



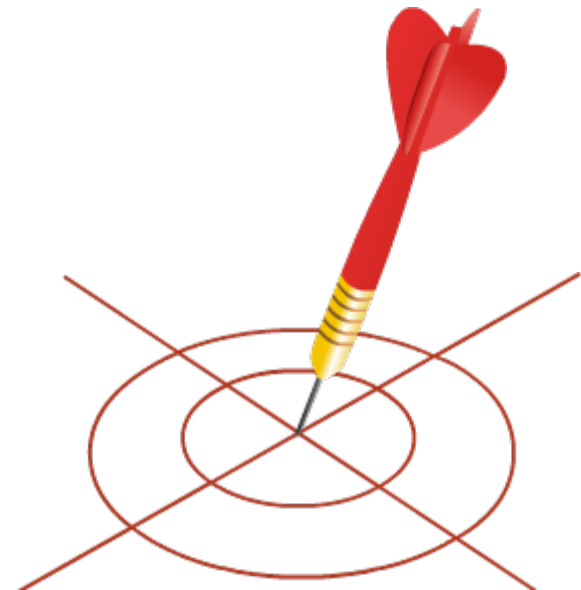
Welcome to the Session on  
**Single-Phase Energy Meter  
Installation**

# Learning Objective



By the end of this session, you will be able to:

- Explain the process of installing a single-phase energy meter at the consumer's premises



# Single-Phase Energy Meter Installation – Introduction



Lineman has to fix the meter box at an appropriate height and at the place suggested by consumer

It is at the entry point of the consumer's residence, usually, to record the readings

# Steps Involved in Single-Phase Energy Meter Installation

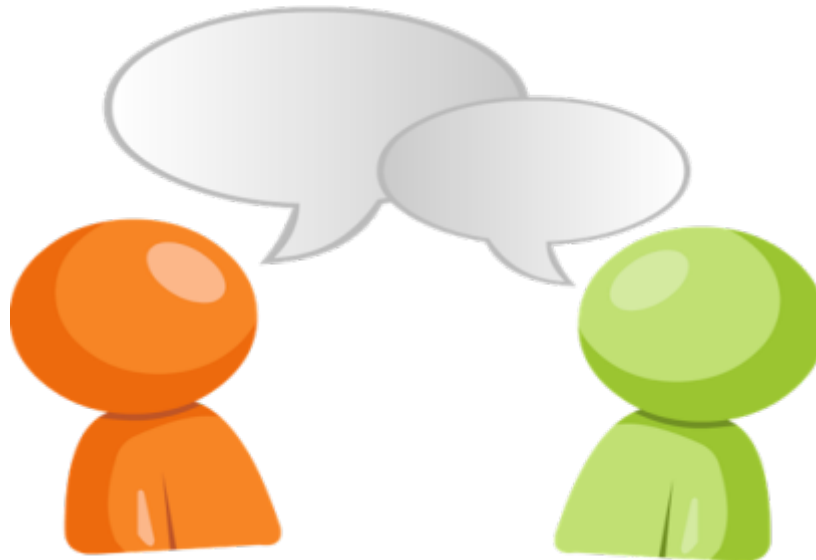


## Step 1

Visit customer's place and greet the customer



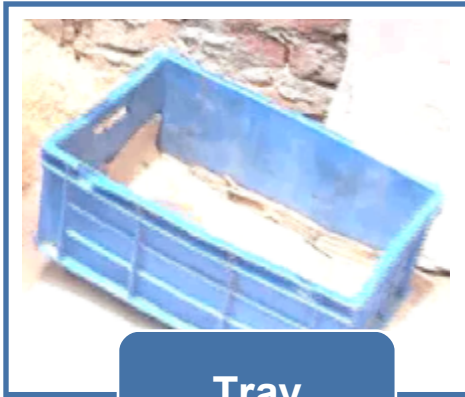
- Two participants to volunteer
- One will enact as a supervisor and the other as customer
- Divide participants into two groups
- You will get:
  - Two minutes for preparation
  - Five minutes to enact the role-play



# Steps Involved in Single-Phase Energy Meter Installation

## Step 2

Gather material, the required tools and tackles



Tray



Toolbox



Rubber Mat



Meter Box



# Steps Involved in Single-Phase Energy Meter Installation



**Drill Machine**



**Service Cable**

# Steps Involved in Single-Phase Energy Meter Installation

## Step 3

### Follow safety measures



Full body safety harness



Lineman tying the safety harness



Safety pouch

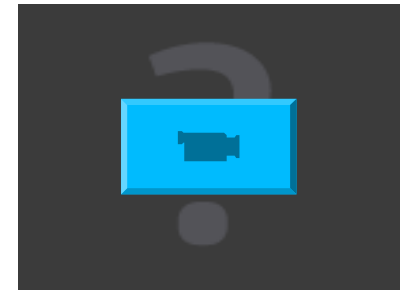




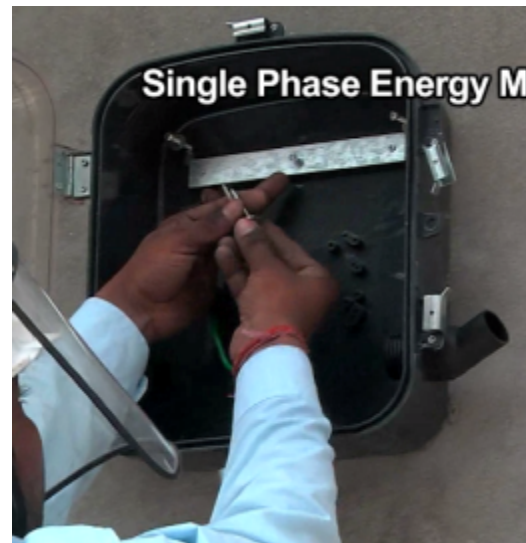
# Steps Involved in Single-Phase Energy Meter Installation

