SaskPower	Self-Contained Socket Type Meter Exchange Less Than 300V - Isolated	Standard Operating Procedure

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1.0 Purpose

This SOP provides:

- The purpose of this document is to describe activities associated with qualified electrical workers, while conducting meter exchanges or removals for all self-contained socket type meters less than 300Vin an Isolated State

2.0 Roles and Prerequisites

Role(s)	Quantity Required	Prerequisites
Qualified electrical worker	1 or more	1. A clear understanding of the information contained within this SOP

3.0 Tools and Equipment

Minimum Tools and Equipment Required:

- Required Personal Protective Equipment (PPE)
- Supply of meters, replacement seals and sealing rings
- Basic installation tools
- Jaw Tester
- Fire Extinguisher (Accessible if required)
- Ladder (Accessible if required)
- Deox
- Class zero rubber gloves
- Voltmeter and or/Modiwark (to test for absence of potential)

4.0 Procedure

The Procedure

NOTE: The following requirements shall be met prior to the start of the procedure:

- Complete Hazard, Aspect and Risk Assessment (HARA)
- Applicable Personal Protective Equipment (PPE) is available and in good condition
- Consider Environmental Best Management Practices

1.0 Prepare to use Safety Equipment

- *Ladder*
  - *If the meter is difficult to reach, a ladder shall be used*
- *Fire Extinguisher*
  - *Fire extinguisher must be present in vehicle*

2.0 Prepare to exchange the meter

2.1 Prepare to exchange the meter

2.1.1 Identify Hazards

- Qualified worker shall ensure to identify hazards that should raise awareness:
  - *Meter socket is not properly secured to the attachment point*
  - *Meter socket is not level*
  - *Meter is not oriented in the Meter socket correctly*
  - *Conduit is pulled out of the bottom of the Meter socket*
  - *Burn marks or other evidence of previous ground faults*
  - *Meter socket cover is broken, improperly placed or missing*
  - *Missing seal or ring or condition of the ring*
  - *Cable/Phone wires pulled tight on conduit*
  - *Discoloration of Meter Glass*
  - *Face-plate information found indicates a different form type*
  - *Oil marks on the bottom of the meter glass*
  - *Obvious evidence of tampering*
  - *Evidence of excessive ground settling (ie, sunken driveway or sidewalks, exposed concrete below parging, cracks in the house or foundation, etc.)*
  - *Height of the meter, anything over 6 feet may indicate ground settling*
  - *Excessive speed of the spinning disc inside the meter (indicative of excessive load current)*
  - *Identify if any holes in the meter box (install plug to seal)*
  - *Condition of the mast (If moving the meter may cause a failure, do not change the meter)Qualified electrical worker shall ensure the following steps are performed before exchanging meter(s):*

2.1.2 Qualified electrical worker shall ensure the following steps are performed before exchanging meter(s):

- *Verify the correct address*
- *Inform the customer of service interruption and advise them to turn off electronic equipment because they are at higher potential for damage when service is re-energized*
- *Complete HARA*
- *Determine the location of the meter(s) affected by the outage. Is there safe access? Is there snow/ice affecting access? Dogs on site or meter too high on the wall, etc?*

- ***Verify new meter corresponds to the applicable CD Drawing.***
- ***Verify new meter is the same CD drawing as existing meter. If it is an A base style meter, an adapter will be required (refer to A-Base - Adapter Installation and meter exchange - Energized SOP)***
- ***Picture #1*** *- From a few paces back, capture a digital image of the meter socket showing the entire socket and the conduit entering the socket. Either from the ground if possible, or including the overhead mast if possible*
- ***Picture #2*** *- Capture digital images of the existing meter with Kilowatt hour read(s). Document all out readings in provided click mobile task or in MEX APP*

3.0 Isolate service at the safest isolation point.

3.1 Isolate the service to the meter location

- The process for isolation is not explained in this SOP due to the multiple scenarios and various available isolating locations. This is to be determined in the HARA

4.0 Exchange Single Phase Meter(s)

4.1 Exchange Meters

4.1.1 Qualified electrical worker shall ensure the following steps are performed while exchanging meters secured by sealing rings

- *Ensure proper PPE is on and used appropriately*

4.1.2 Test for absence of potential at the meter location

- ***If unable to confirm absence of potential, use the meter removal tool, face shield and rubber gloves and proceed using Single Phase Socket Type - Self-Contained Electric Meter Exchange/Removal - Energized State SOP***
- *If hazardous conditions "do not" exist, proceed to exchange the meter*
- *Pull in a downward motion to disengage the line side jaws first and continue to roll the meter downward until it is free from the meter jaws*
- *Once the meter is removed you will be able to inspect the internal components of the socket for any "abnormal conditions" (i.e. broken or cracked porcelain or bakelite, broken jaws, pulled conductors, any condition which would lead you to suspect there is high potential for a "Ground Fault", etc.)*
- *Check the jaws using a jaw tester to ensure they are adequate*
- ***Picture #3*** *- Capture a digital image of the back of the removed meter showing the condition of the meter blades*
- *Check for any signs of energy diversion (theft) and if so initiate the Energy Theft Process*

- ***Picture #4*** *- Capture a digital image of the meter socket showing the condition of the meter socket jaws and wiring*
- *Prior to installing the new meter Anti-Oxidizing Lubrication (Deox)shall be applied to the blades on the back of the new meter*
- ***Picture #5*** *- Capture a digital image of the back of the new meter*
- *Line up the lower, load side jaws first and install in an upwards rotation with a firm pushing motion*
- *Replace sealing ring and install a new seal*

