



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

April 26, 2016

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-1166

Attn: Filing Center

RE: UM ____—PacifiCorp's Application for Approval of Revised Metering Test and Inspection Policy

PacifiCorp d/b/a Pacific Power encloses for filing its Application for Approval of Revised Metering Test and Inspection Policy in the above-referenced docket.

If you have questions about this filing, please contact Erin Apperson, Manager Regulatory Affairs, at (503) 813-6642.

Sincerely,

A handwritten signature in cursive script that reads "R. Bryce Dalley" with "ECAA" written in smaller letters to the right.

R. Bryce Dalley
Vice President, Regulation

Enclosure

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM _____

In the Matter of

PACIFICORP d/b/a PACIFIC POWER

Application for Approval of Amended Metering
Test and Inspection Policy under OAR 860-023-
0015(3).

**APPLICATION FOR APPROVAL
OF REVISED METERING TEST
AND INSPECTION POLICY**

I. INTRODUCTION

PacifiCorp, d/b/a Pacific Power (PacifiCorp or Company), respectfully requests that the Public Utility Commission of Oregon (Commission) issue an order approving proposed changes to PacifiCorp's periodic and random meter testing schedule shown in redline in the attached revised version of PacifiCorp's 2015 Meter Asset Management Annual Report (Revised Annual Report). The original version of the report was filed with the Commission on March 31, 2016, in Docket RE 50 (Original Annual Report). The changes set forth in the Revised Annual Report are proposed in connection with PacifiCorp's recent decision to implement advanced metering infrastructure (AMI) in the Company's Oregon service territory. If approved by the Commission, the changes would result in the suspension of periodic and random testing, commencing on January 1, 2016, on customer meters that will be replaced during the planned AMI deployment period, which is 2016 through 2019 (AMI Deployment Period).

II. COMMUNICATIONS

Communications regarding this application should be addressed to:

Oregon Dockets
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232
Email: oregondockets@pacificorp.com

Cynthia Hansen Mifsud
Senior Counsel
PacifiCorp
825 NE Multnomah Street, Suite 1800
Portland, OR 97232
Email: cynthia.hansen@pacificorp.com

1 In addition, the Company requests that all data requests regarding this application be
2 sent to the following:

3 By email (preferred): datarequest@pacificorp.com

4 By regular mail: Data Request Response Center
5 PacifiCorp
6 825 NE Multnomah Street, Suite 2000
7 Portland, OR 97232

8 Informal questions may be directed to Erin Apperson, Regulatory Affairs Manager, at
9 503-813-6642.

10 III. DISCUSSION

11 During the AMI Deployment Period, PacifiCorp plans to replace all¹ existing electric meters
12 in its Oregon service territory with new solid-state electronic AMI meters and implement a
13 fixed two-way communication system. This system will feature automated collection of
14 metering data and functionality that will allow the Company to send electronic signals to each
15 meter. Installation of AMI meters for select, non-residential customers is planned for 2016
16 (which meters will account for approximately three percent of all meters in PacifiCorp's Oregon
17 service territory), with the full deployment of AMI meters expected to commence in 2018 and
18 continue through 2019.

¹ A small number of complex meters will not be replaced during the AMI project and will continue to be tested under the same periodic testing intervals. Examples of complex meter installations include substations, customer generators, and totalized installations.

1 PacifiCorp's meter testing schedules, policies and procedures are submitted to the
2 Commission annually under OAR 860-023-0015(3) and were included in the Original Annual
3 Report. The testing procedures included in the Original Annual Report did not reflect the
4 proposed AMI project. Accordingly, as set forth in the attached Revised Annual Report,
5 PacifiCorp hereby proposes to change its meter testing policies such that the requirements of (i)
6 Section 5.2 regarding in-service random sampling meter testing and (ii) Section 5.3 regarding
7 in-service periodic meter testing will not apply to meters that are scheduled to be replaced with
8 AMI meters during the AMI Deployment Period. A suspension of these requirements will
9 enable PacifiCorp to focus its testing efforts on the accuracy, reliability, and functionality of the
10 new AMI technology.