## Step 4

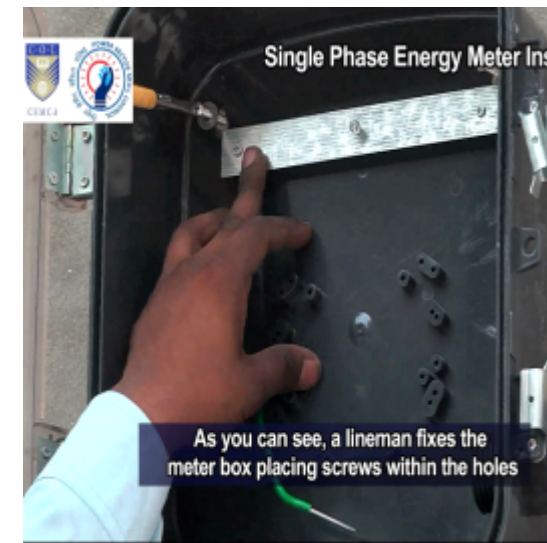
### Installation of the meter



Four holes are made on wall with the help of drill machine



Places raw wooden plugs or gutties



Places the screws and tightens them to fix the meter box

# Steps Involved in Single-Phase Energy Meter Installation



## Step 4

### Installation of the meter



Cuts the cable sheath at 25 cm from end



Exposed armoured cable



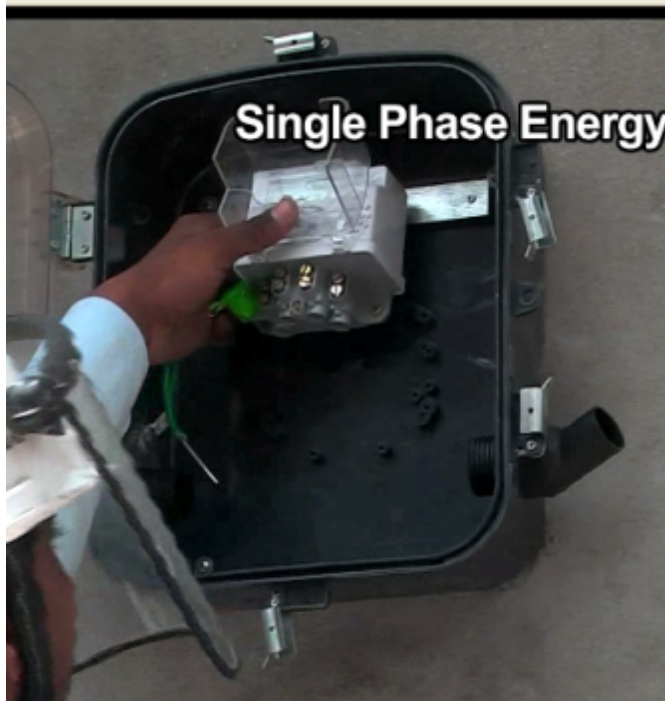
Half-sealed energy meter that has to be installed

# Steps Involved in Single-Phase Energy Meter Installation



## Step 4

### Installation of the meter



Loosening the terminals  
of the energy meter



Fixing the energy meter  
into the box

# Steps Involved in Single-Phase Energy Meter Installation

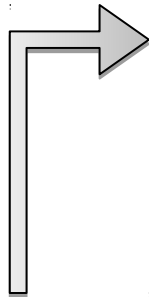


## Step 5

Managing accessories required to support the cable

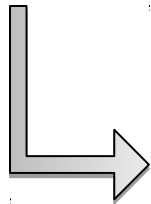


Drill holes to clamp the cable with saddles

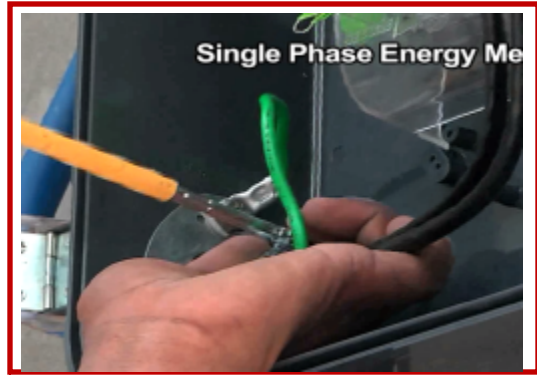
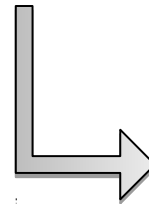


