

1. Agenda

Documents:

[2019.11.12_SOUTHBOROUGH_EMERGENCY_PLANNING_COOMITTEE_-
_SARA_TITLE_III_MEETING.PDF](#)

2. Meeting Materials

Documents:

[NATIONAL_GRID_PRESENTATION.PDF](#)

Town of Southborough, MA
Meeting of the
Southborough Emergency Planning Committee
(SARA Title III)
Emergency Operations Center, Public Safety Complex
32 Cordaville Road

RECEIVED
TOWN CLERK'S OFFICE
2019 OCT 29 A 8:38
SOUTHBOROUGH, MA
MM

AGENDA

October 29, 2019

Dear all SEPC Members,

There will be a meeting of the Southborough Emergency Planning Committee (SEPC), (encompassing the LEPC), on Tuesday, November 12, 2019, in the Emergency Operations Center at the Southborough Public Safety Complex located at 32 Cordaville Road. The meeting will begin at **10:00 am**.

The agenda for the meeting will be as follows:

Director's remarks

Updates/Reviews:

- Emergency Operations Center (EOC) at the new Public Safety Complex
- Status of emergency plans, etc.
- Local Hazard Mitigation Plan (LHMP), Municipal Vulnerability Preparedness (MVP) program & Hazard Mitigation Grant Program (HMGP)
- Committee restructuring

Training:

- National Grid presentation on emergency response and restoration plans and processes.

Open discussion: Ask any questions, get clarification on roles & responsibilities, operations, plans, & provide input and suggestions

Any other topics raised without prior notice

Director's closing statement

Neal P. Aspesi
SEPC Chairperson
SEMA Director of Operations

Reliability, Utility 101

nationalgrid



Reliability / Utility 101

- Intro
- What causes an outage
- How the system works
- Protective equipment
- Future of the grid
- Storm preparedness

Outages and Restoration

- Outages occur when protective equipment observes an electrical fault
- Causes of faults include
 - Trees, weather, wildlife
 - Equipment failure
 - Motor vehicle accidents
- Restoration depends on the nature and location of the fault



How The Electric System Works

nationalgrid

- Generation - Fossil fuel, nuclear, renewables
 - Typically generate at medium voltage
- Transmission Lines
 - Towers, Rights of Way, Underground
 - High voltage – 115kV, 230kV, 345kV
- Substation Transformers
- Distribution Circuits (feeders)
- Distribution Transformers



Protective Equipment

- Operates when an alarm condition is present
 - Current, voltage, fault
- Feeder Breaker (at substation)
 - Can be programmed to re-close
- Recloser (on feeder, or at specific site)
 - Interrogates line, looking for fault. If none, 're-closes'
- Fuse (on distribution transformer or line section)
 - Requires patrolling, clearing fault, manual re-fuse

Feeder Breaker

- 1st device out of substation transformer
- Largest customer impact



Regulators

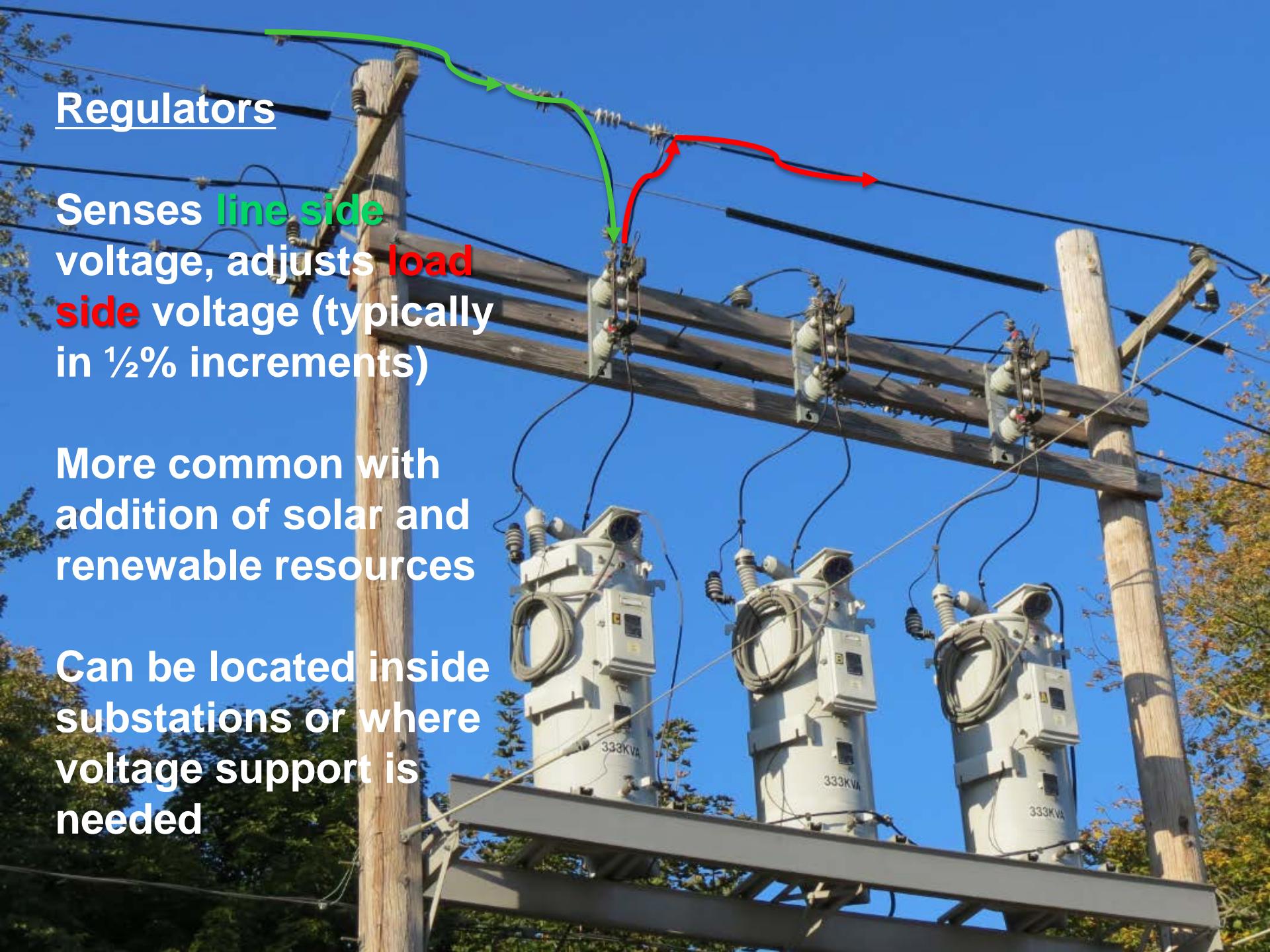


Regulators

Senses **line side** voltage, adjusts **load side** voltage (typically in $\frac{1}{2}\%$ increments)

