

OVP – A Simple Solution to a Complex Problem

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Overbuild Circuits - An Industry Issue



- When a higher voltage circuit contacts a lower voltage circuit, an overvoltage occurs on the lower voltage circuit.
- Result - damage to customer and utility equipment.

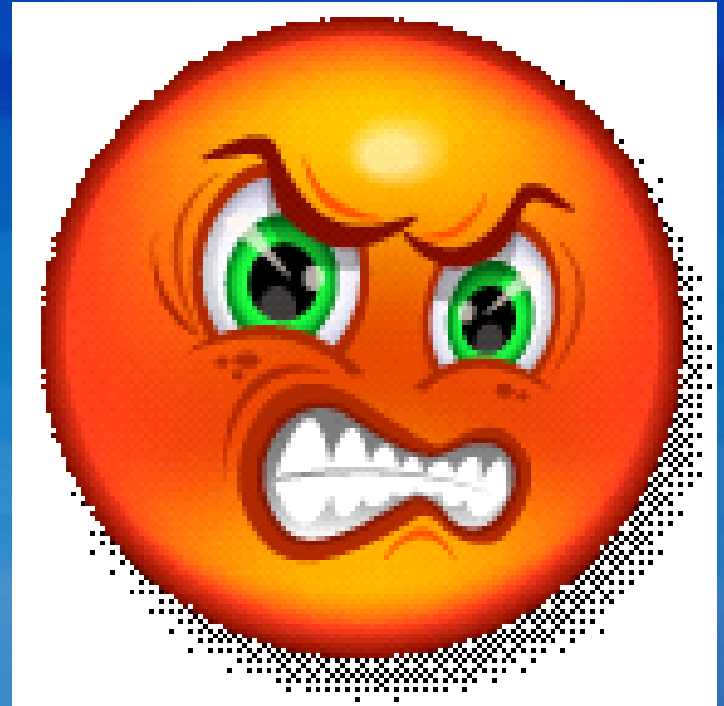
Power Surge

KOMO
4
NEWS

Customer Reactions



What can I do?





