b>	<b>0.11</b>	5.7
	<b>Compliance Rate %</b>	<b>99.97</b>	<b>99.92</b>	<b>99.75</b>	<b>99.93</b>	<b>99.88</b>	94.3
6b	No. of supply connections requested – 30 to 100m	185	157	145	47	534	889
	No. of estimates not provided within 5 working days (breaches)	6	4	9	9	28	64
	<b>Percentage breach%</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>19</b>	<b>5.2</b>	7.2
	<b>Compliance Rate %</b>	<b>97</b>	<b>97</b>	<b>94</b>	<b>81</b>	<b>94.8</b>	92.8
6c	No. of jobs not completed within 15 working days (breaches)	20	22	51	11	104	106
	<b>Percentage breach%</b>	<b>11</b>	<b>14</b>	<b>35</b>	<b>23</b>	<b>19.5</b>	11.9
	<b>Compliance Rate %</b>	<b>89</b>	<b>86</b>	<b>65</b>	<b>77</b>	<b>80.5</b>	88.1
6d	No. of supply connections requested – 100 to 250m	36	30	10	16	92	133
	No. of estimates not provided within 7 working days (breaches)	0	1	2	3	6	24
	<b>Percentage breach%</b>	<b>0</b>	<b>3</b>	<b>20</b>	<b>19</b>	<b>6.5</b>	18.0
	<b>Compliance Rate %</b>	<b>100</b>	<b>97</b>	<b>80</b>	<b>81</b>	<b>93.5</b>	82.0
6e	No. of jobs not completed within 20 working days (breaches)	6	12	7	2	27	26
	<b>Percentage breach%</b>	<b>17</b>	<b>40</b>	<b>70</b>	<b>13</b>	<b>29.3</b>	19.5
	<b>Compliance Rate %</b>	<b>83</b>	<b>60</b>	<b>30</b>	<b>13</b>	<b>70.7</b>	80.5
	Total No. of Breaches	33	42	78	28	181	907

## 2.2 Overall Standards

Overall standards are those which cover areas of service where it is not appropriate or feasible to give individual guarantees, but where the expectation is that the utility will provide pre-determined minimum levels of service. These standards generally relate to the reliability of service affecting a group of customers. Nine (9) Overall Standards have been established for T&TEC.

### OES 1: Line Faults affecting Customers repaired within a Specified Period.

This standard requires that 100% of transmission line faults that result in customers being affected, be repaired within 48 hours.

**Table 9 - Number of Transmission Line Faults in 2007**

Area	1 <sup>st</sup> Quarter			2 <sup>nd</sup> Quarter			3 <sup>rd</sup> Quarter			4 <sup>th</sup> Quarter			TOTAL 2007
	33kV	66kV	132kV	33kV	66kV	132kV	33kV	66kV	132kV	33kV	66kV	132kV	
North	8	0	0	6	0	0	11	10	5	15	2	0	57
South	7	1	0	11	8	0	8	19	5	13	5	0	77
Tobago	0	0	0	0	0	0	0	1	0	0	0	0	1
East	1	6	0	5	7	0	7	13	3	13	3	0	58
Central	0	5	3	0	3	0	0	1	6	0	7	3	28
<b>Total</b>	<b>16</b>	<b>12</b>	<b>3</b>	<b>22</b>	<b>18</b>	<b>0</b>	<b>26</b>	<b>44</b>	<b>19</b>	<b>41</b>	<b>17</b>	<b>3</b>	<b>221</b>

There were no breaches in this standard for the period, since all faults were repaired within 48 hours. In total, the number of line faults for the year 2007 was 221, thus continuing the improvement recorded in the previous year. The most faults occurred in the South (**Table 8**), followed by the East. The majority of the overhead transmission line network is located in these two areas, therefore it is not unusual that the most faults would occur here.

Generally, there are more 33kV and 66kV lines than 132 kV lines and hence the number of faults recorded at the lower voltages would be more prevalent than those recorded at 132 kV. (**Table 10**). This however, does not negate the fact that there is a need for improved maintenance at these voltage levels.

