

# S&C Electric Company

---

Michael Kilpatrick Regional Vice President

November 29, 2011



# S&C Today

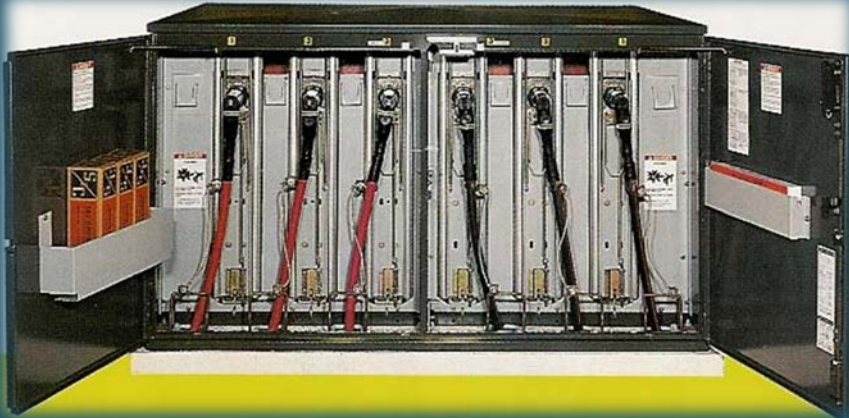
- S&C Electric Company
- Chicago, Illinois
- Employee Owned
  - 46 acres
  - 1.2 million sq. ft.

