TEXAS RE

PRC-005-6 Protection System Maintenance Programs

Allie Huey
O&P Compliance Engineer III

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ERO Enterprise CMEP IP

Grid Transformation

Grid transformation remains a significant risk to the reliable operation of the electric system. The increased growth of new generation interconnections and the development of large loads add to the risk.

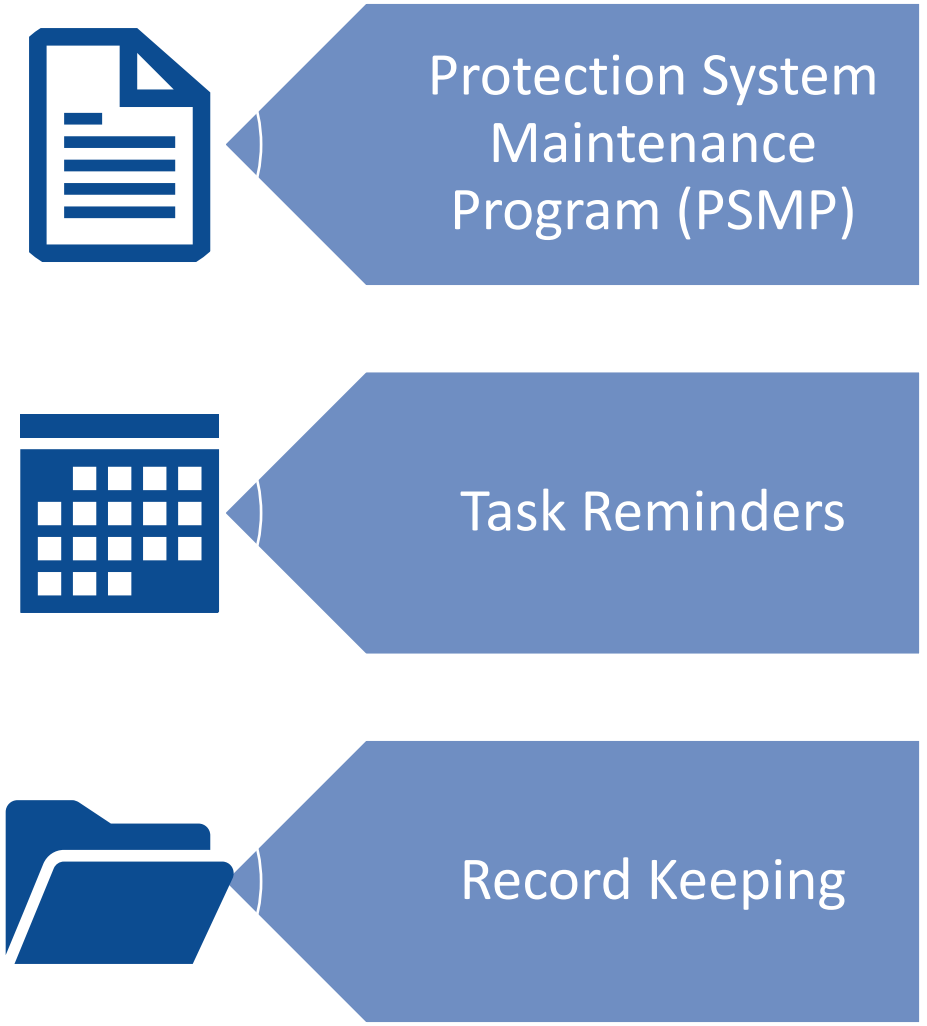
The identified risks are associated with energy policy, new large loads, increasing levels of IBRs, resource adequacy and energy sufficiency during normal and extreme conditions. The ERO Enterprise continues to address and raise awareness about risks associated with grid transformation through general and individual outreach efforts.

Rationale	Standard	Req.	Entities for Attention
Document and implement programs for the maintenance of all Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components affecting the reliability of the BPS so that they are kept in working order.	PRC-005-6	R3, R5	Distribution Provider Generator Owner Transmission Owner

PRC-005-6 R3 Best Practices

R3

Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes time-based maintenance program(s) shall maintain its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components that are included within the time-based maintenance program in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed within Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5.