**Table 10 – Number of Transmission Line Faults by Voltage**

<b>Voltage</b>	<b>2007</b>	<b>2006</b>
33kV	105	118
66kV	91	109
132kV	25	15
<b>TOTAL</b>	<b>221</b>	<b>242</b>

**OES 2: Billing Punctuality.**

T&TEC’s customers are billed by cycles in each of its five (5) Distribution Areas. Bills are mailed to the customers in the respective cycles after readings are estimated or the meters are read according to the meter-reading schedule. This standard seeks to ensure timely billing by the service provider and requires that 98% of all bills be mailed to customers within ten working days after meter reading or estimation.

**Table 11 - Billing Punctuality**

<b>Performance Data</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>TOTAL 2007</b>	<b>TOTAL 2006</b>
Number of meters read and estimated	559,735	563,364	593,486	582,315	2,298,900	2,011,310
Number of bills mailed within 10 working days	361,660	539,689	556,725	529,316	1,987,390	1,789,468
Percentage of bills mailed within 10 working days (%)	65	96	94	91	86	89.0
Percentage breach (%)	34	2	4	7	12	9
Compliance rate (%)	<b>66</b>	<b>98</b>	<b>96</b>	<b>93</b>	<b>88</b>	<b>91</b>

**Table 11** shows T&TEC’s performance with respect to billing punctuality. There was a decline in T&TEC’s performance under this standard during this year, with an overall 86% of the bills being mailed within 10 working days. This was mainly due to the poor performance in the first quarter where only 65% of bills were mailed within the required time. T&TEC explained that the delays in the first quarter were due to the implementation of the rate increase to commercial customers and the required change in bill formats for both residential and commercial accounts, in addition to a shortage of envelopes and bill print paper experienced by the company at that

time. Although the performance in the second to fourth quarters was better than the first quarter, performance in all quarters failed to meet the required standard.

**OES 3: Frequency of Meter Testing.**

Meters that function properly are important for accurately registering a customer’s consumption. This accuracy is even more critical for Industrial customers whose electricity consumption is much higher than Residential or Commercial customers. As such, Industrial meters must be checked periodically to ensure continued accuracy. This standard requires that 10% of industrial customers’ meters be tested for accuracy annually.

**Table 12** shows that, in 2007, there was full compliance with this standard, as 74% of the industrial meters were tested.

**Table 12 – Frequency of Meter Testing**

<b>Item</b>	<b>Performance Data</b>	
	<b>2007</b>	<b>2006</b>
Number of industrial meters	2,810	2,624
Number of industrial meters tested	2,082	264
Percentage of industrial meters tested (%)	74.1	10.1
Percentage breach (%)	0.0	0.0
Compliance rate (%)	<b>100.0</b>	<b>100.0</b>

**OES 4: Frequency of Meter Reading.**

The issue of estimated billing has been one of the recurring complaints received from customers, especially if customers receive an estimated bill when they were due to receive an actual bill. The goal is to eventually have all meters read when scheduled. However, in the interim, this standard requires that:

- 90% of all residential and commercial meters be read when scheduled; and
- 90% of all industrial meters be read every month.

**Table 13** shows that while the performance under this standard for industrial meter readings and residential and commercial meter readings declined slightly, the compliance rates were 100%.

**Table 13 - Frequency of Meter Reading**

<b>Item</b>	<b>Performance Data 2007</b>	<b>Performance Data 2006</b>
Number of scheduled readings for residential and commercial meters	1,171,040	1,234,893
Number of residential and commercial meters read according to schedule	1,072,665	1,143,033
Percentage of residential and commercial meters read according to schedule	91.6%	92.6%
Percentage breach (%)	0	0
Compliance rate (%)	<b>100</b>	<b>100</b>
Numbers of industrial meters	2,810	2,624
Number of scheduled readings for industrial meters	33,720	31,488
Number of actual readings for industrial meters	30,697	30,111
Percentage of industrial meter readings	91.0%	95.6%
Percentage breach (%)	0	0
Compliance rate (%)	<b>100</b>	<b>100</b>

#### **OES 5: System Losses.**

There is normally a discrepancy between the amount of energy that is delivered into the system and the amount of energy from which revenue is derived. The difference is the total losses. However, some losses occur because of technical reasons, arising from system design and operation. These can be minimized but not totally eliminated. Non-technical losses, on the other hand, arise from causes such as billing and metering, and from the illegal usage of electricity. This standard seeks to encourage T&TEC to eliminate sources of non-technical losses and to improve the efficiency of the electrical distribution system. The requirement of the standard is that total system losses not exceed 7.5%.