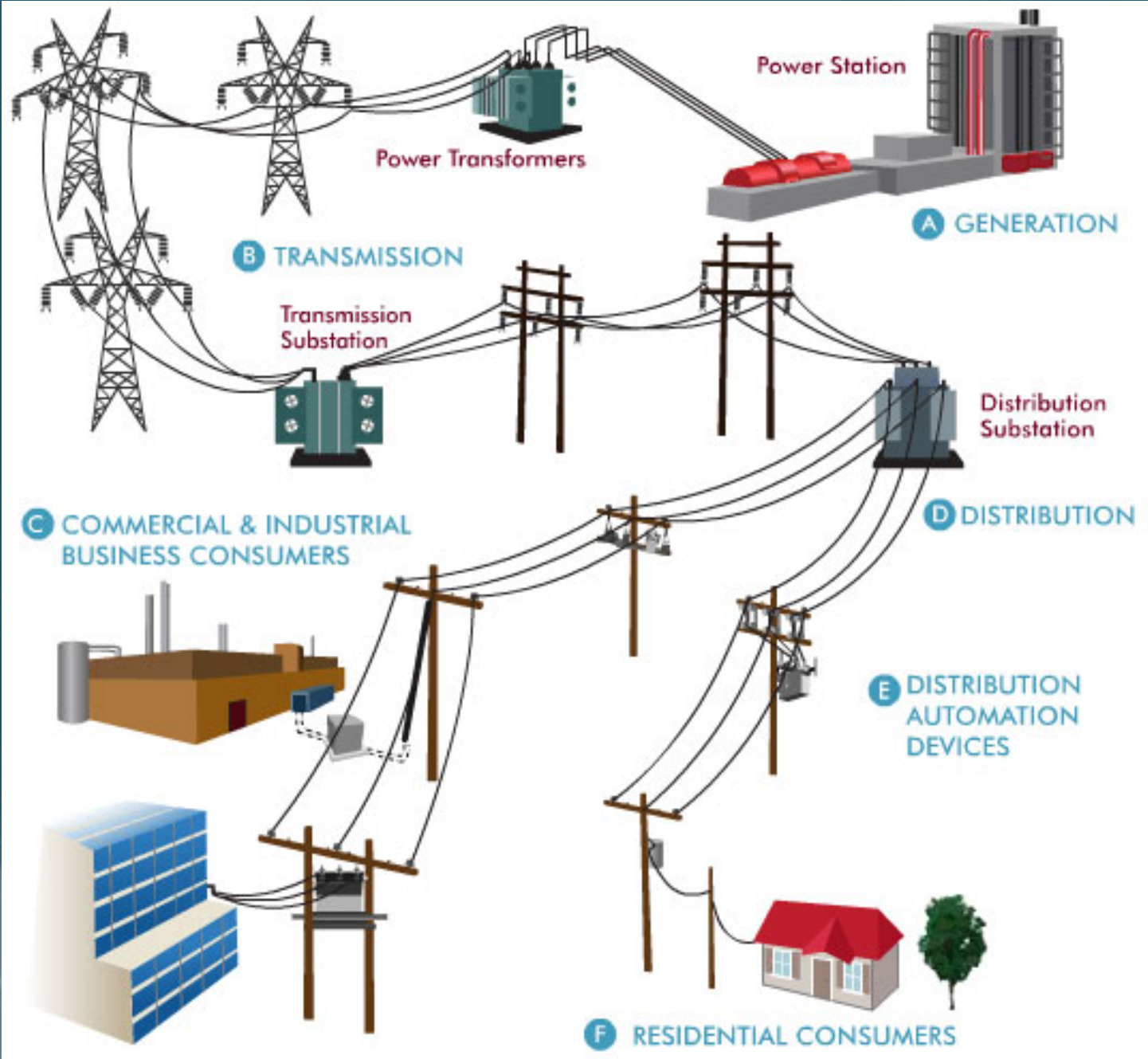
## Employees

- 1800 in Chicago
- 2500 Globally



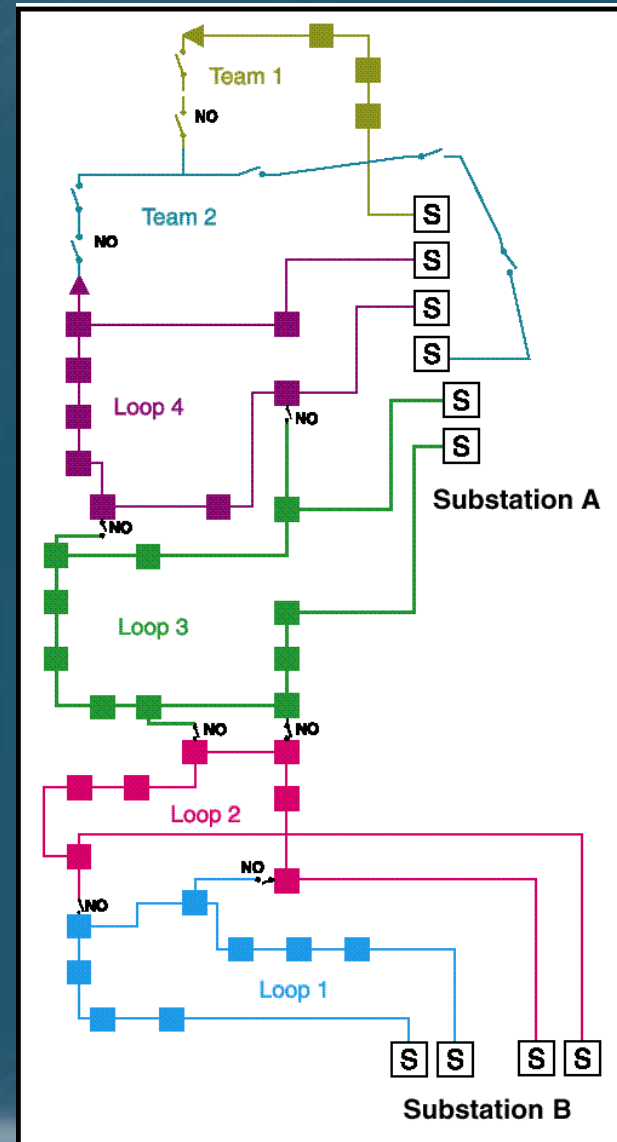
# S&C Traditional Products



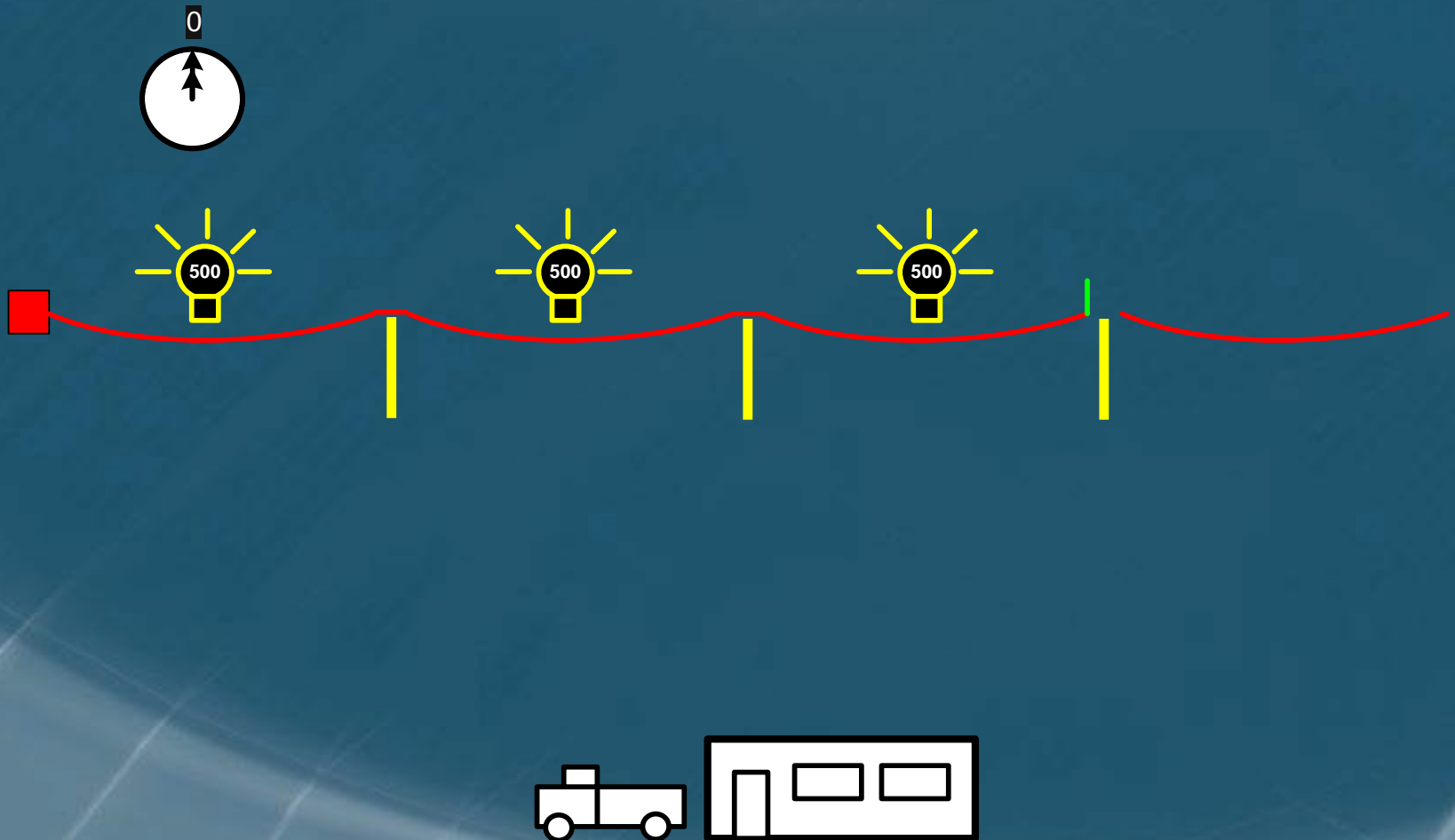


# What this means to the consumer?

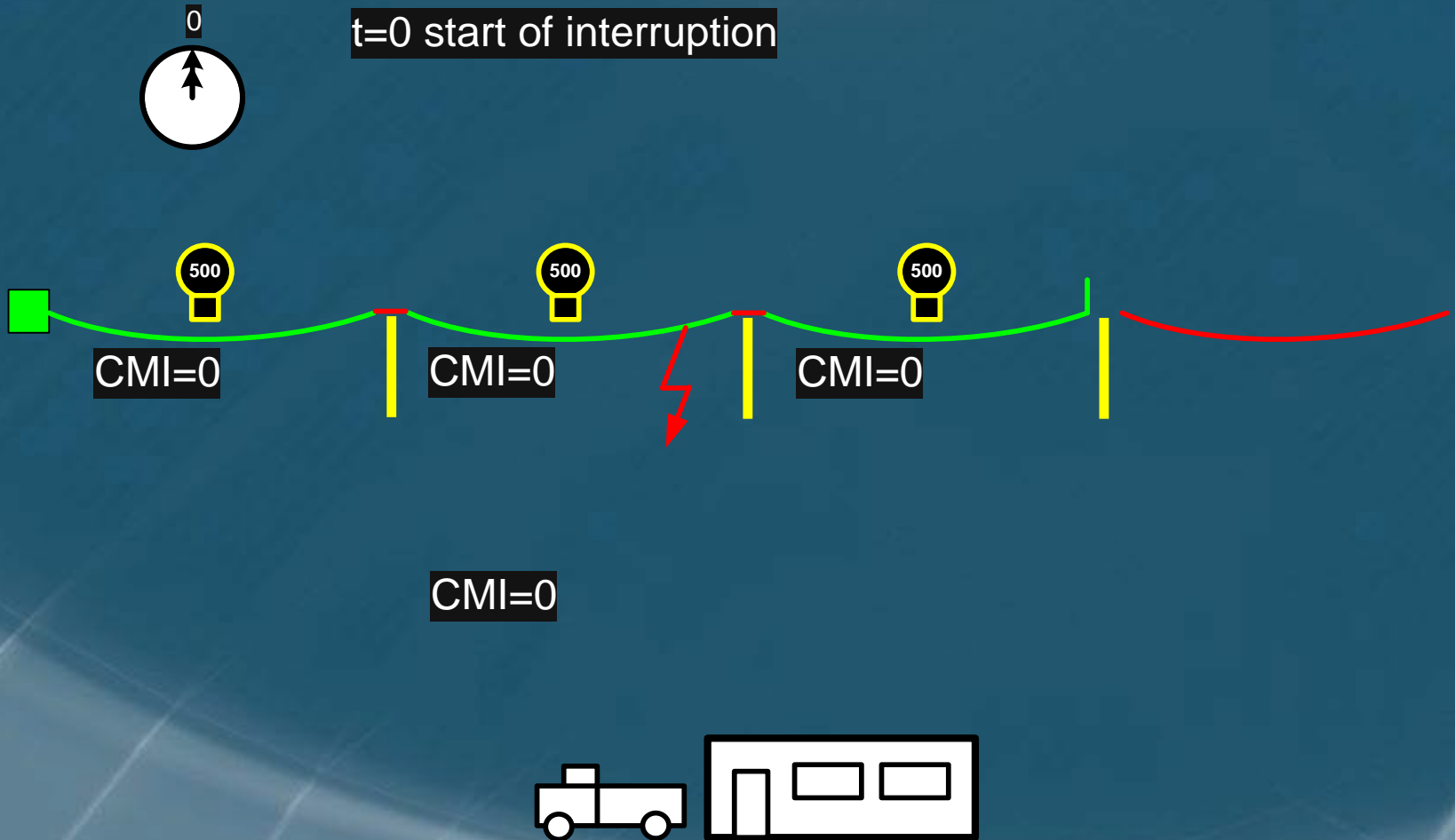
- Neighborhoods are feed from Substations