Mitigation Strategies

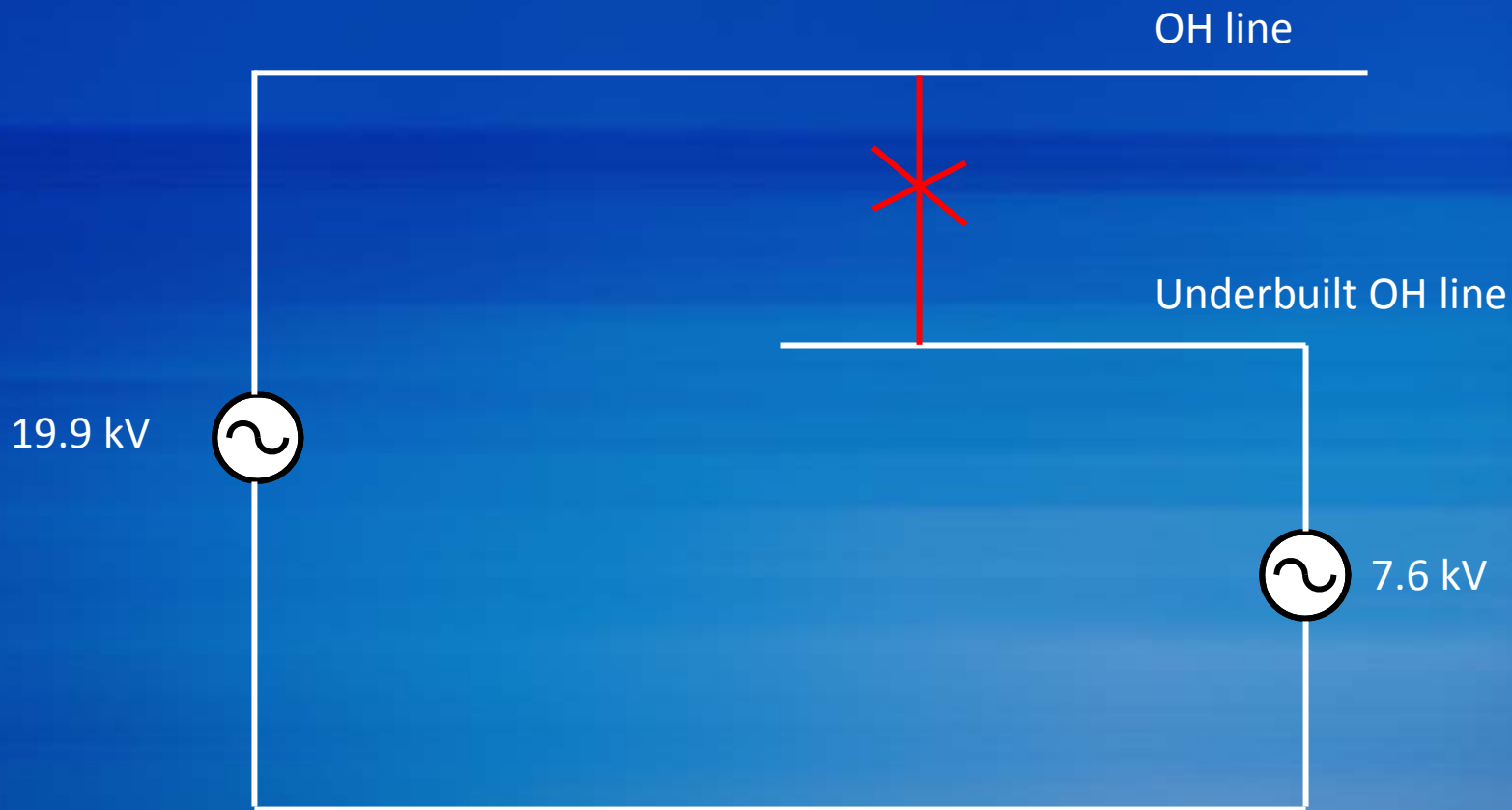
● Traditional

- Relocate/underground one of the circuits
- Convert the lower circuit to the higher voltage
- Insulate the bottom circuit