11 PacifiCorp's testing efforts during the AMI Deployment Period will occur on multiple
12 levels. First, PacifiCorp will require all new AMI meters be tested by the manufacturer before
13 delivery to the Company to ensure the meters meet or exceed the manufacturer specifications.
14 Second, prior to acceptance of the AMI meters from the manufacturer, PacifiCorp will perform
15 first article testing on a sampling of AMI meters to qualify the meters for reliability and
16 accuracy and to ensure they meet all operational requirements. Third, PacifiCorp will also
17 sample test approximately five percent of all AMI meters during deployment using the
18 Company's ANSI Z1.9 inspection level criteria. Any inspection lot found to be outside of
19 acceptable accuracy limits will be held until repaired or recalibrated. Finally, PacifiCorp will
20 test all three-phase instrument rated AMI meters prior to installation.

21 As indicated in the Revised Annual Report, the testing requirements of Section 5.2 and
22 5.3 will continue to apply to meters located in PacifiCorp's service territory in all other

1 jurisdictions (including California, Idaho, Utah, Washington and Wyoming) and will follow the
2 statistical sampling and analysis techniques described in ANSI/ASQC Z1.9, which selects the
3 number of meters to be tested in homogenous groups.

4 In addition, during the AMI Deployment Period, PacifiCorp will continue to test meters
5 upon customer request in accordance with OAR 860-021-0130.

6 Given the rapid deployment planned for the new AMI meters, the need for periodic and
7 random meter testing of existing, soon to be obsolete meters, is no longer a necessary or
8 prudent use of resources. PacifiCorp's testing efforts will be focused on proper implementation
9 of the new technology. Therefore, the temporary suspension of the periodic and random meter
10 testing requirements set forth in Section 5.2 and 5.3 of the Revised Annual Report is appropriate
11 with regard to meters in PacifiCorp's Oregon service territory during the AMI Deployment
12 Period.

13 Following the conclusion of the AMI Deployment Period, all new AMI meters will be
14 subject to the periodic and random meter testing requirements set forth in Sections 5.2 and 5.3
15 of the Revised Annual Report.

16 IV. CONCLUSION

17 For all of the reasons described above, the Company respectfully requests that the
18 Commission approve, with an effective date of January 1, 2016, the revised testing schedule set
19 forth in the attached Revised Annual Report for customer meters located in PacifiCorp's
20 Oregon service territory.

Dated this 26th day of April, 2016.

Respectfully submitted,

By  _____

Cynthia Hansen Mifsud
Senior Counsel
PacifiCorp
825 NE Multnomah, Suite 1800
Portland, OR 97232
Tel. (503) 813-6566



Meter Asset Management

**PACIFICORP 2015
METER ASSET MANAGEMENT
ANNUAL REPORT**

For the period January 1 – December 31, 2015

**Pacific Power and Rocky Mountain Power Divisions
Serving areas of
California, Idaho, Oregon, Utah, Washington, and Wyoming**

March 2016

Submitted by:

Robert D. Simpson, PE, Director – Asset Risk & Strategy

Prepared by:

Meter Asset Management

Adam Yackley, PE, Supervisor, Meter Asset Management

Benjamin N. Whitchurch, Engineer, Metering Standards Engineering

PacifiCorp 2015

METER ASSET MANAGEMENT ANNUAL REPORT

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2015 Report on PacifiCorp Metering

Programs and Procedures to Maintain the Accuracy of Metering

1. SCOPE

1.1. This document contains information describing the programs and procedures that PacifiCorp performs to maintain the accuracy and reliability of its electrical metering system. The meter has been called the 'cash register' of the company, and for that reason, its accuracy and reliability must be ensured. The appendixes of this report contain the data that has been collected, sorted and analyzed specifically to determine the condition, accuracy and reliability of the company's billing metering population. Providing confidence in the metering system is important to the company, to the various state commissions and agencies responsible for reviewing utility operations, and of course, to every customer of PacifiCorp.

1.2. This document describes the procedures for ensuring the accuracy and reliability of newly purchased meters before they are placed in service.

This policy revision incorporates changes reflecting Pacific Power's Advanced Metering Infrastructure (AMI) deployment project in Oregon. The AMI project will provide the installation of new solid-state electronic meters and a fixed two-way communication system that allows the automated collection of metering data and for sending signals to the meter. All AMI meters will be tested by the manufacturer, and installation of the AMI meters will begin in 2016 with full meter deployment to conclude in 2019. Additional meter qualification testing and sample testing will be performed during the AMI deployment to ensure accuracy, reliability, and safety of the new AMI meters.

