



**QUALITY OF SERVICE STANDARDS
ANNUAL PERFORMANCE REPORT
2009**

**ELECTRICITY TRANSMISSION AND
DISTRIBUTION SECTOR**

Classification: Information Document
Distribution: Public/Stakeholders
Reference No. TO/03/10
Publication Date: May 2010

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EXECUTIVE SUMMARY

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

This is the sixth Annual Performance Report by the RIC, and its purpose is to present an analysis of the performance of the Trinidad and Tobago Electricity Commission (T&TEC) with respect to the established Quality of Service Standards, over the four quarterly periods from January to December 2009. The report examines 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.

The RIC has also set revised standards that contain several improvements over the existing standards. These were implemented from April 2010 and the changes will be evident from the next annual report.

Summary of Performance under Guaranteed Standards

Guaranteed Standards are those that 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, six (6) Guaranteed Standards exist for T&TEC.

In 2009, T&TEC recorded 15,973 breaches for which they would have been required to compensate customers. This figure represents a 33% decline in breaches compared to those recorded in 2008. Guaranteed Standard, GES 2, accounted for the highest number of breaches,

10,969 or 69%, while the next highest number of breaches was 4,162 or 26% under GES 1. Together, these two standards accounted for 95% of all of the breaches.

As in 2008, no claims were received under GES 5 during 2009 and hence there was no opportunity to assess T&TEC's performance under this standard. Based on the number of breaches, the RIC estimates that at minimum, compensatory payments of \$479,190 would have been due to customers if claims were made and payments approved. However, there were no claims made in 2009. This situation should improve shortly, as automatic compensatory payments for most of the Guaranteed Standards is one of the new features of the revised Quality of Service Standards which were implemented from April 2010.

There has been an improvement in T&TEC's performance under three of the Guaranteed Standards (GES 1, GES 4 and GES 6) for the period January to December 2009 when compared with the previous year. The following table presents the assessment of T&TEC's performance against the established Guaranteed Standards for 2009.

Table I - Compliance under Guaranteed Standards

Code	Service Description	Performance Measure	2009 Compliance Rates (%)
GES1	Response and restoration time after unplanned (forced) outages on the distribution system.	Time for restoration of supply to affected customers	99.8
GES2	Billing Punctuality (new customers)	Time for first bill to be mailed after service connection: (a) Residential	49.0
		(b) Non-Residential	23.3
GES3	Reconnection after payment of overdue amounts or agreement on payment schedule	Time to restore supply after payment is made (All customers)	97.01
GES4	Making and keeping appointments	Where required, appointments will be made on a morning or afternoon basis	99.7
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:	Service drop and meter to be installed	98.2
	Under 30 metres		
	30 to 100 metres	(a) Provision of estimate (subject to all documents being provided)	99.1
	30 to 100 metres	(b) Complete construction (after payment is made)	97.3
	100 to 250 metres	(a) Provision of estimate (subject to all documents being provided)	94.0
	100 to 250 metres	(b) Complete construction (after payment is made)	90.4

*N/A – Not Applicable

Summary of 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.

With respect to the Overall Standards, there was full compliance with three of them - OES 1 (Line faults repaired within 48 hours), OES 3 (Frequency of meter testing) and OES 4 (Frequency of meter reading). While there were breaches during the period January to December 2009 for the other six Overall Standards, T&TEC's performance under OES 2 (Billing Punctuality), OES 6 (Response to customer queries/requests), and OES 8 (Prior notice of planned outages) were not satisfactory.

An assessment of T&TEC's performance with respect to the Overall Standards is presented in **Table II.**

Table II - Compliance under Overall Standards

Code	Description	Required Performance Units	2009 Compliance Rate (%)
OES1	Line faults repaired within a specified period (for line faults that result in customers being affected)	100% within 48 hours	100.0
OES2	Billing punctuality	98% of all bills to be mailed within ten (10) working days after meter reading or estimation	18.4
OES3	Frequency of meter testing	10% of industrial customers' meters tested for accuracy annually.	100.0
OES4	Frequency of meter reading	(a) 90% of industrial meters should be read every month	100.0
		(b) 90% of residential and commercial meters read according to schedule	100.0
OES5	System revenue losses (difference between energy received and energy for which revenue is derived)	7.5 % of total energy delivered to customers	0.0
OES6	Response to customer queries/requests (written) (i) Time to respond after receipt of queries.	Within 5 working days	87.6
	(ii) Time to complete investigation and to communicate final position	Within 15 working days of inquiry	64.2
	(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 action s completed	52.6
OES7	Number of complaints to TTEC by type: (a) Billing queries	500 telephone and/or written complaints per 10,000 customers per annum	0.0
	(b) Voltage Fluctuations/Damage	300 telephone and/or written complaints per 10,000 customers per annum	100.0
	(c) Street Lights/ Poles/Disconnections/Other	1000 telephone and/or written complaints per 10,000 customers per annum	100.0
OES8	Prior Notice of planned outages	At least 72 hours (3 days) advance notice of planned outages 100% of the time	47.2
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.	98.1

SECTION 1 INTRODUCTION

This is the sixth Annual Performance Report of the RIC on the Quality of Service Standards (QSS) 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 customers of the service providers in key service areas. The QSS for the Electricity Transmission and Distribution Sector were implemented on April 7th, 2004. These standards have been revised and the changes will be evident in the next annual report.

