



## ICARUS Collaboration meeting

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October 14, 2024



# Fermilab Electrical Power Infrastructure

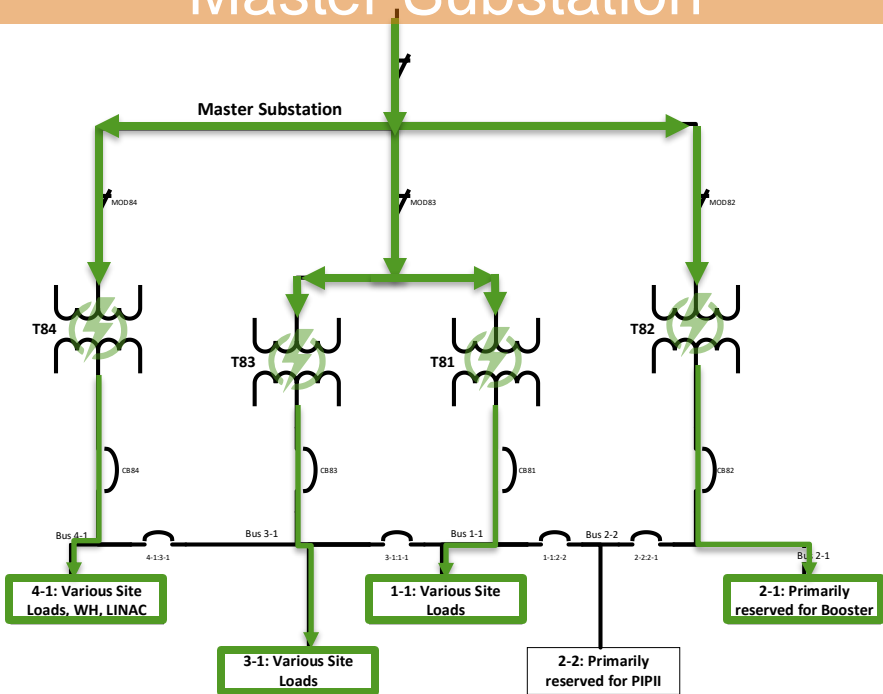
- Multiple events within the past 3 months have impacted Fermilab's electrical power capacity and resiliency. Current impact of the events limits the site to:
  - Conventional Facilities Power: Available/Operational
  - Accelerator Operations: Uncertain/Reduced
- Damaged/defective components -- 12-28+ months
- Replacement of destroyed T88 transformer -- 36+ months
- Currently in the process of implementing interim modifications to restore limited capacity by the end of the accelerator shutdown (end of October), limiting the impact of operations to:
  - Conventional Facilities Power: Available/Operational
  - Accelerator Operations: LINAC/Booster - Available; Main Injector – Uncertain/Reduced
- Developing long term plan/schedule to complete all repairs and restore full operations
- Continuity of Operations considerations include Cryogenic Systems



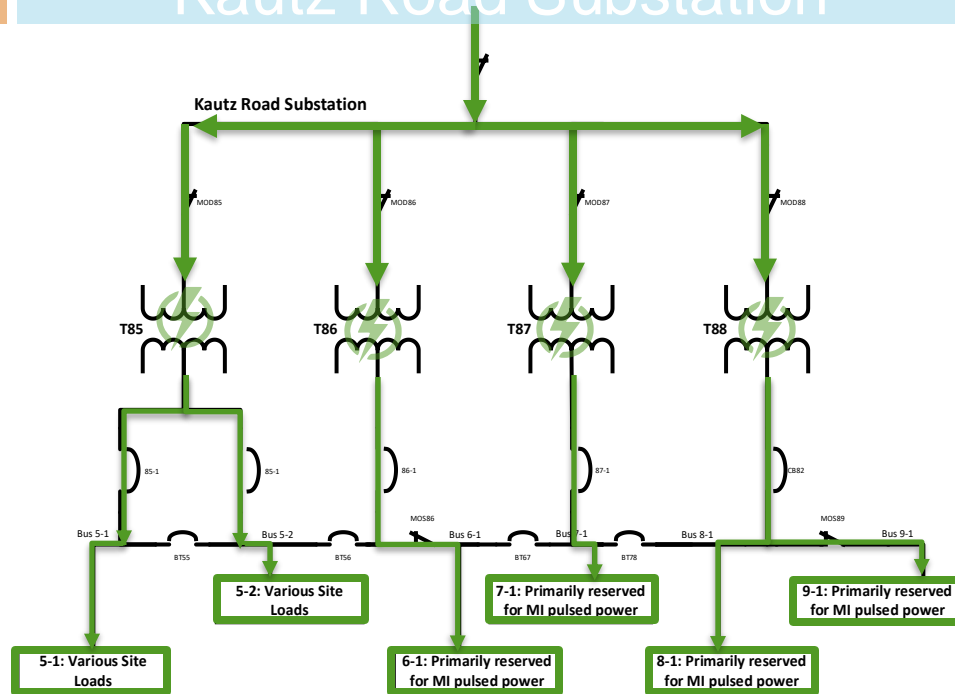
# Fermilab Electrical Power Infrastructure