● Recent Development

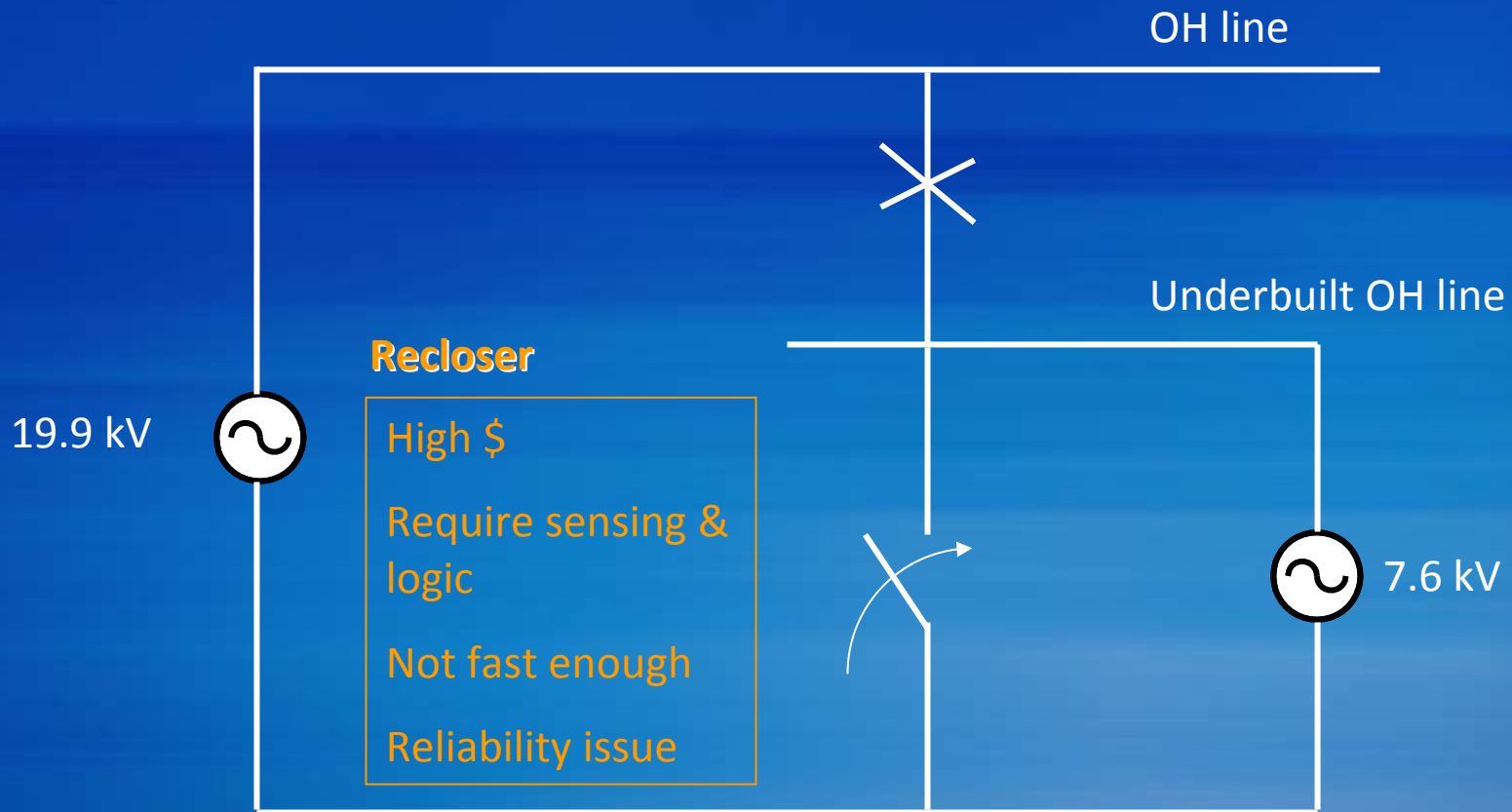
- OverVoltage Protectors (OVPs)