1.1 Purpose of Document

The purpose of this report is to present an analysis of the performance of T&TEC with respect to the QSS over the four quarterly periods, January to December 2009. 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:

- In Section 2, the performance of T&TEC in the areas of each of the Guaranteed and Overall Standards is presented;
- The summary and conclusion are presented in Section 3;
- In Appendix 1, tables of the Guaranteed and Overall Standards with a description of the required performance units, and the compensatory payment levels for the Guaranteed Standard are presented; and
- In Appendix 2, a table and charts showing the compliance rates of the Trinidad and Tobago Electricity Commission with respect to the Guaranteed and Overall Standards for Electricity Transmission and Distribution for the period April 2004 to December 2009 are presented.

SECTION 2 PERFORMANCE REVIEW FOR THE PERIOD JANUARY TO DECEMBER 2009

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, and they generally relate to the relationship between the utility and the individual customer. There are six guaranteed standards. The performance of the service provider in each of these is reviewed below.

GES 1: Response and Restoration Times of Supply.

One way of measuring T&TEC's efficiency is by observing 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. Accordingly, this standard requires that supply be restored to affected customers within 12 hours after an unplanned outage on the distribution system.

There were 10,631 unplanned outages in 2009. It can be observed in **Table 1**, that a low of 601 occurred in January, and a peak of 1,310 in July. As expected, more outages occurred in the second half of the year due to adverse weather patterns at that time of the year. Although there was a 1.6% increase in the number of unplanned outages in 2009 when compared with 2008, it did not increase to the levels that existed prior to that.

Table 1 - No. of unplanned outages for the period January to December 2009

Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	TOTAL (2009)	TOTAL (2008)
North	134	184	163	131	146	131	204	230	122	148	148	150	1891	2270
South	88	128	158	189	185	362	407	246	236	286	242	170	2697	1982
Tobago	70	81	69	70	88	82	141	111	96	94	88	114	1104	1143
East	198	189	201	190	190	210	331	237	225	253	240	216	2680	3134
Central	111	111	125	147	118	207	227	286	221	251	286	169	2259	1937
TOTAL (2009)	601	693	716	727	727	992	1310	1110	900	1032	1004	819	10631	
TOTAL (2008)	984	797	743	826	769	787	972	1077	817	1122	801	771		10466

A breach of GES 1 occurs when the electricity supply to each customer is not restored within 12 hours of the report being received by the utility. 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 shows the number of customers experiencing outages and the number of customer outage incidents >12hours, i.e. breaches. The total number of breaches for 2009 was 4162, as compared to 13,271 in 2008 and 3,760 in 2007. It can be observed that most breaches of the standard (774) occurred in the month of May. The next highest figure was 670, recorded in September.

Table 2 - Response and Restoration Times of Supply - 2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (2009)
No. of customer outage incidents>12 hours	98	65	457	33	774	479	604	203	670	13	505	261	4,162
No. of customers affected by outages	146,523	171,280	228,159	175,758	121,296	192,950	258,772	216,452	162,847	181,072	176,561	167,561	2,199,231
Percentage breach (%)	0.1	0.0	0.2	0.0	0.6	0.2	0.2	0.1	0.4	0.0	0.3	0.2	0.2
Compliance Rate (%)	99.9	100.0	99.8	100.0	99.4	99.8	99.8	99.9	99.6	100.0	99.7	99.8	99.8

Some of the reasons given by T&TEC for unplanned outages included:

- Trees, fallen or contact with overhead lines;
- Defective transformers;
- Broken pole;
- Burst HT and LV conductors;
- Blown transformer fuses and blown HT fuses;
- Burst low voltage wires;

- Defective equipment or absence of equipment/vehicles to respond to trouble calls; and
- Severe weather and torrential rainfall;

Included in the reasons for outages lasting longer than 12 hours were:

- Time of day report was received and crew availability;
- Rain affected repair;
- Poor access to site and poor terrain;
- Awaiting appropriate equipment to conduct repairs;
- Extensive line clearing and tree trimming required;
- High number of trouble reports;
- Bee infested pole; and
- Trinidad And Tobago Police unavailable; and
- Job given low priority.

The total number of customers affected by outages continued to decrease in 2009, from 2,806,735 in 2008 to 2,199,231. This was accompanied by a 69% decrease in the number of breaches from 2008 to 2009. See **Table 3**.

Table 3 – Compliance Rates for GES 1 – 2007 to 2009

	2009	2008	2007
Total no. of customer outage incidents>12 hours	4,162	13,271	3,760
No. of customers affected by outages	2,199,231	2,806,735	3,275,009
Percentage breach (%)	0.2	0.5	0.1
Compliance Rate (%)	99.8	99.5	99.9

GES 2: Billing Punctuality (New customers).

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

As may be seen from **Tables 4a** and **4b**, there was a general decline in the performance under this standard for residential customers, and sustained poor performance with respect to the non-residential customers over the period. T&TEC was unable to meet the standard for billing punctuality in any quarter of the year for both residential and non-residential customers.