## Simplified Diagram – Normal Operations

### Master Substation



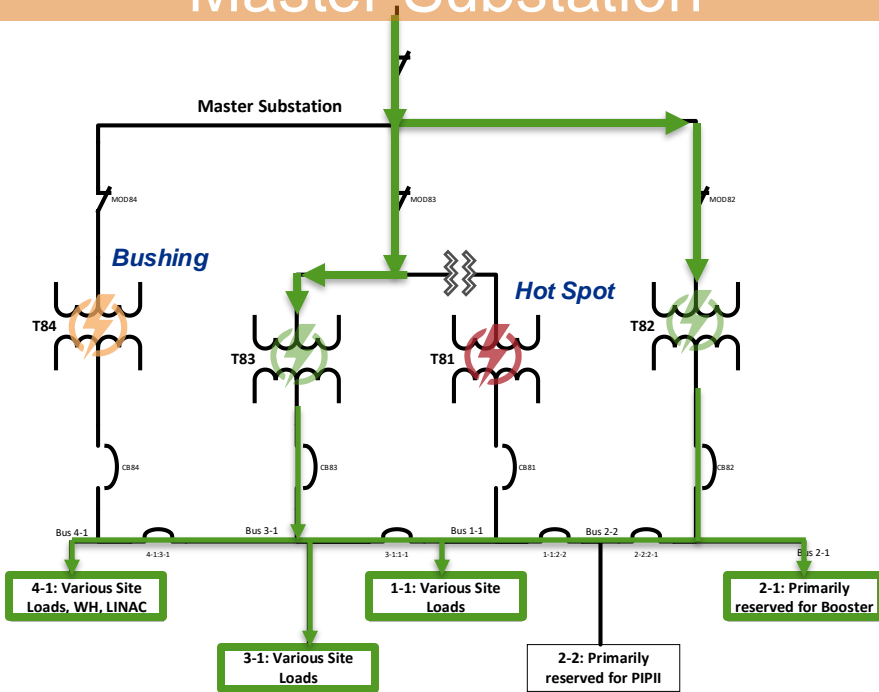
### Kautz Road Substation



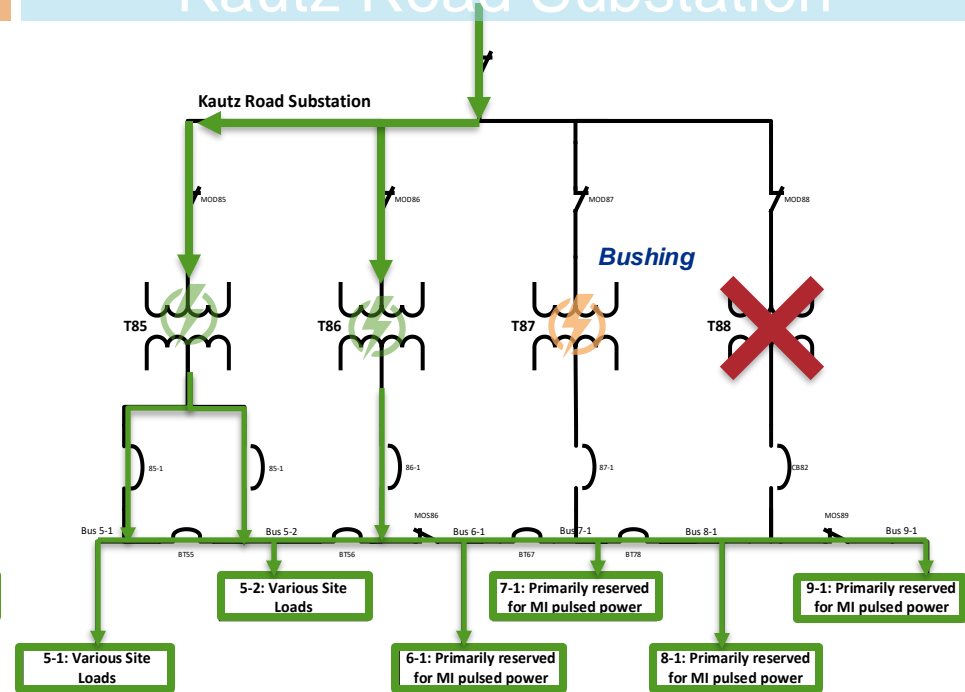
# Fermilab Electrical Power Infrastructure - Interim Restoration Plan