The system losses for the first quarter of 2007 were below the prescribed level. However, for the second, third and fourth quarters, systems losses increased to 9.0%, 8.1% and 10.0% respectively. In **Table 14**, it can be seen that the load has continued to increase during the year as evidenced by the increase in energy purchased; and since technical losses increase proportionally to the square of the load, there is a corresponding increase in system losses as a result.

**Table 14 - System Losses**

<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>2007</b>	<b>2006</b>
Energy purchased from generators (MWH)	1,800,142	1,914,076	1,989,566	2,031,789	7,735,573	7,212,190
Energy sold to customers (MWH)	1,683,622	1,742,465	1,827,934	1,828,567	7,082,588	6,691,533
System Losses (MWH)	116,520	171,611	161,632	203,222	652,985	520,657
System Losses (%)	6.5	9.0	8.1	10.0	8.4	7.2
Percentage breach (%)	0.0	100.0	100.0	100.0	100.0	0.0
Compliance Rate (%)	100.0	0.0	0.0	0.0	0.0	100.0

**OES 6: Response to Customer Queries/Requests (written).**

T&TEC receives queries and/or requests for services in both verbal and written form. This standard focuses on the written form with a view to improving the response to customer queries/requests area. As such this standard requires the following performance with respect to written customer queries or requests:

- (a) The time to respond after receipt of queries be less than 5 working days;
- (b) The time to complete investigation and to communicate final position be less than 15 working days of inquiry; and
- (c) The time to complete the investigation and communicate final position if third party is involved be less than 30 working days after third party actions are completed.

The increasing compliance rates for OES 6 during the year 2007 indicate an improvement in T&TEC's performance over the previous years. However, this may be due to the continuous decrease in the number of written requests received. The number of written requests received decreased by 22% from 2006. (Table 15).

Similarly, the compliance rate for the time to complete investigation and communicate final position within 15 working days showed an improvement, moving from 25% in 2006 to 52% in 2007.

**Table 15 – Breaches under OES 6 – Response to Customers' Queries/Requests (written)**

<b>Standard</b>	<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>TOTAL 2007</b>	<b>TOTAL 2006</b>
Time to respond after receipt of queries	Number of written queries/request received	64	96	68	80	<b>308</b>	<b>395</b>
	Number not responded to within 5 working days (breach)	12	9	9	4	<b>34</b>	<b>108</b>
	Percentage Breach (%)	19	9	13	5	<b>11</b>	<b>27</b>
	Compliance Rate (%)	81	91	87	95	<b>89</b>	<b>73</b>
Time to complete investigation and to communicate final position	Number of investigations not completed and communicated within 15 working days (breach)	27	37	30	65	<b>159</b>	<b>295</b>
	Percentage Breach (%)	58	61	56	19	<b>48</b>	<b>75</b>
	Compliance Rate (%)	42	39	44	81	<b>52</b>	<b>25</b>
Time to complete investigation and communicate final position if a third party is involved	Number of investigations requiring with third party involvement.	138	96	121	124	<b>479</b>	<b>728</b>
	Number of investigations with third party involvement, neither completed nor communicated within 30 working days	115	63	59	54	<b>291</b>	<b>592</b>
	Percentage Breach (%)	83	66	49	44	<b>61</b>	<b>81</b>
	Compliance Rate (%)	17	34	51	56	<b>39</b>	<b>19</b>

A main source of complaints against T&TEC was the issue of settling matters requiring third party involvement. The compliance rates for the time to complete investigation and communicate final position if a third party is involved have improved, with the overall annual

compliance increasing to 39%. While T&TEC continues to argue that this part of the standard is out of their control since they have no influence on the length of time taken by the third party to complete its part of the investigation, the actual process by which these claims, particularly ‘damaged appliances’, are made has been improved.