Equivalent Circuit

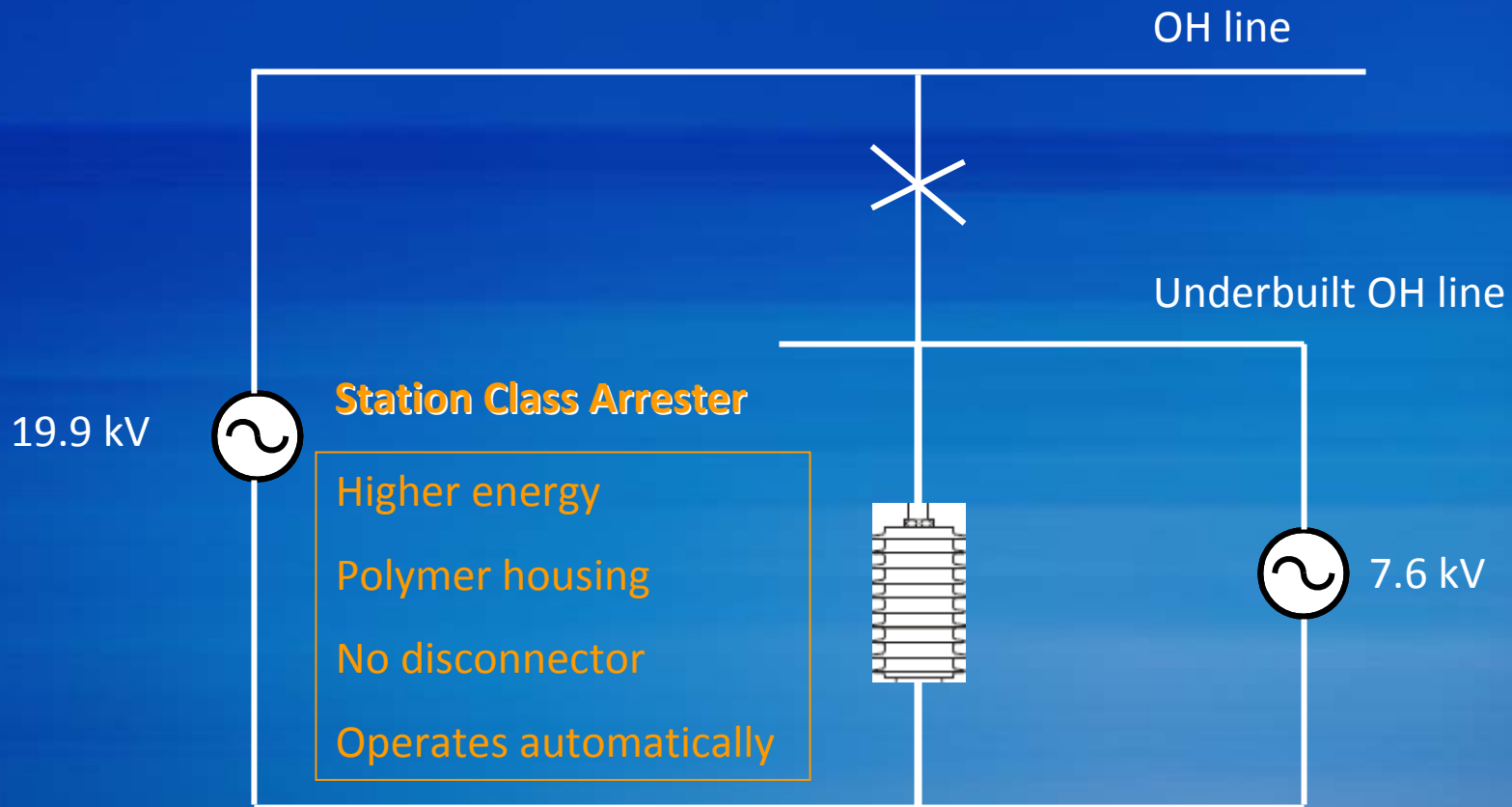


Result is 2.6 times normal or over 300 V on a 120 V outlet!