“2x2” Simplified Diagram – by end of October 2024

## Master Substation

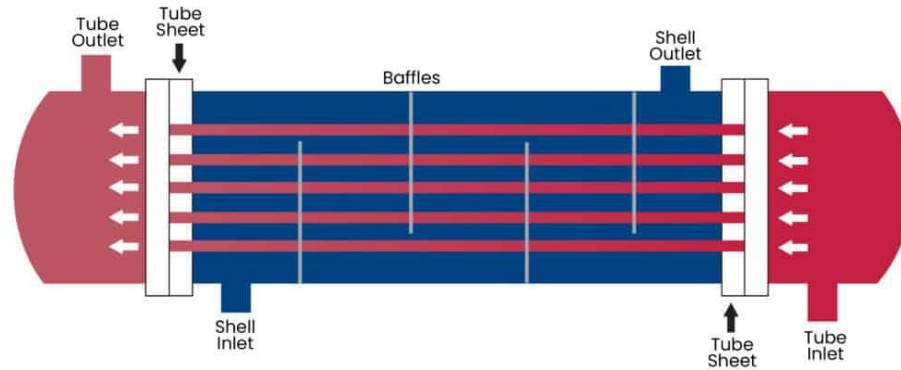


## Kautz Road Substation



# Operations Update – Main Injector Heat Exchangers

- There are 9 MI Heat Exchangers
  - In all MI service buildings
  - Function: cool LCW for MI and BNB
  - Designed, built, and installed in 1995-97 (vendor, BASCO Div. API is still in business)

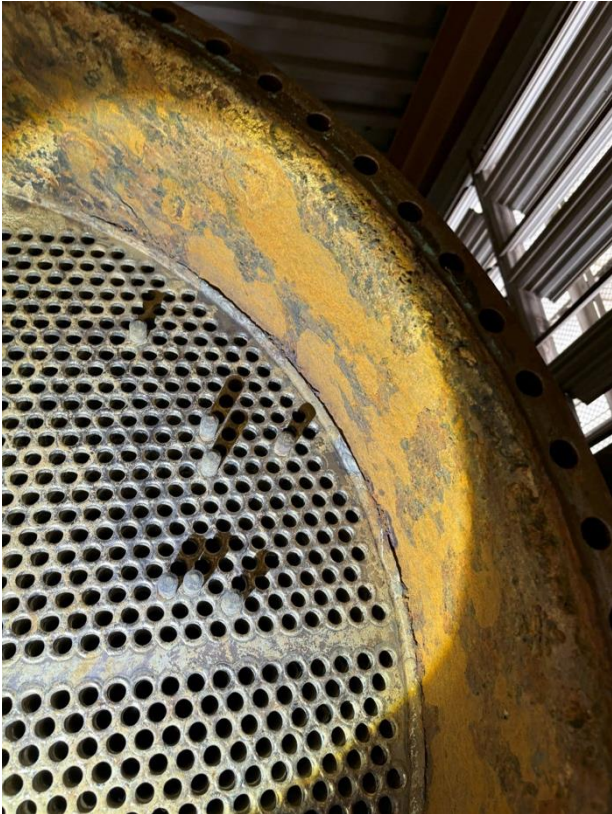


# Operations Update – Heat Exchangers

- While inspecting the cleaned Main Injector heat exchangers, AD engineer noticed that the interior of the heat exchanger channels are experiencing severe corrosion.
- Time of development of these problems is unknown.



# Operations Update – Heat Exchangers – MI-10





# Operations Update – Heat Exchangers – MI-30



