Meters, Revenue						
Component Classification Categories						
Criticality	I	X				Nuclear Switchyards
	II		X			Non-nuclear Switchyards and Transmission Substations
	III			X		All other applications
Duty Cycle	Heavy Load	N/A	N/A	N/A		
	Normal Load	N/A	N/A	N/A		
Service Condition	In Service	X	X	N/A		
	Spare	N/A	N/A	N/A		

Condition Monitoring Tasks	**Task Frequencies**			**Failure Codes**	**Comments**
None	**N/A**	**N/A**	**N/A**	**N/A**	
Time Directed Tasks	**Task Frequencies**			**Failure Codes**	**Comments**
None	**N/A**	**N/A**	**N/A**	**N/A**	
Failure Finding Tasks	**Task Frequencies**			**Failure Codes**	**Comments**
Physically inspect meter and record meter data	**2Y**	**1Y**	**N/A**	**1b, 1c, 2c**	
Perform proper source voltage check	**2Y**	**1Y**	**N/A**	**1a, 1e, 2a**	
Perform meter accuracy test	**2Y**	**1Y**	**N/A**	**1c, 1d,**	
Perform visual wire inspection	**2Y**	**1Y**	**N/A**	**1e, 2a, 2b**	
Condition Directed Tasks	**Task Frequencies**			**Failure Codes**	**Comments**
None	**N/A**	**N/A**	**N/A**	**N/A**	

REVENUE METER FAILURE MODES

FAILURE MODE	FAILURE CAUSES	MAINTENANCE TASKS
1. Incorrect metering data	1a. Potential Transformer	Perform proper source voltage check
1. Incorrect metering data	1b. Meter hardware	Physically inspect meter and record meter data
1. Incorrect metering data	1c. Incorrect meter programming	Perform meter accuracy test
1. Incorrect metering data	1c. Incorrect meter programming	Physically inspect meter and record meter data
1. Incorrect metering data	1d. Incorrect meter registration	Perform meter accuracy test
1. Incorrect metering data	1e. Incorrect or faulty wiring	Perform visual wire inspection
1. Incorrect metering data	1e. Incorrect or faulty wiring	Perform proper source voltage check
2. No meter data	2a. Fuses	Perform visual wire inspection
2. No meter data	2a. Fuses	Perform proper source voltage check
2. No meter data	2b. Meter hardware/components	Perform visual wire inspection
2. No meter data	2c. Defective meter	Physically inspect meter and record meter data

REVENUE METER
TASK DEFINITIONS

TASK	DEFINITION
Perform proper source voltage check	Verify the meter is receiving the proper voltage on all phases.
Perform meter accuracy test	Verify the meter is operating and measuring energy properly.
Perform visual wire inspection	Inspect for loose, overheated or broken wiring.

REVENUE METER MAINTENANCE BASIS

The Preventive Maintenance program is documented via maintenance templates. Templates have been developed that address transmission, substation, and distribution equipment that is owned and maintained by Exelon Utilities. Each template documents the program tasks, frequencies, failure modes, and maintenance basis for the associated equipment. Tasks and associated frequencies are designed to address known failure modes of the equipment covered by the template. In general, the tasks included in the maintenance templates are the result of good industry practices, industry experience, and manufacturer recommendations.

References:

Illinois Electric Metering Committee Guide for Uniform Inter-Utility Metering - 2004

Boundary Definition

The boundary of the revenue meter for the purpose of this document are defined to include the meter, the secondary wiring that provides input to the meter and associated fuses.

Failure Experiences

N/A

Disposition of Vendor Recommendations

N/A

Basis for Template Tasks

Physically inspect meter and record meter data: Meter readings / meter downloads are taken to collect data and may be used for comparison to previous readings or archiving of the meter data. Additionally, meter error codes or meter display information may indicate present meter conditions that would warrant specific attention.

Perform proper source voltage check: Source voltage check is performed to determine if the meter is receiving the proper voltage on all phases.

Perform meter accuracy test: Meter accuracy testing is performed to ensure the meter is operating and measuring energy properly.

Perform visual wire inspection: Loose wiring or broken wiring may prevent an electrical quantity from reaching the meter and hence can be the cause of an incorrect or no meter reading.

REVENUE METER TEMPLATE DEVELOPMENT HISTORY

	Revision 0	**Date 06/29/2015**
Writer	Chris Stefanski (Exelon Utilities)	
Reviewer(s)	Ken Wendt, Markeis Sayles	
Approver(s)	Michael Moy (UFAM ComEd)	
Reason Written	Removed Burden Test, Passing Load Test and Test for Creep. Revised criticality definitions and modified former ComEd/PECO document to serve as the ComEd maintenance standard.	

	Revision 1	**Date 06/26/2018**
Writer	Hugo Castaneda (Material Condition)	
Reviewer(s)	Dale Player Mgr Material Condition	
Approver(s)	Michael Moy (UFAM ComEd)	
Reason Written	3yr review. No content change.	