Texas RE's PRC-005 Resources

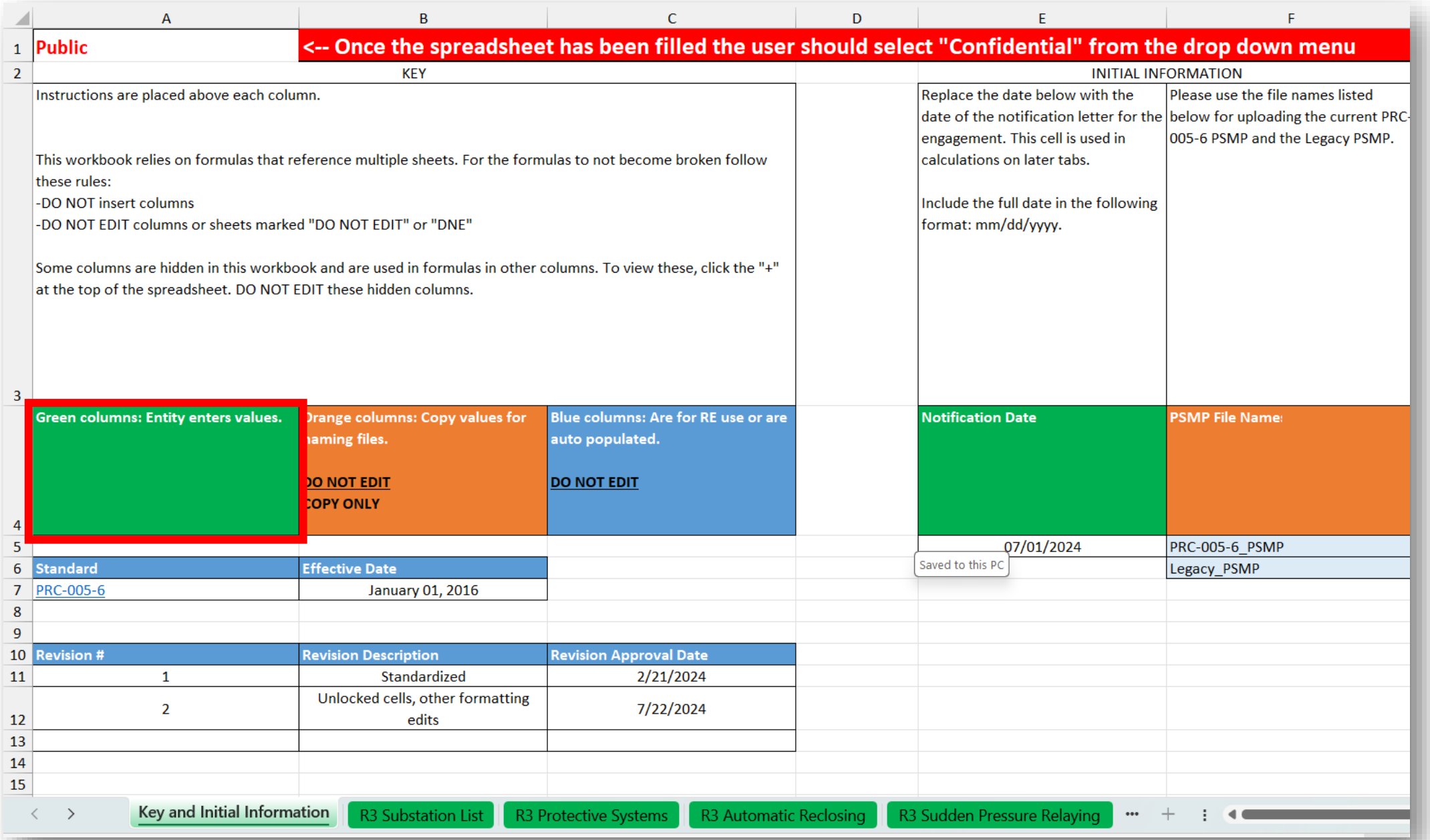
Compliance | Texas RE

Compliance Engagements

Documents

- Self-Certification Process
- Self-Certification Information Certification
- NERC Registered Entity Post Audit Feedback Survey
- Collection of Data Information
- CIP Evidence Request Tool v10
- CIP Evidence Request Tool v10 Release Notes
- CIP Evidence Request Tool User Guide v10
- CIP-014 Data Handling
- Engagement (CIP and O&P) Common Questions
- Generator Welcome Package
- PRC-005 Spreadsheet
- PRC-005 Spreadsheet Example
- PRC-005 Implementation Plan | Calendar View | Requirements View
- NERC RSAWs
- RSAW BAL-001-TRE-2