**OES 7: Number of Complaints by Type.**

The number of complaints received by T&TEC is an indicator of the quality of service received by customers. A reduction in the number of complaints should therefore be a reflection of improved customer service. This standard categorizes the complaints into three (3) main categories and requires the following performance levels:

- (a) For billing queries, no more than 500 telephone and/or written complaints per 10,000 customers per annum should be received;
- (b) For Voltage fluctuations/Damaged Appliance queries, no more than 300 telephone and/or written complaints per 10,000 customers per annum should be received; and
- (c) For Street Lights/Poles/Disconnections/Other complaints, no more than 1000 telephone and/or written complaints per 10,000 customers per annum should be received.

From **Table 16**, it can be observed that, in each category, the standard has been achieved. And T&TEC has been achieving full compliance with this standard since its inception. It should be noted that there was a 41% drop in the number of complaints pertaining to street lights/poles/disconnections and other.

**Table 16 - Number of Complaints by Type**

<b>Item</b>	<b>Performance Data 2007</b>	<b>Performance Data 2006</b>	<b>Required performance units</b>	<b>Compliance rate (%) 2007</b>
Number of customers	386,933	375,348		
Number of billing queries complaints	11,416	9,456		
Number of billing queries complaints per 10,000 customers	295	252	<500	<b>100.0</b>
Number of voltage complaints	6,804	5380		
Number of voltage complaints per 10,000 customers	176	143	<300	<b>100.0</b>
Number of street lights/poles/disconnections, other complaints	21,331	36,339		
Number of street lights/poles/disconnections, other complaints per 10,000 customers	551	968	<1000	<b>100.0</b>

**OES 8: Prior Notice of Planned Outages.**

It is necessary for T&TEC to perform maintenance or repair work, on the transmission and distribution system, which may involve the interruption of supply. This standard requires that at least 72 hours advance notice of planned outages be given to customers as a courtesy to customers for the inconveniences that might arise. **Table 17** shows the number of breaches and the compliance rate for OES 8. There were 4243 planned outages for the year 2007, and 2198 planned outages for which 72 hours' notice was not given. This translated into a compliance rate of 48% which was less than the 61% compliance rate achieved in 2006. This decline in performance again highlights the need for considerable improvement by T&TEC in this area. The RIC will raise this issue with T&TEC as this is unsatisfactory performance that affects customers.

**Table 17 - Notice of Planned Outages**

<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>2007</b>	<b>2006</b>
No. of planned outages	932	1210	1177	924	<b>4243</b>	2,564
No. of planned outages for which 72 hours advance notice was not given	506	675	614	403	<b>2198</b>	1,008
Percentage Breach (%)	54	56	52	44	<b>52</b>	39
Compliance rate (%)	45	44	48	56	<b>48</b>	61

**OES 9: Correction of Low/High Voltage.**

By law, T&TEC is required to supply all its customers at specified voltage levels according to customer requirements, and with variations in voltage levels not exceeding six percent (6%) of the nominal voltage level. There are occasions when customers experience voltage level fluctuations to their premises, and this should be corrected by T&TEC in a timely manner. This standard seeks to encourage a prompt response by requiring that voltage complaints be responded to within 24 hours and rectified within 15 working days.

T&TEC's compliance rate for this standard has been consistently high over the period. The total number of voltage complaints received for the year was 2545, while the total number of voltage complaints not responded to within 24 hours was 2, that is, a compliance rate of 99.97%. On the other hand, the number of complaints not rectified within 15 working days was 56 for the year, a compliance rate of 98%. **Table 18** shows the performance under this standard.

**Table 18 - Correction of Low/High Voltage**

<b>Item</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>	<b>2007</b>	<b>2006</b>
Number of voltage complaints received	551	760	667	567	<b>2545</b>	2755
Number of complaints not responded to within 24 hours (breach)	0	0	2	0	<b>2</b>	2
Percentage breach (%)	0	0	0.4	0	<b>0.07</b>	0
Compliance rate (%)	100	100	99.6	100	<b>99.93</b>	100
Number of complaints not rectified within 15 working days (breach)	9	31	4	12	<b>56</b>	115
Percentage breach (%)	2	4	1	2	<b>2</b>	4
Compliance rate (%)	98	96	99	98	<b>98</b>	96

## SECTION 3 SUMMARY AND CONCLUSIONS

### 3.1 Summary of Performance under Guaranteed Standards

There are six Guaranteed Standards, and in only one, GES 4 (Making and Keeping Appointments), T&TEC achieved full compliance, with no breaches for the period under review. Under GES1 (Response and restoration time after unplanned outages) and GES 3 (Reconnection after payment of overdue amounts), T&TEC maintained a compliance rate of over 99%. Its performance under the Guaranteed Standards is presented by looking at compliance rates in **Table 19** below.