More common with addition of solar and renewable resources

Can be located inside substations or where voltage support is needed



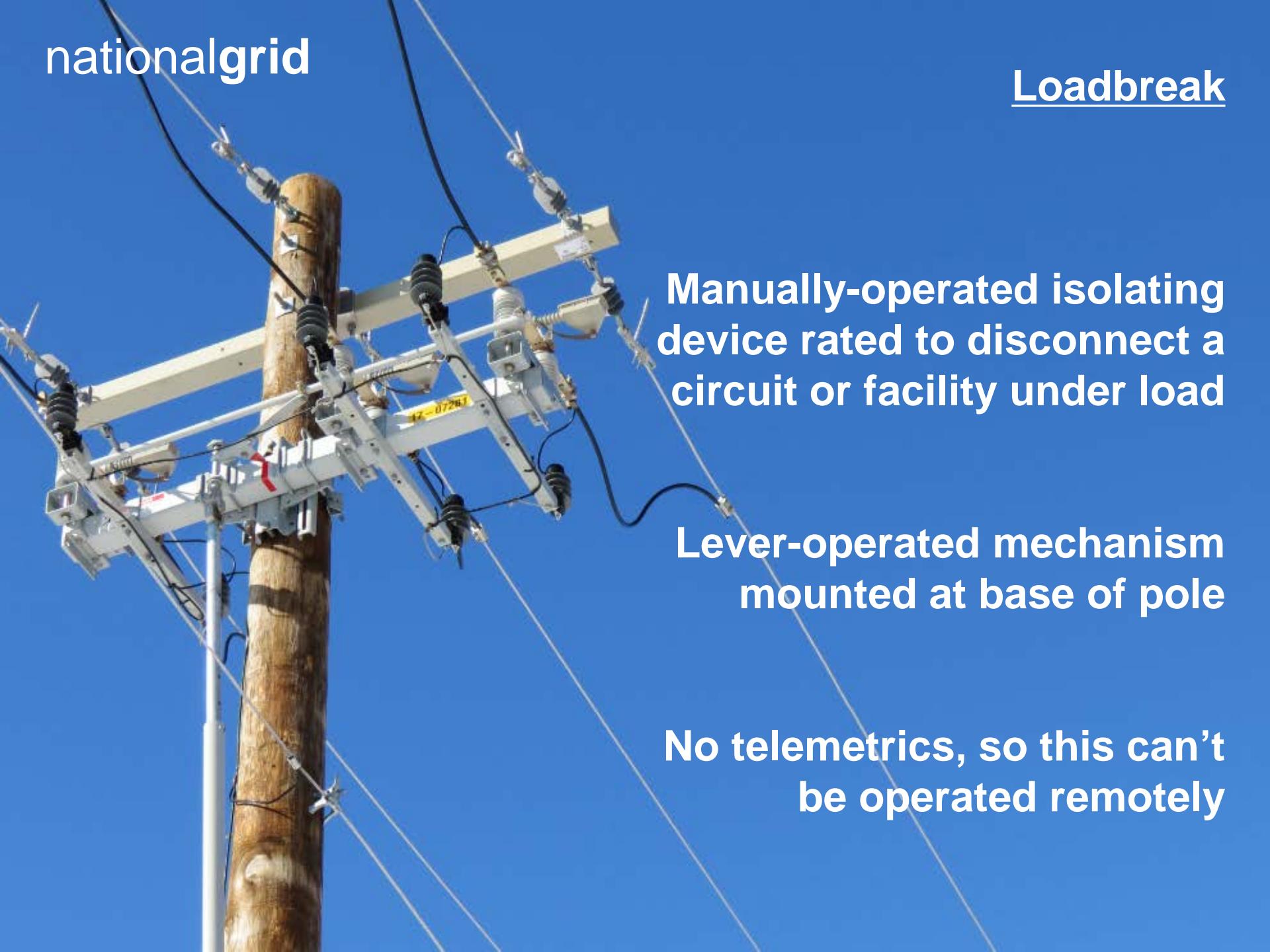
**Advanced protective device,
can be remotely operated**

**Senses voltage, frequency,
current, faults**

**Automatically opens when
protective functions triggered**

**Closes back into circuit after
programmed time delay**

Telemetrics report values



Manually-operated isolating device rated to disconnect a circuit or facility under load

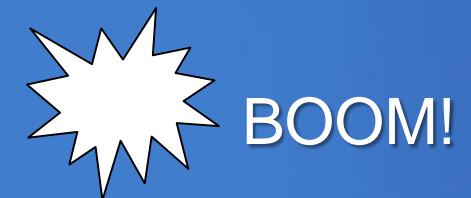
Lever-operated mechanism mounted at base of pole

No telemetrics, so this can't be operated remotely

Fused Cutout



- Most common primary voltage protective device



- Requires patrolling downstream

Fused Cutout

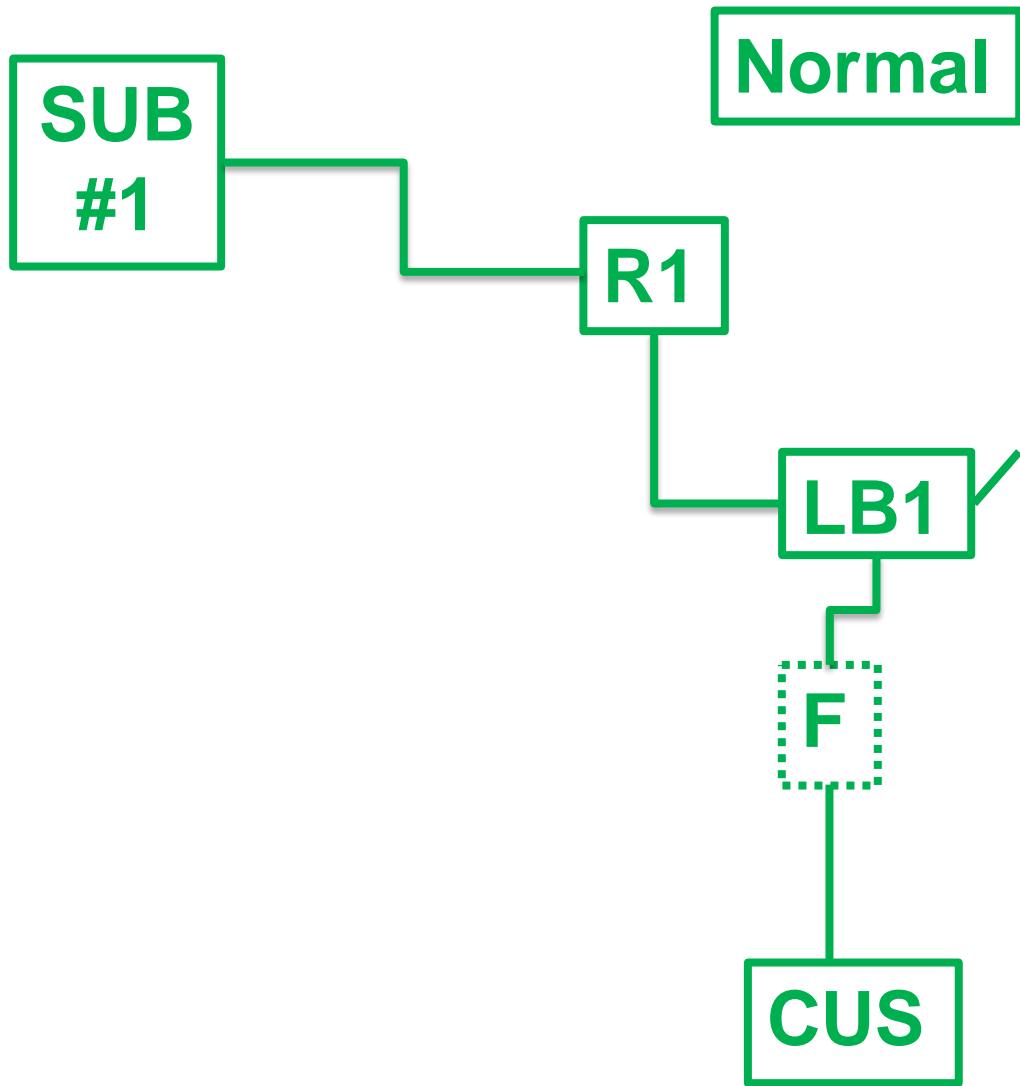


- Link will fail when current rating is exceeded
- ‘Open’ cutout or blown fuse indicates a fault or overload
- Requires ‘hot-stick’ to re-energize