The low compliance rates for residential customers have been because of challenges encountered with the implementation of the Advanced Metering Infrastructure (AMI), resulting in delays of the receipt of appropriate information by T&TEC for billing. Other internal administrative challenges affected the billing punctuality for non-residential customers.

Table 4a - Billing Punctuality for Residential Customers

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL 2009	TOTAL 2008
Number of new Residential customers requesting supply	5,361	5,261	4,479	6,405	21,506	21,723
No. of bills not mailed within 65 days (breach)	2,575	2,577	2,409	3,408	10,969	10,246
Percentage breach (%)	48.0	49.0	53.8	53.2	51.0	47.1
Compliance Rate (%)	52.0	51.0	46.2	46.8	49.0	52.8

Table 4b - Billing Punctuality for Non-Residential Customers

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL 2009	TOTAL 2008
Number of new Non-Residential customers requesting supply	53	44	35	48	180	147
No. of bills not mailed within 35 days (breach)	44	32	29	33	138	135
Percentage breach (%)	83.0	72.7	82.9	68.8	76.7	91.8
Compliance Rate (%)	17.0	27.3	17.1	31.2	23.3	8.6

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

T&TEC disconnects customers for the non-payment of arrears. Once these have 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 reconnection of supply after payment of overdue amounts be completed within 24 hours.

As shown in **Table 5**, the compliance rate remained relatively high for this standard in 2009, although some decline was noted from the second to the fourth quarter. From the second quarter of 2009, T&TEC resumed its disconnection policy, which it had put on hold during 2008, resulting in more disconnections in 2009 than in 2008. Seventy-one percent of the disconnected customers made payments or arrangements in 2009 as compared to eighty-two percent of customers who did so in 2008.

Table 5 - Reconnection after Payment of Overdue Amounts or Agreement

Item	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	TOTAL (2009)	TOTAL (2008)
Total Disconnections	0	7,008	8,365	4,408	19,781	10,345
Customers making payments/arrangements	34	5,184	6,465	2,318	14,001	8,458
Number not reconnected within 24 hours	0	2	212	205	419	6
Percentage breach (%)	0.00	0.04	3.28	8.84	2.99	0.07
Compliance Rate (%)	100.00	99.96	96.72	91.16	97.01	99.93

GES 4: Making and Keeping Appointments.

It is sometimes necessary for T&TEC to make appointments to visit customers' premises. In the event that appointments made by T&TEC are not kept, customers are more greatly inconvenienced. The standard requires that 24 hours notice of inability to keep appointments be given to customers. If an appointment is not kept within 30 minutes of specified time, then a breach has occurred.

There was a total of 5,243 appointments made in 2009, a 3% decrease over the figure for 2008. In **Table 6**, we see that sixteen appointments were cancelled with 24 hours' notice being given, and fifteen of the remainder were not kept within 30 minutes of the appointed time. Full

Table 6 – Making and Keeping Appointments

Item	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	TOTAL (2009)	TOTAL (2008)
Number of appointments arranged with customers	1,350	1,385	1,327	1,182	5,243	5,393
Number of appointments not kept within 30 mins of appointed time	0	9	6	0	15	94
Number of appointments cancelled or postponed with 24 hours notice	1	7	4	4	16	59
Percentage breach (%)	0.0	0.7	0.5	0.0	0.3	1.8
Compliance Rate (%)	100.0	99.3	99.5	100.0	99.7	98.2

compliance with this standard was achieved in the first and fourth quarter only. However there was improved performance in the overall compliance during 2009 when compared to 2008.

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. The standard also requires that the time to complete investigation, determine liability and make payment after receiving a claim be within 35 working days.

As in 2008, no claims were received under GES 5 (Time to Credit Compensatory Payments) during 2009 and hence there was no opportunity to assess T&TEC's performance under this standard.

GES 6: Connection to Supply.

Growth and expansion of the system are normal for a utility. New customers may be connected near to appropriate utility infrastructure, while others may require additional work before the connection can be made. This standard sets a time frame to respond to requests for new connection services from the time the request is made to the time of actual connection and requires the following:

- (a) For requests for connections less than 30 metres from T&TEC's network, the service drop and meter should be installed within 3 working days.
- (b) For connections between 30 and 100 metres, the provision of estimate (subject to all documents being provided) should occur within five working days. Time to complete construction after payment is made should be within 15 working days.

(c) For connections between 100 to 250 metres, the provision of estimate (subject to all documents being provided) should occur within seven working days. Time to complete construction after payment is made should be within 20 working days.

As can be observed in **Table 7 (page 10) Item 6a**, the number of supply connections less than 30 meters was on average 3200 for each quarter. The performance during the first three quarters was good with a compliance rate of 100%. The compliance rate during the fourth quarter was 92%, taking the average compliance rate for the year to 98%.

The performance under Item 6b (supply connections requested between 30 to 100 m: estimates not provided within five working days), fluctuated during the year, but was generally better than the performance in 2008. On average, a compliance rate of 99% was achieved for 2009 - a significant improvement when compared with the previous year's performance in this category, where the compliance rate averaged 68.6%.

A similar trend was observed in Item 6c (supply connections requested between 30 to 100 m: jobs not completed within 15 working days). The average compliance rate increased from 56.8% in 2008 to 97% in 2009, with quarterly compliance ranging from 84% to 99%.