**Table 19 - Summary of Compliance – Guaranteed Standards**

Standard		Compliance Rates (%)				
		1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	2007
GES 1 – Response and Restoration Times of Supply after unplanned outages on the distribution system		100.0	100.0	99.9	99.8	99.89
GES 2 – Billing Punctuality	Residential	56.5	14.7	53.2	56.4	49.4
	Non Residential	16.7	14.6	3.8	3.7	10.2
GES 3 – Reconnection after Payment of overdue amount/ agreement		99.7	99.6	98.9	99.9	99.5
GES 4 – Making and Keeping Appointments		100.0	100.0	100.0	100.0	100.0
GES 5 – Time to credit Compensatory Payment	Credit	N/A	N/A	N/A	N/A	N/A
	Complete investigation	N/A	N/A	N/A	N/A	N/A
GES 6 – Connection to supply	Service drop and meter to be installed <30m	99.97	99.92	99.75	99.93	99.88
	Provision of estimate (30 to 100m)	97	97	94	81	94.8
	Complete construction (30 to 100m)	89	86	65	77	80.5
	Provision of estimate (100 to 250m)	100.0	97	80	81	93.5
	Complete construction (100 to 250 m)	83	60	30	13	70.7

N/A – Not applicable since there were no claims made during 2007.

The most breaches occurred in the Guaranteed Standard GES 2 (Billing Punctuality), that is, 72.6% of the total. GES 1 was responsible for 25.7% of the total breaches, followed by GES 6 (Connection to Supply) with 1.2% of the total (**Table 20**).

**Table 20 - Number of Breaches under the Guaranteed Standards by Quarter (2007)**

Standard		1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	2007	% of 2007
GES 1 – Response and Restoration Times of Supply after unplanned outages on the distribution system		277	197	1313	1973	<b>3760</b>	<b>25.7</b>
GES 2 – Billing Punctuality	Residential	2028	2586	2808	3086	<b>10,508</b>	<b>72.6</b>
	Non-residential	20	35	25	26	<b>106</b>	
GES 3 – Reconnection after Payment of overdue amount/ agreement		10	15	39	4	<b>68</b>	<b>0.5</b>
GES 4 – Making and Keeping Appointments		0	0	0	0	<b>0</b>	<b>0</b>
GES 5 – Time to credit Compensatory Payment		0	0	0	0	<b>0</b>	<b>0</b>
GES 6 – Connection to supply		33	42	78	28	<b>181</b>	<b>1.2</b>
<b>TOTAL</b>		<b>2368</b>	<b>2875</b>	<b>4263</b>	<b>5117</b>	<b>14,623</b>	

Based on the number of breaches this year, T&TEC should have been required to compensate customers for 14,623 breaches, which were lower than the 15,447 and 25,145 breaches that occurred in 2006 and 2005 respectively. The RIC estimates that compensatory payments of over \$439,000 would have been due to customers, had claims been made, verified and approved for payment. Although no claims were made during 2007, the potential financial impact of having to pay out that level of compensation has resulted in measures being taken by T&TEC to reduce the number of breaches.



### 3.2 Summary of Performance under Overall Standards

There are nine (9) Overall Standards and there was full compliance in four (4) of these, namely OES 1 (Line faults repaired within 48 hours), OES 3 (Frequency of meter testing), OES4 (Frequency of meter reading) and OES 7 (Number of complaints by type). For the other five Overall Standards, there were breaches over the year 2007. The performance under OES 6 (Response to customer queries/requests) continued to be poor, but performance under OES 8 (Prior notice of planned outages) was the worst among of the overall standards. **Table 21** gives the summary of compliance rates of T&TEC under the Overall Standards for the year 2007.