Fused Cutout

- Fuse is selected based on amps (load) flowing through the device
- Used to segment lines (as in a 'side tap fuse')
- Fuse types vary, require coordination upstream and downstream



Substation

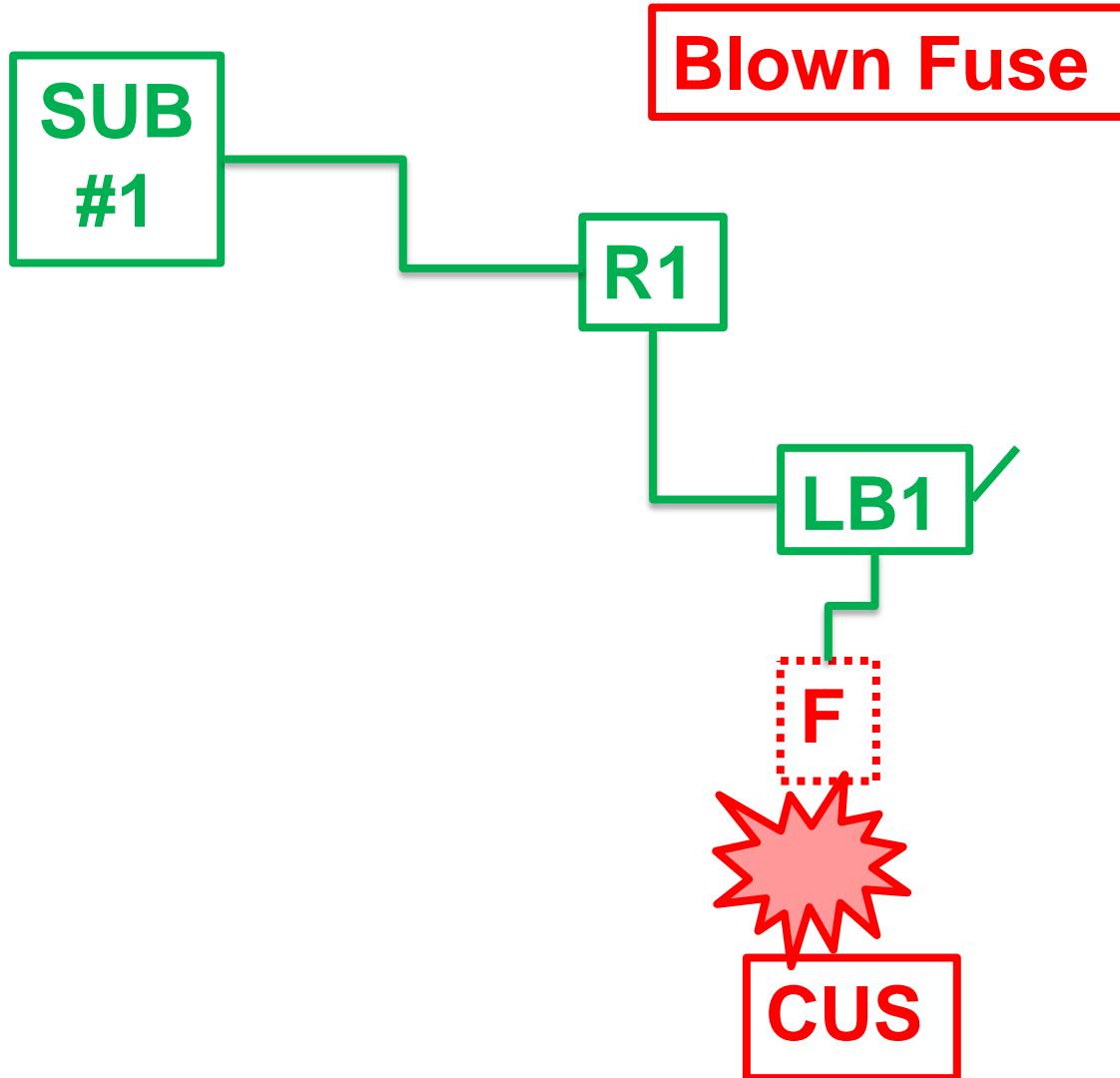
Recloser

Load-break

Fused Cutout

Customer

