



# Installation of UVR-1 **LTC** Controls

Lander Substation  
First Energy – Cleveland, OH

January, 2008

# What was the condition of the Lander Substation of First Energy?

3 - 5000kva Pennsylvania LTC

Transformers - H-41-LN-B, H-42-LN-B,  
H-43-LN-B

- Originally installed in mid-50s and operated in parallel
- Original LTC control not functioning correctly
- Original LTC control modified multiple times

# ICMI Solution

- Replace existing LTC controls with micro-processor based UVR-1 **LTC** controls

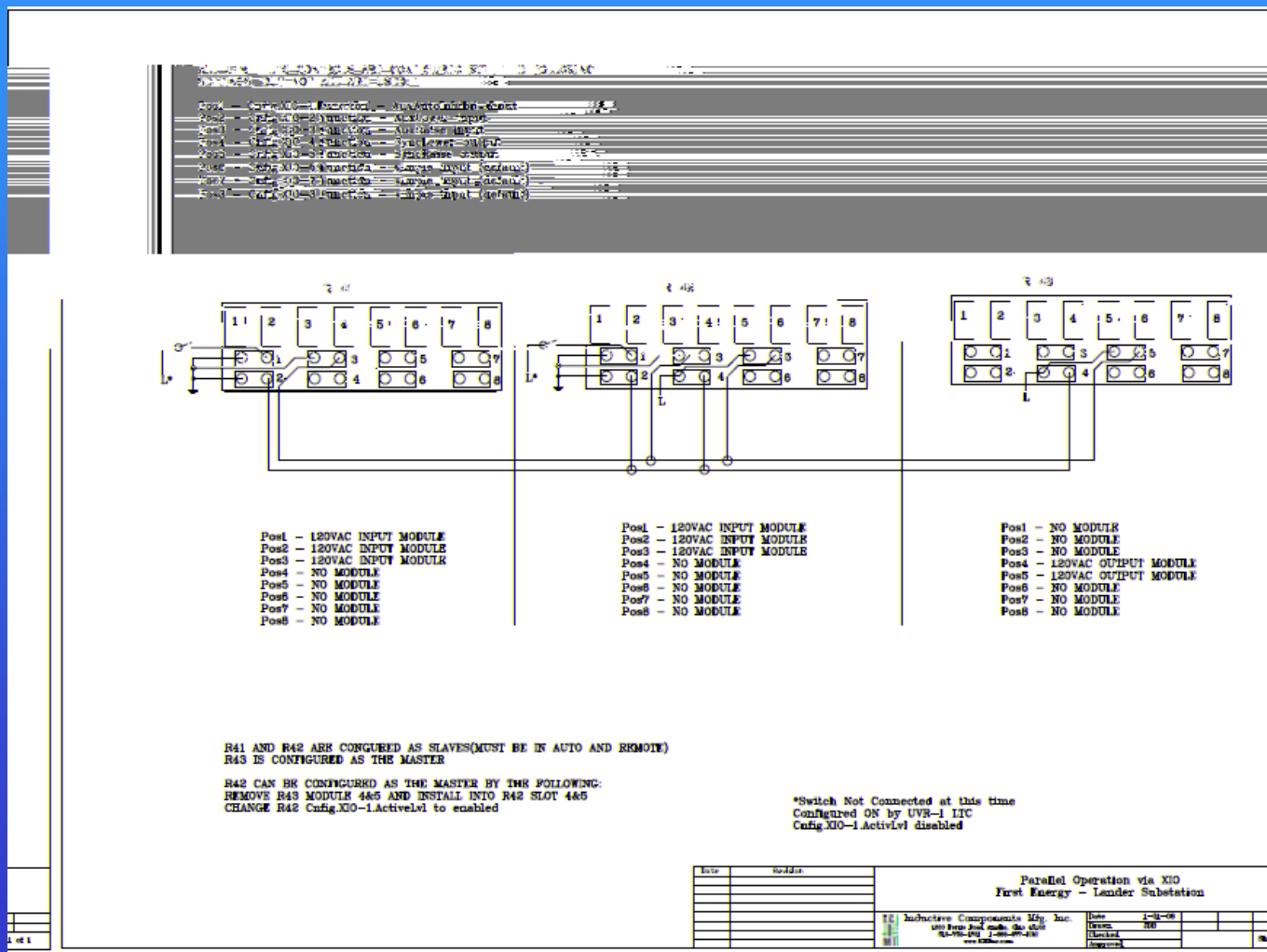
## Advantages:

- All control functions in one package
- Master-Slave parallel operation
- Remote communications capabilities
- Installation/start-up support
- 10 year warranty

# Proposed Bill of Material

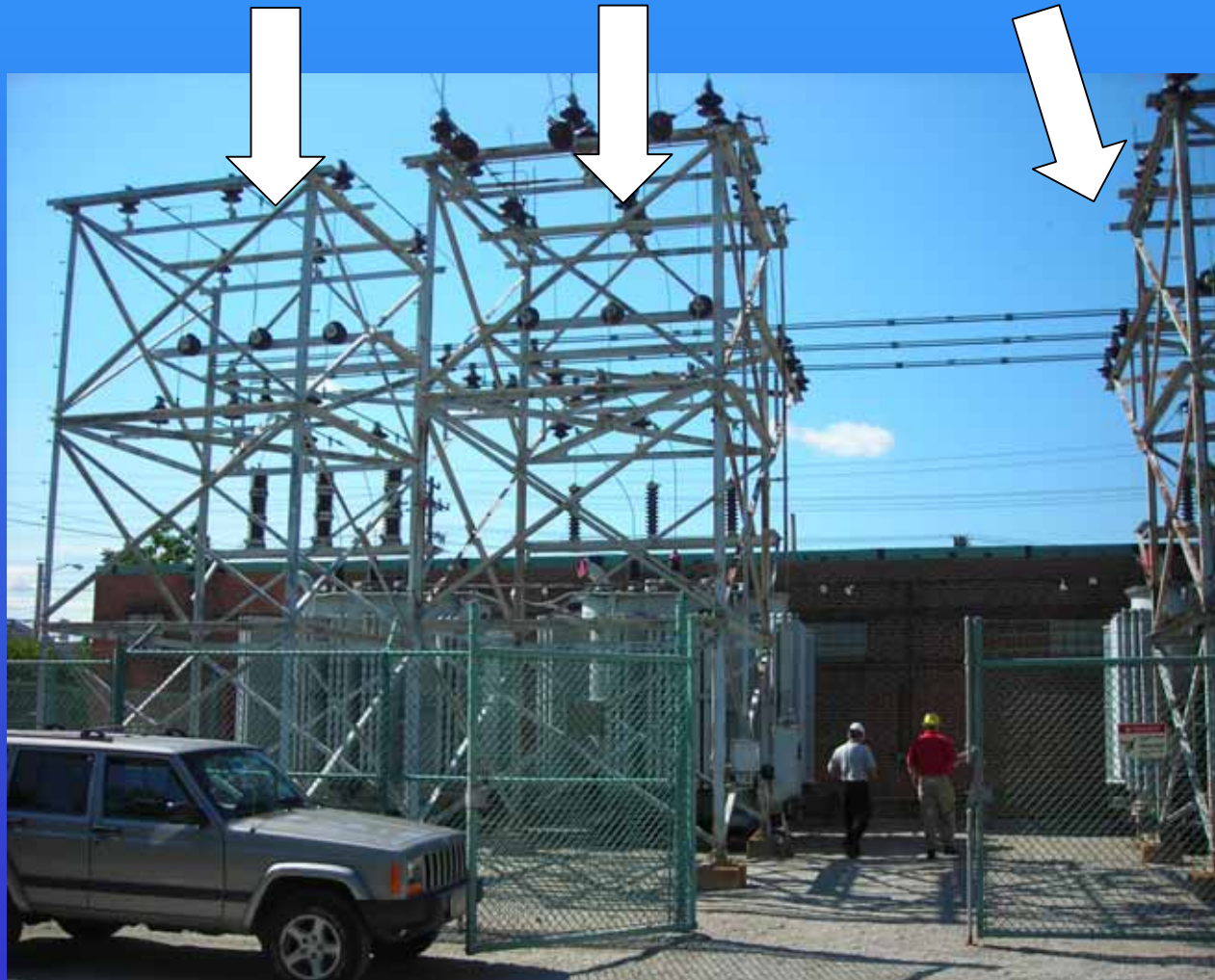
- 3 – UVR-1 **LTC** microprocessor-based load tap changer control
- 3 – XIO input/output boards
- 3 – ICM I Universal Cabinets