There was significant improvement in performance under Item 6d (supply connections requested from 100 to 250 m; estimates not provided within 7 working days), in which the compliance rate ranged from a low of 87% to a high of 100%, with an average of 94% for the year. This can be compared with an average of 74.7% for the same statistic in 2008.

In Item 6e, the compliance rate ranged from a low of 83% to a high of 100%, with an average of 90% for the year. This was also an improvement in the average performance when compared to figures in 2008, in which the compliance rate averaged 69.1% for the year.

Table 7 - Connection to Supply

Guaranteed Standard Code GES 6	Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL (2009)	TOTAL (2008)
6a	No. of supply connections requested <30m	3024	3423	3329	3069	12,845	14629
	No. not connected within 3 working days (breaches)	0	0	0	237	237	8
	Percentage breach%	0.0	0.0	0.0	7.7	1.8	0.1
	Compliance Rate %	100.0	100.0	100.0	92.3	98.2	99.9
6b	No. of supply connections requested – 30 to 100m	90	56	49	345	540	185
	No. of estimates not provided within 5 working days (breaches)	2	1	2	0	5	58
	Percentage breach%	2.2	1.8	4.1	0.0	0.9	31.3
	Compliance Rate %	97.8	98.2	95.9	100.0	99.1	68.6
6c	No. of jobs not completed within 15 working days (breaches)	4	1	8	2	15	80
	Percentage breach%	4.4	1.8	16.3	0.6	2.7	43.2
	Compliance Rate %	95.6	98.2	83.7	99.4	97.3	56.8
6d	No. of supply connections requested – 100 to 250m	24	21	19	19	83	75
	No. of estimates not provided within 7 working days (breaches)	3	2	0	0	5	19
	Percentage breach%	12.5	9.5	0.0	0.0	6.0	25.3
	Compliance Rate %	87.5	90.5	100.0	100.0	94.0	74.7
6e	No. of jobs not completed within 20 working days (breaches)	4	3	1	0	8	21
	Percentage breach%	16.7	14.3	5.3	0.0	9.6	30.9
	Compliance Rate %	83.3	85.7	94.7	100.0	90.4	69.1
	Total No. of Breaches	13	7	11	239	270	186

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 such standards are in place 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 service to customers being affected be repaired within 48 hours. There were no breaches in this standard for the period, with all faults being repaired within 48 hours.

There was a 33% decrease from last year's total of 322 line faults. Of the 216 recorded for 2009, most of them again occurred in the Eastern Distribution Area, followed by the Southern Distribution Area. The line faults were distributed as follows: 114 occurred at the 33kV level, 91 occurred at the 66kV level and 11 at the 132 kV level.

Table 8 - Number of Transmission Line Faults in 2009

Area	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			TOTAL (2009)	TOTAL (2008)
	33kV	66kV	132kV	33kV	66kV	132kV	33kV	66kV	132kV	33kV	66kV	132kV		
North	13	6	0	11	0	0	15	2	0	6	3	0	56	87
South	6	9	0	4	8	0	7	10	0	9	8	0	61	102
Tobago	1	0	0	0	0	0	3	0	0	0	0	0	4	1
East	9	13	1	9	7	1	12	6	1	9	3	0	71	103
Central	0	4	0	0	4	2	0	6	2	0	2	4	24	29
Total	29	32	1	24	19	3	37	24	3	24	16	4	216	322

Table 9 – Number of Transmission Line Faults by Voltage

Voltage	2009	2008	% Decrease
33kV	114	177	36
66kV	91	134	32
132kV	11	11	0
TOTAL	216	322	33

The decrease in the number of faults during 2009 at the 33kV and 66kV levels (as seen in Table 9) may indicate that T&TEC increased maintenance on these areas of the network as recommended by the RIC in its Annual Performance Report 2008.

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 the meters are read according to the meter-reading schedule or readings are estimated. This standard seeks to ensure timely billing and requires that 98% of all bills be mailed to customers within ten working days after meter reading or estimation.

T&TEC's performance worsened under this standard during 2009, with the average compliance rate down from 41.5% in 2008 to 18.4%. T&TEC faced many internal challenges in meeting the requirements of this standard; however, significant improvement was noted in the fourth quarter, as the compliance rate moved from 1% to 49%. The RIC anticipates that this improvement will continue in 2010.

Table 10 - Billing Punctuality

Performance Data	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL (2009)	TOTAL (2008)
Number of meters read and estimated	562,233	640,309	494,560	781,270	2,478,372	2,349,983
Number of bills mailed within 10 working days	15,969	40,169	4,140	375,294	435,572	955,697
Percentage of bills mailed within 10 working days (%)	3	56	1	49	18	40.7
Percentage breach (%)	96.9	93.9	99.0	51.0	81.6	58.5
Compliance rate (%)	3.1	6.1	1.0	49.0	18.4	41.5

OES 3: Frequency of Meter Testing.

Proper functioning meters are important for accurately registering a customer's consumption. This is even more critical for Industrial customers whose electricity consumption is much higher than that of the Residential and Commercial customers. As such, Industrial meters should be checked periodically to ensure continued accuracy. This standard requires that 10% of industrial customers' meters be tested for accuracy annually.

As shown in **Table 11**, the compliance rate for this standard was 100%, as 804 (26%) out of 3123 industrial meters were tested in 2009.