Earth connection is made with jubilee clip

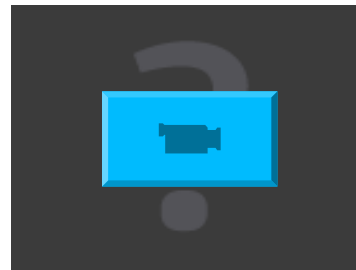
Colour of the earth wire is green in general



Cable end is inserted into the box



Jubilee clip is tightened

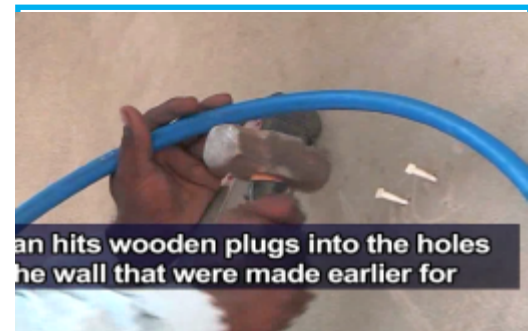


# Steps Involved in Single-Phase Energy Meter Installation



## Step 5

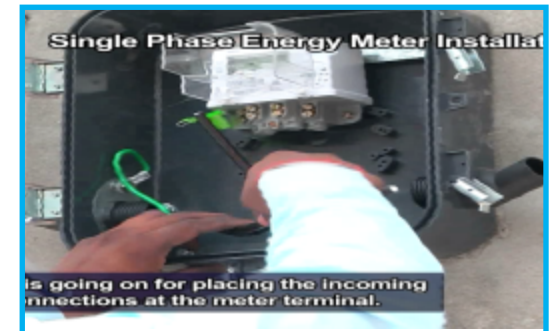
Managing accessories required to support the cable