- Main Circuits are the spine of the grid and account for the majority of customer outages
- 500 to 5000 customers per circuit
- Distributed Devices Manual or Smart
- Capacity and Design considerations



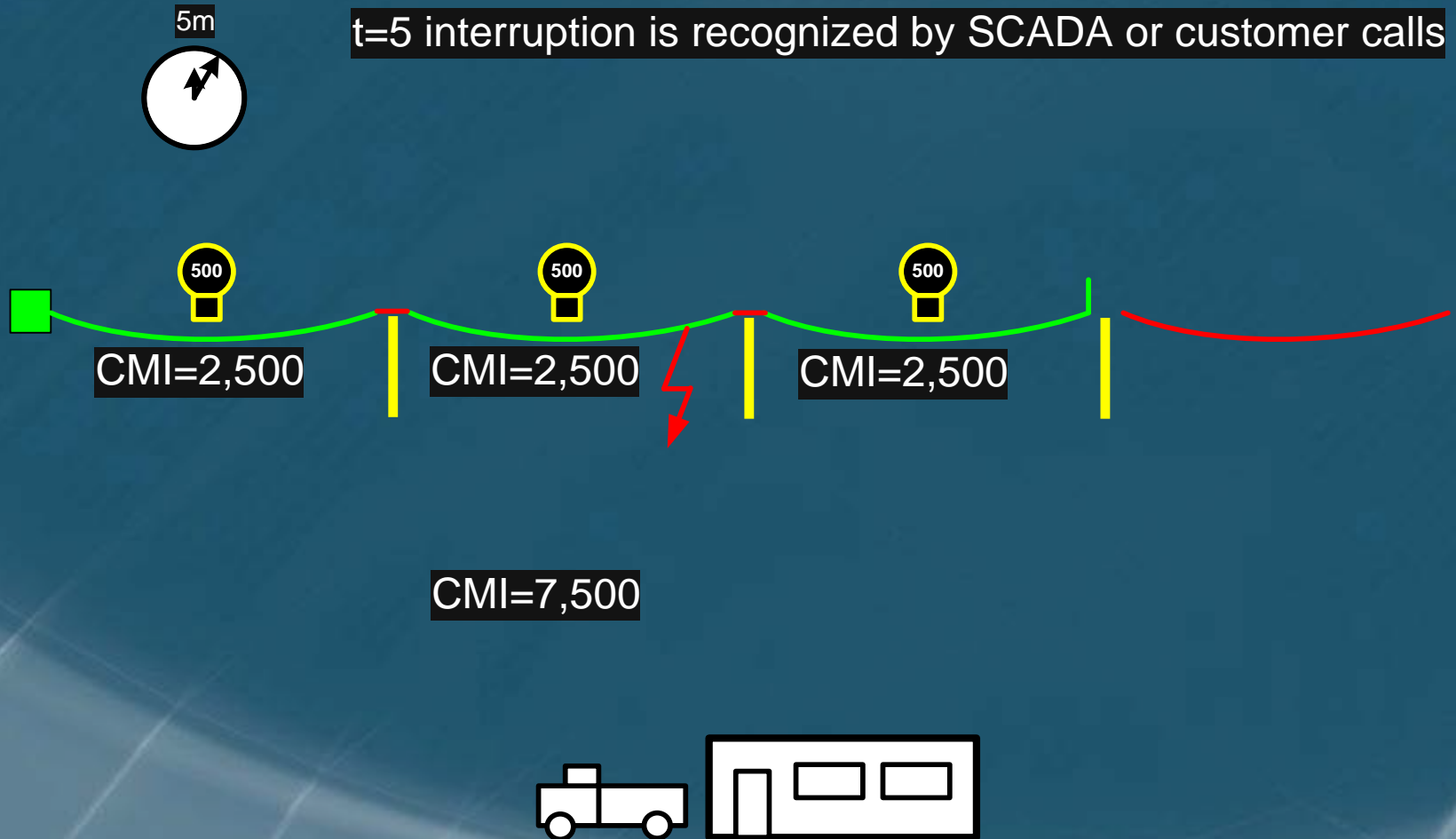
# Many Systems Today Interruption Timeline with Manual Switching