# Master/Slave Parallel Operation



# Lander Substation

Unit 43 – Unit 42 – Unit 41



# Pennsylvania Transformer Co.

## 5000kva 34.4kv – 4.8kv



# Tapchanger Controls

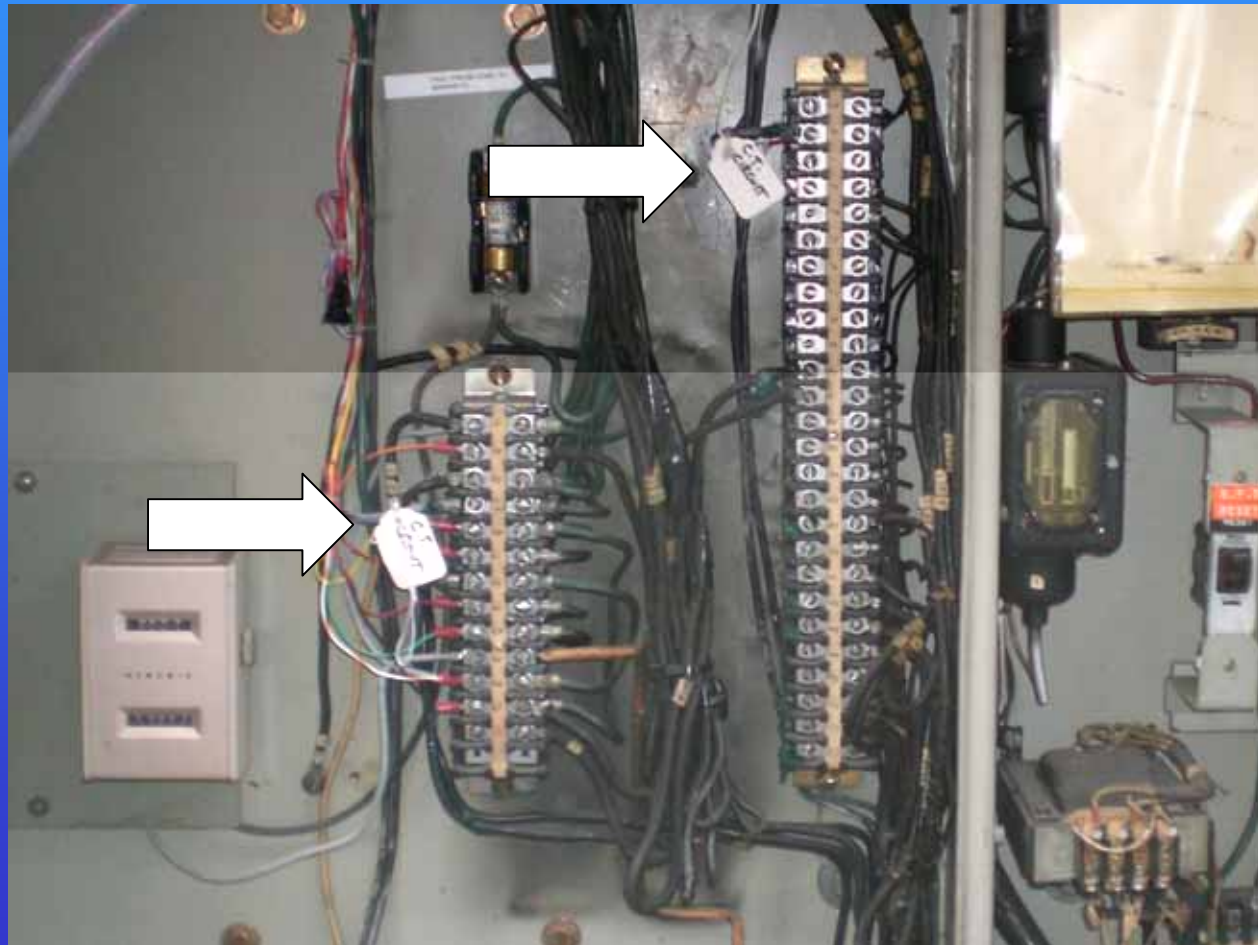
#41

#42

#43



# Locate the 0.2amp CT leads and install “CT shunts”



# Conversion - Remove old control





# Conversion

- Install control panel inside original control cabinet
- Install control panel outside control cabinet in separate cabinet

