



1407 W. North Temple, Suite 310
Salt Lake City, Utah 84116

December 4, 2017

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Wyoming Public Service Commission
2515 Warren Avenue, Suite 300
Cheyenne, Wyoming 82002

Attn: Chris Petrie, Chief Counsel

RE: Rocky Mountain Power Meter Testing Program

Dear Mr. Petrie:

In accordance with the Wyoming Public Service Commission's ("Commission") directive provided at the open meeting on September 12, 2017, Rocky Mountain Power ("the Company") hereby submits an original and four (4) copies of the meter testing program information that the Company proposes to post on its website for customer access.¹

The Company has enclosed a check in the amount of \$5.00 for the Commission's filing fee.

All formal correspondence and Staff requests regarding this matter should be addressed to:

By E-mail (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah, Suite 2000
Portland, OR 97232

With copies to: Stacy Splittstoesser
Wyoming Regulatory Affairs Manager
Rocky Mountain Power
315 W. 27th St.
Cheyenne, WY 82001
stacy.splittstoesser@pacificorp.com

¹ The application before the Commission at the September 12, 2017 open meeting: IN THE MATTER OF THE TARIFF FILING OF ROCKY MOUNTAIN POWER PURSUANT TO REVISED COMMISSION RULES AND REGULATIONS, EFFECTIVE MARCH 21, 2016 (Docket No. 20000-503-ET-16).

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Please do not hesitate to contact Stacy Splittstoesser, Wyoming Regulatory Affairs Manager, at (307) 632-2677 if you have any questions.

Sincerely,



Joelle R. Steward
Vice President, Regulation

Enclosure

PACIFICORP METER TESTING PROGRAM

Purpose

This document outlines the Meter Testing Program for meters within PacifiCorp service territories, including Rocky Mountain Power and Pacific Power. This document will cover the meter test program performed by the company relating to meter performance and accuracy.

Standards for In-Service Performance

Pursuant to ANSI C12.1-2008 Section 5, new meter devices shall be either 100% tested by the utility, sample tested by the utility, or 100% tested by the manufacturer. PacifiCorp requires 100% of new meters to be tested by the manufacturer. Once each month, a company meter shop receiving new meters from the manufacturer will select, inspect, and test one pallet of new, form 2S, 240 volt, kilowatt-hour meters.

Test Program

The Company utilizes a random sampling program to verify meter accuracy according to American National Standards Institute for Electric Meters Code for Electricity Metering (ANSI C12.1-2008) for testing, and the American National Standard Institute Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming (ANSI / ASQ Z1.9-2013) for sampling. PacifiCorp revenue meters are divided into homogeneous test groups based on meter model. A random sample from each homogeneous lot will be selected, tested, and statistically analyzed in accordance with ANSI / ASQ Z1.9-2013 Tables A-2, E-2 and B-3 for a double specification limit, variable unknown, and standard deviation method with 2.5 acceptance quality limit value for upper and lower specification limits combined, Inspection Level II and Normal Inspection. Meters are eligible for the random sample test program after the first year of meter service and annually thereafter.

The Company also tests instrument rated meters periodically depending on the meter billing multiplier. The billing multiplier is determined by the product of the current transformer (CT) and potential transformer (PT) ratios. Periodic tests are performed on any meter with a meter multiplier of 40 or greater. Periodic testing provides a fixed interval of two, eight, and 16 years between tests. The following table determines the frequency of meter testing if a meter is eligible for the periodic test program.

Meter Multiplier	Test Interval
Greater than 600	2 years
80-600	8 years
Greater than 40 and less than 80	16 years

All meters tested in either the random sample or the periodic groups will be tested at both full load and light load utilizing a test reference standard of 0.05%, and the average percentage registration is calculated as four times the full load plus one time the light load divided by five in accordance with Method 1 of ANSI C12.1 – 2008 Section 5.1.5.1. Tightened inspection of a meter lot (or sub lot) that experiences two failures within five consecutive test periods is instituted in compliance with ANSI / ASQ Z1.9-2013 Section A10. Failed tightened inspection lots are retired as soon as feasible or within a time frame determined by the company.

Each meter test is tracked by the meter’s serial number. The company tracks meter location and retains their test records throughout the life of the meter.

Meter Accuracy

Meters will be considered accurate for billing purposes if they register within +/- 2% under test conditions in accordance with ANSI C12.1-2008 Section 5.1.2.2 and state and local rules and regulations.

Meter Test Equipment

Meter testing equipment is certified annually with test equipment traceable to the National Institute of Standards and Technology.