Table 11 – Frequency of Meter Testing

Item	Performance Data	Performance Data
	2009	2008
Number of industrial meters	3,123	3,003
Number of industrial meters tested	804	865
Percentage of industrial meters tested (%)	26	29
Percentage breach (%)	0.0	0.0
Compliance rate (%)	100.0	100.0

OES 4: Frequency of Meter Reading.

The issue of estimated billing has been one of the recurring complaints received from customers; especially when customers receive an estimated bill where an actual bill is due. The goal of the RIC is to have all meters read when scheduled eventually. However, having recognized some of the challenges T&TEC faces, the RIC has designed the standard such that it requires:

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

Table 12 shows the actual number of meters read, percentage breaches and compliance rates in 2009 for all categories of meters. In the case of residential and commercial meters, even though the number of scheduled readings increased by 35%, T&TEC's performance improved and full compliance with the standard was attained with 91.8% of the meters being read. There was a 4%

increase in scheduled monthly readings for industrial meters. T&TEC was able to maintain its compliance at 100% under this standard, having completed 91% of the scheduled meter readings for the year. However, the performance in 2009 declined when compared with that in 2008.

Table 12 - Frequency of Meter Reading

Item	Performance Data 2009	Performance Data 2008
Number of scheduled readings for residential and commercial meters	2,413,972	1,777,514
Number of residential and commercial meters read according to schedule	2,216,889	1,374,124
Percentage of residential and commercial meters read according to schedule	91.8%	77.3%
Percentage breach (%)	0	100
Compliance rate (%)	100	0
Numbers of industrial meters	3,123	3,003
Number of scheduled readings for industrial meters	37,476	36,036
Number of actual readings for industrial meters	33,944	34,245
Percentage of industrial meter readings	91.0%	95.0%
Percentage breach (%)	0.0	0.0
Compliance rate (%)	100.0	100.0

OES 5: System Losses.

System losses arise because of a discrepancy between the amount of energy that is delivered into the system and the amount of energy from which revenue is derived. However, some losses occur because of technical factors, which relate to system design and operation. These can be minimized but not eliminated. Other losses arise from non-technical or administrative causes, from billing and metering, and from the illegal usage of electricity. This standard seeks to encourage T&TEC to reduce technical losses and eliminate sources of unmetered supply so as to improve the efficiency of the electrical system, such that total system losses do not exceed 7.5%.

At the time of implementation of the QSS, “system losses” was defined as the difference between energy received and energy delivered. This difference by quarter is illustrated in **Table 13a**. By this method, the overall system losses for 2009 were 9.3% which is higher than the 7.5% that was set by the standard.

Table 13a- Systems Losses for 2009

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL 2009	TOTAL 2008
Energy purchased from generators (MWH) (A)	1,800,142	1,914,076,	2,047,843	2,098,160	7,871,626	7,731,385
Energy sold to customers (MWH) (B)	1,683,622	1,742,465	1,844,538	1,983,903	7,142,122	7,544,551
System Losses (MWH) (A-B)	116,520	171,611	203,305	114,257	729,504	652,985
System Losses (%)	6.5	9.0	9.9	5.4	9.3	8.4
Percentage breach (%)	0.0	100.0	100.0	0.0	100.0	100.0
Compliance Rate (%)	100.0	0.0	0.0	100.0	0.0	0.0

In its Final Determination, the RIC set a system loss target of 6.75% for the regulatory control period June 1, 2006 to May 31, 2011. The method used to calculate system losses is based on a formula developed by the RIC, which yields a different result from the method specified in the standards. The revised formula follows and the results are listed in **Table 13b**.

$$\text{Systems Losses} = [1 - \text{Energy Billed} / \text{Energy Purchased} * \text{Collections} / \text{Billings}] * 100.$$

Table 13b- Systems Losses for 2009 using RIC formula

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL 2009	TOTAL 2008
Energy Units Billed (kWh)	1,621,554,790	1,692,126,469	1,845,454,481	1,983,902,557	7,143,038,297	7,544,551,186
Energy Units Purchased (kWh)	1,803,116,000	1,922,740,266	2,049,294,000	2,108,961,000	7,884,111,266	7,731,385,000
Collections in \$	551,670,000	620,864,000	572,898,000	698,611,000	2,444,043,000	2,157,585,000
Billings in \$	548,970,360	569,540,731	576,340,720	737,954,392	2,432,806,203	2,243,167,035
System Losses using RIC formula (%)	9.63	4.06	10.48	10.95	8.98	6.14
Percentage breach (%)	100.0	0.0	100.0	100.0	100.0	0.0
Compliance Rate (%)	0.0	100.0	0.0	0.0	0.0	100.0

This formula includes components for Billings and Collections, and is therefore subject to the effects of protracted estimated billing and retroactive billings. These can either inflate or deflate the ‘Energy billed’ figures recorded specific quarters. Using this formula, the overall compliance rate for systems losses was zero, with actual system losses of 8.98%, which is not only above the 7.5% set in the standard, but also above the incentive target of 6.75%.

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 customer service response. As such, this standard sets the following performance metrics with respect to written customer queries or requests:

- (a) The time to respond after receipt of queries be within 5 working days;
- (b) The time to complete investigation and to communicate final position be within 15 working days of inquiry; and

- (c) The time to complete the investigation and communicate final position if third party is involved be within 30 working days after third party actions are completed.