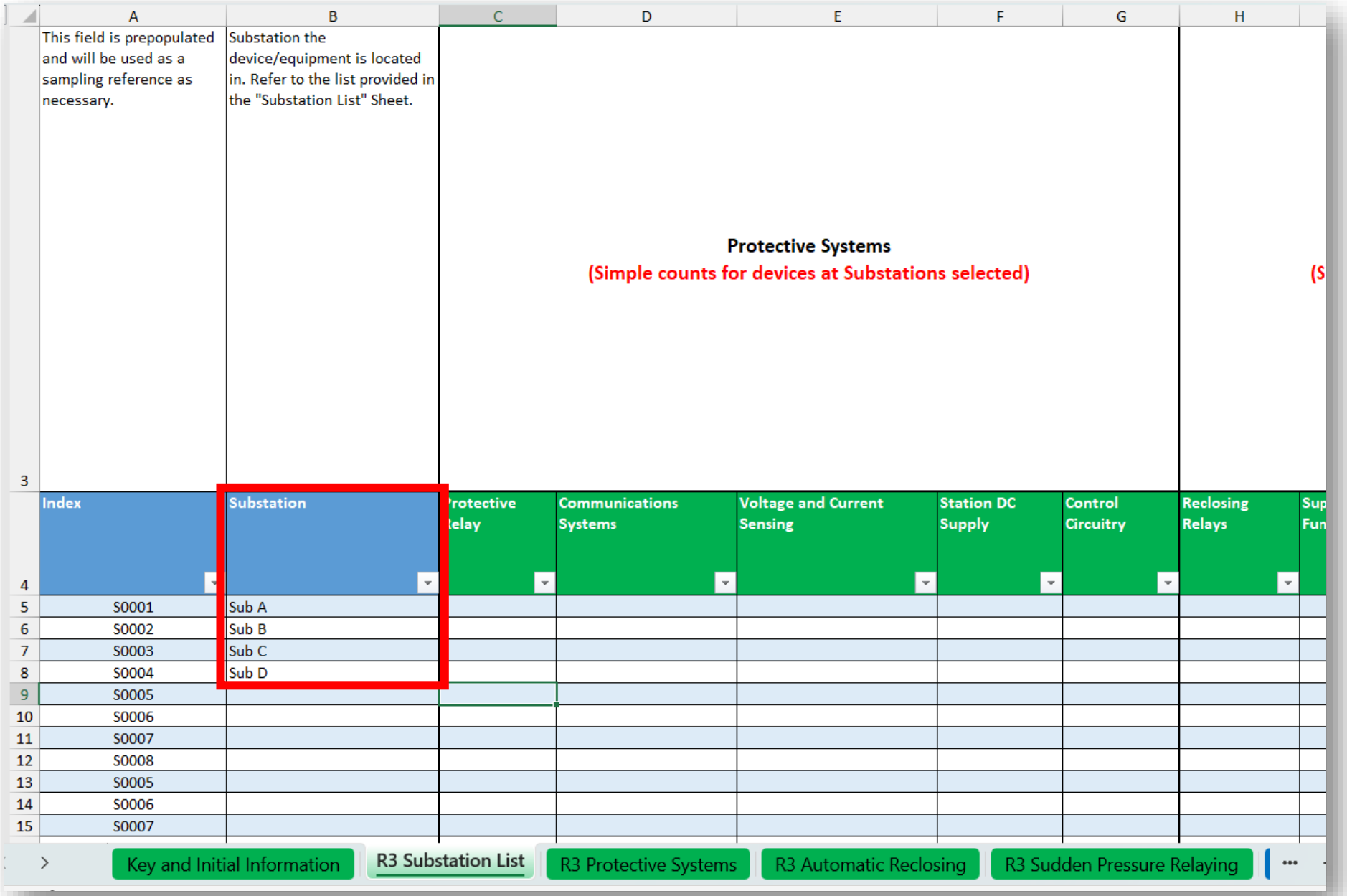
Texas RE's PRC-005 Spreadsheet Example



	A	B	C	D	E	F
1	Public	<-- Once the spreadsheet has been filled the user should select "Confidential" from the drop down menu				
2	KEY				INITIAL INFORMATION	
3	Instructions are placed above each column. This workbook relies on formulas that reference multiple sheets. For the formulas to not become broken follow these rules: -DO NOT insert columns -DO NOT EDIT columns or sheets marked "DO NOT EDIT" or "DNE" Some columns are hidden in this workbook and are used in formulas in other columns. To view these, click the "+" at the top of the spreadsheet. DO NOT EDIT these hidden columns.				Replace the date below with the date of the notification letter for the engagement. This cell is used in calculations on later tabs. Include the full date in the following format: mm/dd/yyyy.	Please use the file names listed below for uploading the current PRC-005-6 PSMP and the Legacy PSMP.
4	Green columns: Entity enters values.	Orange columns: Copy values for naming files. DO NOT EDIT COPY ONLY	Blue columns: Are for RE use or are auto populated. DO NOT EDIT		Notification Date	PSMP File Name
5					07/01/2024	PRC-005-6_PSMP