**Table 21- Summary of Compliance – Overall Standards**

Standard		1 <sup>st</sup> Quarter Compliance Rate (%)	2 <sup>nd</sup> Quarter Compliance Rate (%)	3 <sup>rd</sup> Quarter Compliance Rate (%)	4 <sup>th</sup> Quarter Compliance Rate (%)	Annual Compliance* 2007 (%)
OES 1 – Line faults affecting customers repaired within 48 hours		100.0	100.0	100.0	100.0	100.0
OES 2 – Billing Punctuality		66.3	98.0	95.9	92.9	87.8
OES 3 – Frequency of meter testing		100.0				100.0
OES 4 – Frequency of meter reading		100.0				100.0
OES 5 – System Losses		100.0	00	0.0	0.0	0.0
OES 6 – Response to customer queries/requests (written)	6.1	81	91	87	95	89
	6.2	42	39	44	81	52
	6.3	17	34	51	56	39
OES 7 – Number of complaints by type		100.0				100.0
OES 8 – Prior notice of planned outages		45	44	48	56	48
OES 9 – Correction of low/high voltage complaints	9.1	100.0	100.0	100.0	100.0	99.9
	9.2	98	96	99	98	98

*\*Computed using actual quarterly raw data and NOT based on the average of quarterly compliance rates*

### **3.3 Conclusion**

From the review of T&TEC's performance for the year 2007, it can be stated that their performance has generally improved, with fewer breaches of the Guaranteed Standards than in 2006. Full compliance was achieved in one of the Guaranteed Standards - GES 4, and in four (4) of the Overall Standards - OES 1, OES 3, OES 4 and OES7. In three (3) of the Standards, GES 1, GES 3 and OES 9, T&TEC achieved a performance level of over 98%.

As in 2006, there was an improvement in the performance under the three categories of OES 6 in 2007, but there is still room for improvement. However, T&TEC's performance levels under the following standards, GES 2, OES 2, OES5 and OES 8 continued the decline noticed in 2006.

The RIC continues to liaise closely with the Service Provider to encourage them to strive for greater efficiency and effectiveness in its service to customers. In doing so, the list of Standards is being reviewed, and a revised set of relevant standards is being developed.

The RIC continues to investigate and take action where T&TEC's performance falls below the 'acceptable' level, or where it has deteriorated in comparison with performance in the previous year(s). T&TEC must give the reasons for its poor performance and the actions it proposes to take to improve it. The RIC will insist that T&TEC establish targets for rapid improvement to meet the required standards.

The robustness of systems for recording information on standards is critical. Currently, the RIC is uncertain as to the quality of information provided by T&TEC. Consequently, the RIC intends to appoint an independent professional consultant (normally referred to as a Reporter) to assess T&TEC's procedures for collecting information and the reliability of that information

## APPENDIX 1

**Table A1** presents a description of the Guaranteed Standards, the required performance units, and the compensatory payment levels for each standard.

**Table A1 - Guaranteed Standards**

Code	Service Description	Performance Measure	Required Performance Units	Payments per Customers *
GES1	Response and restoration time after unplanned (forced) outages on the distribution system.	Time for restoration of supply to affected customers	Within 12 hours  For each further 12 hr period	\$30 (residential) \$200 (non-residential)  \$20
GES2	Billing Punctuality (new customers)	Time for first bill to be mailed after service connection: (a) Residential  (b) Non-Residential	65 days  35 days	\$30 (residential)  \$200 (non-residential)
GES3	Reconnection after payment of overdue amounts or agreement on payment schedule	Time to restore supply after payment is made (All customers)	Within 24 hours	\$30 (residential) \$200 (non-residential)
GES4	Making and keeping appointments	Where required, appointments will be made on a morning or afternoon basis	Failure to give 24 hours notice of inability to keep the appointment	\$30 (residential) \$200 (non-residential)
GES5	Compensatory payment	(i) Time to credit compensatory payment after non-compliance (ii) Time to complete investigation, determine liability and make payment after receiving a claim.	Within 35 working days Within 35 working days	\$30 (residential) \$200 (non-residential)
GES6	Connection to supply:  Under 30 metres 30 to 100 metres 30 to 100 metres 100 to 250 metres  100 to 250 metres	Service drop and meter to be installed: (a) Provision of estimate (subject to all documents being provided) (b) Complete construction (after payment is made) (a) Provision of estimate (subject to all documents being provided)  (b) Complete construction (after payment is made)	Within 3 working days. Within 5 working days. Within 15 working days. Within 7 working days.  Within 20 working days.	\$30 (residential) \$200 (non-residential)