# Interruption Timeline with Manual Switching

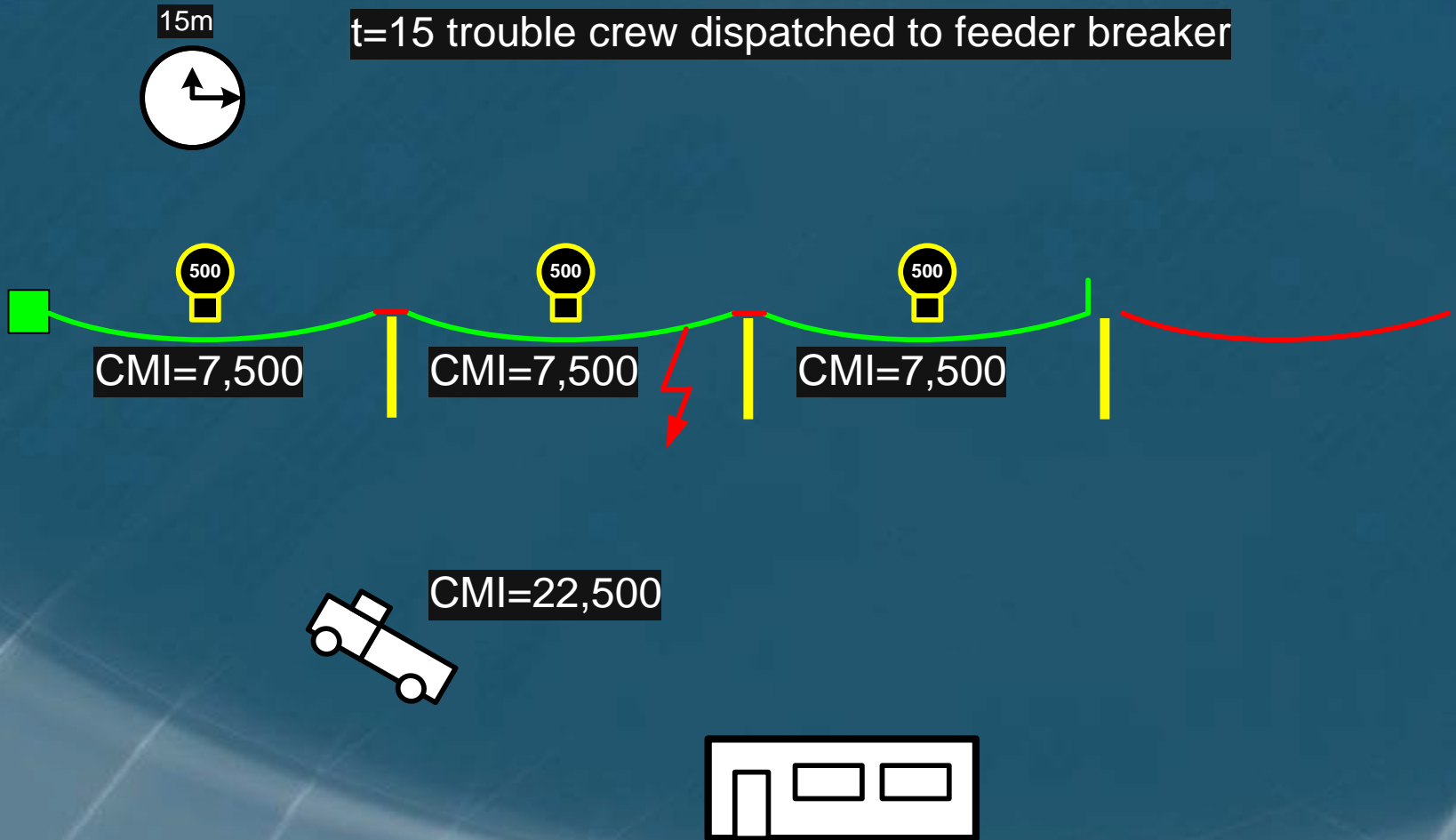


# Interruption Timeline with Manual Switching

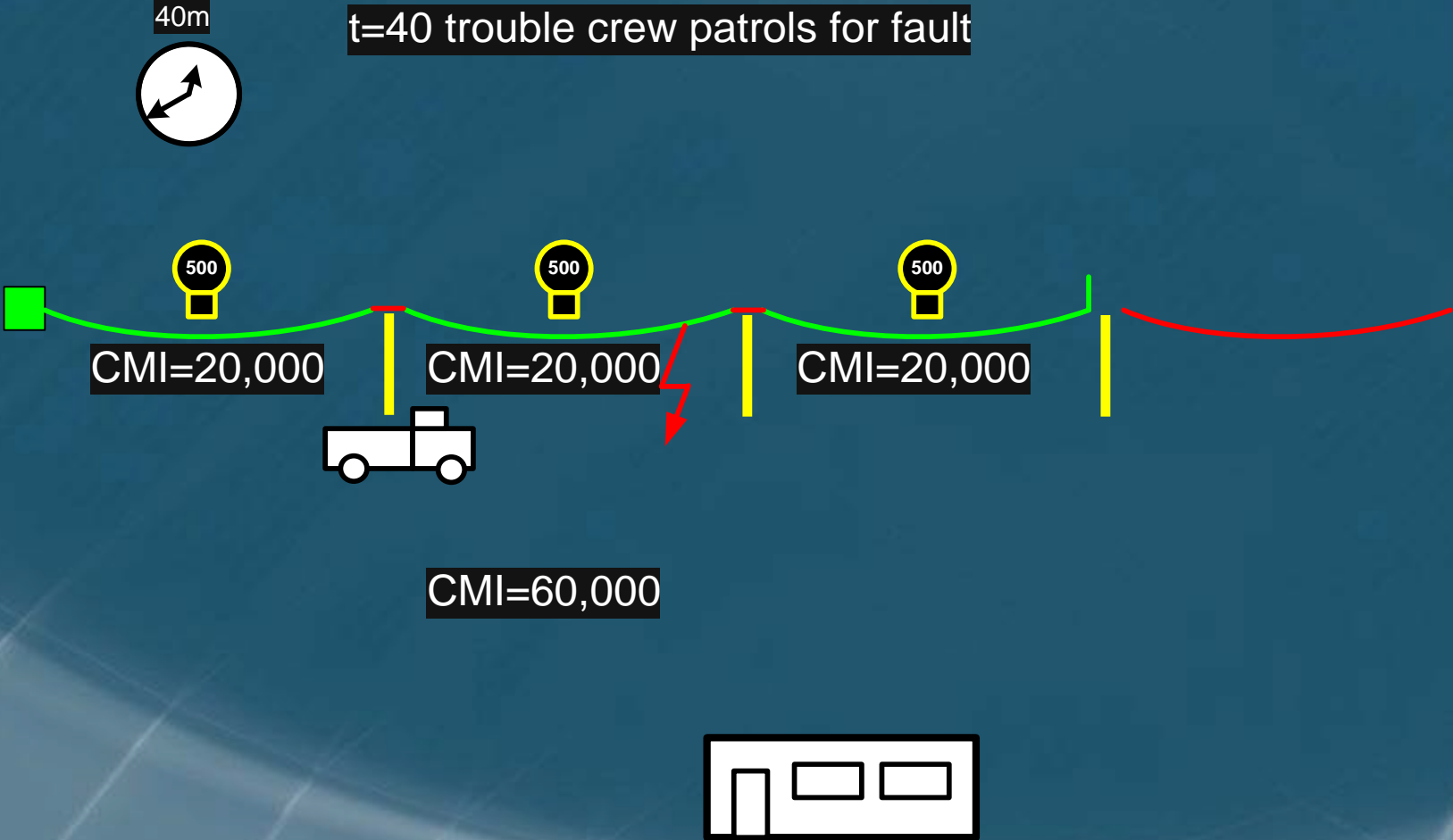




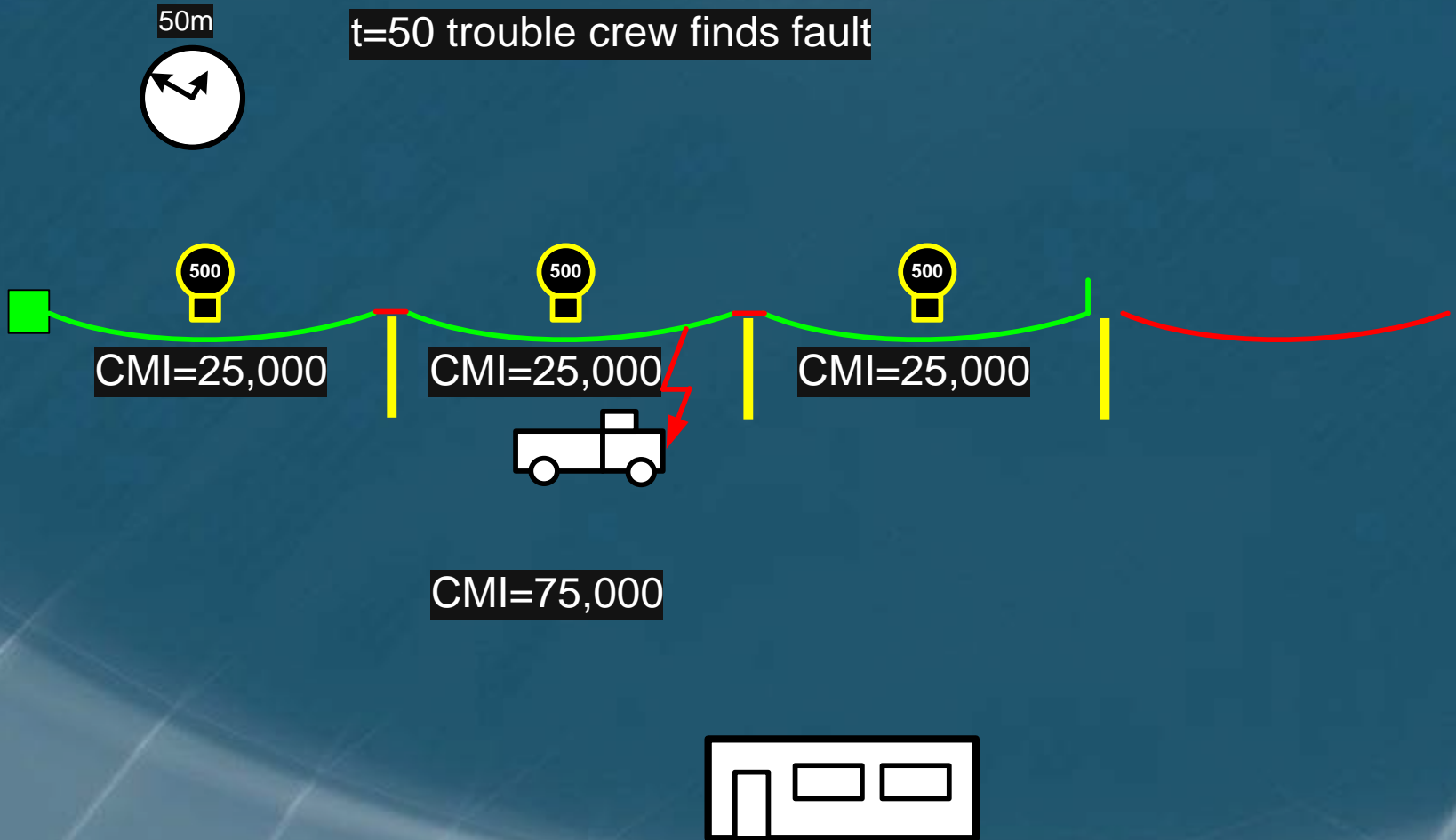
# Interruption Timeline with Manual Switching



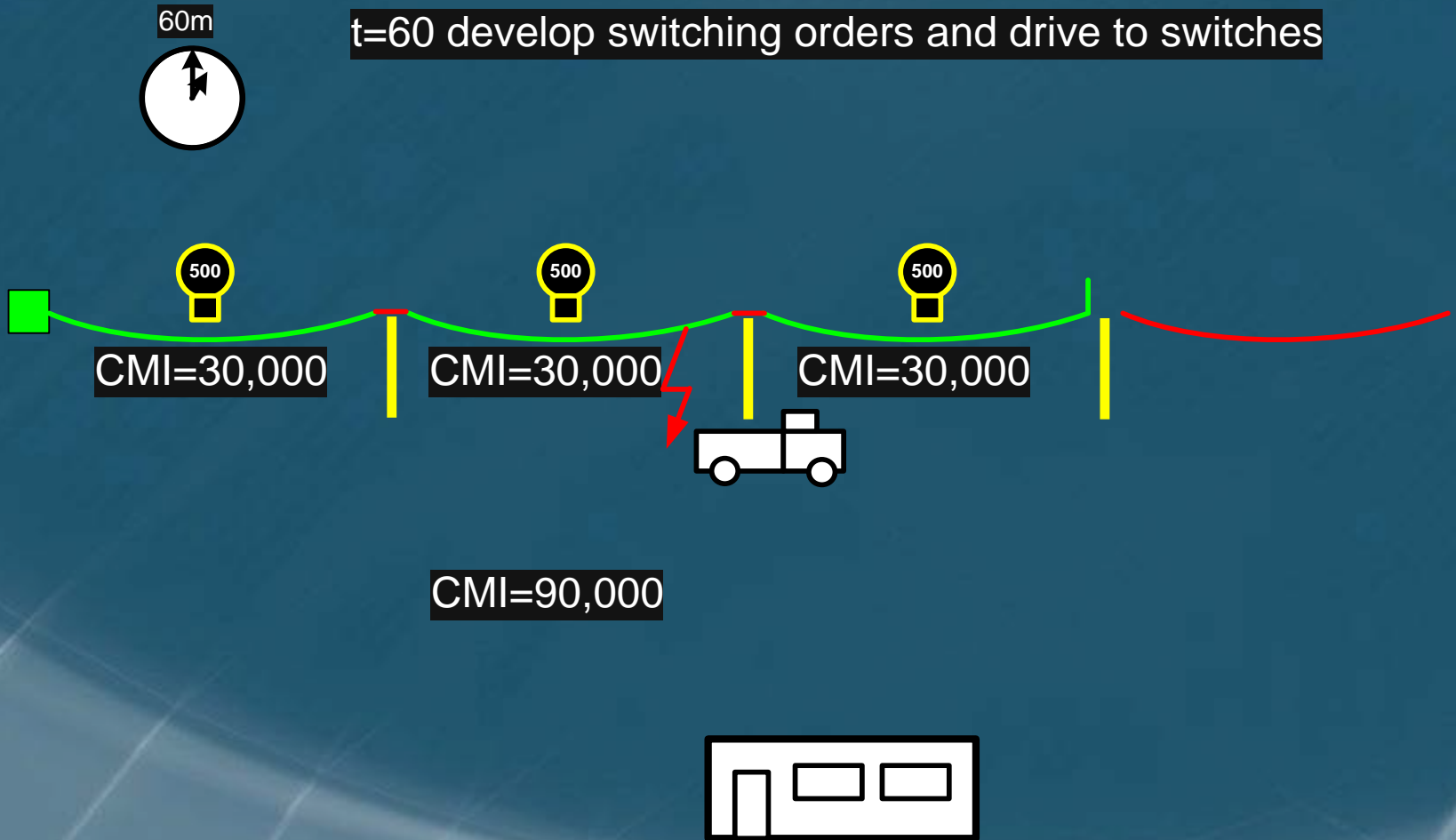
# Interruption Timeline with Manual Switching



# Interruption Timeline with Manual Switching



# Interruption Timeline with Manual Switching



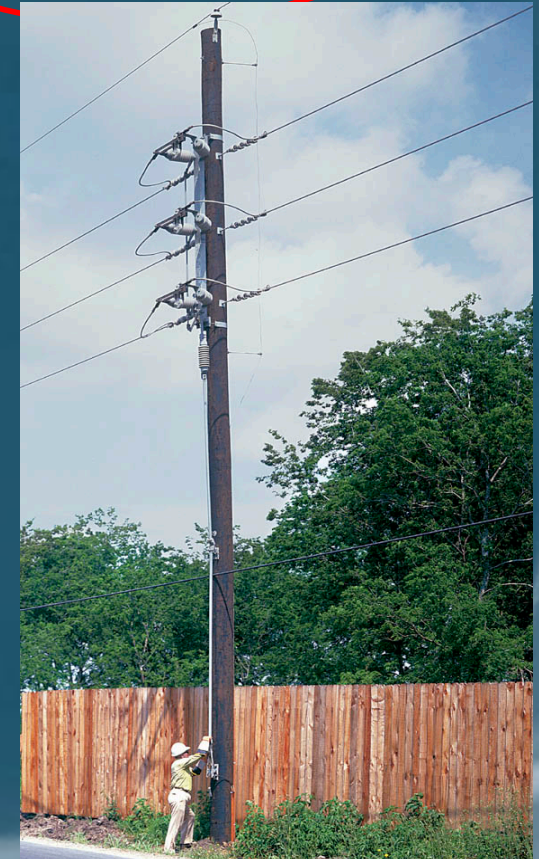
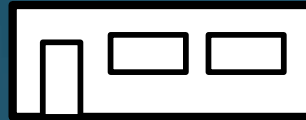
# Interruption Timeline with Manual Switching