Note: diagrams are illustrative only



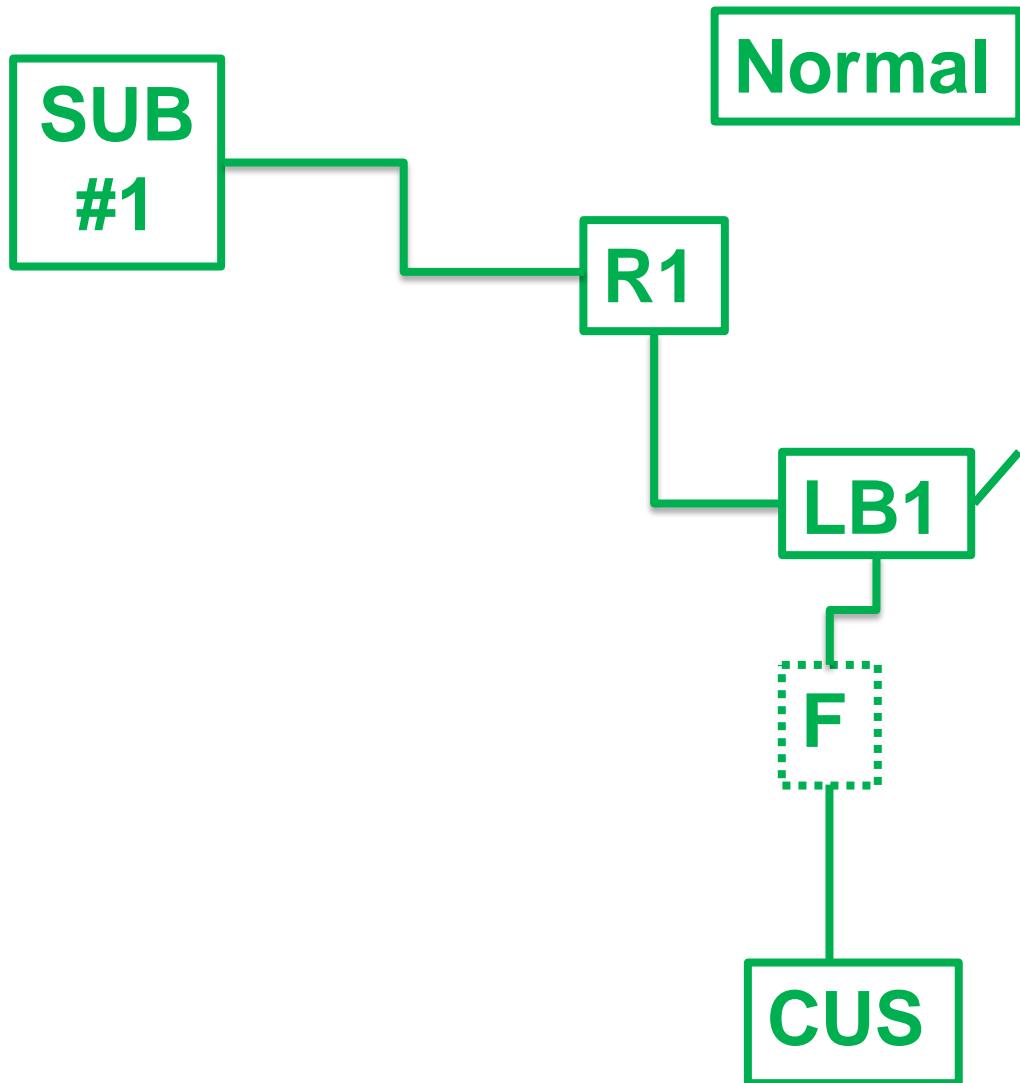
Substation

Recloser

Load-break

Blown Fuse

Customer



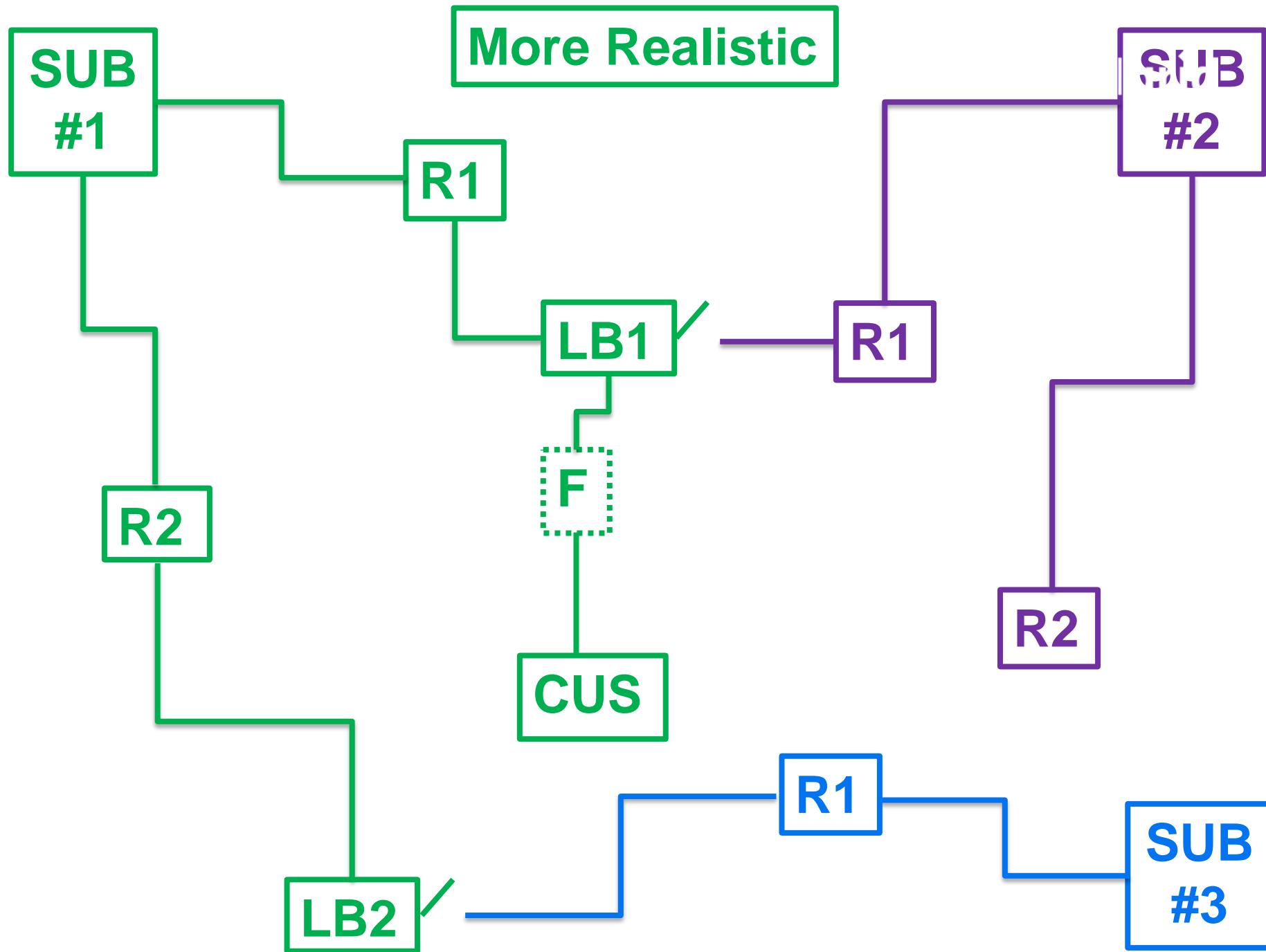
