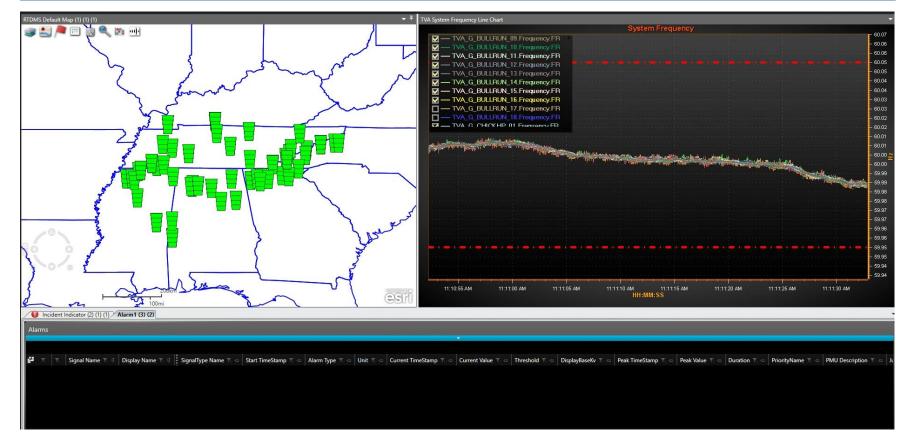
# TVA PMU Real Time Application Uses

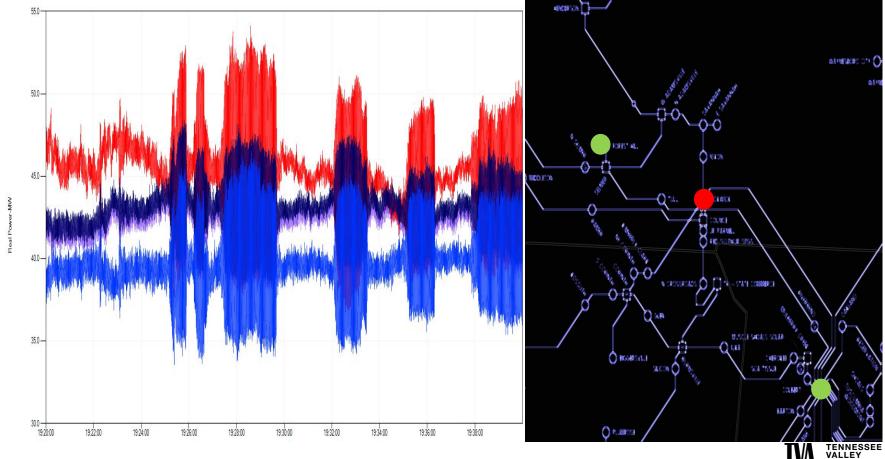


#### **Real Time Oscillations Monitoring**

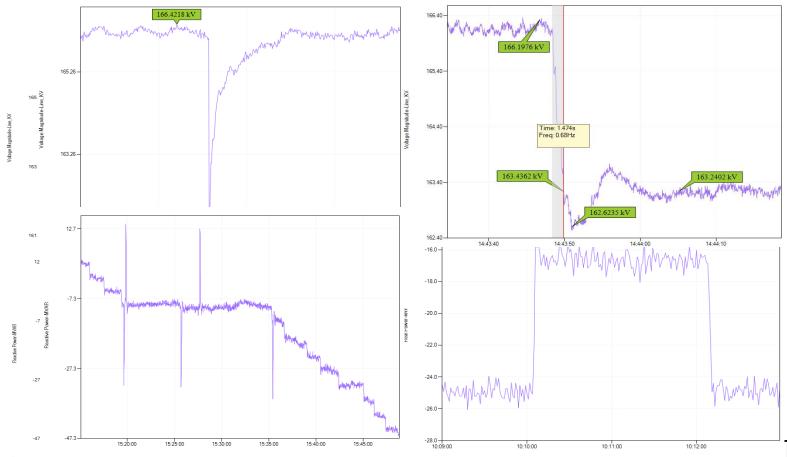




