



***2004 – 2008
Field Accuracy Testing
of
Electric Meters***

March 9, 2010

GRC2011-Ph-I_DR_TURN_022-Q02Atch02



2004-2008 Field Accuracy Testing of Electric Meters

- Here are the test results for all completed field accuracy tests (this includes customer requests, CPUC requests, internal requests, and routine tests):

TEST RESULTS				
Year	Tested Meters	Passing Rate	Failed Slow Rate	Failed Fast Rate
2004	15,797	99.0%	0.7%	0.3%
2005	15,639	99.0%	0.8%	0.2%
2006	14,883	98.4%	1.3%	0.3%
2007	5,337	98.7%	0.9%	0.4%
2008	5,841	98.6%	0.9%	0.5%
TOTAL	57,497	98.8%	0.9%	0.3%

- Here are the test counts for all completed field accuracy tests (this includes customer requests, CPUC requests, internal requests, and routine tests):

TEST COUNTS				
Year	Tested Meters	Passed	Failed Slow	Failed Fast
2004	15,797	15,637	118	42
2005	15,639	15,475	131	33
2006	14,883	14,653	189	41
2007	5,337	5,267	51	19
2008	5,841	5,761	52	28
TOTAL	57,497	56,793	541	163

Note:

- Meters are considered to have failed the accuracy test if the test results are greater than 2% inaccurate.
- Meters fail if either the full load test or the light load test fails.
- Excludes meter tests that were cancelled or left in an "in progress" status.
- Excludes meters that were unable to be accuracy tested.



2004-2008 Field Accuracy Testing of Electric Meters

- Here are the test results by customer class:

TEST RESULTS				
Class	Tested Meters	Passing Rate	Failed Slow Rate	Failed Fast Rate
Agricultural	3,901	98.8%	0.9%	0.3%
Commercial / Industrial	40,181	99.4%	0.5%	0.1%
Residential	12,875	96.9%	2.4%	0.7%
Government	269	98.9%	1.1%	0%
Unidentified	271	98.9%	0.4%	0.7%
TOTAL	57,497	98.8%	0.9%	0.3%

- Here are the test counts by customer class:

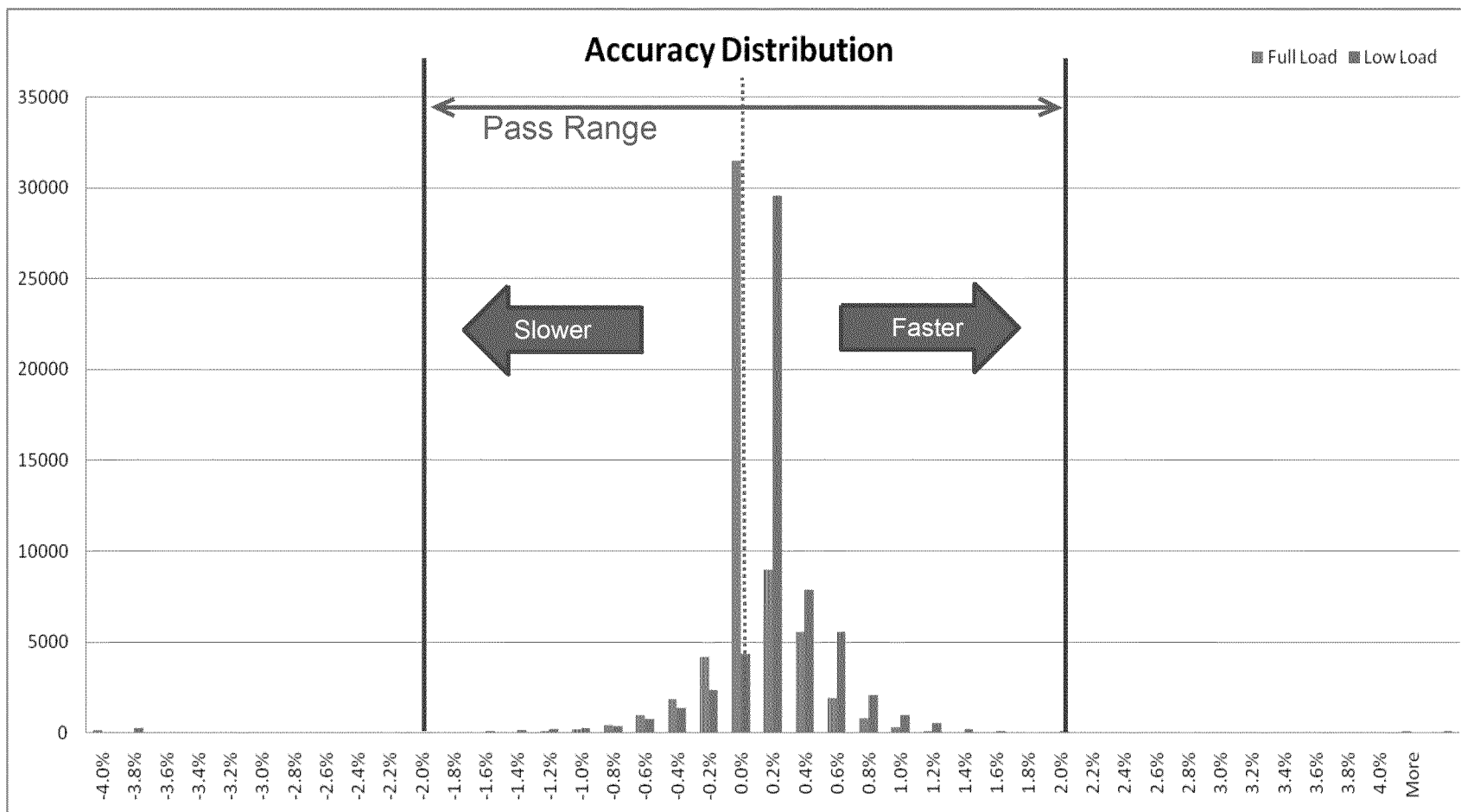
TEST COUNTS				
Class	Tested Meters	Passed	Failed Slow	Failed Fast
Agricultural	3,901	3,855	34	12
Commercial / Industrial	40,181	39,927	191	63
Residential	12,875	12,477	312	86
Government	269	266	3	0
Unidentified	271	268	1	2
TOTAL	57,497	56,793	541	163