The breaches for each aspect of this standard are shown in **Table 14**. For Item OES 6a, the number of written complaints and queries continued to increase during the year, from 399 in 2008 to 517 in 2009. However, there was some improvement in the performance as the overall compliance rate increased from 72.9% in 2008 to 87.6% in 2009.

For Item OES 6b, the time to complete investigation and communicate final position, T&TEC showed no improvement in performance. The average compliance rate for 2009 was 64.2% as compared to 68.4% in 2008. The highest compliance rate (97.1%) for 2009, was achieved in the fourth quarter, while the lowest, 38.5%, was recorded in the second quarter.

For Item OES 6c, the number of investigations with third party involvement, the compliance rate was highest in the fourth quarter (89.4%) and lowest in the first quarter (19.7%) of 2009. T&TEC had shown some improvement in performance in 2008, however, the performance declined significantly in 2009, with the overall compliance rate decreasing from 73.3% to 52.6% in 2009.

Table 14 – Breaches under OES 6 – Response to Customers’ Queries/Requests (written)

Item	Standard	Description	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	TOTAL (2009)	TOTAL (2008)
OES 6a	Time to respond after receipt of queries	Number of written queries/request received	64	96	150	207	517	399
		Number not responded to within 5 working days (breach)	12	9	19	24	64	108
		Percentage Breach (%)	18.8	9.4	12.7	11.6	12.4	27.1
		Compliance Rate (%)	81.2	90.6	87.3	88.4	87.6	72.9
OES 6b	Time to complete investigation and to communicate final position	Number of investigations not completed and communicated within 15 working days (breach)	37	59	83	6	185	126
		Percentage Breach (%)	57.8	61.5	56.3	2.9	35.8	31.6
		Compliance Rate (%)	42.2	38.5	47.7	97.1	64.2	68.4
OES 6c	Time to complete investigation and communicate final position if a third party is involved (e.g. insurance claim)	Number of investigations with third party involvement.	138	99	174	132	540	454
		Number of investigations with third party involvement, neither completed nor communicated within 30 working days	115	63	64	14	256	121
		Percentage Breach (%)	83.3	63.6	36.8	10.6	47.4	26.7
		Compliance Rate (%)	19.7	36.4	63.2	89.4	52.6	73.3

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 improving customer service. This standard categorizes the complaints into three (3) main groups and requires the following performance levels be attained:

- (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.

- (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.

T&TEC's customer base grew from 399,092 in 2008 to 408,826 customers by December 2009, and there were 32,413 billing queries complaints for the period January to December 2009. This equates to 793 complaints per 10,000 customers – a breach of the standard and a continued decline in performance when compared with 2008 figures. The high number of billing queries.

Table 15 - Number of Complaints by Type

Item	Performance Data 2009	Performance Data 2008	Required performance units	Compliance rate (%) (2009)	Compliance rate (%) (2008)
Total number of customers	408,826	399,092			
Number of billing queries complaints	32,413	24,758			
Number of billing queries complaints per 10,000 customers	793	620	<500	0.0	0.0
Number of voltage complaints	4,892	5,200			
Number of voltage complaints per 10,000 customers	120	130	<300	100.0	100.0
Number of street lights/poles/disconnections, other complaints	16,789	17,715			
Number of street lights/poles/disconnections, other complaints per 10,000 customers	411	443	<1000	100.0	100.0

continued into this year as the challenges with the Advanced Metering Infrastructure (AMI) continued. The number of voltage complaints per 10,000 customers was 120 - well within the required range of 300 complaints per 10,000. Therefore, full compliance was achieved for this standard.

The number of street lights/poles/disconnections/other complaints per 10,000 was also within the requirements of the standard, with 411 complaints per 10,000 customers received

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 for the inconveniences that might arise.

Table 16 gives the number of breaches and the compliance rate for OES 8. There were 3688 planned outages for the year, which were 983 less than the number in 2008. Of this number, there were 1947 planned outages for which 72 hours advance notice was not given. Although there was slight improvement in performance, it was still poor, with the average compliance rate for the year being 47%.

Table 16 - Notice of Planned Outages

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL 2009	TOTAL 2008
No. of planned outages	912	1182	939	655	3688	4674
No. of planned outages for which 72 hours advance notice was not given	488	610	525	324	1947	2858
Percentage Breach (%)	53.5	51.6	55.9	49.5	52.8	61.1
Compliance rate (%)	46.5	48.4	44.1	50.5	47.2	38.9

T&TEC continues to be challenged to verify the instances where notices may have been given to areas where, traditionally, loud speakers are used. Notifications via the print and electronic media have been much easier to record, but a system for accurately capturing data for the other methods of notification is still to be developed.

OES 9: Correction of Low/High Voltage.

T&TEC is required by its Act 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 fluctuations outside of these levels 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.

With respect to the first part of the standard, voltage complaints not responded to within 24 hours, T&TEC's performance was fairly consistent during 2009, where full compliance was achieved up until the fourth quarter 2009. The average overall compliance was maintained at 99% for this year.