6	Standard	Effective Date			Saved to this PC	Legacy_PSMP
7	PRC-005-6	January 01, 2016				
8						
9						
10	Revision #	Revision Description	Revision Approval Date			
11	1	Standardized	2/21/2024			
12	2	Unlocked cells, other formatting edits	7/22/2024			
13						
14						
15						

Key and Initial Information | R3 Substation List | R3 Protective Systems | R3 Automatic Reclosing | R3 Sudden Pressure Relaying

Texas RE's PRC-005 Spreadsheet Example



	A	B	C	D	E	F	G	H
3	This field is prepopulated and will be used as a sampling reference as necessary.	Substation the device/equipment is located in. Refer to the list provided in the "Substation List" Sheet.	Protective Systems (Simple counts for devices at Substations selected)					(S
4	Index	Substation	Protective Relay	Communications Systems	Voltage and Current Sensing	Station DC Supply	Control Circuitry	Reclosing Relays
5	S0001	Sub A						
6	S0002	Sub B						
7	S0003	Sub C						
8	S0004	Sub D						
9	S0005							
10	S0006							
11	S0007							
12	S0008							
13	S0005							
14	S0006							
15	S0007							

Key and Initial Information | R3 Substation List | R3 Protective Systems | R3 Automatic Reclosing | R3 Sudden Pressure Relaying