Note:

- Meters are considered to have failed the accuracy test if the test results are greater than 2% inaccurate.
- Meters fail if either the full load test or the light load test fails.
- Excludes meter tests that were cancelled or left in an "in progress" status.
- Excludes meters that were unable to be accuracy tested.

2004-2008 Field Accuracy Testing of Electric Meters

The graph below includes all test results from 2004-2008 for field accuracy tests:





2004-2008 Field Accuracy Testing of Electric Meters

Here is the breakdown of the test results for the 704 meters that failed the accuracy test:

Percent Slow	Test Count
2% - 4%	299
4% - 6%	51
6% - 10%	52
10% - 20%	39
20% - 50%	67
50% - 75%	25
75% - 100%	8
Over 100%	<i>(Not Possible)</i>

Percent Fast	Test Count
2% - 4%	59
4% - 6%	25
6% - 10%	21
10% - 20%	12
20% - 50%	7
50% - 75%	6
75% - 100%	4
Over 100%	29

Note: The least accurate reading between the full load and light load test was used.



2004 – 2008 Electric Meter R-Tests Summary

2004 Test Year

Sample No.	Annual MWH (1,000KWH)	No of Customers in Range *	Annual Test	Max Allowable No	Actual No. of	Percent of Meters W/In Specs
						less than 97.5%(see note 1)
a	residential Mech	4,087,239	1,250	21	22	
b	residential Solid	132,467	500	21	2	98.50%
1	0-25	347,362	800	21	10	99.35%
2	25-50	59,007	500	21	7	99.35%
3	50-100	40,562	500	21	10	99.00%
4	100-200	23,158	315	14	5	99.35%
5	200-300	9,127	200	10	2	99.60%
6	300-400	4,465	200	10	1	99.75%
7	400-500	2,780	125	5	1	99.60%
8	500-600	1,690	125	5	1	99.60%
9	600-720	1,197	80	5	0	99.85%
10	721-2,000	5,889	3,414	NA	1	99.97%
11	2,000 & Up	2,845	2,845	NA	4	99.86%
Totals		4,717,788	10,854		66	

Note 1: meter tested outside of the Accuracy limits of 2.5% AQL. An action plan is being formulated to sample the subcategories of meter groups.