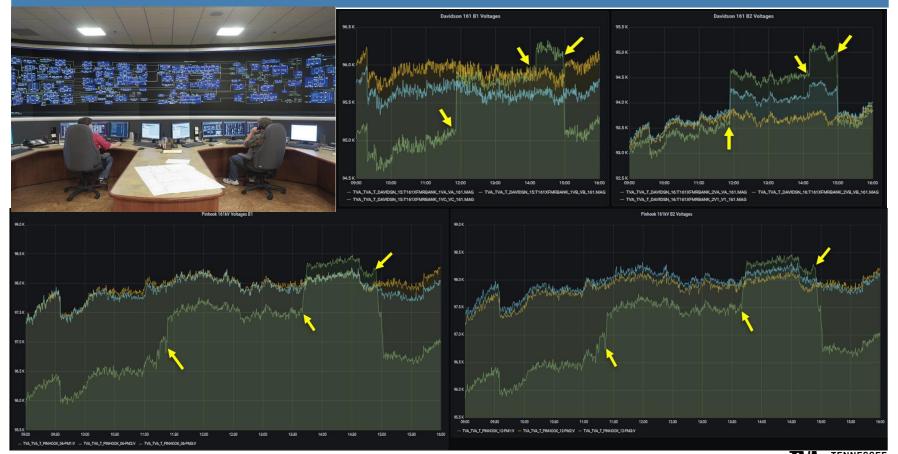
#### **Real Time Oscillation Event with no Alarms**



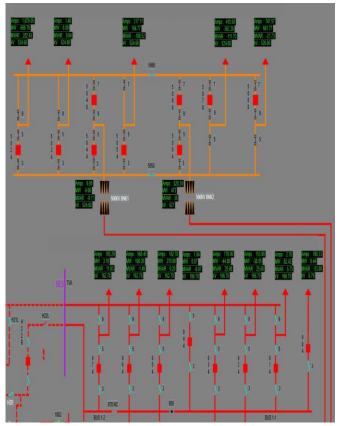
### **IBR Commissioning and Monitoring**