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~~1.2.1.3.~~ Descriptions of the designs of the two in-service scheduled meter-testing programs: sample and periodic, are contained in this report. The appendixes of this document contain the results of these two annual in-service scheduled meter-testing and inspection programs. These programs are:

- Sample testing and evaluation of randomly selected meters and associated metering installations. This program generally applies to residential and small

commercial customers.

- Periodic testing, inspection and verification of customer metering installations on a set-time interval. This program generally applies to larger commercial, industrial, and agricultural customers.

~~1.3.1.4.~~ This report describes and relies upon nationally recognized publications for the initial valid test-program design. Application of the standards from these publications to the meter testing program results determines whether a meter model or group passes or fails.

~~1.4.1.5.~~ This document contains descriptions of company policies and procedures that apply to meters that no longer meet accuracy and reliability standards.

~~1.5.1.6.~~ This document contains the procedural requirements for the testing and maintenance of the company's hierarchy of standardizing equipment utilized to verify the accuracy of the field test equipment that is ultimately responsible for ensuring the accuracy of the company's customer metering population.

~~1.6.1.7.~~ Other company programs that relate to metering are also described. These programs may relate to energy theft programs or to new technologies designed to bring efficiency to the reading of meters. New types of test equipment and changes in testing programs are also described.

~~1.7.1.8.~~ In summary, this document contains status reports regarding:

- new meter quality assurance
- in-service testing, inspections and verifications
- defective meter analysis
- meter retirement programs
- watt-hour standards maintenance

2. GENERAL

2.1. This document references the following company internal work practices from *Metering Handbook* and *Metering Operations Practices and Procedures (MOPP)*; see Appendix G for selections.

- *MOPP Chapter 3 – Reference Standards*
- *MOPP Chapter 3 Section 1.4 – Corporate Watt-hour Standard Procedure*

- *MOPP Chapter 7 Section 1 – New Residential Meter Verification Policy*
- *MOPP Chapter 7 Section 3 – Meter Testing*
- *MOPP Chapter 7 Section 4 – In-Service Meter Test Program*
- *MOPP Chapter 9 Section 3 – Metering Equipment Retirement*

2.2. This document references the following nationally recognized metering standards:

- Edison Electric Institute – *Handbook for Electricity Metering, 10th Edition* – a guide for terminology and for determining homogeneous meter groupings.
- ANSI C12.1 – *2008 Code for Electricity Metering* – a guide for the testing program design, average registration calculations, and for the testing of standardizing equipment.
- ANSI/ASQC Z1.9 – *2008 Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming* – to determine lot sizes and acceptability criteria for the in-service meter sample-testing program.

3. DEFINITIONS

Acceptability criteria: Accuracy performance characteristics of a homogeneous meter group population. The acceptability criteria are specified by ANSI/ASQC Z1.9, *Part II, Double Specification Limit, Paragraph B 12.1.1*; Acceptable Criterion; Table B-3 Acceptable Quality Level of 2.50%; Table A-2 Inspection Level of G II. See Appendix A – *Sample Meter Test Analysis by Variables – ANSI Z1.9*, for each selected meter group’s performance.

AMI Meter: a solid-state electronic meter which provides for two-way communications to allow the automated collection of metering data and for sending signals to the meter.

As-found condition code (AFCC): This two-letter code describes the condition of the meter installation as initially found by the meterman. The Customer Service System has a field to enter this code for each meter tested. See Appendix D sections 1 and 2 – *Uniquely Defective/As-found Condition Codes*.

Average percentage registration: Per ANSI C12.1–2008; 5.1.5.1 Method 1; FL=full load, LL=light load; weighted percentage registration = $(4FL+LL)/5$.

Billing multiplier: A multiplier applied to the meter’s displayed energy and

demand reads. For most meters, residential and small commercial, the billing multiplier is one. Larger installations have an instrument transformer ratio boosting the multiplier, see Instrument Transformers.

Customer Service System (CSS): The company mainframe system designed to manage metering, billing and other data.

Company: PacifiCorp, which is composed of Pacific and Rocky Mountain Power divisions. Pacific Power serves within the states of California, Oregon and Washington. Rocky Mountain Power serves within the states of Utah, Idaho and Wyoming.

Energy theft: Unauthorized manipulation of a metering service designed to alter consumption data; illegal consumption of electrical energy. Tampering with meter adjustments to cause the meter to not fully register consumption or altering the meter wiring to by-pass registration of the meter are two methods of energy theft.