Substation

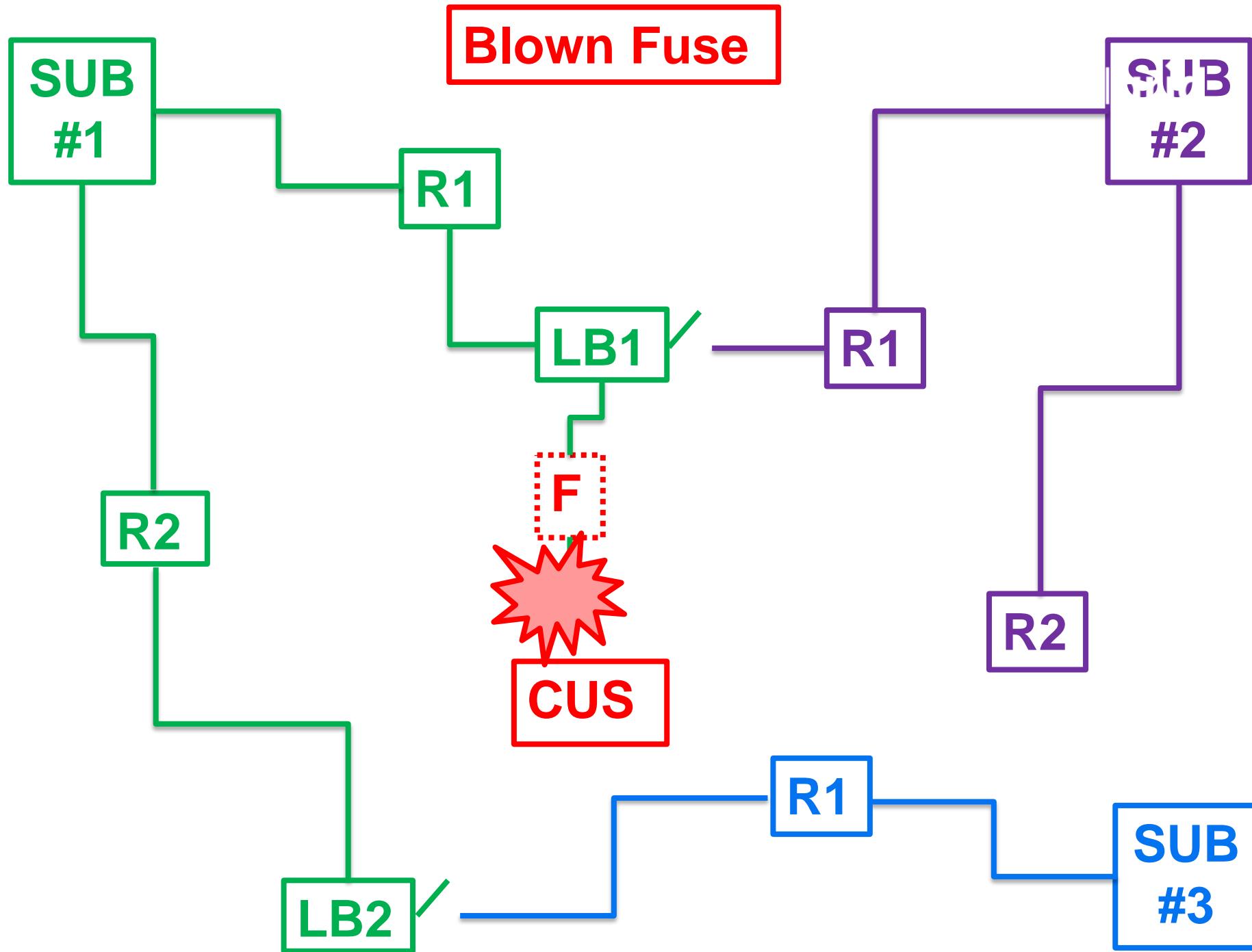
Recloser

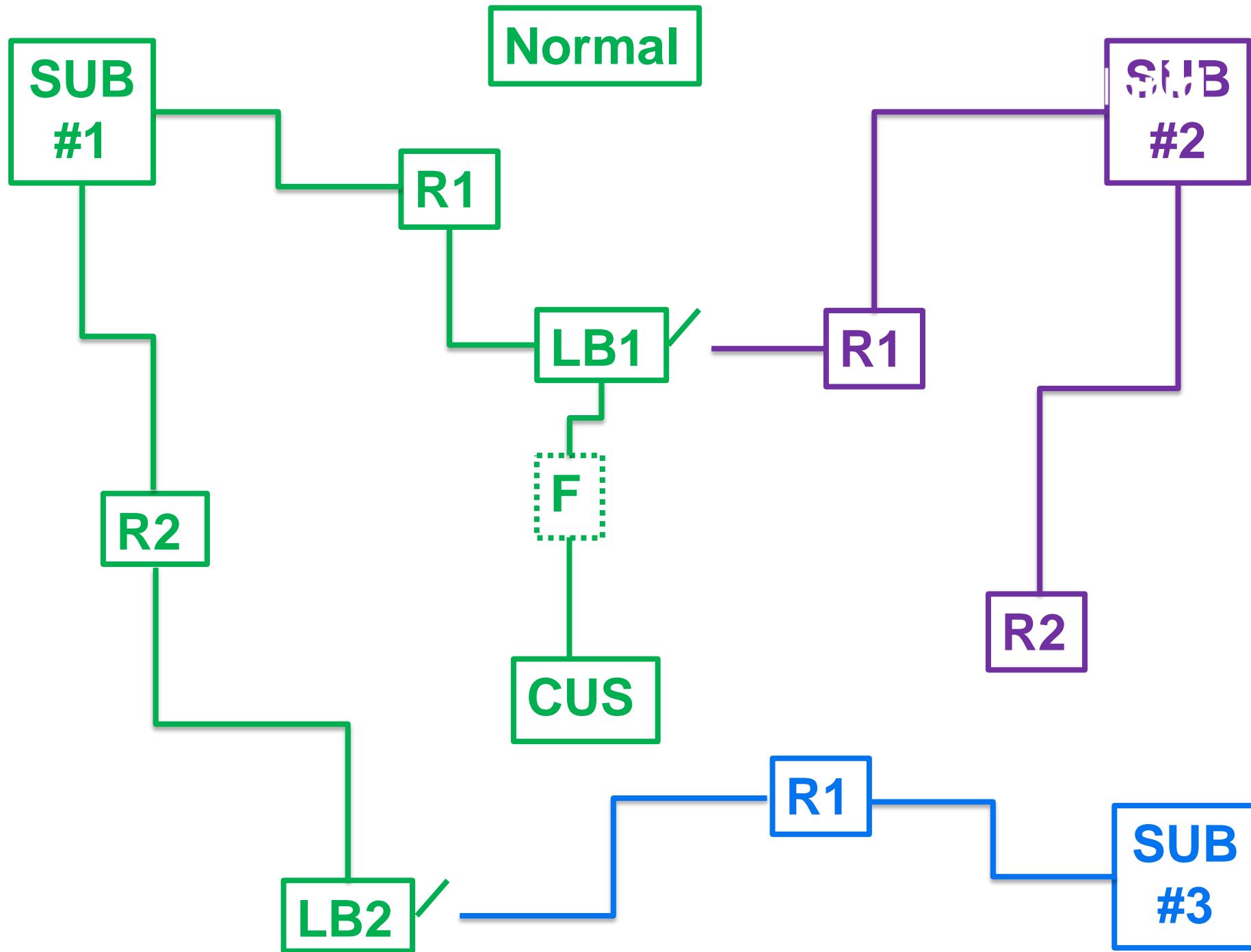
Load-break

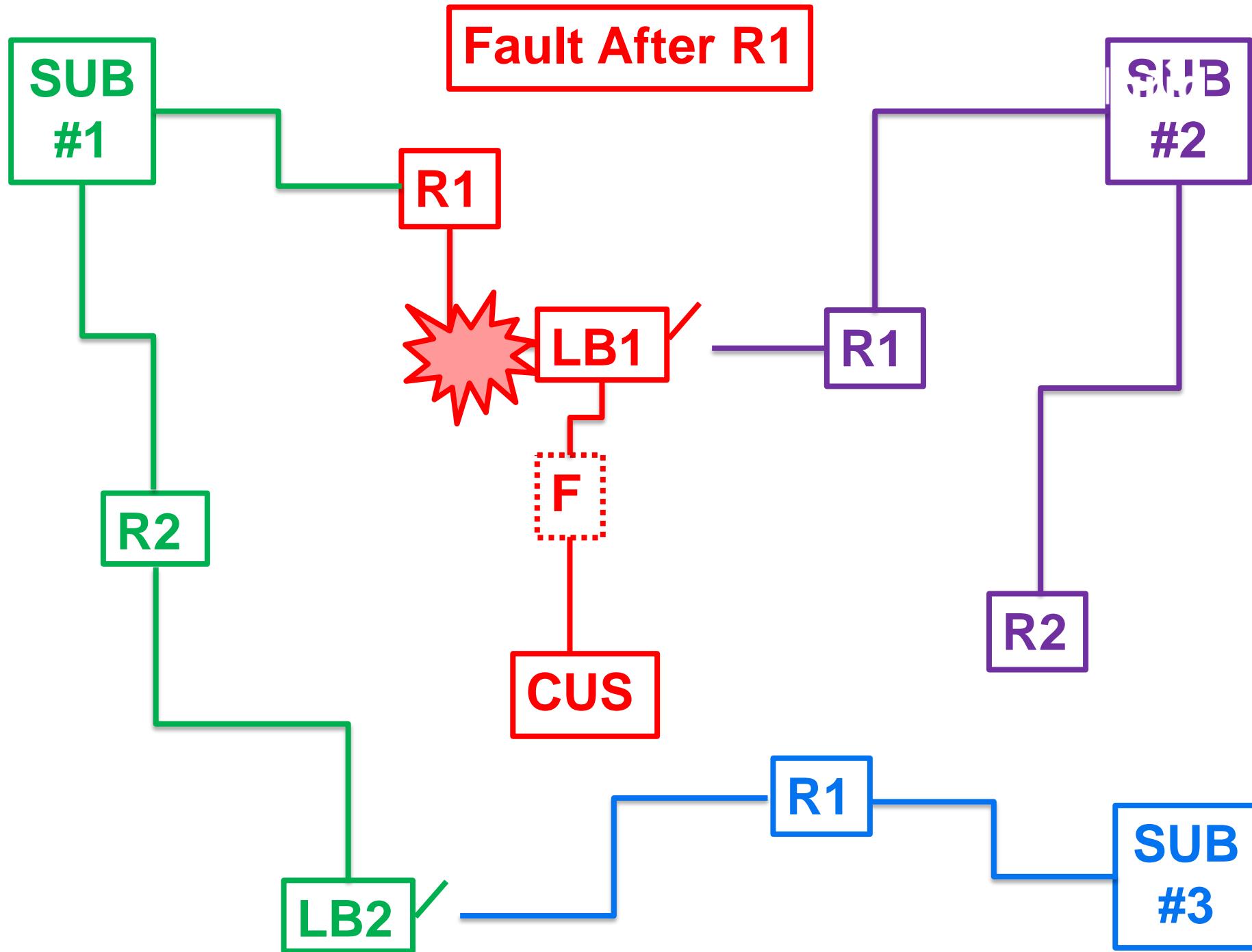