The number of complaints not rectified within 15 working days was 47 for the year, representing an average compliance rate of 98%. **Table 17** shows the performance of T&TEC under this standard. Because any occurrence of voltage abnormalities has the potential to cause considerable damage, the RIC would encourage T&TEC to further improve its performance under this standard.

Table 17 - Correction of Low/High Voltage

Item	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL (2009)	TOTAL (2008)
Number of voltage complaints received	551	760	690	477	2478	2529
Number of complaints not responded to within 24 hours (breach)	0	0	0	3	3	28
Percentage breach	0.0	0.0	0.0	0.6	0.1	1.1
Compliance rate	100	100	100	99.4	99.9	98.9
Number of complaints not rectified within 15 working days (breach)	9	31	1	6	47	77
Percentage breach	1.6	4.1	0.1	1.3	1.9	3.1
Compliance rate	98.4	95.9	99.9	98.7	98.1	96.9

SECTION 3 SUMMARY AND CONCLUSION

3.1 Summary of Performance under Guaranteed Standards

With respect to the six Guaranteed Standards, 15,973 breaches were recorded in 2009, for which T&TEC would have been required to compensate customers. This was 33% less than the 23,885 breaches recorded in 2008. The highest number of breaches was 10,969 (69%) for the Guaranteed Standard, GES 2 (Billing punctuality), while the next highest number of breaches was 4,162 (26%) for GES 1(Response and restoration time). Together, these two standards accounted for 95% of all of the breaches. As in 2008, no claims were received under GES 5 during 2009 and hence there was no opportunity to assess T&TEC's performance under this standard. See **Table 18**.

Table 18 - Number of Breaches under the Guaranteed Standards by Quarter (2009)

Standard		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	TOTAL
GES 1 – Response and Restoration Times of Supply after unplanned outages on the distribution system		620	1,286	1,477	779	4,162
GES 2 – Billing Punctuality	Residential	2,575	2,577	2,409	3,408	10,969
	Non-residential	44	32	29	33	138
GES 3 – Reconnection after Payment of overdue amount/ agreement		0	2	212	205	419
GES 4 – Making and Keeping Appointments		0	9	6	0	15
GES 5 – Time to credit Compensatory Payment		N/A	N/A	N/A	N/A	N/A
GES 6 – Connection to supply		13	7	11	239	270
TOTAL		3,252	3,913	4,147	4,664	15,973

*N/A – Not Applicable

Overall, there has been an improvement in T&TEC's performance under three of the Guaranteed Standards (GES 1, GES 4 and GES 6) for the period January to December 2009 when compared with the previous year. **Table 19** below presents T&TEC's performance by looking at compliance rates for the Guaranteed Standards.

Table 19 - Summary of Compliance – Guaranteed Standards (2009)

Standard		Compliance Rates				
		1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	TOTAL
GES 1 – Response and Restoration Times of Supply after unplanned outages on the distribution system		99.9	99.7	99.8	99.9	99.8
GES 2 – Billing Punctuality	Residential	52.0	51.0	46.3	46.8	49.0
	Non Residential	17.0	27.3	17.1	31.3	23.3
GES 3 – Reconnection after Payment of overdue amount/ agreement		100.0	99.96	99.72	91.16	97.01
GES 4 – Making and Keeping Appointments		100.0	99.3	99.5	100.0	99.7
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	100.0	100.0	100.0	92.3	98.2
	Provision of estimate (30 to 100m)	97.8	98.2	95.9	100.0	99.1
	Complete construction (30 to 100m)	95.6	98.2	83.7	99.4	97.3
	Provision of estimate (100 to 250m)	87.5	90.5	100.0	100.0	94.0
	Complete construction (100 to 250 m)	83.3	85.7	94.7	100.0	90.4

*N/A – Not Applicable

Based on the number of breaches, the RIC estimates that compensatory payments of minimum \$479,190 would have been due to customers had claims been made and payments approved. However, no claims were made in 2009. This situation should improve shortly because the revised Quality of Service Standards were introduced from April 2010, which includes automatic compensatory payments for most of the Guaranteed Standards.

3.2 Summary of Performance under Overall Standards

With respect to the Overall Standards, there continued to be full compliance with OES 1 (Line faults repaired within 48 hours), OES 3 (Frequency of meter testing) and OES 4 Frequency of meter reading. For the other six Overall Standards, there were breaches during the period January to December 2009. In OES 5 – System Losses, T&TEC’s performance was generally poor. Breaches were recorded in only one category (Billing Queries) for OES 7 (Number of complaints by type). Though breaches occurred in the last quarter under OES 9 (Correction of low/high voltage complaints), the overall performance was good. Poor performances under OES 2 (Billing Punctuality), OES 6 (Response to customer queries/requests), and under OES 8 (Prior notice of planned outages) continued, with OES 2 deteriorating the most. **Table 20** gives the summary of compliance rates of the performance of T&TEC under the Overall Standards for the year 2009.