1h 5m

t=65 open downstream switch



CMI=97,500

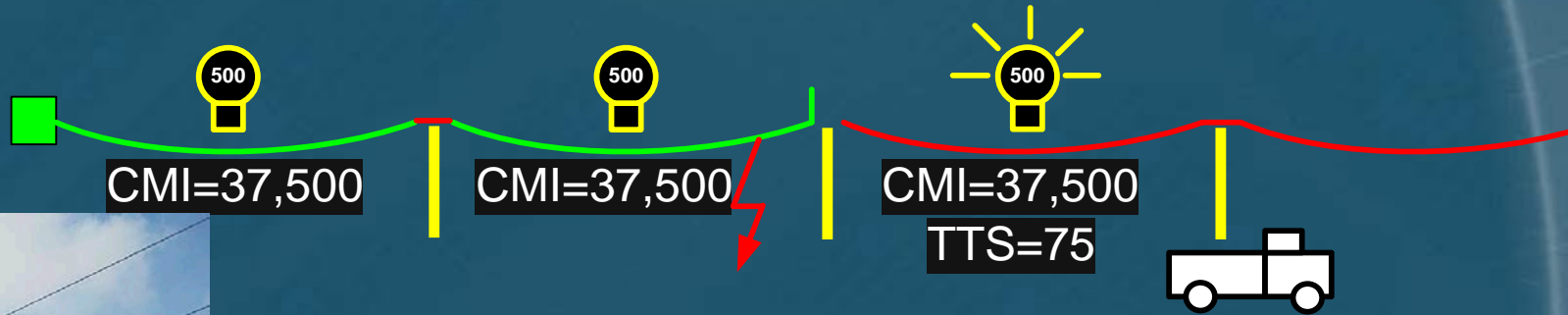


# Interruption Timeline with Manual Switching

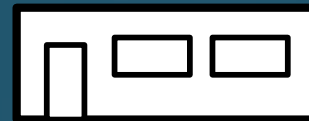
1h 15m



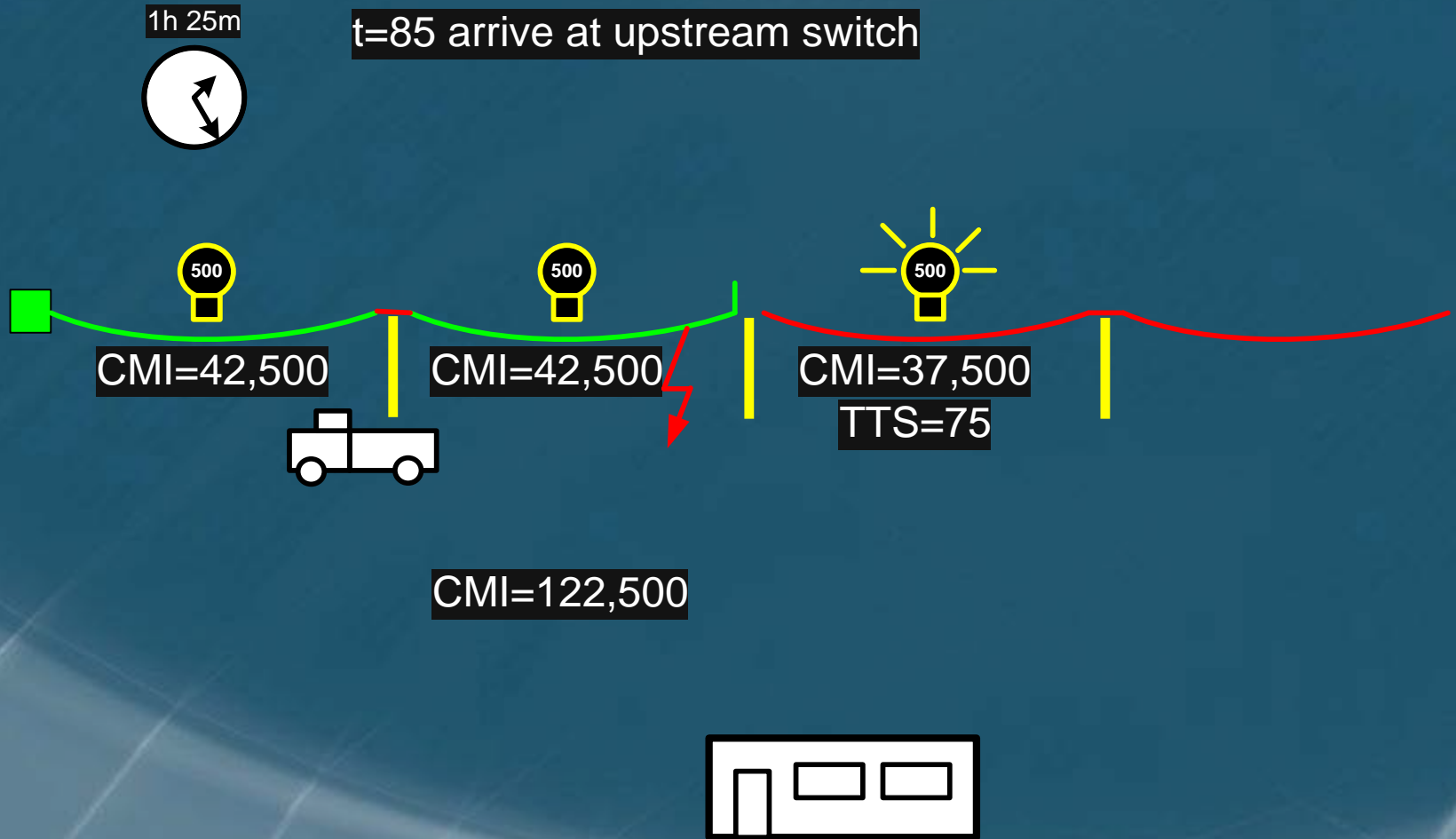
t=75 close tie switch for restoration



CMI=112,500



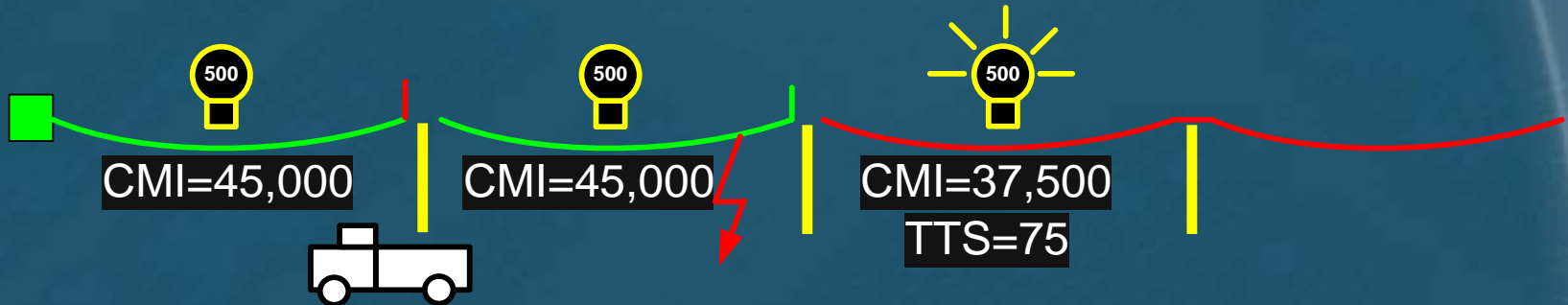
# Interruption Timeline with Manual Switching