Texas RE's PRC-005 Spreadsheet Example

	A	B	C	G	H	I	K	M	N
1		Public							DO NOT EDIT COLUMN
2		Device Information							
3	This field is prepopulated and will be used as a sampling reference as necessary. Avoid editing but if rows must be added insure the index numbers continue in order and all other formulas are continued correctly.	Substation the device/equipment is located in. Refer to the list provided in the "Substation List" Sheet.	Select the Protection System Component Type for each device (protective relays, voltage and current sensing, communications systems, station dc supply, control circuitry).	List the device/equipment unique identifier. List the device/equipment unique identifier multiple times if multiple maintenance intervals are applicable to device (i.e. station dc supply). The unique identifier should be identified in the maintenance records.	List the device/equipment manufacturer and model.	Select the monitoring status for each device (monitored, unmonitored).	List the maintenance interval from the PRC-005-1b, PRC-008-0, PRC-011-0, or PRC-017-0 maintenance program in years for each device. If interval is less than a year, use a decimal (0.25 for quarterly, 0.083 for monthly, etc.). If the previous and most recent Maintenance were performed under PRC-005-6, this field is not required.	Select the Maintenance Activity Codes that correspond to the maintenance activities performed on the "Maintenance Activity Code" tab of the workbook.	This field will automatically populate based on the selected Maintenance Activity Code. DO NOT EDIT
4	Index	Substation	Protection System Component Type	Unique Identifier	Equipment Manufacturer and Model	Monitored Status	Legacy Program Maintenance Interval (Years)	Maintenance Activity Code	PRC-005-6 PSMP Maintenance Interval
5	Example 1	Sub A	Protective Relay	Sub A Bus 387 Test	SEL 387 / 87H	Monitored	10	A3	12 Calendar Years
6	Example 2	Sub B	Voltage and Current Sensing	Sub B Bus Diff Currents	Relaying CTs	Unmonitored	12	C1	12 Calendar Years
7	Example 3	Sub C	Control Circuitry	C110 86BF Trip Test	BKR21910 Electromechanical I/O	Unmonitored	6	E2	6 Calendar Years
8	Example 4	Sub D	Communica						12 Calendar Years
9	Example 5	Sub D	Station DC Supply	Battery Bank Inspection	Electrolyte Levels, Station DC Supply, & Unintentional Grounds	Unmonitored	0.333	D1	4 Calendar Months

- Provide a Unique Identifier for the component.
- Provide the Equipment Manufacturer and Model.
- Provide the Maintenance Activity Code.

Key and Initial Information | R3 Substation List | R3 Protective Systems | R3 Automatic Reclosing | R3 Sudden Pressure Relaying

Texas RE's PRC-005 Resources

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Texas RE's Requirements View

Must-Comply-By Dates
PRC-005-6

PRC-005-6
Implementation Plan

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	PRC-005-2(i)	PRC-005-6			R1 - PSMP Program	R2 - Interval Basis	R5 - Demo Corrective Action	R3 - R4 Perform Maintenance Per Program		
			Protection System Component	Maintenance/Test Interval	100%	100%	100%	30%	60%	100%
Table 1-1			**Protective Relays (non UFLS, UVLS)**							
	x	x	unmonitored	6 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-17	1-Apr-19	1-Apr-21
	x	x	monitored, microprocessor	12 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-19	1-Apr-23	1-Apr-27
Table 3			**Protective Relays (UFLS, UVLS)**							
	x	x	unmonitored	6 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-17	1-Apr-19	1-Apr-21
	x	x	monitored, microprocessor	12 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-19	1-Apr-23	1-Apr-27
Table 1-2			**Com Systems (non UFLS,UVLS)**							
	x	x	unmonitored	4 calendar months	1-Apr-15	1-Apr-15	1-Apr-15	N/A	N/A	1-Oct-15
	x	x	unmonitored	6 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-17	1-Apr-19	1-Apr-21
	x	x	monitored channel function	12 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-19	1-Apr-23	1-Apr-27
	x	x	fully monitored	12 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-19	1-Apr-23	1-Apr-27
Table 2	x	x	unmonitored alarm path	12 calendar years	1-Apr-15	1-Apr-15	1-Apr-15	1-Apr-19	1-Apr-23	1-Apr-27
	x	x	monitored alarm path	maintain as monitoring indicates[1]	1-Apr-15	1-Apr-15	1-Apr-15	N/A	N/A	1-Apr-15

Inquiry from the Entity…

The PRC-005-6 implementation plan stipulates that items with a 12-year maintenance interval need to be 100% completed by April 1, 2027.