Fused Cutout

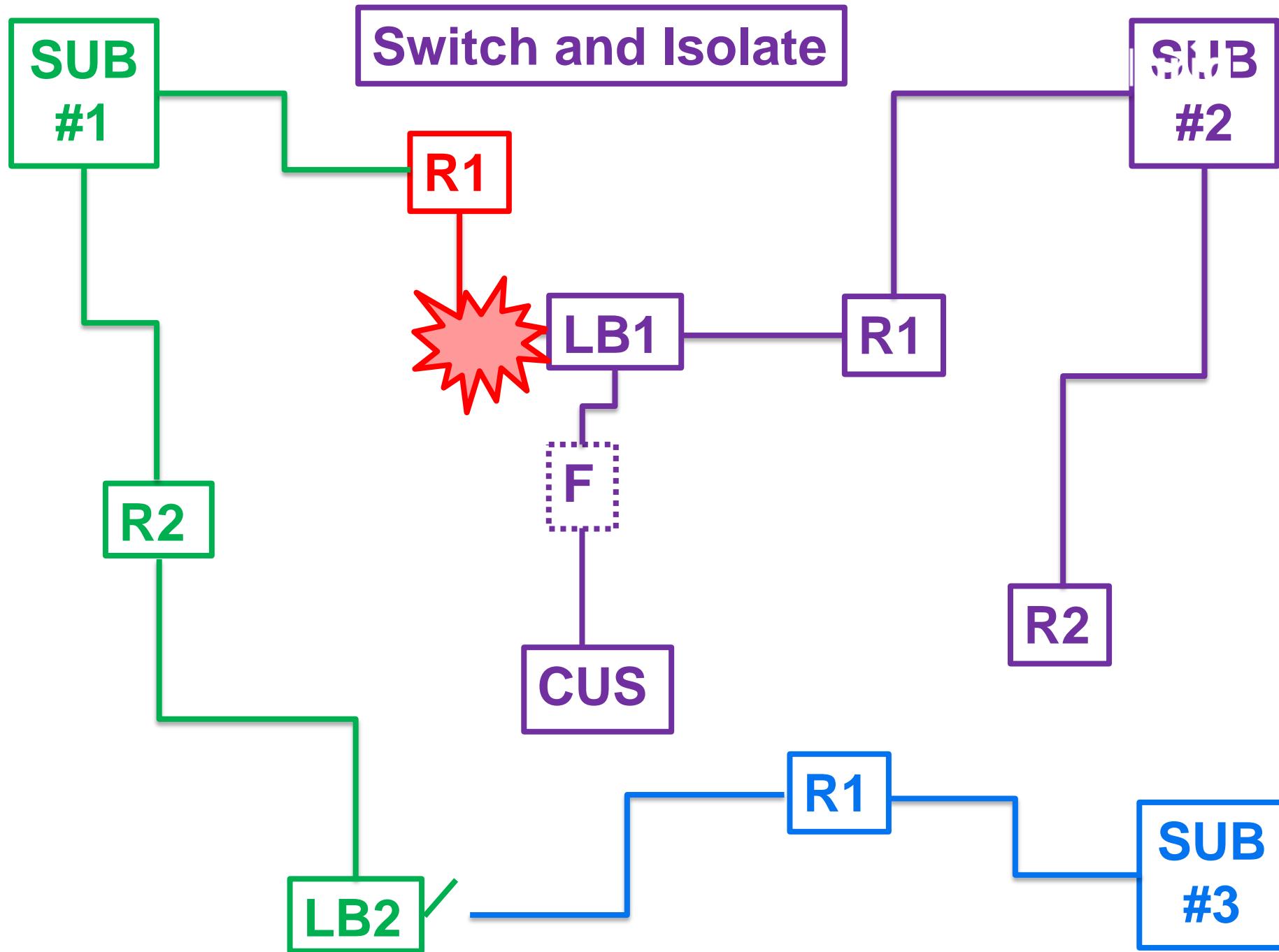
Customer

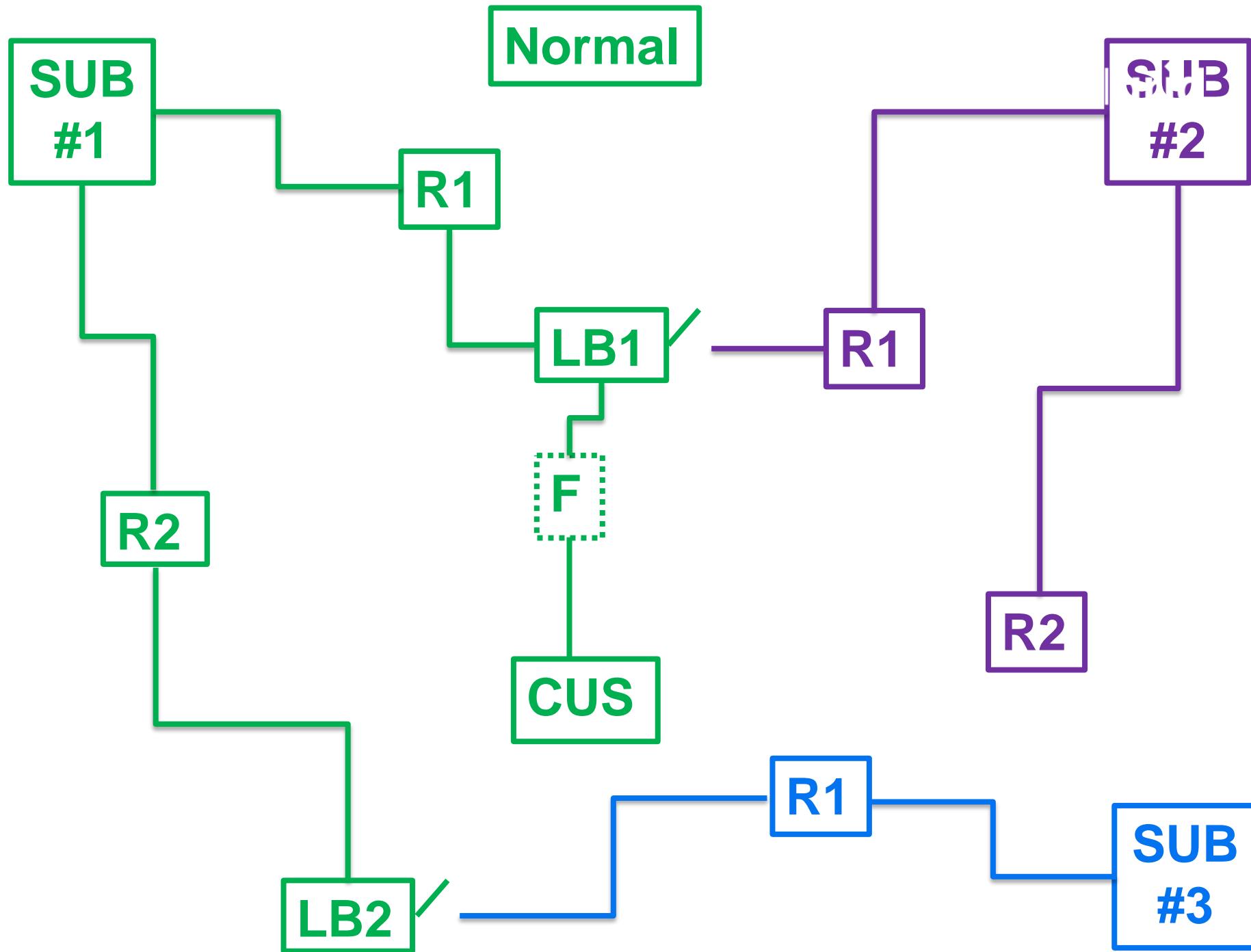




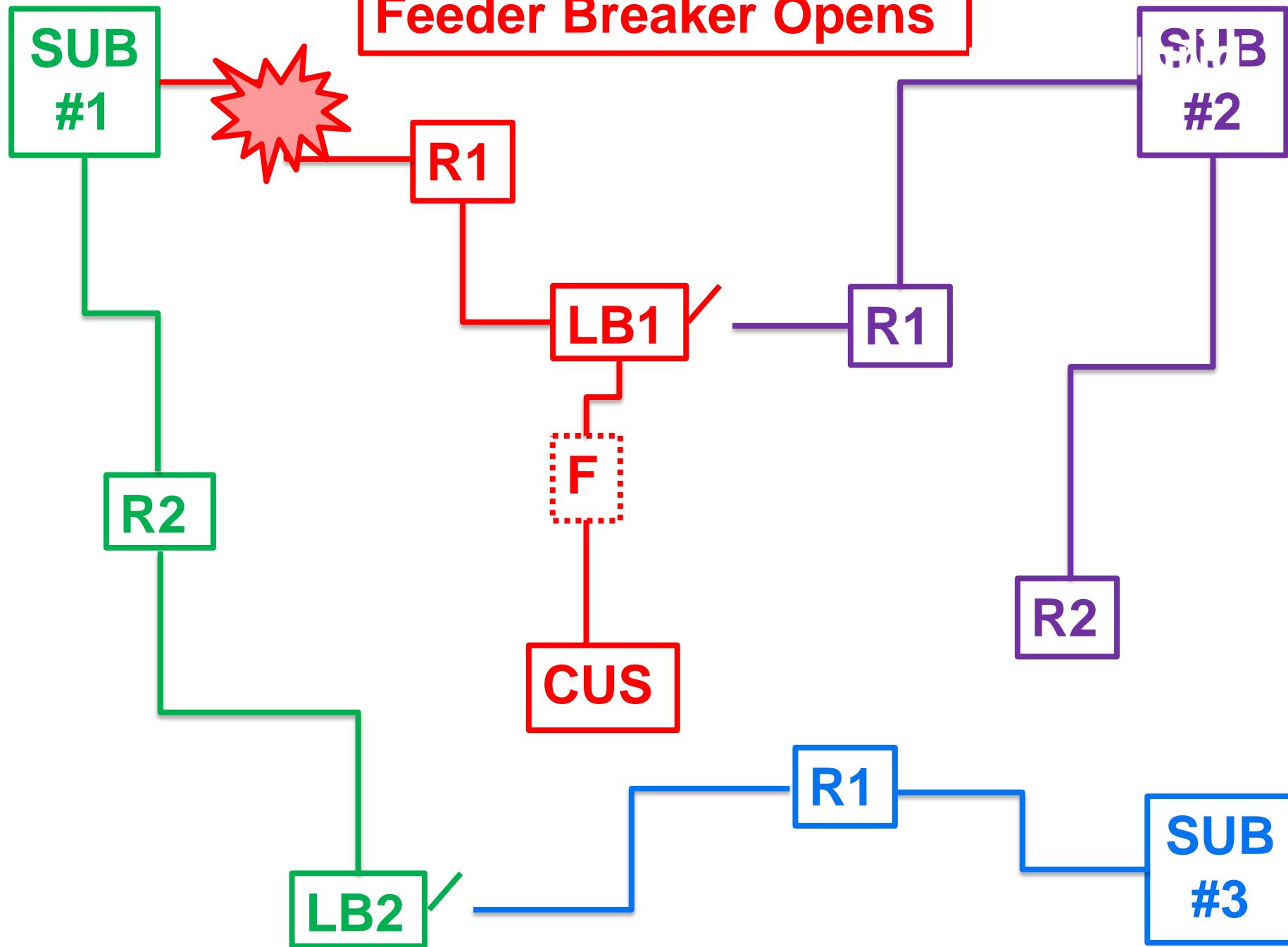