Failed meter group: A meter group, meter model or serial number range of a meter model that has failed the sample testing criteria for two consecutive years per *MOPP Chapter 9 Section 3.3 – Retirement Policy: Failed Statistical Sampling Test Program Meters*. Failure is defined under *ANSI/ASQC Z1.9-2008 Sampling Procedures and Tables for Inspection by Variables*. Any failed meter groups are presented in Appendix A – *Sample Meter Test Analysis by Variables – ANSI Z1.9*. A meter group or model that passes in subsequent years will remain a failed sample.

High maintenance meter group: A meter group that is failing at an unacceptable rate or is excessively difficult to maintain, per *MOPP Chapter 9 Section 3.4 – Retirement Policy: High Maintenance Meters*.

Homogeneous meter group: A group, model or serial number range of meters produced by a manufacturer with the same model designation of the same design or with the same manufacturing process continuity.

Instrument transformer: Includes current and voltage transformers utilized to meter high currents of 200 amperes + and voltages of 600 volts +. For example, to meter a customer requiring 400 amperes at 12,000 volts requires transforming the

400 amperes to 5 and 12,000 volts to 120. An instrument-rated type meter installed in conjunction with the instrument transformers can then accurately meter the consumption. This customer would have a billing multiplier applied to his meter readings of $400/5 \times 12,000/120 = 8,000$.

Meterman: PacifiCorp craft designation for personnel trained to inspect, wire and test meters and associated metering equipment.

Obsolete meter group: Meter group found to be defective mechanically or electrically and failing at a determined higher than normal rate. Age (wear) or outdated design and materials may cause failure rate.

Periodic Test Program: Meters selected for testing and site verification on a time interval. The time interval may be determined by load, energy consumption, billing multiplier, or some combination of these quantities.

Sample Test Program: Meter samples randomly selected for testing within each homogeneous group. Meters included in the Periodic Test Program are precluded from selection in the Sample Test Program. Test results are analyzed according to ANSI Z1.9.

Site verification: Verifying wiring, instrument transformer ratio, and taking phase angle measurements at the customer-metering site.

Special problem meter group: A group that suffers failure due to manufacturer defects per *MOPP Chapter 9 Section 3.5 – Retirement Policy: Special Problem Meters*

Uniquely defective meter: A meter with unusable test results, including meters with broken covers, missing test data, test results outside of 10%, and meters that are inaccessible for testing. See definition for as-found condition code.

4. NEW METER QUALITY ASSURANCE

- 4.1. The company requires the meter manufacturers to provide test data for all new meters purchased, *MOPP Chapter 7 Section 3 – Meter Testing*. The meter manufacturers test all new single and polyphase meters before being shipped to

the company and provide certified test data for these meters. The company analyzes the new meter certified test data to ensure that accuracy specifications are met.

- 4.2. For new residential type meters, *MOPP Chapter 7 Section 1 – New Residential Meter Verification Policy*, the company has an additional Quality Assurance (QA) sample evaluation and testing program. The company’s Meter Test Facility and certain field meter shops are selected to inspect and test a pallet of 96 or more new residential meters on a rotational basis. If a quantity of meters does not meet the accuracy and analysis criteria, the entire shipment may be rejected and returned to the manufacturer. The manufacturer’s facilities will come under greater scrutiny by company personnel for quality control.

Quality assurance testing is conducted in order to assure:

- The quality of the new meters delivered meets company expectations and specifications.
- Meter transport and handling is not causing accuracy loss or other problems.
- The accuracy standardization process between the company and the manufacturer agrees.

- 4.3. For all new instrument-rated meters, the company has a QA evaluation and testing program to verify accuracy. All new single-phase and polyphase instrument-rated meters are tested either before or within 90 days of installation.

5. IN-SERVICE METER TESTING PROGRAMS – SAMPLE and PERIODIC

5.1. SELECTION CRITERIA CHANGES

- The company continues to have two in-service meter testing programs: the Sample Meter Test Program and the Periodic Meter Test Program. The program selection is based on the billing multiplier divisions. The two meter programs with billing multiplier divisions and quantities are:

<u>Test Program</u>	<u>Multiplier Division</u>	<u>Quantity Selected</u>
Sample	less than 40	5705 meters
Periodic	equal to or greater than 40	4551 meters

- All meters selected for testing are posted on CSS as in the past. For better balance and planning of daily work, scheduled meter tests are distributed to the metermen via the company's Mobile Workforce Management (MWM) system. The MWM system can efficiently allocate quantities of meters on a daily basis within each meterman's designated work area.