Additional Monitoring and Information

Meters returned from service that are to be re-deployed will be tested prior to being reinstalled. Meters that are outside the acceptable operating standards will be retired from service.

Table A-2¹
Sample Size Code Letters²

Lot Size	Inspection Levels				
	Special S3 S4		General I II III		
2 to 8	B	B	B	B	C
9 to 15	B	B	B	B	D
16 to 25	B	B	B	C	E
26 to 50	B	B	C	D	F
51 to 90	B	B	D	E	G
91 to 150	B	C	E	F	H
151 to 280	B	D	F	G	I
281 to 400	C	E	G	H	J
401 to 500	C	E	G	I	J
501 to 1,200	D	F	H	J	K
1,201 to 3,200	E	G	I	K	L
3,201 to 10,000	F	H	J	L	M
10,001 to 35,000	G	I	K	M	N
35,001 to 150,000	H	J	L	N	P
150,001 to 500,000	H	K	M	P	P
500,001 and over	H	K	N	P	P

¹The theory governing inspection by variables depends on the properties of the normal distribution and, therefore, this method of inspection is only applicable when there is reason to believe that the frequency distribution is normal.

²Sample size code letters given in body of table are applicable when the indicated inspection levels are to be used.

Table B-3

Standard Deviation Method

Master Table for Normal and Tightened Inspection for Plans Based on Variability Unknown
(Double Specification Limit and Form 2—Single Specification Limit)

Sample Size Code Letter	Sample Size	Acceptance Quality Limits (normal inspection)											
		T	.10	.15	.25	.40	.65	1.00	1.50	2.50	4.00	6.50	10.00
		M	M	M	M	M	M	M	M	M	M	M	M
B	3	↓	↓	↓	↓	↓	↓	↓	↓	7.59	18.86	26.94	33.69
C	4	↓	↓	↓	↓	↓	↓	1.49	5.46	10.88	16.41	22.84	29.43
D	5	↓	↓	↓	↓	0.041	1.34	3.33	5.82	9.80	14.37	20.19	26.55
E	7	↓	0.005	0.087	0.421	1.05	2.13	3.54	5.34	8.40	12.19	17.34	23.30
F	10	0.077	0.179	0.349	0.714	1.27	2.14	3.27	4.72	7.26	10.53	15.17	20.73
G	15	0.186	0.311	0.491	0.839	1.33	2.09	3.06	4.32	6.55	9.48	13.74	18.97
H	20	0.228	0.356	0.531	0.864	1.33	2.03	2.93	4.10	6.18	8.95	13.01	18.07
I	25	0.250	0.378	0.551	0.874	1.32	2.00	2.86	3.97	5.98	8.65	12.60	17.55
J	35	0.253	0.373	0.534	0.833	1.24	1.87	2.66	3.70	5.58	8.11	11.89	16.67
K	50	0.243	0.355	0.503	0.778	1.16	1.73	2.47	3.44	5.21	7.61	11.23	15.87
L	75	0.225	0.326	0.461	0.711	1.06	1.59	2.27	3.17	4.83	7.10	10.58	15.07
M	100	0.218	0.315	0.444	0.684	1.02	1.52	2.18	3.06	4.67	6.88	10.29	14.71
N	150	0.202	0.292	0.412	0.636	0.946	1.42	2.05	2.88	4.42	6.56	9.86	14.18
P	200	0.204	0.294	0.414	0.637	0.945	1.42	2.04	2.86	4.39	6.52	9.80	14.11
		.10	.15	.25	.40	.65	1.00	1.50	2.50	4.00	6.50	10.00	
Acceptance Quality Limits (tightened inspection)													

All AQL values are in percent nonconforming. T denotes plan used exclusively on tightened inspection and provides symbol for identification of appropriate OC curve.

↓ Use first sampling plan below arrow; that is, both sample size as well as k value. When sample size equals or exceeds lot size, every item in the lot must be inspected.

Table 1
Matching Code Letters and ANSI/ASQ Z1.9 Sample Size

ANSI/ASQ Z1.9 Sample Size, Normal Inspection, Level II	ANSI/ASQ Z1.9 New Code Letter	ANSI/ASQC Z1.9-1972 (414) Old Code Letter	ANSI/ASQ Z1.4 (105) Matched Code Letter
3	B	B	B
4	C	C	C
5	D	D	D
7	E	E	E
10	F	F	F
15	G	G	G
20	H	H	H
25	I	I	H
35	J	K	J
50	K	M	K
75	L	N	L
100	M	O	M
150	N	P	N
200	P	Q	P