2004 – 2008 Electric Meter R-Tests Summary

2005 Test Year

Sample No.	Annual MWH (1,000KWH)	No of Customers in Range *	Annual Test	Max Allowable No	Actual No. of	Percent of Meters W/In Specs
a	residential Mech	4,087,239	1,250	21	38	less than 97.5%(see note 1)
b	residential Solid	132,467	500	21	0	99.75%
1	0-25	347,362	800	21	17	98.50%
2	25-50	59,007	500	21	10	99.00%
3	50-100	40,562	500	21	5	99.60%
4	100-200	23,158	315	14	7	99.00%
5	200-300	9,127	200	10	2	99.60%
6	300-400	4,465	200	10	2	99.60%
7	400-500	2,780	125	5	1	99.60%
8	500-600	1,690	125	5	0	99.90%
9	600-720	1,197	80	5	0	99.85%
10	721-2,000	5,889	3,414	NA	11	99.68%
11	2,000 & Up	2,845	2,845	NA	3	99.89%
Totals		4,717,788	10,854		96	

Note 1: meter tested outside of the Accuracy limits of 2.5% AQL. Additional samples are being tested for the subcategories of meter groups in 2006.

* maintain same population number as of 2004



2004 – 2008 Electric Meter R-Tests Summary

2006 Test Year

Sample No.	Annual MWH (1,000KWH)	No of Customers in Range *	Annual Test	Max Allowable No	Actual No. of	Percent of Meters W/In Specs
a ¹	Residential Mech ²					
	• Elster	944,930	1,250	21	46	less than 97.5% ³
	• Landis/Gyr	747,925	1,250	21	21	99.00%
	• Schlumberger	1,381,602	1,250	21	23	less than 97.5% ³
b ¹	Residential Solid	116,197	500	21	4	99.75%
1	0-25	367,182	800	21	18	98.50%
2	25-50	64,413	500	21	10	99.00%
3	50-100	44,645	500	21	6	99.60%
4	100-200	24,858	315	14	3	99.60%
5	200-300	8,981	200	10	1	99.75%
6	300-400	4,727	200	10	3	99.35%
7	400-500	2,916	125	5	1	99.60%
8	500-600	1,855	125	5	0	99.90%
9	600-720	1,445	80	5	0	99.85%
10	721-2,000	3,561	1,928	NA	2	99.90%
11	2,000 & Up	3,155	2,866	NA	3	99.90%
Totals		5,034,248	11,889		141	

* No of customers in range count is equal to the number of CIS customers with matching EMH records.

footnote 1 : # of customers in range for Sample # a & b compiled March 2007. Sample No. 1-11 compiled October 2006.

footnote 2 : Total No of Customers in Range for Residential Mech was 4,390,313. Residential Mech was broken down into 3 subcategories.

footnote 3 : meter tested outside of the Accuracy limits of 2.5% AQL.



2004 – 2008 Electric Meter R-Tests Summary

2007 Test Year

Sample No.	Annual MWH (1,000KWH)	No of Customers in Range *	Annual Test	Max Allowable No	Actual No. of	Percent of Meters W/In Specs
a	Residential Meter:	4,815,853	-	-	-	-
1	0-720	349,720	-	-	-	-
10	721-2,000	3,413	677	NA	3	99.56%
11	2,000 & Up	3,159	869	NA	3	99.65%
Totals		5,172,145	1,546		6	

Note: For 2007, only RTA(R-Test Annual) and RTB (R-Test Biennial) was tested.

No. of customers in RTA & RTB range tested within 5 yrs.

* No of customers in range count is equal to the number of CIS (Customer Information Systems) customers with matching EMH (Electronic Meter History) records.



2004 – 2008 Electric Meter R-Tests Summary

2008 Test Year

Sample No.	Annual MWH (1,000KWH)	No of Customers in Range *	Annual Test	Max Allowable No	Actual No. of	Percent of Meters W/In Specs
a	Residential Meter:	4,739,263	-	-	-	-
1	0-720	782	-	-	-	-
10	721-2,000	2,808	535	NA	1	99.81%
11	2,000 & Up	4,737	1,012	NA	1	99.90%
Totals		4,747,590	1,547		2	

Note: For 2008, only RTA and RTB was tested.

*No. of customers in Sample No. 1, 10, & 11 range tested within 5 yrs and based on usage for 2008.