# Interruption Timeline with Manual Switching

1h 30m

t=90 open upstream switch



CMI=127,500



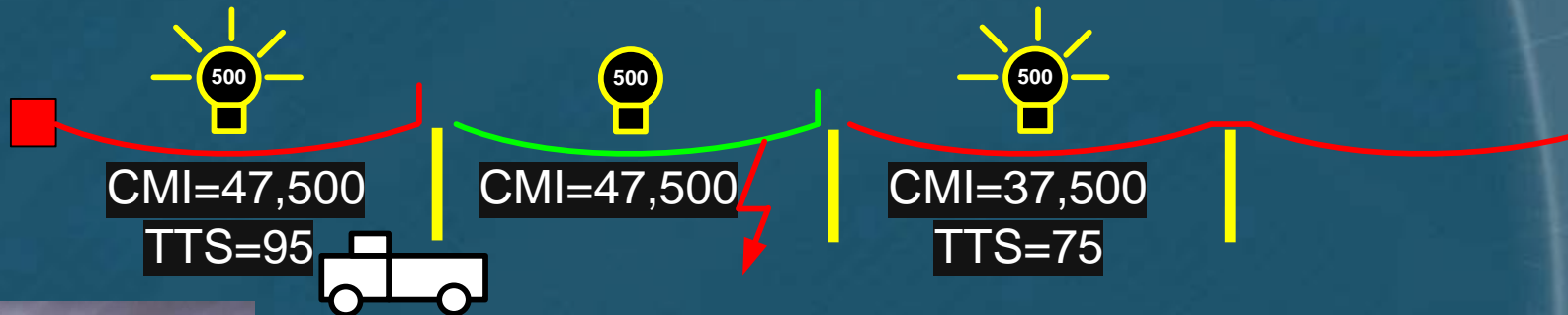


# Interruption Timeline with Manual Switching

1h 35m



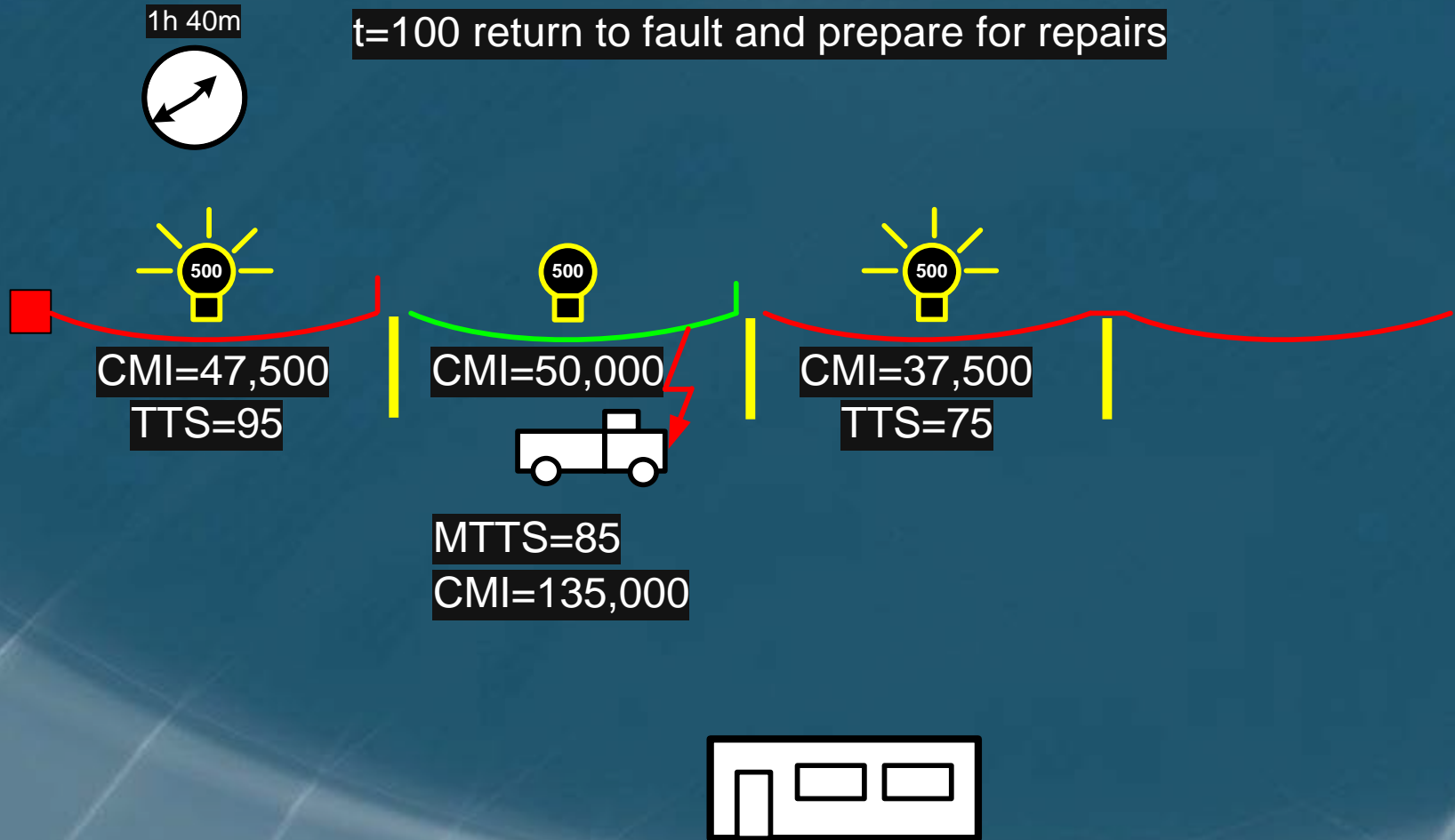
t=95 call in for SCADA close of circuit breaker



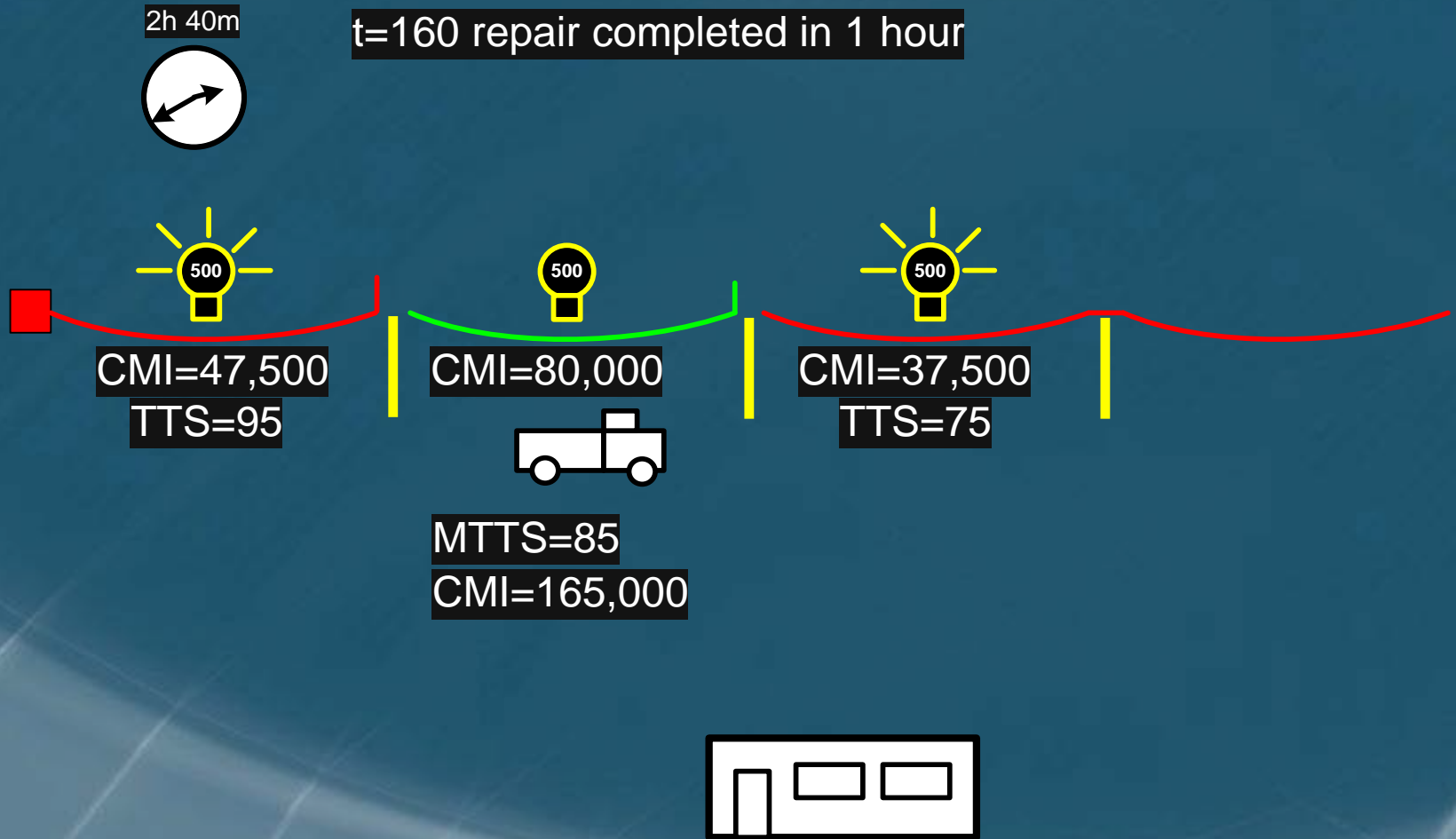
MTTS=85  
CMI=132,500



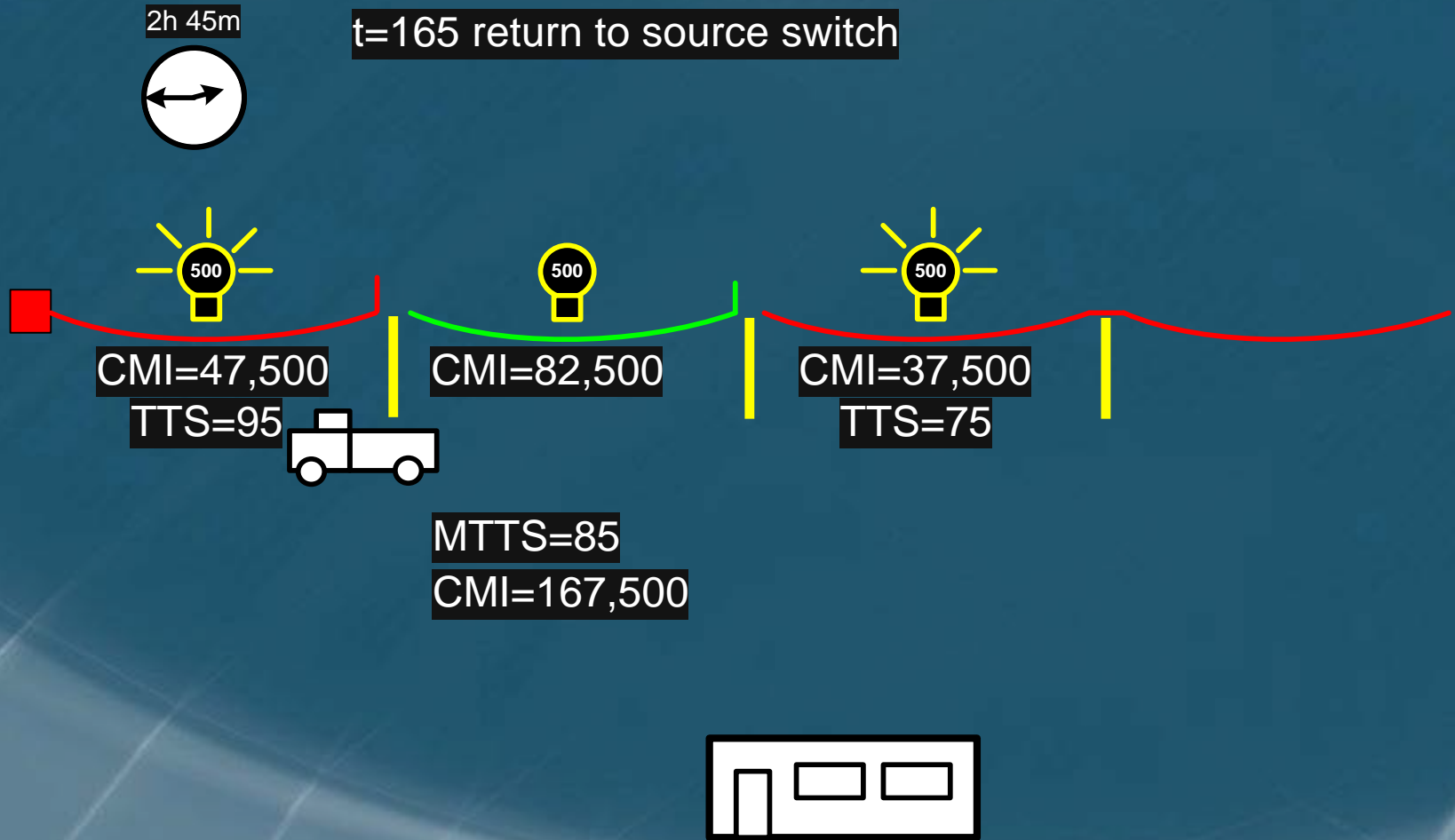
# Interruption Timeline with Manual Switching