5.2. SAMPLE METER TEST PROGRAM

- Oregon AMI Deployment Project - For the years 2016 through 2019, in-service random sample meter testing will not be performed for Pacific Power meters in Oregon being replaced under the AMI meter deployment program.
- PacifiCorp will continue The-its sample testing program for all jurisdictions, except Oregon as stated above, which will continue to follow the statistical sampling and analysis techniques described in the American National Standard, ANSI/ASQC Z1.9, which selects the number of meters to be tested in homogeneous groups and describes the steps for analysis.
- Random samples of in-service electric meters with billing multipliers less than 40 are selected. The meters are divided into homogeneous meter groups. Manufacturer, model, and manufacturer's serial number are utilized to group the meter populations selected for sample testing and subsequent analysis. The test results are analyzed as outlined by:
 - ANSI C12.1 – 2008 Code for Electricity Metering which provides the requirements for the sample testing program and average percentage registration definition as described in *Method 1 – weighted-average values*.
 - ANSI/ASQC Z1.9 – 2008 Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming, which provides sampling quantities and acceptability criteria for the various meter groupings.
- As in prior years, the sample meter groups tend to be self-contained with most having billing multipliers of one and set on either residential or small commercial customers. Meters with a billing multiplier of 40 or greater are included in the Periodic Meter Test Program.
- The quantities of sample meters for the total company and for each state are

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shown in Appendix B – *Sample Meter Populations*. The percentage of total meter populations is also provided.

- Meter accuracy evaluation results are included in Appendix A – *Sample Meter Test Analysis by Variables – ANSI Z1.9*. A graphical representation of the results is included in Appendix C – *Sample Meter Test Histogram Graphs*.
- The number of sample meter tests scheduled and completed is shown in Appendix E – *Scheduled Meter Test Counts*.
- Examples of evaluation results for past years:
 - For more than two consecutive years GE models I-14, I-16 and I-20 did not meet ANSI Z1.9 criteria and failed the Sample Meter Test Program. All GE models I-14, I-16 and I-20 have now been removed from service.
 - For two consecutive years, 2010 and 2011, the Westinghouse model D5S meters did not meet ANSI Z1.9 criteria and failed the Sample Meter Test Program. This meter model is listed with instructions to “retire the meter whenever a site is visited and to retire any in stock”. PacifiCorp’s retirement program helps ensure removal of these meters from service on a timely basis.
 - For two consecutive years, 2011 and 2012, the General Electric model EV meters did not meet ANSI Z1.9 criteria and failed the Sample Meter Test Program. This meter model is listed with instructions to “retire the meter whenever a site is visited and to retire any in stock”. PacifiCorp’s retirement program helps ensure removal of these meters from service on a timely basis.

5.3. PERIODIC METER TEST PROGRAM

- Oregon AMI Deployment Project - For the years 2016 through 2019, in-service periodic meter testing will not be performed for Pacific Power meters located in Oregon that are being replaced under the AMI meter deployment program.
- PacifiCorp will continue its periodic test and site verification program for all

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jurisdictions, except Oregon as stated above. The company's periodic testing and site verification program is generally derived from American National Standard, ANSI C12.1-2008, Appendix D, with specific company selection criteria based on meter billing multiplier.

- The periodic testing and site verification program is divided into 2-, 8- and 16-year test intervals based on billing multiplier. This program is designed to ensure proper and accurate metering equipment operation for customers with larger billing multipliers. Meters with billing multipliers less than 40 are included in the Sample Meter Test Program.

<u>Test Interval</u>	<u>Multiplier Division</u>
2-Year	greater than or equal to 600
8-Year	greater than or equal to 80 and less than 600
16-Year	greater than or equal to 40 and less than 80

- At each meter site, the company meterman conducts an inspection, looking for any evidence of deterioration, wiring problem, tampering, theft or unsafe conditions. Site verification tests are performed to verify wiring, instrument transformer ratios and burden performance, current to voltage phase relationships or power factor, and meter accuracy. The Customer Service System (CSS) is also reviewed to verify correct tariff, metering multiplier and other information that ensures accurate billing.
- For the number of periodic meter tests scheduled and completed see Appendix E – *Scheduled Meter Test Counts*.