4.2 Power Line Technicians responsibilities for identified hazards

4.2.1 PLT's will be allowed to remove the meter and face plate of the meter socket to allow for the following:

- *Extending the utility owned service cables*
- *Leveling and re-attaching the meter socket to the wall by means of installing screws*
- *Temporarily splice through/jumper to provide service until a qualified licensed person repairs damages to the meter socket/service components. This would only be allowed in an emergent situation when there is no possibility of having a qualified licensed person repair the socket*
- *Under no circumstances would the PLT be allowed to replace the customer owned meter box or the jaws of the meter socket*

- **NOTE:** The SaskPower District Staff will be responsible to make the customer aware of the repairs that were completed as a temporary measure only
- SaskPower District Staff will ensure the customer has power or that power is being restored, before leaving the location
- If temporary repairs have been done, the district staff is to have a notification/task assigned to them to follow up to ensure the repairs have been completed
- District Staff to notify the inspections branch of defects found and if any temporary repairs had been made

5.0 Restore Power at Isolation Point

5.1 This task is covered under a separate procedure for Distribution Services PLT

6.0 If Ground Fault occurs after power restoration

6.1 If Ground Fault during Exchange of Electric Revenue Meters. (This process will be used in all Cases - Overhead, Underground, Apartments)

6.1.1 Qualified electrical worker shall ensure the following steps are performed if a Ground Fault Occurs:

- *Step back*

- *If the ground fault clears itself immediately isolate the installation*
- *If the ground fault does not clear itself immediately:*
  - If safe to do so remove meter
  - If necessary (fire, flames or excessive smoke) activate the EMS (call 9-11)
  - Evacuate the building if occupied
  - If necessary (fire, flames or excessive smoke) and safe to do so deploy the fire extinguisher.
  - Isolate the installation and tag to prevent inadvertent energizing of the service
  - Then notify your Supervisor to activate Incident Command System protocols if required
  - Complete incident report

7.0 Post Meter Installation

7.1 Post Meter installation

7.1.1 Qualified worker shall ensure the following steps are performed while finalizing the meter installation:

- *Return to each customer property after re-energization*
- *Ensure the new meter boot up sequence is completed*
- *If applicable, press the plunger in to ensure demand reading is zero and clear previous errors*
- *Ensure there are no error codes on the meter, if new errors populate follow error report procedure*
- ***Picture #6** - Capture a digital image(s) of the new meter(s) showing the kilowatt hour read*
- *Document the new meter exchange information in the provided click mobile task or MEX APP*
  - Record the meter number
  - Record the kwh reading(s)
  - Record location
  - Record hazard
  - Record Meter Use
  - Record Volt Code
  - Record CDNO
  - Record APR
- *Clean up area as necessary*
- *Conduct post install inspection of the area/building/residence for evidence of property damage. Inquire with the customer if they are home*

- *Inform the customer that you are leaving the property. If unable to inform customer, leave applicable door hanger*

5.0 Components

The following is a list of components for this SOP which can be accessed through the SOP System:

Component Name	Component Type	Component Description	Location of Component
N/A			

6.0 Acronyms, Definitions and Symbols

Acronyms and Abbreviations

FR - Flame Retardant
QEW - Qualified Electrical Worker
PLT - Power Line Technician
APR - Active Primary Ratio

HARA - Hazard/Aspect and Risk Assessment

Definitions

Qualified electrical worker - Occupational Health and Safety Regulation 465 (c)

> ***(i)*** *the holder of a journeyperson's certificate in the electrician trade issued pursuant to The Apprenticeship and Trade Certification Act, 1999, and includes an apprentice in the trade while under the supervision of a journeyperson;*
>
> ***(ii)*** *the holder of a journeyperson's certificate in the power lineperson trade issued pursuant to The Apprenticeship and Trade Certification Act, 1999, and includes an apprentice in the trade while under the supervision of a journeyperson; or*
>
> ***(iii)*** *for the purpose of design, calibrating of equipment, inspection, monitoring, testing, and commissioning of equipment in high voltage installations, electrical engineers, applied science technologists or certified technicians who have achieved professional certification within an electrical, electronics, industrial or instrumentation discipline*

Personal Protective Equipment – All workers shall ensure the following **Mandatory PPE** is used and in good condition

- **Head Protection** - CSA approved head protection shall be worn by all personnel at the job site, work areas and in posted areas on site

- **Eye Protection** - Approved safety glasses with side shields shall be worn by all personnel at the job site
- **Clothing** - Minimum Class 2 FR/Class 2 High Visibility Clothing shall be worn by all personnel at the job site
- **Footwear** - CSA approved, electric shock resistant footwear with minimum six inch (6") leather uppers for ankle support and a steel or composite toe

Additional PPE Requirements *- To be determined according to the requirements of the task being performed. (Face Shield, rubber gloves, additional FR as determined using the SaskPower Arc Flash Tables) Review the procedure above for additional PPE requirements*

Symbols

N/A

7.0 Policies and Regulatory Requirements

This SOP is a result of the following regulations, policies, industry standards, and corporate directives and standards:

Regulatory Requirement(s)

Saskatchewan Occupational Health & Safety Act and Regulations, 1996

- Section 465(c) - Qualified Electrical Worker

Policies

- Hazard/Aspect and Risk Assessment Policy
- Personal Protective Equipment Policy
- Working Alone Policy

Standards

- Hazard/Aspect and Risk Assessment Standard
- Deviation from Safe Work Procedure Standard
- ARC Flash Standard

8.0 References

References
CAN/ULC-S801-14 Electric Service Requirements

Revenue Metering Connection Diagrams Manual
Safety and Environment Rulebook
Testing for Absence of Potential SOP
Environmental Best Management Practices Manual