**Table A2** presents a description of the Overall Standards and the required performance units for each standard.

**Table A2 - Overall Standards**

<b>Code</b>	<b>Description</b>	<b>Required Performance Units</b>
OES1	Line faults repaired within a specified period (for line faults that result in customers being affected)	100% within 48 hours
OES2	Billing punctuality	98% of all bills to be mailed within ten (10) working days after meter reading or estimation
OES3	Frequency of meter testing	10% of industrial customers' meters tested for accuracy annually.
OES4	Frequency of meter reading	(c) 90% of industrial meters should be read every month  (d) 90% of residential and commercial meters read according to schedule
OES5	System revenue losses (difference between energy received and energy for which revenue is derived)	7.5 % of total energy delivered to customers
OES6	Response to customer queries/requests (written)  (a) Time to respond after receipt of queries.  (b) Time to complete investigation and to communicate final position  (c) Time to complete investigation and communicate final position if third party is involved (e.g. insurance claim.)	Within 5 working days  Within 15 working days of inquiry  Within 30 working days after third party actions completed
OES7	Number of complaints to TTEC by type: (c) Billing queries  (d) Voltage Fluctuations/Damage  (e) Street Lights/ Poles/Disconnections/Other	(a) 500 telephone and/or written complaints per 10,000 customers per annum  (b) 300 telephone and/or written complaints per 10,000 customers per annum  (c) 1000 telephone and/or written complaints per 10,000 customers per annum
OES8	Prior Notice of planned outages	At least 72 hours (3 days) advance notice of planned outages 100% of the time
OES9	Correction of Low/ High Voltage complaints	All voltage complaints to be responded to within 24 hours and rectified within 15 working days

## APPENDIX 2

**Table A3** shows the compliance rates of the Trinidad and Tobago Electricity Commission with respect to the Guaranteed Standards for Electricity Transmission and Distribution for the period January 2005 to December 2007.

**Table A3 – Compliance Rates (%) for Guaranteed Standards from January 2005 to December 2007**

Standard Code	2005				2006				2007			
	Jan to March	April to June	July to Sept	Oct to Dec	Jan To March	April to June	July to Sept	Oct to Dec	Jan To March	April to June	July to Sept	Oct to Dec
GES 1	99.7	98.1	99.8	99.6	99.9	99.9	99.9	99.9	100.0	100.0	99.9	99.8
GES 2a	96.9	100.0	100.0	100.0	50.5	37.4	44.1	51.9	56.5	14.7	53.2	56.4
GES 2b	75.0	100.0	90.6	100.0	53.8	75.0	17.9	28.6	16.7	14.6	3.8	3.7
GES 3	98.5	99.4	99.3	100.0	99.5	99.8	100.0	99.8	99.7	99.6	98.9	99.9
GES 4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GES 5a	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	N/A	N/A	N/A	N/A
GES 5b	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	N/A	N/A	N/A	N/A
GES 6a	99.0	99.7	99.4	99.4	99.7	95.7	99.4	83.5	100.0	100.0	100.0	100.0
GES 6b	66.0	70.9	73.2	88.6	79.3	99.0	73.2	98.0	97	97	94	81
GES 6c	84.5	70.9	67.9	83.3	83.6	89.8	67.9	94.4	89	86	65	77
GES 6d	100.0	76.0	71.4	95.0	86.5	92.0	71.4	80.6	100.0	97	80	81
GES 6e	83.3	64.0	80.0	85.0	94.6	64.0	80.0	77.8	83	60	30	13

**Table A4** shows the compliance rates of the Trinidad and Tobago Electricity Commission with respect to the Overall Standards for Electricity Transmission and Distribution for the period January 2005 to December 2007.