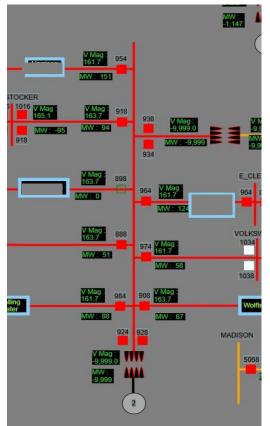


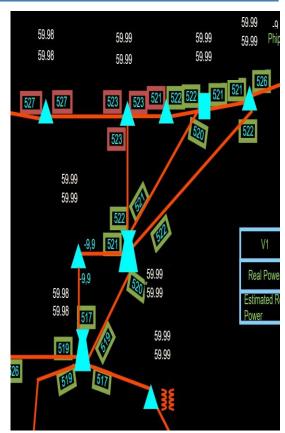
### **Real Time System Testing**



#### **Real Time One Line Diagrams**





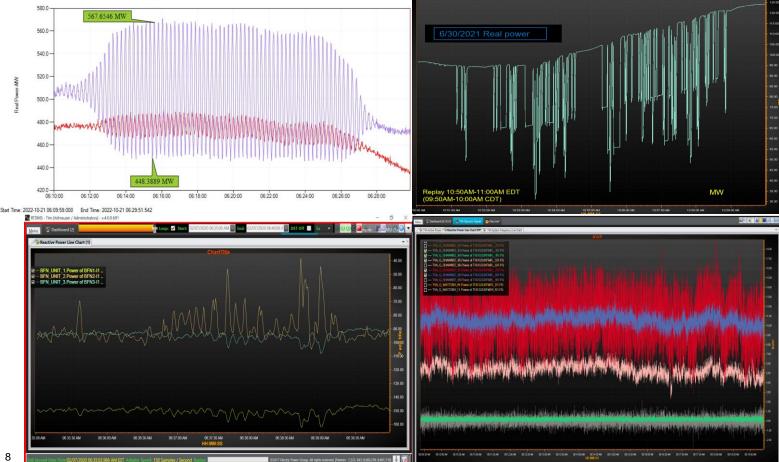




# TVA PMU Post Event Analysis

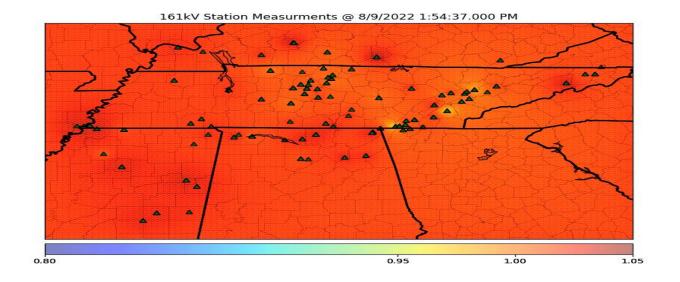


#### MW and MVAR Oscillations due to equipment issues



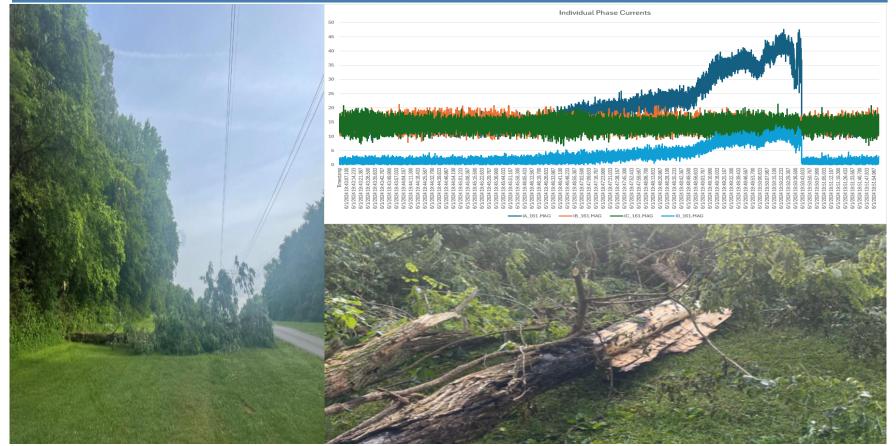


# Visualizing High Speed Large Scale Events

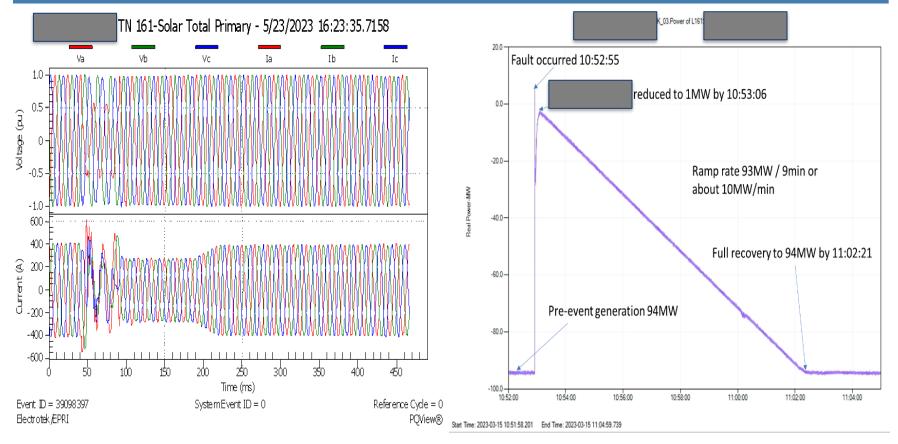