Lineman hits the wooden plugs



Clamps the cable on wall with saddles



Places incoming cable connections



Service line connections

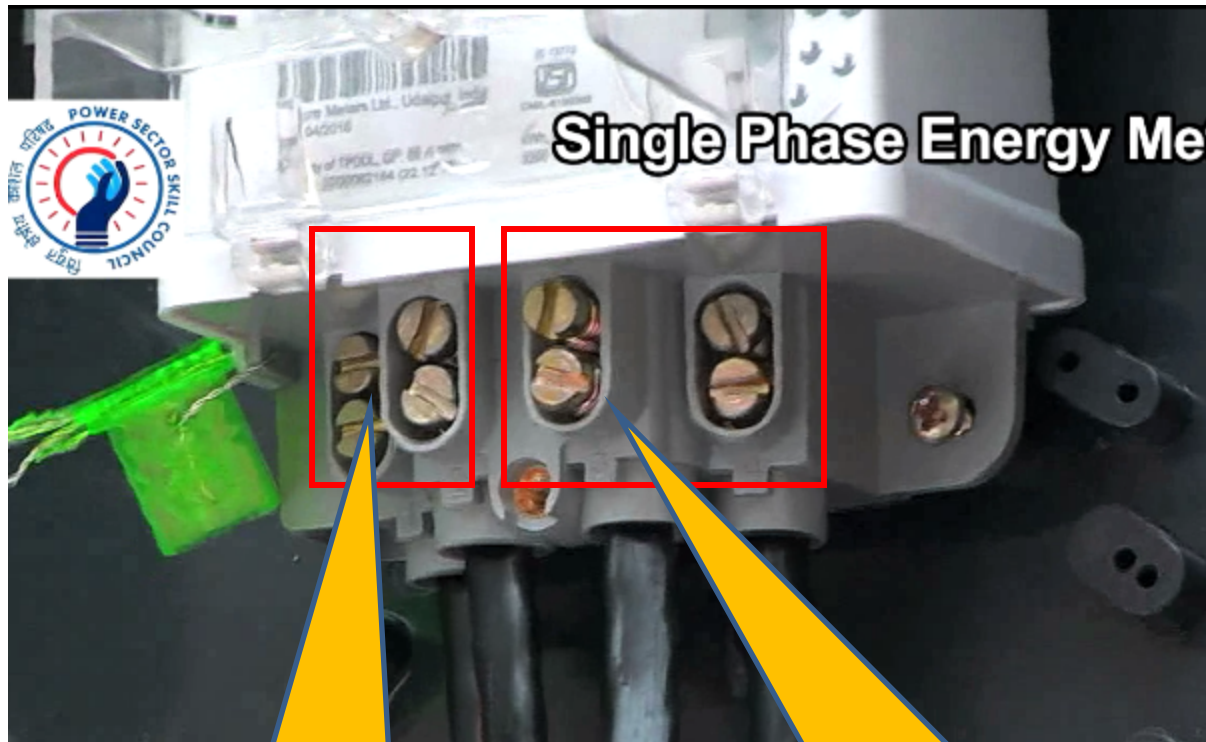


Out going line from the meter terminal

# Steps Involved in Single-Phase Energy Meter Installation

## Step 6

## Connecting the meter



Incoming terminals -  
connected to  
incoming service  
lines

Outgoing terminals -  
connected up to  
consumer's MCB

# Steps Involved in Single-Phase Energy Meter Installation



## Step 7

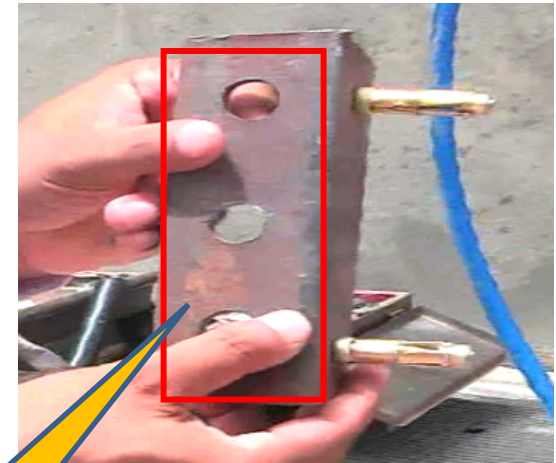
### Fixation of angle bracket



Making holes with drill machine

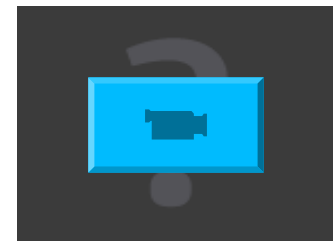


Angle bracket



Angle bracket is fixed to the wall

Three holes are made to fit the suspension hook



# Steps Involved in Single-Phase Energy Meter Installation



## Step 7

### Fixing of angle bracket



Open the suspension hook



Fit it in the hole



Cable comes and goes through this towards the pole



# Steps Involved in Single-Phase Energy Meter Installation

## Step 8

### Installation of angle bracket



Service cable anchor



Blade that will be pressed



Anchor is pressed to bind and grip the cable



# Steps Involved in Single-Phase Energy Meter Installation



## Step 8

### Installation of angle bracket



MS angle with slots fitted with D-clamp

- MS angle slot will be fixed with the help of D-clamp
- The service cable anchor will be fixed into these slots of MS angle to hang freely
- The hung anchors support the service cable lines
- The connection from the poles will be well dressed with insulation and extended without jumbling the cables on the pole