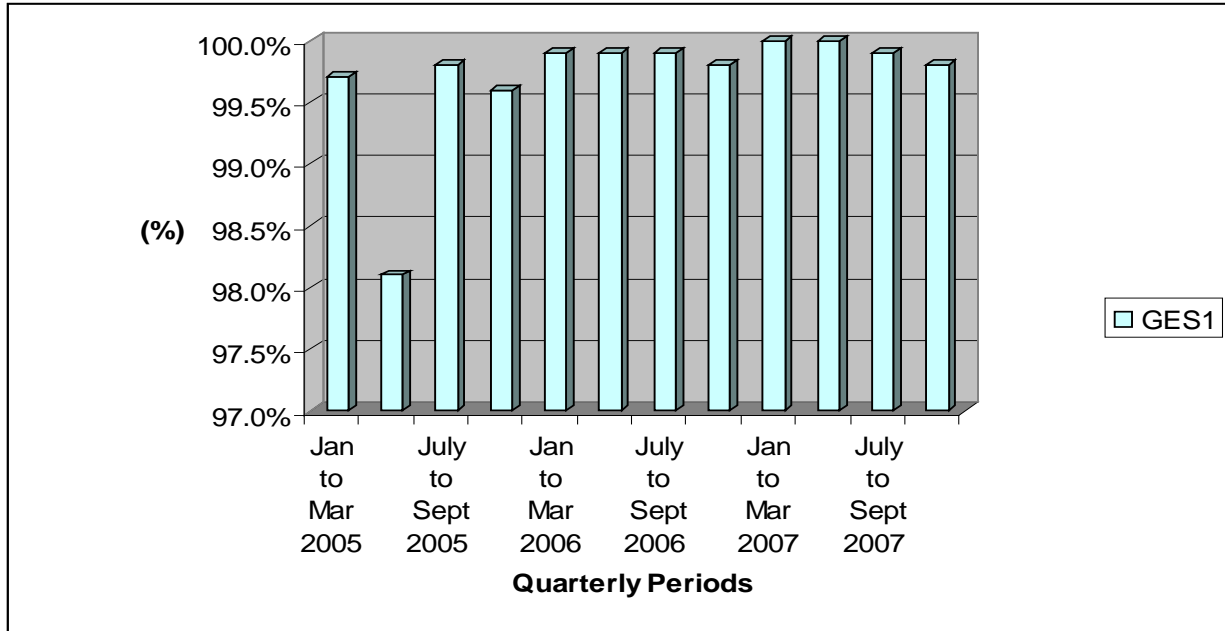
**Table A4 - Compliance Rates for Overall Standards from January 2005 to December 2007**

Standard Code	2005				2006				2007			
	Jan to March	April to June	July to Sept	Oct to Dec	Jan to March	April to June	July to Sept	Oct to Dec	Jan to March	April to June	July to Sept	Oct to Dec
OES 1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
OES 2	97.0	100.0	100.0	100.0	83.9	104.0	73.2	103.4	66.3	98.0	95.9	92.9
OES 3	100.0				100.0				100.0			
OES 4a	100.0				100.0				100.0			
OES 4b	100.0				100.0				100.0			
OES 5	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	100.0	00	0.0	0.0
OES 6a	61.7	46.9	32.5	32.9	47	89	87	84	81	91	87	95
OES 6b	96.0	13.5	7.1	8.2	21	23	33	28	42	39	44	81
OES 6c	-	-	-	-	9	31	16	19	17	34	51	56
OES 7a	100.0				100.0				100.0			
OES 7b	100.0				100.0				100.0			
OES 7 c	100.0				100.0				100.0			
OES 8	76.3	76.2	78.5	67.3	52.0	56.0	53.0	79.0	45	44	48	56
OES 9a	99.1	99.8	99.1	99.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
OES 9b	93.4	98.5	92.6	93.7	94	97	96	96	98	96	99	98

*Note: A dash indicates that the data was not provided.*

These charts give a visual representation of the performance of T&TEC by indicating the compliance rates for selected standards for the period January 2005 to December 2007.

**Figure A1- Compliance Rate for GES 1**



**Figure A2- Compliance Rate for GES 2**