If a PRC-005 maintenance plan begins in 2014, just ahead of the implementation of the latest version of the Standard:

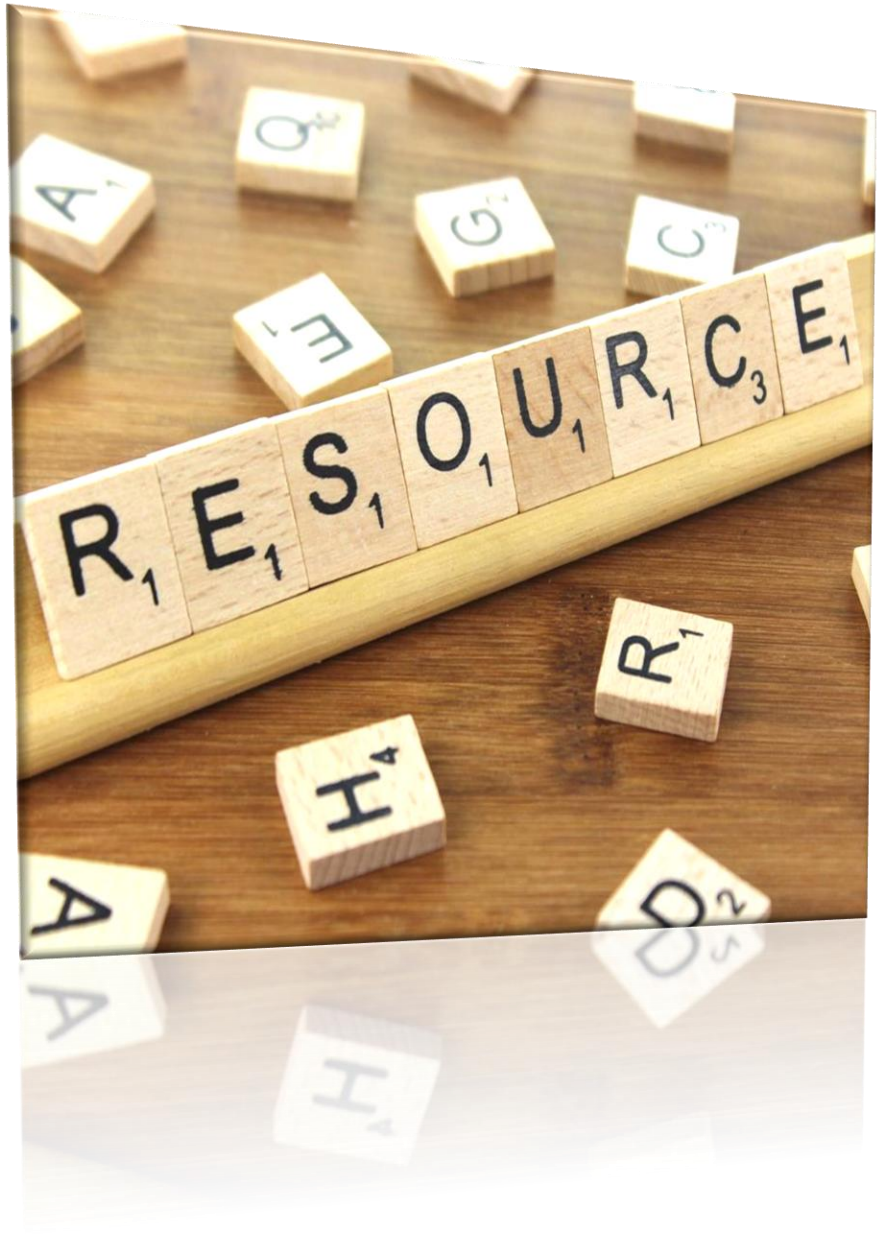
1. Does it need to complete 12-year maintenance intervals per PRC-005-6 by EOY 2026 (2014 + 12 years = 2026), **or**
2. Does it have until the April 1, 2027, deadline for entities to perform maintenance on 100% of the 12-year protection equipment items?

1

The device types with 12-calendar year intervals would be due at the end of that 12th year.

2

The April 1, 2027, is the date by which devices should be 100% compliant, but it is not meant to extend an entity's individual component maintenance interval beyond 12 years.



- PRC-005-6
- PRC-005-6-Standard-Application-Guide
- PRC-005 Spreadsheet
- PRC-005-6 - Implementation Plan - Requirements View

Questions?

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