Because of potential space limitations, the second option was chosen

# Install UVR-1 LTC cabinets

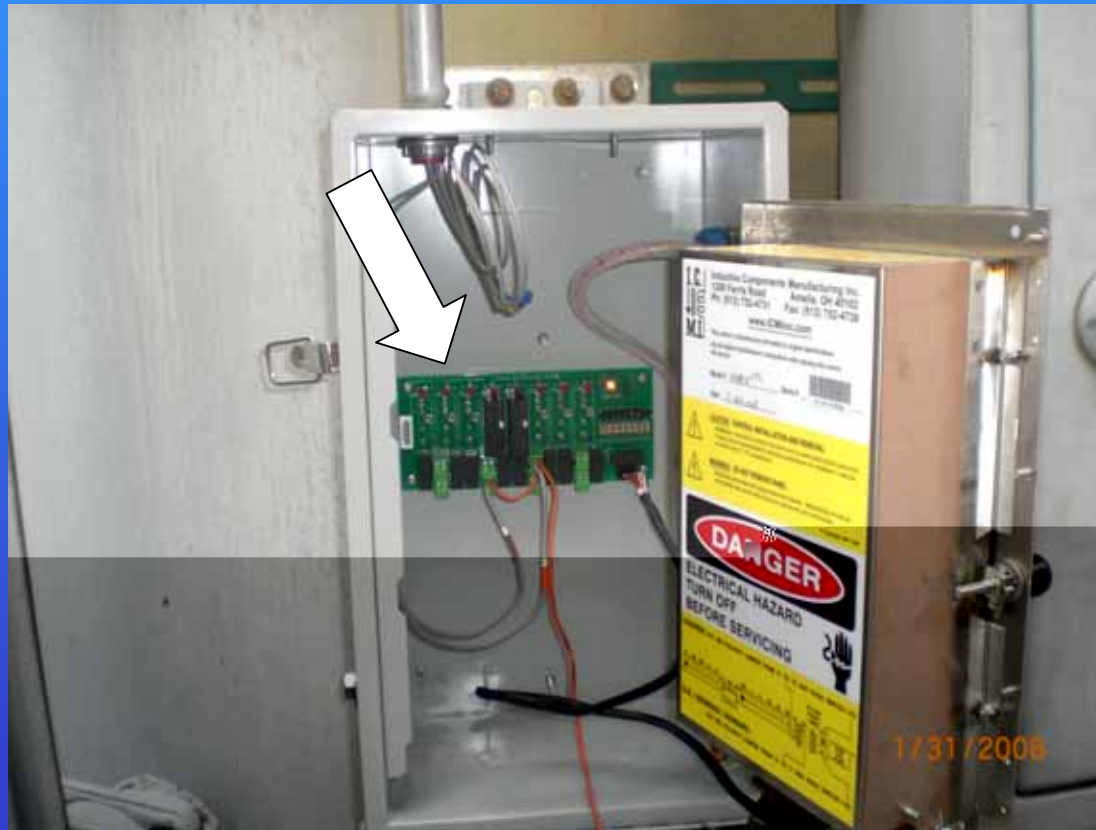


# Connecting new UVR-1 LTC control



# Complete the wiring

## Connect the XIO boards – Master #43



# Complete the wiring (cont.)

## Connect the XIO boards – Slaves

### #41

### #42



# Installed UVR-1 LTC Control





# Questions?

- Contact Bob Dragolic at First Energy
- Contact ICMCI Amelia, OH  
513-752-4731

*ICMI always answers the phone with  
real people during normal hours*