# Steps Involved in Single-Phase Energy Meter Installation

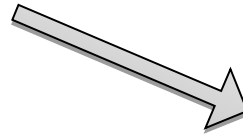


## Step 8

### Installation of angle bracket



Fixing of angle bracket on the wall



Suspension hook is fixed to the angle bracket

# Steps Involved in Single-Phase Energy Meter Installation



## Step 9

### Fixing of cable into the suspension clamp



Insertion of cable in the suspension hook



Fixing of service cable firmly



Fixing of saddle



# Steps Involved in Single-Phase Energy Meter Installation



## Step 9

### Fixing of cable into the suspension clamp



Lineman gets down with the help of clamps

# Steps Involved in Single-Phase Energy Meter Installation



## Step 10

### Creation of jumpers



Creating jumpers on the cable



Outer most PVC sheath of service cable is peeled



Steel armoured wires



# Steps Involved in Single Phase Energy Meter Installation

## Step 10

## Creation of jumpers



Green wire inside the meter box



Earth connection is provided for the consumer



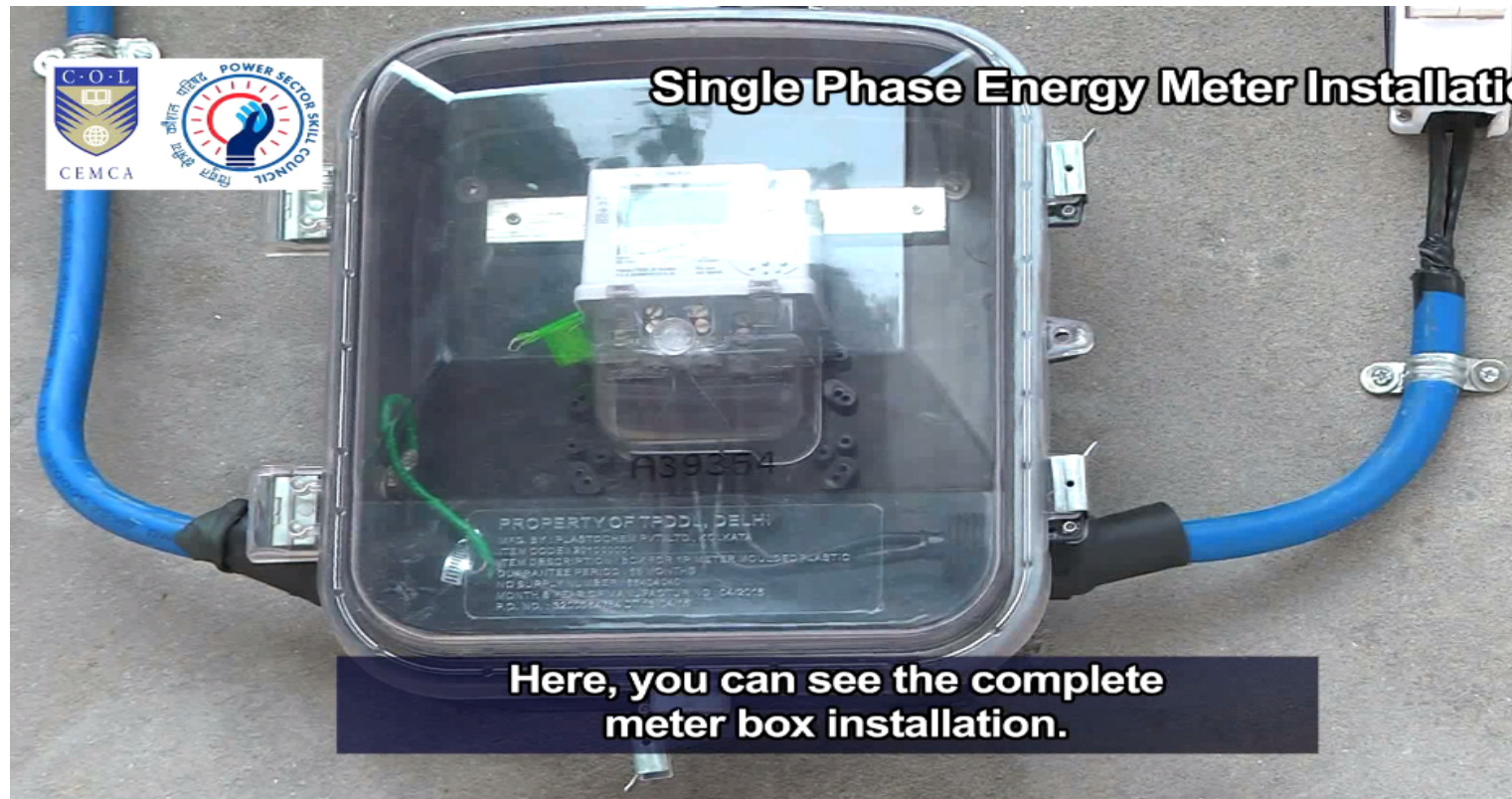
PVC wire is connected to the bolt

# Steps Involved in Single-Phase Energy Meter Installation



## Step 10

## Creation of jumpers



Complete installation of the meter box



# Steps Involved in Single-Phase Energy Meter Installation



## Step 11

The lineman climbs the ladder



Lineman climbs the ladder using double lanyard of the full body harness



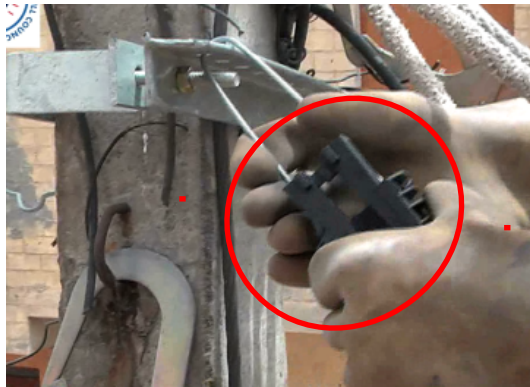
Lineman fixes the cable anchor to D-clamp on the pole



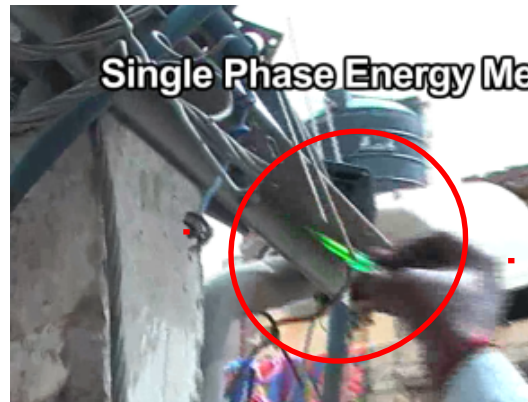
# Steps Involved in Single-Phase Energy Meter Installation