6. UNIQUELY DEFECTIVE METER ANALYSIS

- 6.1. When visiting the sample and periodic test meter sites, the meterman assigns “as-found condition codes” based on what is determined to be the initial condition of the metering installation.
- 6.2. These two-letter as-found condition codes are analyzed and evaluated for trends as part of a Uniquely Defective Meter Analysis Program; see Appendix D sections 1 and 2 – *Uniquely Defective/As-found Condition Codes*. The company’s Meter Asset Management group evaluates the Uniquely Defective/As-found Condition

meter lists developed from the sample and periodic testing programs.

- 6.3. The evaluation process is intended to identify meter groups with design or manufacturing problems as well as those developing a history of poor performance. The evaluation includes the analysis of design or manufacturing deficiencies that could eventually lead to accuracy or meter failure problems. Meter groups with problems are identified and, if appropriate, incorporated into a retirement program.
- 6.4. The analysis includes examination of any logical sub-groups within homogeneous groups, geographic areas, serial number ranges, meter age and consultations with the meter manufacturers.

7. METER RETIREMENT PROGRAMS

- 7.1. The company's Meter Asset Management group evaluates the Sample Test Program, Appendix A, as well as the Uniquely Defective/As-found Condition Codes for both the Sample and Periodic Test Programs, Appendix D sections 1 and 2, to determine if a retirement program should be established for any identifiable meter groups, models or subgroups.
- 7.2. Some meter models and groups are given a meter retirement code in which a meter, within the model or group definition, is to be removed from service whenever the meter site is visited by a journeyman meterman or single phase specialist and to retire any of these meters that remain in stock. Meters with this retirement code are Appendix G, *MOPP Chapter 9 Section 3*.

8. WATT-HOUR STANDARDS

- 8.1. The company's Meter Asset Management department maintains a certification program for watt-hour standards as specified in ANSI C12.1 – 2008 *Section 3* and the PacifiCorp *MOPP Chapter 3 Section 1*.
- 8.2. The company maintains a basic watt-hour reference standard, the RD-22 Reference Standard, that is certified annually with an approved testing laboratory traceable to the National Institute of Standards and Technology (NIST). The RD-

22 Reference Standard is kept at the Portland Meter Engineering Shop and is maintained and operated by the local meterman.

- 8.3. The company certifies portable reference standards to the company's transfer standard every three months, as specified in the PacifiCorp *MOPP Chapter 3 Section 1.4 - PacifiCorp Watt-hour Standard Procedure*. These portable standards have an accuracy rating of 0.025% and are carried by the Meter Asset Management department's metering administrators to recertify each meterman's test board standard annually to an accuracy rating of 0.05%.

9. ENERGY THEFT and REVENUE PROTECTION

- 9.1. The Metermen submit a report on metering problems that may have resulted in a billing error. The type of meter problem, calculated dollar losses, and the resolution on collection of the losses are documented.
- 9.2. Each meterman has access to an instrument, which can be used to detect illegal taps in underground services. The instrument is plugged into the customer's meter socket and readings are taken and interpreted.

10. ~~2015-2016~~ METERING (January 1, ~~2015-2016~~ to December 31, ~~2015~~2016)

10.1. Off-site Meter Reading (OMR) – The meter department continues its policy to install AMR-type meters as replacements, in new installations, and difficult-to-access locations throughout ~~the~~ California, ~~and~~ Idaho, ~~and~~ Oregon service areas. These meters transmit a register value which is received by the meter reader's handheld devices as the reader follows the route past these residences and businesses, no longer needing to access the backyards to deal with dogs or other safety hazards.

10.2. Oregon AMI Deployment Project - As a part of the AMI meter deployment program beginning 2016 and continuing through 2019, Pacific Power will require that all (100%) new AMI meters be tested by the manufacturer prior to deliver to the Company to ensure that the meters meet or exceed the manufacturer's

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specifications.

Prior to acceptance of the manufactures meters, Pacific Power will perform First Article Testing (FAT) on sample AMI meters to qualify the meters for reliability, accuracy, and ensure they meet operational requirements.

Pacific Power will sample test AMI meters during deployment using ANSI Z1.9 inspection level criteria, which will result in approximately 5% of the total meters being tested by Pacific Power Journeyman Metermen. Any inspection lot found to be outside acceptable accuracy limits will be held until repaired or recalibrated.

Pacific Power Journeymen Meterman will test all Three-Phase Instrument rated AMI meters prior to installation.