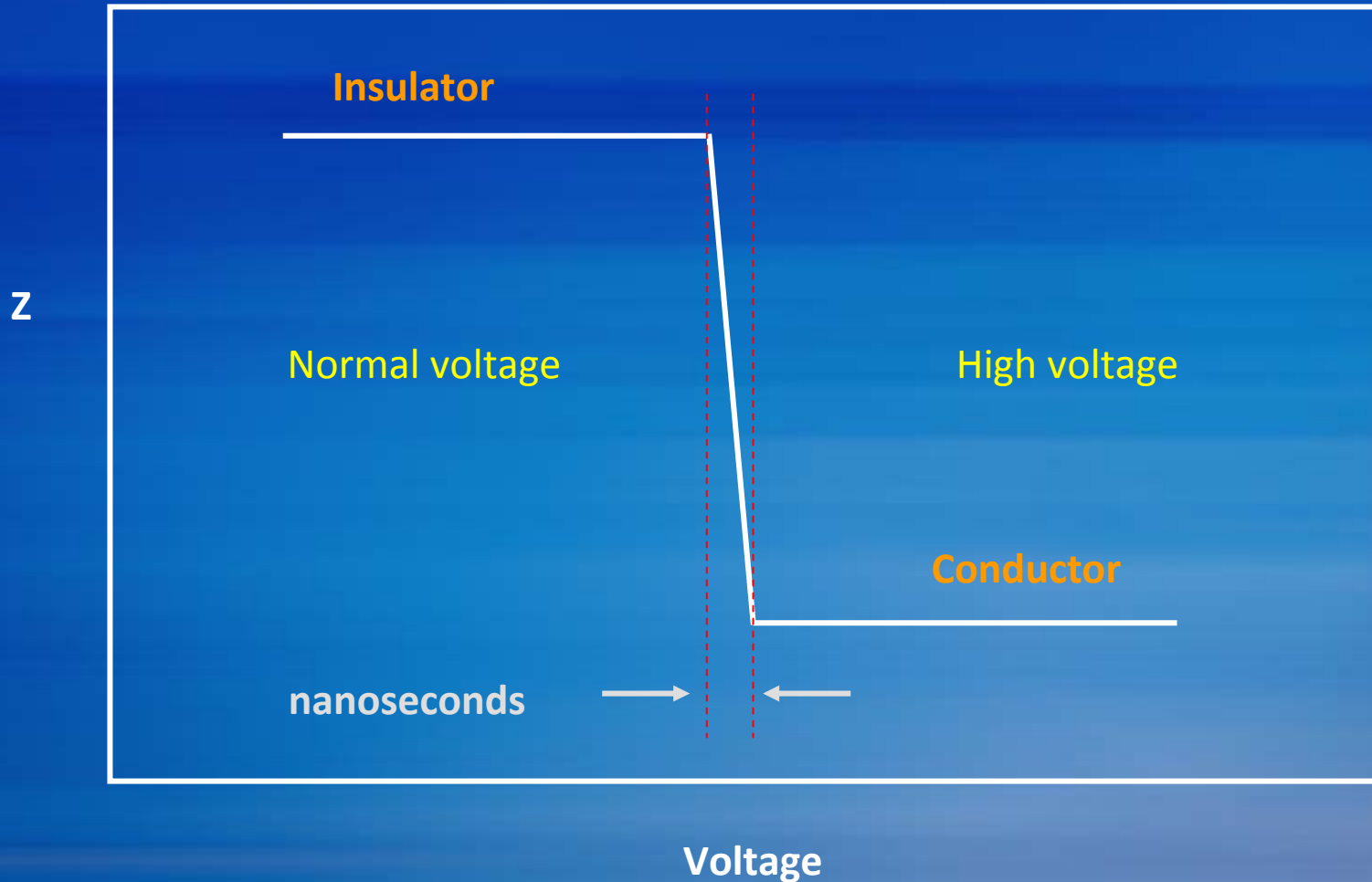
Early Thoughts



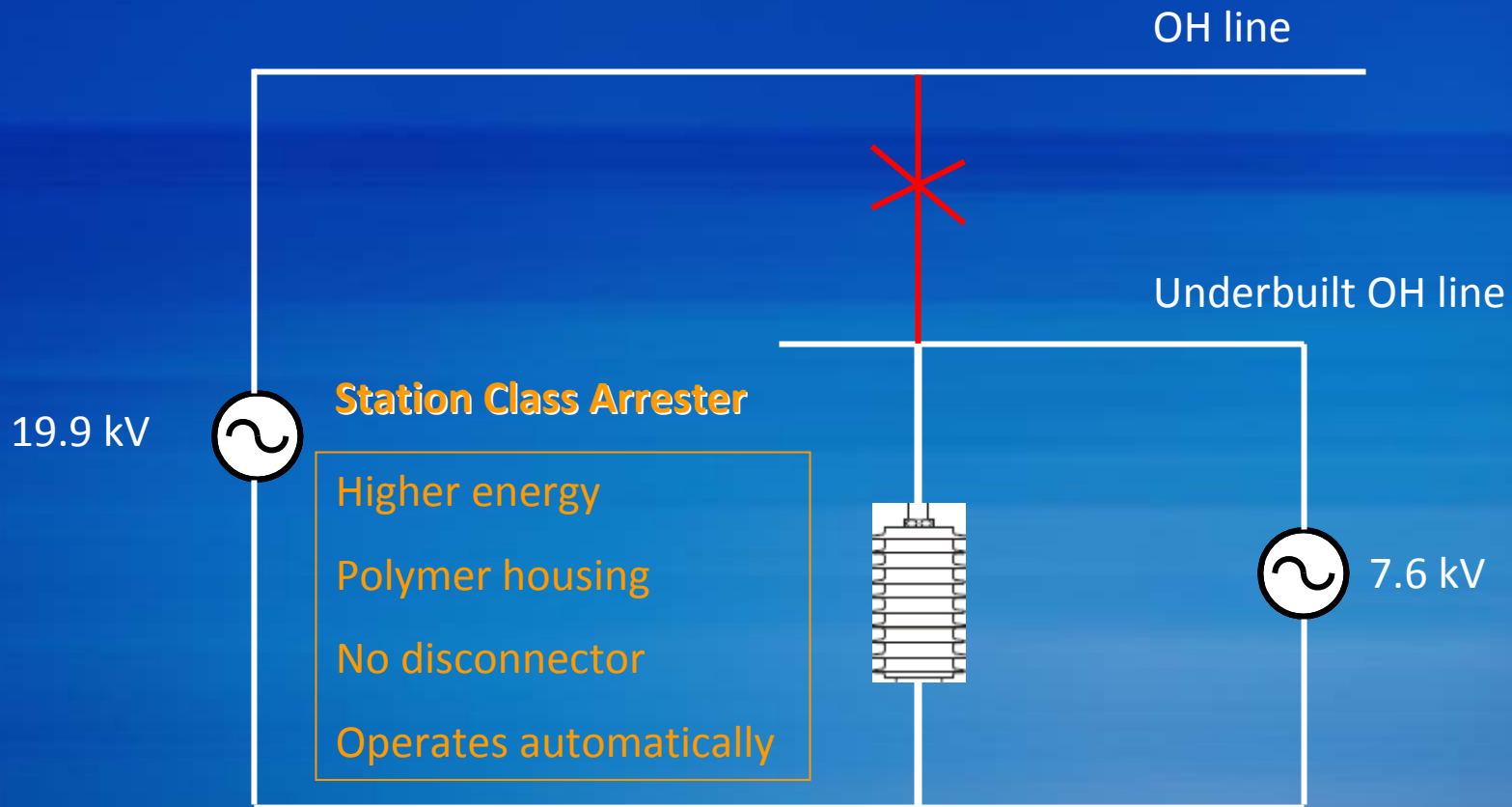
OverVoltage Protector



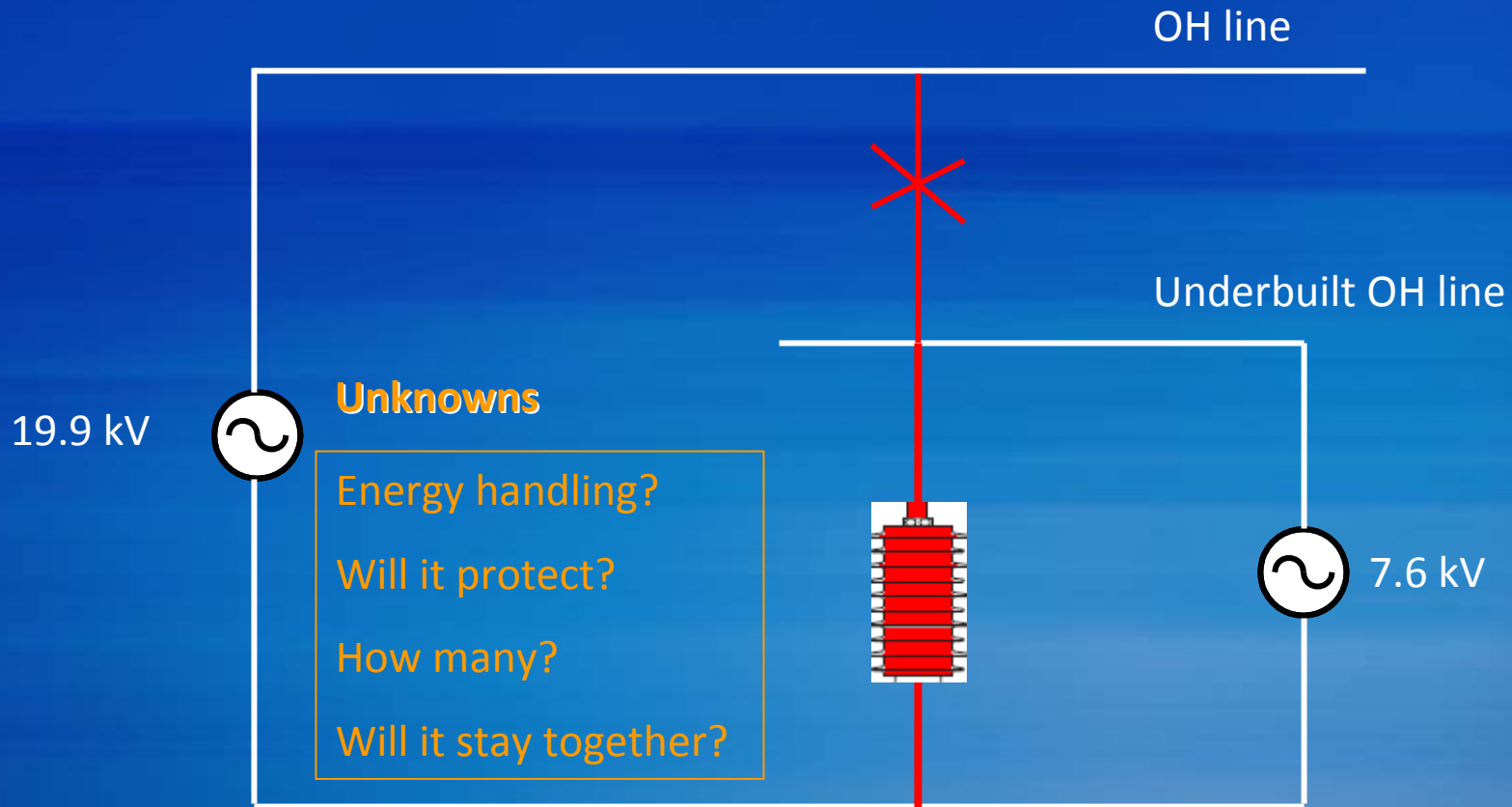
MOV Arresters – Basic Characteristics



Station Class Arrester



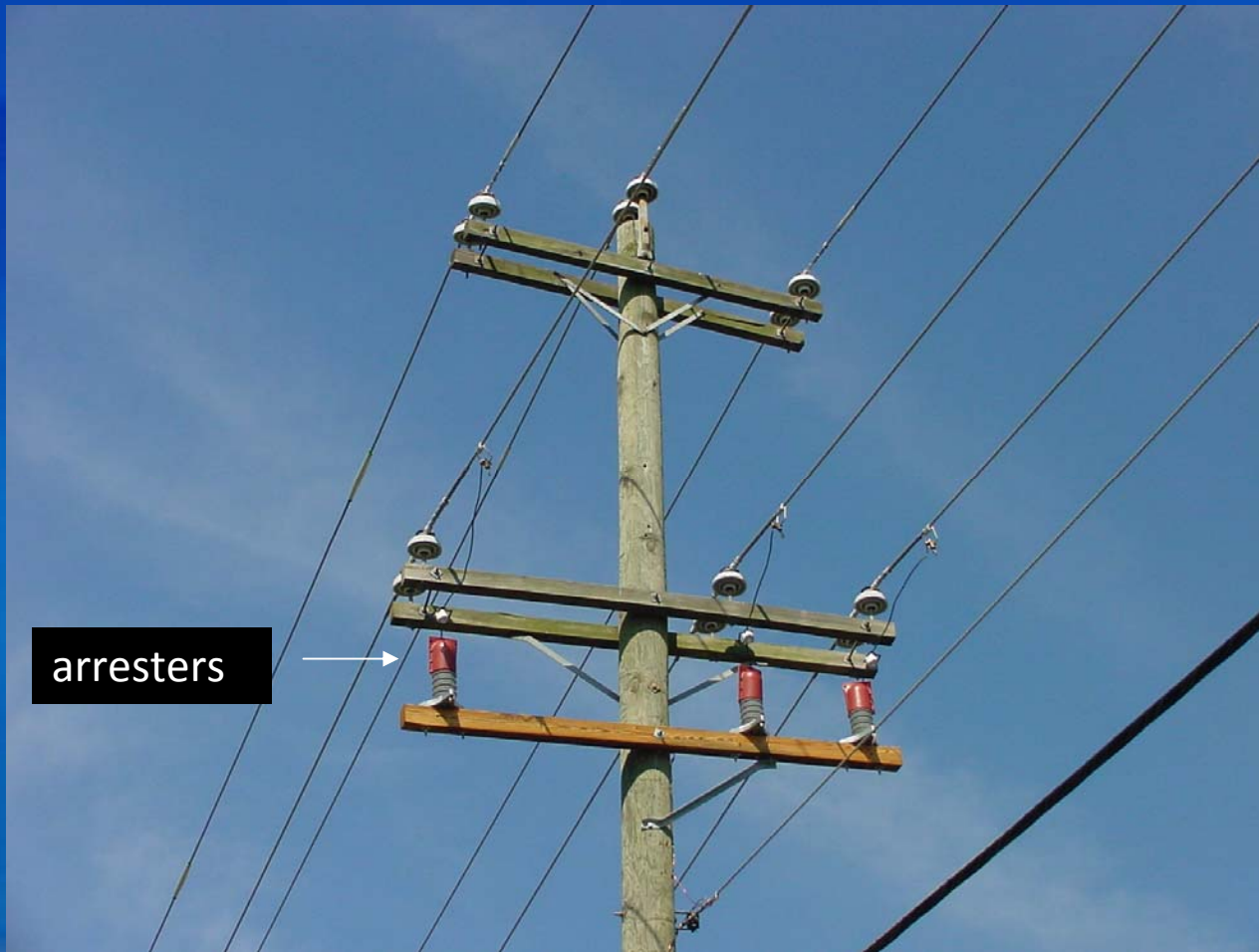
Station Class Arrester



Choices



East Richmond Installation 8-09-07



arresters

Time Passes



Vehicle Accident 4-14-08



Result of Vehicle Accident



Damage from Overvoltage Event

- **Claims from customers**

300 customers affected

0 claims



- **Dominion equipment damage**

2 OVPs

No other equipment damage



OVP Concept

- Non-typical application of proven technology (MOV arresters)
- Essentially grounds the underbuild feeder to redirect energy away from customer and utility equipment
- Arresters chosen to withstand normal operating conditions

Summary

- The overvoltage protector (OVP) is now a proven concept.
- The key is to put high energy station class arresters on the lower circuit and replace them when they are called on to operate.
- The use of these arresters prevents damage to customers' equipment and utility equipment.
- It is the most cost-effective solution to your overbuilt circuits.

For More Details

Overvoltage Protectors – A Novel Concept for Dealing with Overbuilt Distribution Circuits, IEEE Transactions on Power Delivery, Vol. 25, No. 3, July 2010



What Are Your Questions?