## Step 11

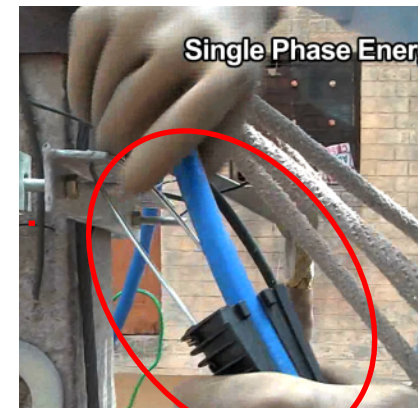
The lineman climbs the ladder



Fix the service cable anchor to the slotted angle



Use tester to check leakage of current



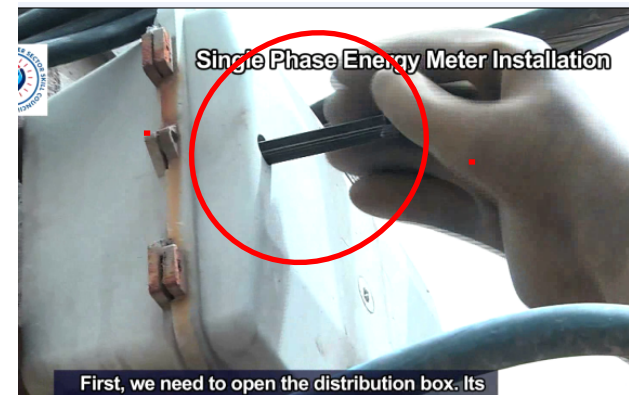
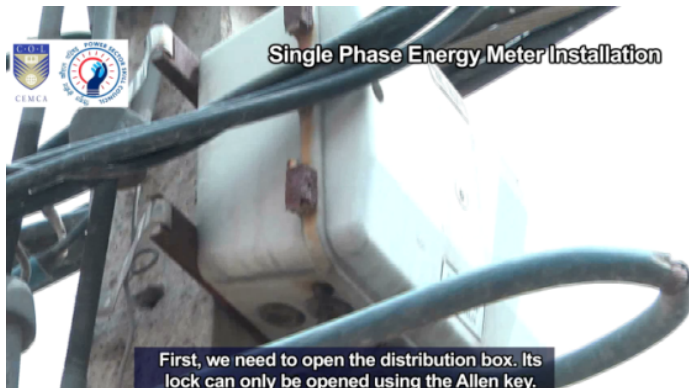
Support the cable with service cable anchor