Table 20- Summary of Compliance – Overall Standards

Standard		1 st Quarter Compliance Rate (%)	2 nd Quarter Compliance Rate (%)	3 rd Quarter Compliance Rate (%)	4 th Quarter Compliance Rate (%)	TOTAL Compliance Rate (%)
OES 1 – Line faults affecting customers repaired within specified period		100.0	100.0	100.0	100.0	100.0
OES 2 – Billing Punctuality		3.1	6.1	1.0	49.0	18.4
OES 3 – Frequency of meter testing		100.0				100.0
OES 4 – Frequency of meter reading	4a	100.0				100.0
	4b	100.0				100.0
OES 5 – System Losses		100.0	0.0	0.0	100.0	0.0
OES 6 – Response to customer queries/requests (written)	6a	81.2	90.6	87.3	88.4	87.6
	6b	42.2	38.5	47.7	97.1	64.2
	6c	19.7	36.4	63.2	89.4	52.6
OES 7 – Number of complaints by type	Billing Queries	0.0				0.0
	Voltage Complaints	100.0				100.0
	Street lights, poles, other	100.0				100.0
OES 8 – Prior notice of planned outages		46.5	48.4	44.1	50.5	47.2
OES 9 – Correction of low/high voltage complaints	9a	100.0	100.0	100.0	99.4	99.9
	9b	98.4	95.9	100.0	98.9	98.1

3.3 Conclusion

The performance of T&TEC has been mixed for 2009. T&TEC has showed declining performance in the following standards:

- GES 2 – Billing Punctuality;
- GES 3 – Reconnection after Payment of overdue amount/ agreement;
- OES 2 – Billing Punctuality;
- OES 5 – Systems Losses;
- OES 6 – Response to customer queries/requests (written); and
- OES 7 – Number of complaints by type- Billing queries;

T&TEC showed improvement in:

- GES 1 – Response and Restoration Times of Supply after unplanned outages on the distribution system;
- GES 4 – Making and Keeping Appointments
- GES 6 – Connection to supply
- OES 8 – Prior notice of planned outages; and
- OES 9 – Correction of low/high voltage complaints.

The standards listed below have been met consistently by T&TEC with full compliance in every year:

- OES 1- Line faults affecting customers repaired within specified period; and
- OES 3- Frequency of meter testing.

The RIC has set revised standards for T&TEC which contain several improvements over the existing standards. Some Overall Standards have been made into Guaranteed Standards. In addition, compensatory payments due to breaches of the Guaranteed Standards have also been increased, and automatic compensation has been introduced for all the guaranteed standards except GES 1.

The revised standards also include more stringent metrics and introduced new areas in which the performance of the service provider will be monitored. It is hoped that the revised standards would provide greater incentives for the service provider to improve its performance.

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

Code	Description	Required Performance Units
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 2007 to December 2009.

Table A3 – Compliance Rates (%) for Guaranteed Standards from January 2007 to December 2009

Standard Code	2007				2008				2009			
	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	100.0	100.0	99.9	99.8	99.4	99.5	99.2	99.4	99.9	99.7	99.8	99.9
GES 2a	56.5	14.7	53.2	56.4	60.1	63.4	40.1	49.7	52.0	51.0	46.3	46.8
GES 2b	16.7	14.6	3.8	3.7	42.1	6.2	2.5	0.0	17.0	27.3	17.1	31.3
GES 3	99.7	99.6	98.9	99.9	99.9	99.9	100.0	100.0	100.0	99.96	96.72	91.16
GES 4	100.0	100.0	100.0	100.0	42.5	40.0	70.0	100.0	100.0	99.3	99.5	100
GES 5a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GES 5b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GES 6a	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	100.0	100.0	100.0	92.3
GES 6b	97	97	94	81	85.3	71.2	51.3	46.2	97.8	98.2	95.9	100.0
GES 6c	89	86	65	77	80.9	53.8	25.6	46.2	95.6	98.2	83.7	99.4
GES 6d	100.0	97	80	81	77.8	0.0	93.3	55.6	87.5	90.5	100.0	100.0
GES 6e	83	60	30	13	85.2	40.0	73.3	77.8	83.3	85.7	94.7	100.0

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 2007 to December 2009.

Table A4 - Compliance Rates (%) for Overall Standards from January 2007 to December 2009

	2007				2008				2009			
Standard Code	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	66.3	98.0	95.9	92.9	90.4	77.2	0.2	11.5	3.1	6.1	1.0	49.0
OES 3	100.0				100.0				100.0			
OES 4a	100.0				0.0				100.0			
OES 4b	100.0				100.0				100.0			
OES 5	100.0	0.0	0.0	0.0	100.0	00	0.0	100.0	100.0	0.0	0.0	100.0
OES 6a	81.0	91.0	87.0	95.0	77.5	79.9	69.6	67.0	81.2	90.6	87.3	88.4
OES 6b	42.0	39.0	44.0	81.0	63.7	68.4	89.3	50.9	42.2	38.5	47.7	97.1
OES 6c	17.0	34.0	51.0	56.0	79.3	85.9	61.7	74.5	19.7	36.4	63.2	89.4
OES 7a	100.0				100.0				0.0			
OES 7b	100.0				100.0				100.0			
OES 7 c	100.0				100.0				100.0			
OES 8	45	44	48	56	38.0	35.4	38.9	44.6	46.5	48.4	44.1	50.5
OES 9a	100.0	100.0	100.0	100.0	100.0	100.0	98.0	97.6	100.0	100.0	100.0	99.4
OES 9b	98	96	99	98	94.7	97.4	98.0	97.1	98.4	95.9	100.0	98.9