# **Investigating Events**



### Post Commissioning issues with IBRs

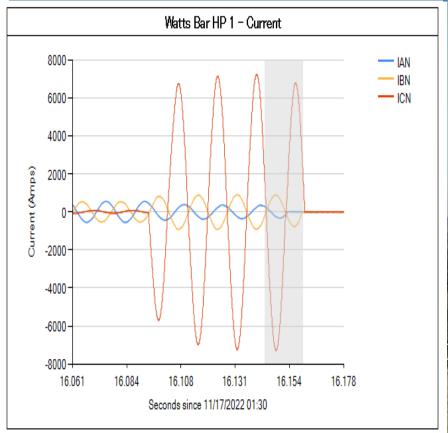


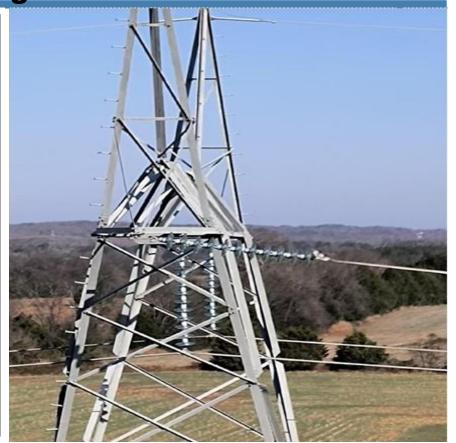


# TVA PMU Planned Uses



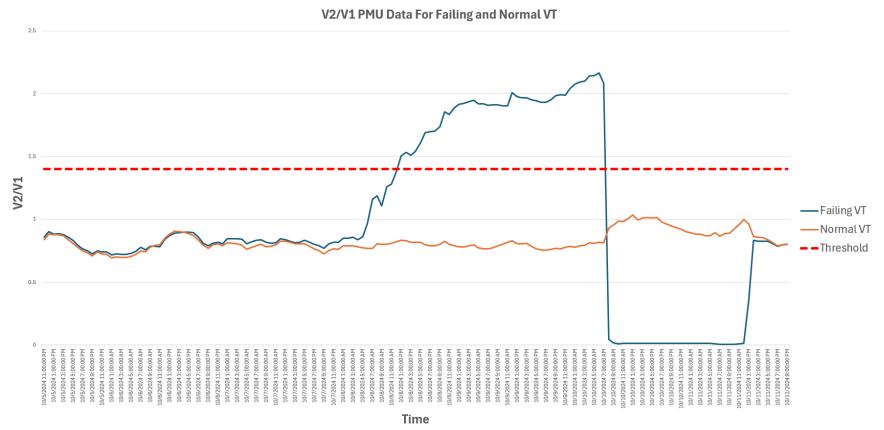
**Unbalance Current Monitoring** 





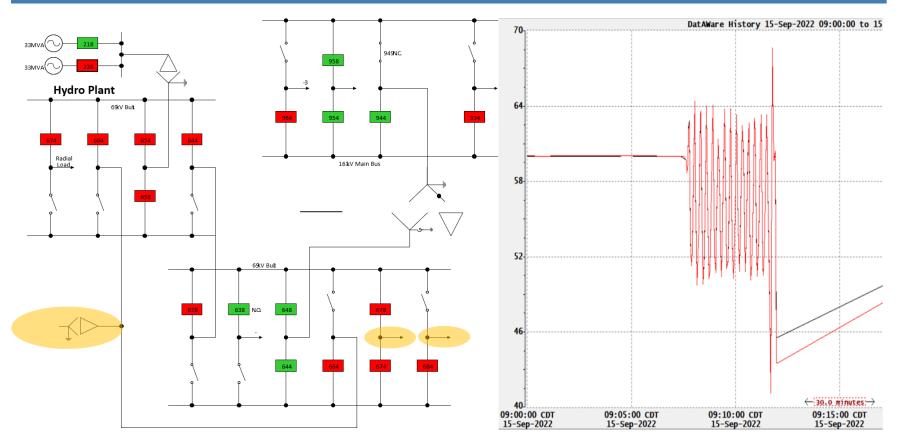


#### **Voltage Unbalance Monitoring**





#### **Islanding Detection**





# TENNESSEE VALLEY AUTHORITY