# Steps Involved in Single-Phase Energy Meter Installation



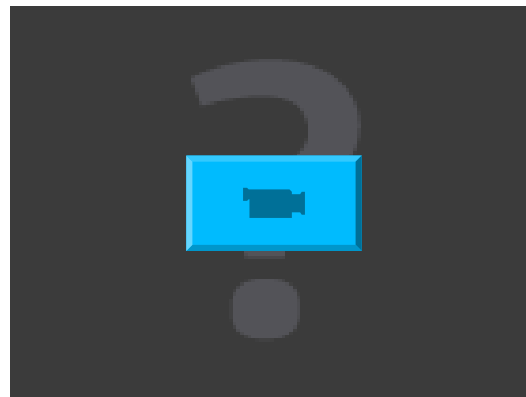
## Step 12

Provide connection to consumer through distribution box



The distribution box is connected to LT ABC network

Open the distribution box by using Allen key

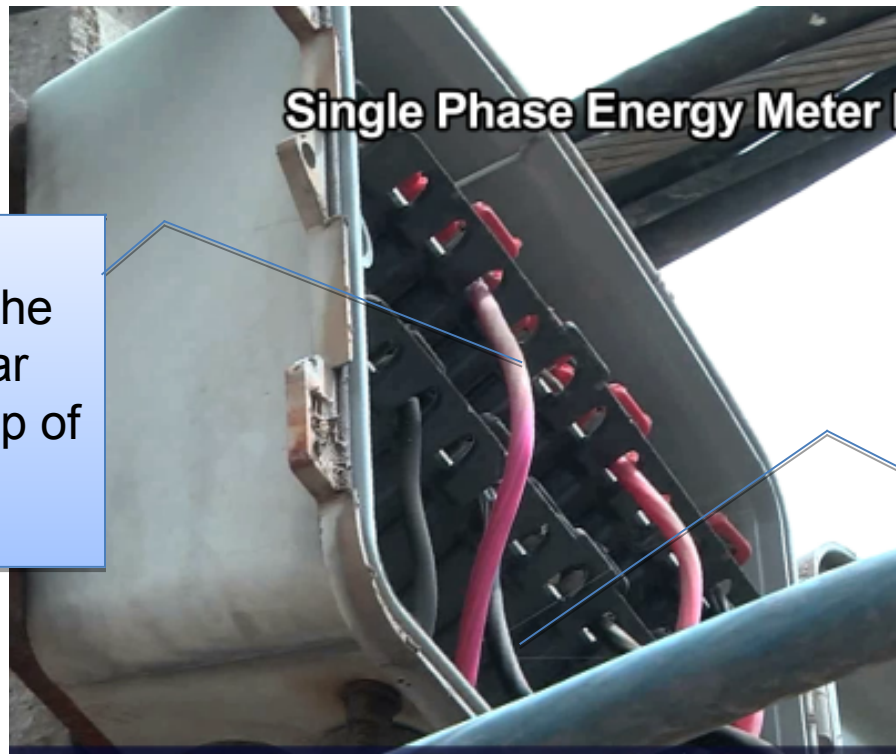


# Steps Involved in Single-Phase Energy Meter Installation



## Step 12

Provide connection to consumer through distribution box



Red wires to the upper bus bar through the loop of the jumper

Neutral wire is connected to the bottom black wires

# Steps Involved in Single-Phase Energy Meter Installation

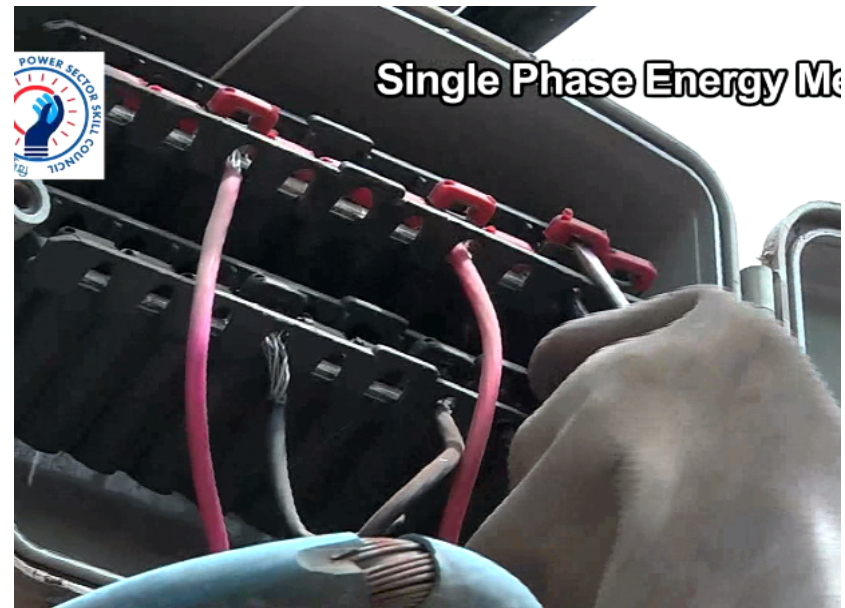


## Step 12

Provide connection to consumer through distribution box



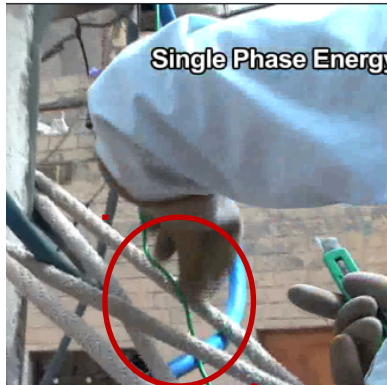
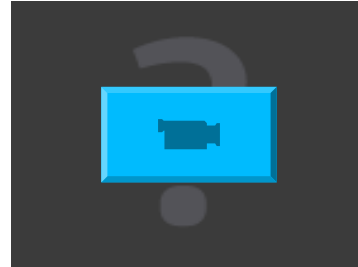
Lineman peels the outer insulation of neutral and conductor wires



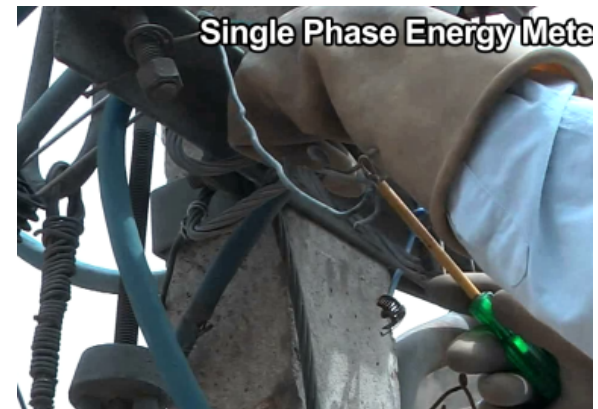
Neutral is connected first and then the phase connection

- Steps involved in the process of installing a single-phase energy meter at the consumer's premises are as follows:
  - Visit customer's place and greet the customer
  - Gather material, required tools and tackles
  - Follow safety measures
  - Install meter into the meter box
  - Manage accessories required to support the cable
  - Connect the meter
  - Fix the angle bracket
  - Install the angle bracket
  - Fix the cable into the suspension clamp
  - Create jumpers
  - Climb the ladder using safety equipment
  - Provide connection to consumer through distribution box

# Earthing Process



End of PVC wire is connected to the messenger wire of network LT ABC



- To provide earthing, connect:
- Jubilee clips to the messenger wire of LT ABC and tighten with screws
  - Green PVC wire to the messenger wire through the jubilee clips

# Checking the Connections

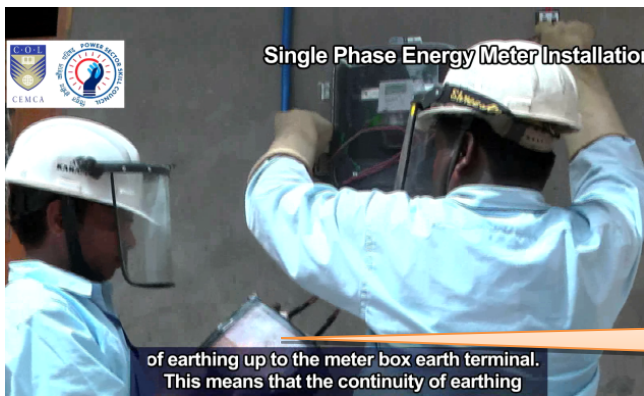
Ensure:



Supply to the consumer's MCB

Check the output terminals with a series test lamp

Bulb glows



Continuity of earthing

Connect one terminal to the earthing bolt on the meter box and another terminal to the phase