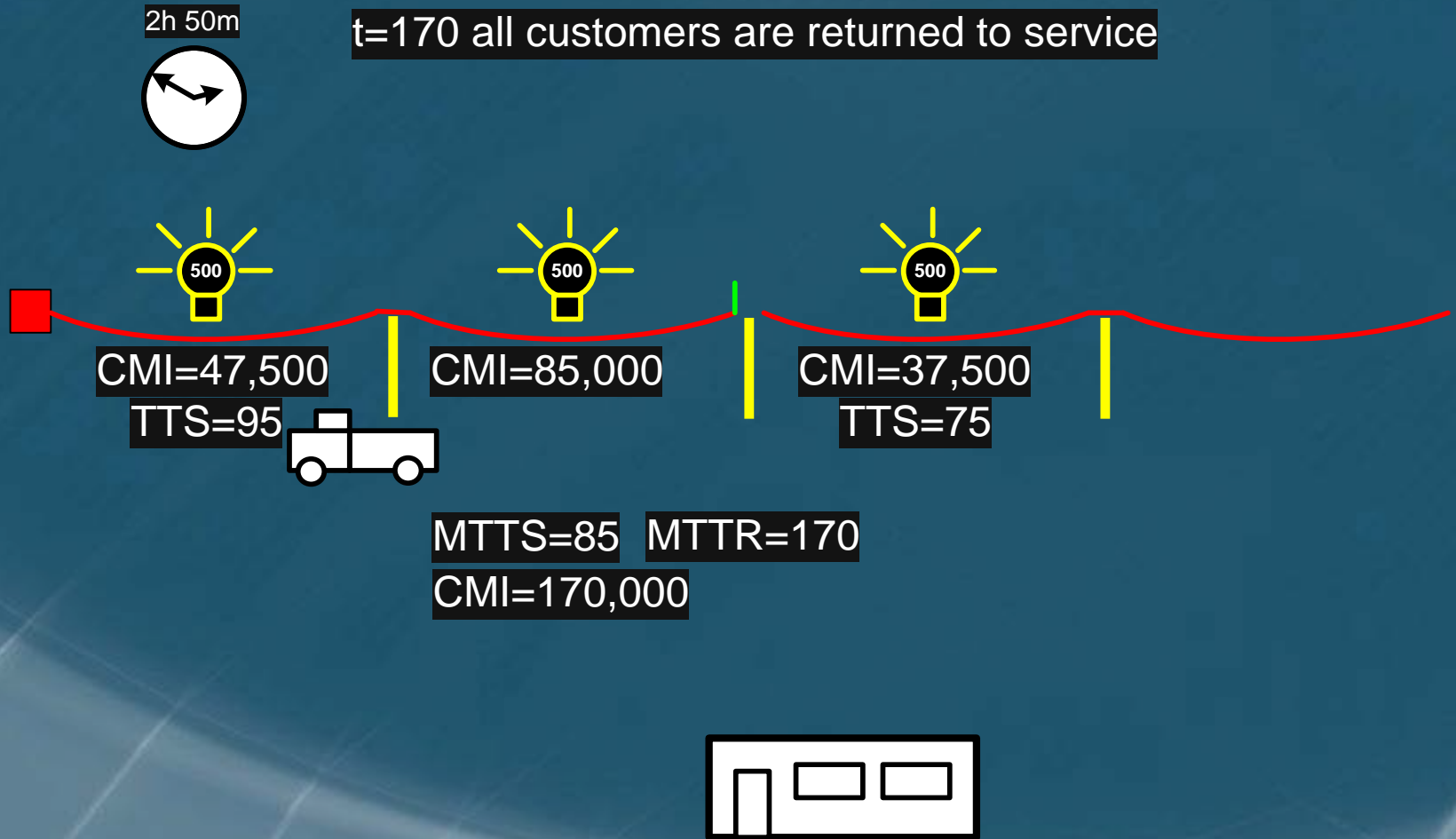
# Interruption Timeline with Manual Switching



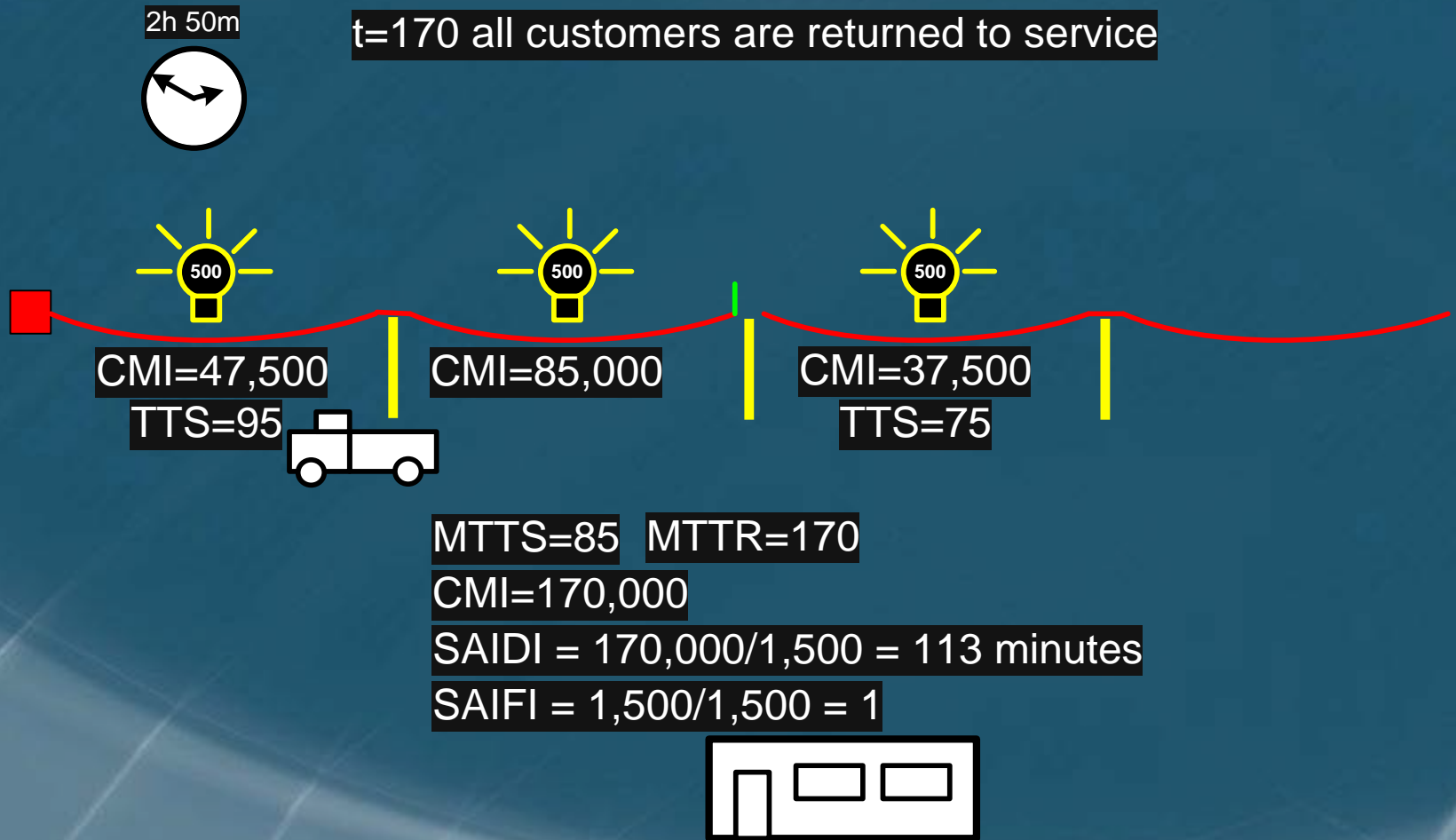
# Interruption Timeline with Manual Switching



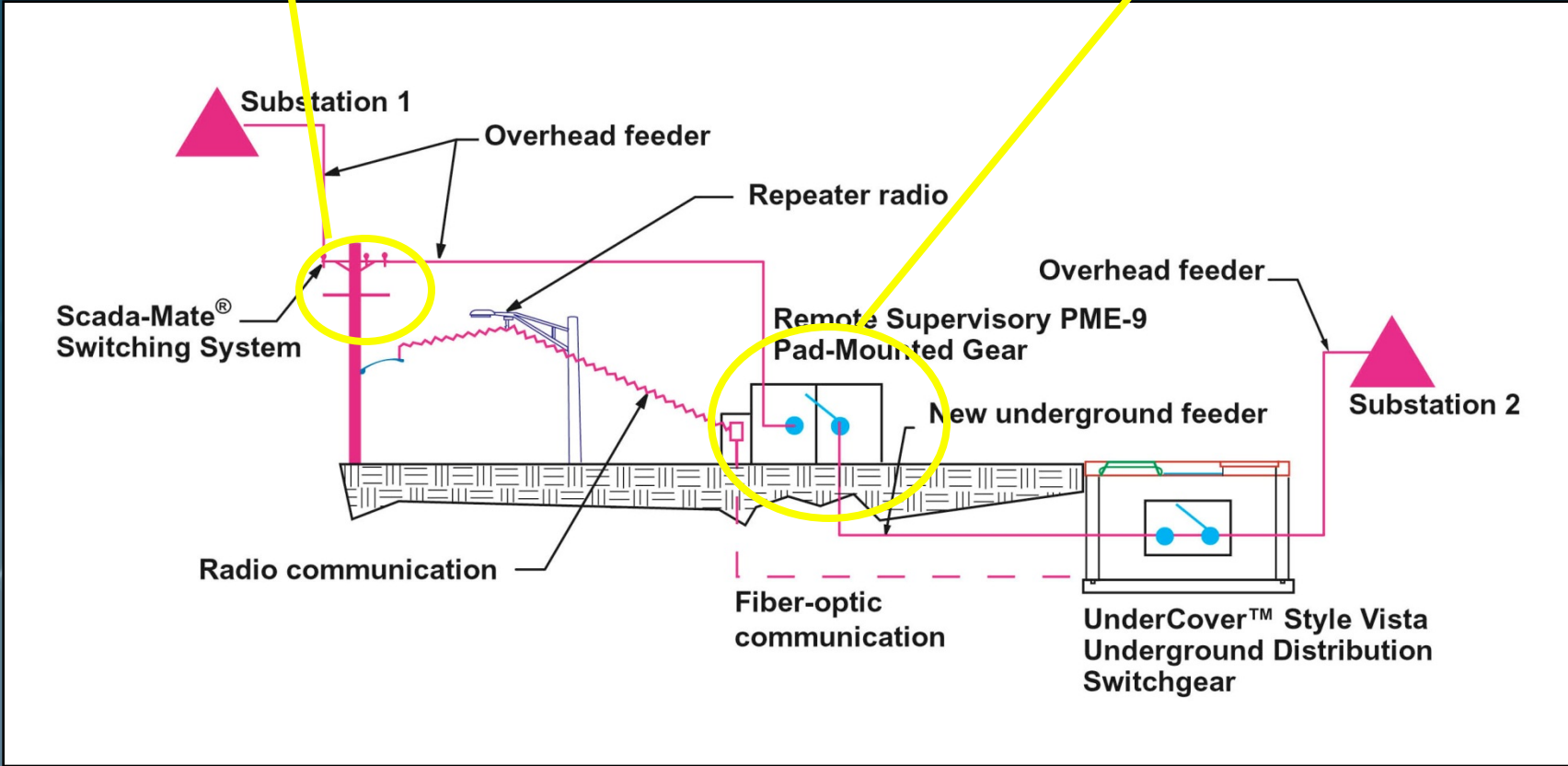
# Interruption Timeline with Manual Switching



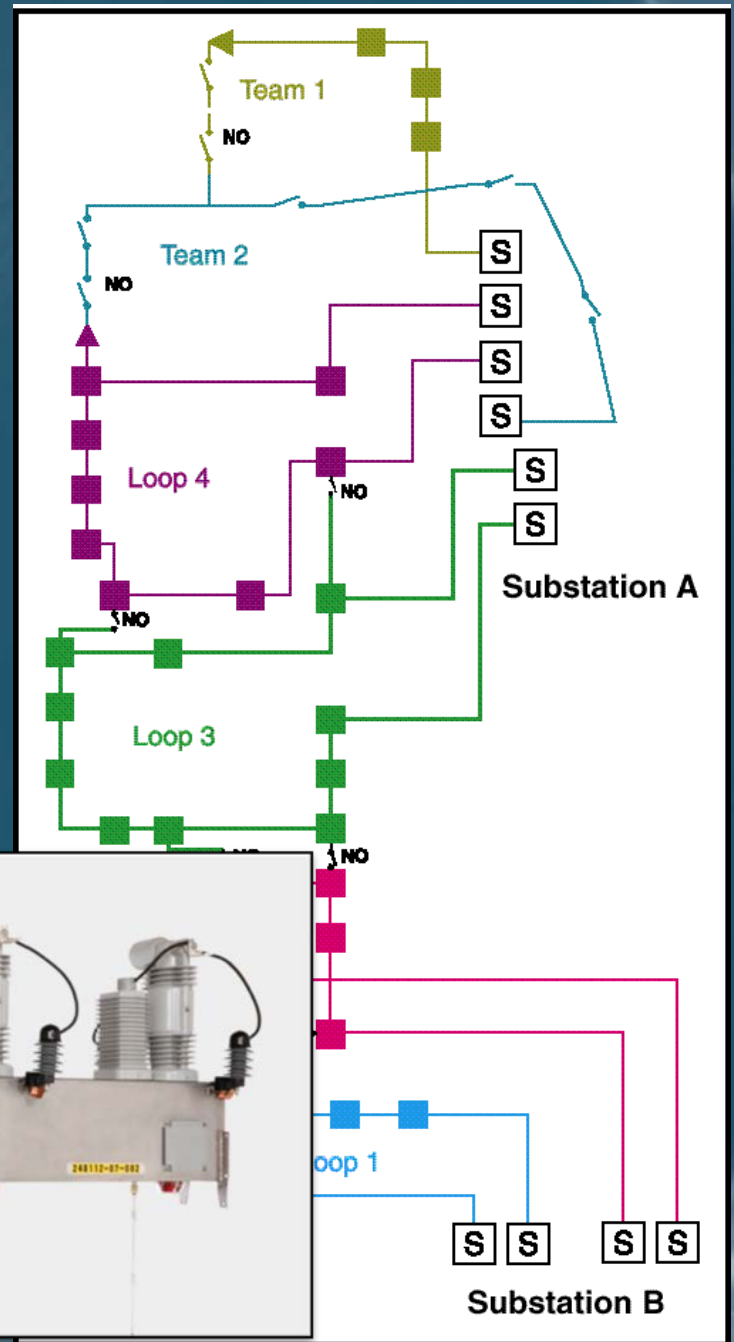
# Interruption Timeline with Manual Switching



# Smart Devices Communicating



# Keeping the Lights On





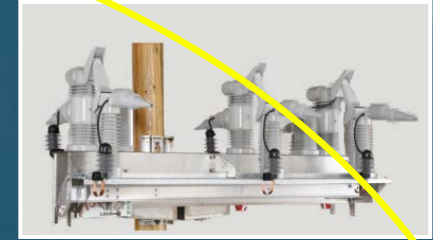
# Truly Self Healing

IntelliTEAM Demo



*And Tying it all together...*

Intelligent Feeder Protection



LAN & WAN Communications

Giving Non-S&C Devices  
Distributed intelligence  
Station based

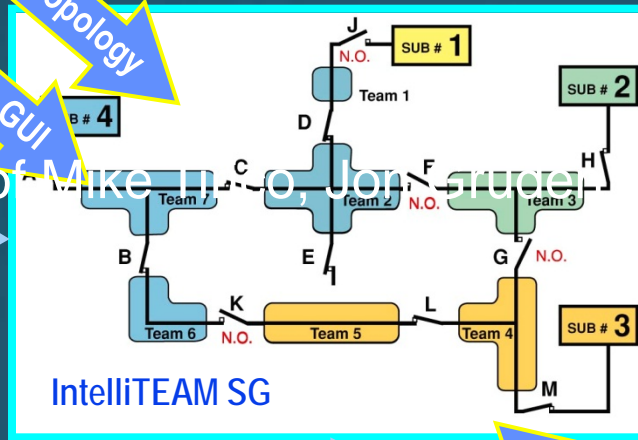


Device Based

Geospatial Information System



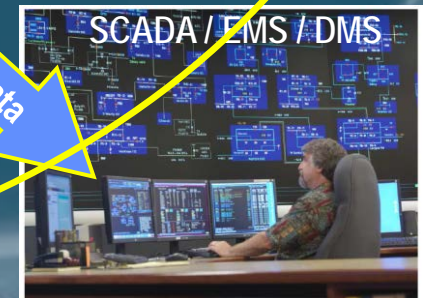
Real Time Topology  
Direct Input to GUI



of Mike H. O, Jon. Gruber

IntelliTEAM SG

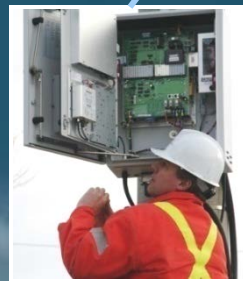
Status / Alarms / Data



Energy Storage @ MV and LV



Renewables



SCADA Switches



PM Switchgear

# Questions?

---