Bulb glows



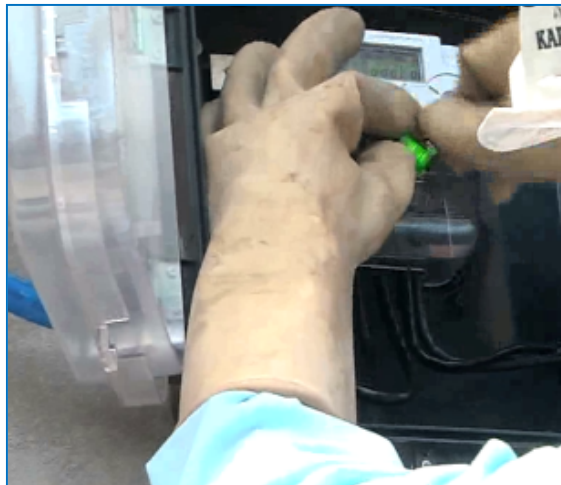
# Energy Reading Parameters Displayed on Meter



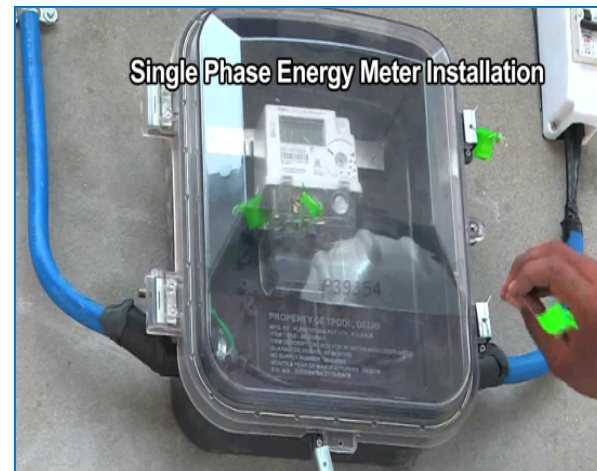
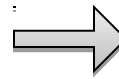
- Both the cable entry holes are plugged with M seal on the cable glands to protect them from water seepage, dust and reptiles
- Educate the customers on important aspects, like power and energy reading parameters, displayed on the auto scroll mode of the meter for billing purposes
- Explain the different types of parameters scrolling on the meter like:
  - Voltage (V)
  - Current in Amperes (A)
  - Kilowatt (kW)
- The energy reading will appear in kilowatt hour (kWh) which is the electricity consumed by the customer
- Ensure that the reading will start from zero (0) when the meter is connected



# Sealing of Meter



**Seal the terminal  
cover of meter**

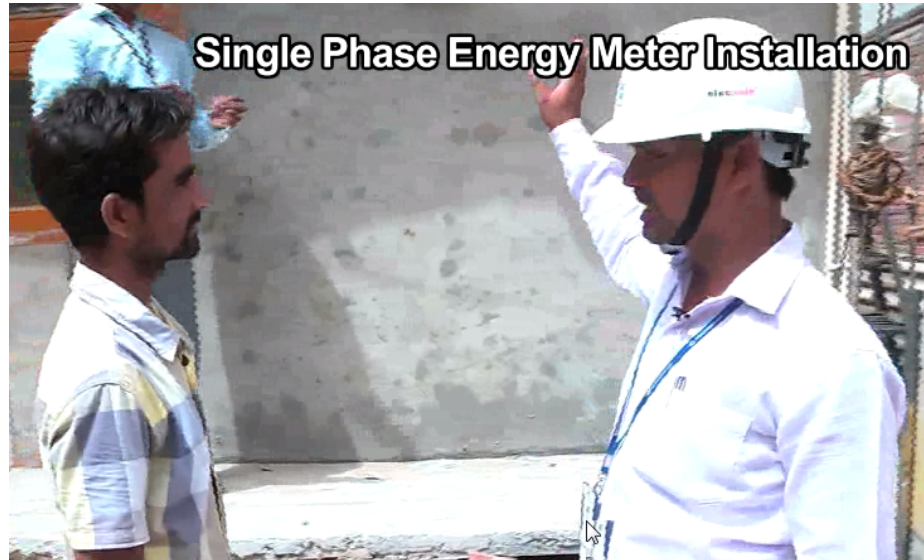


**Clamp and seal the  
meter box**

# Steps to be Considered By Lineman After Installation



Gather scrap from the premises



Inform customers about the safety measures to be taken



# Steps to be Considered By Lineman After Installation



Company's handbook for reference of the customer



Take signature of the customer

# Steps to be Considered By Lineman After Installation



Give one copy of the document to the customer

Collect feedback from the customer

# Key Learning Outcomes



- Steps involved in the process of installing a single-phase energy meter at the consumer's premises are as follows:
  - Visit customer's place and greet the customer
  - Gather material, required tools and tackles
  - Follow safety measures
  - Install meter into the meter box
  - Manage accessories required to support the cable
  - Connect the meter
  - Fix the angle bracket
  - Install the angle bracket
  - Fix the cable into the suspension clamp
  - Create jumpers
  - Climb the ladder using safety equipment
  - Provide connection to consumer through distribution box



# Key Learning Outcomes



- We need to prepare the earth connections from the armoured cable
- To provide earthing, first connect jubilee clips to the messenger wires coming from the LT ABC and tighten with screws
- Always ensure that the reading will start from zero (0) when the meter is connected
- You need to seal the terminal cover of the meter. Once you press the seal, the wire inside the seal cannot be removed
- Avoid leaving any scrap material on the customer's premises
- After installation, ensure to take the customer's signature on the form and also collect feedback from the customer