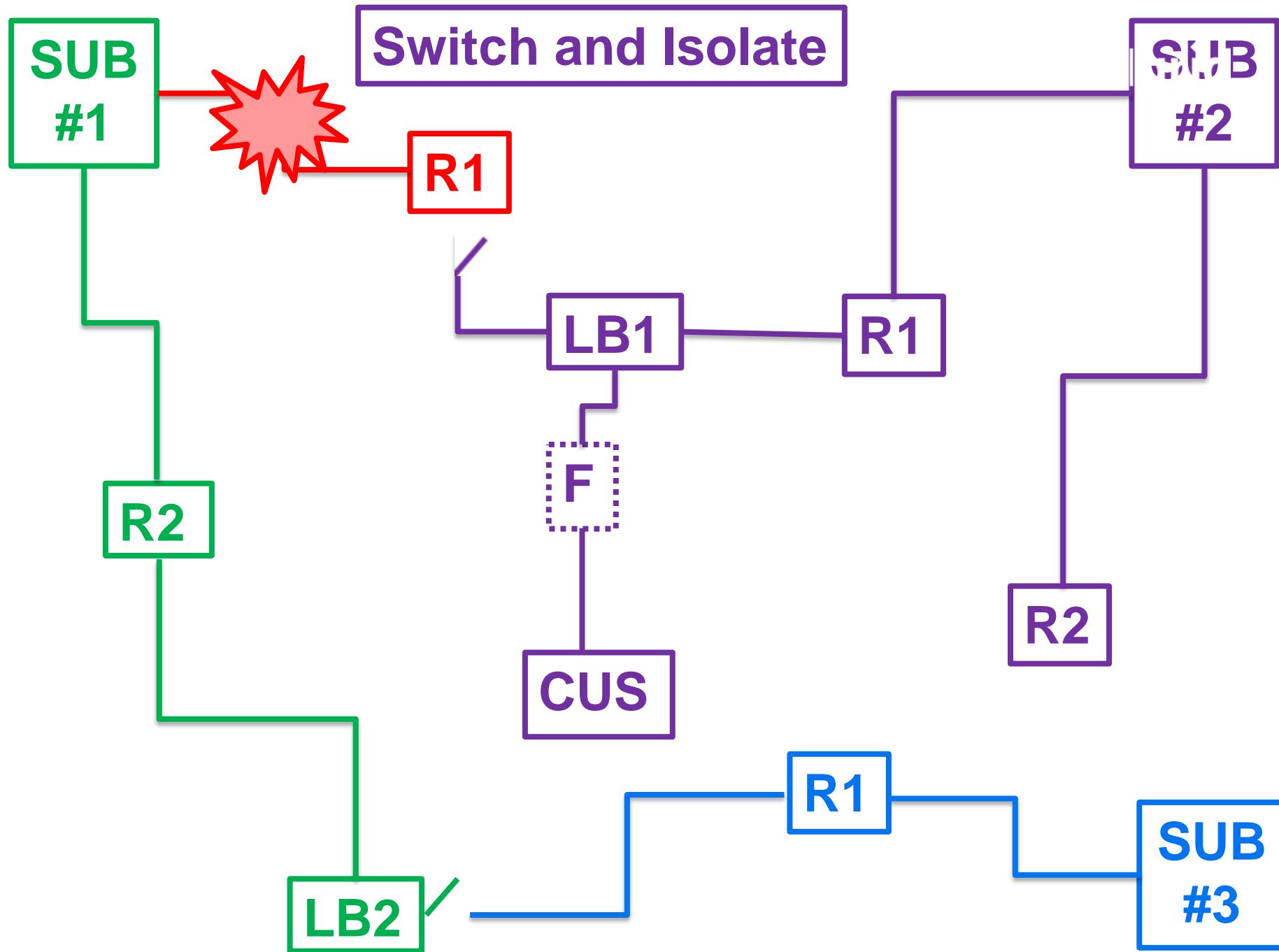




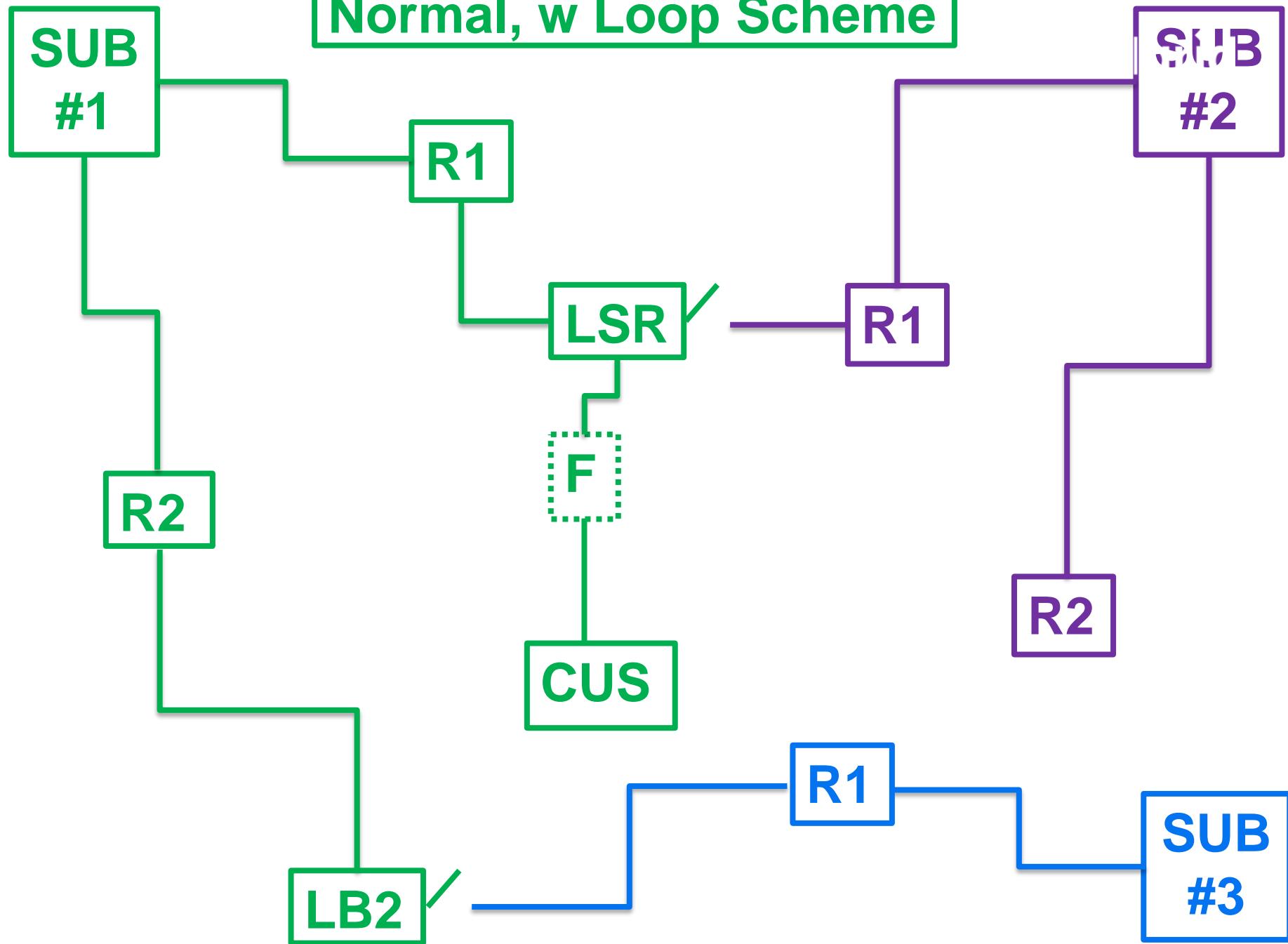


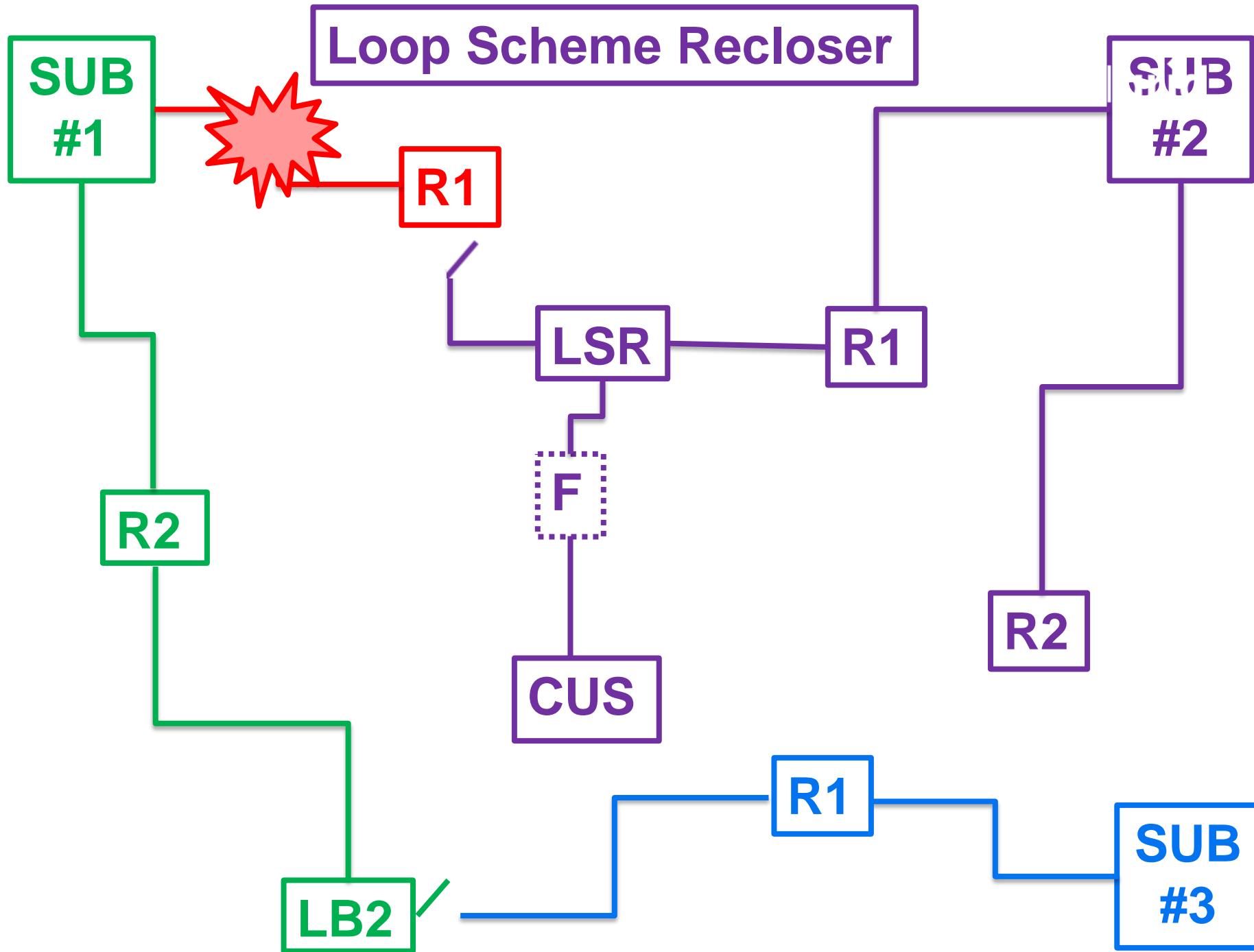
Feeder Breaker Opens



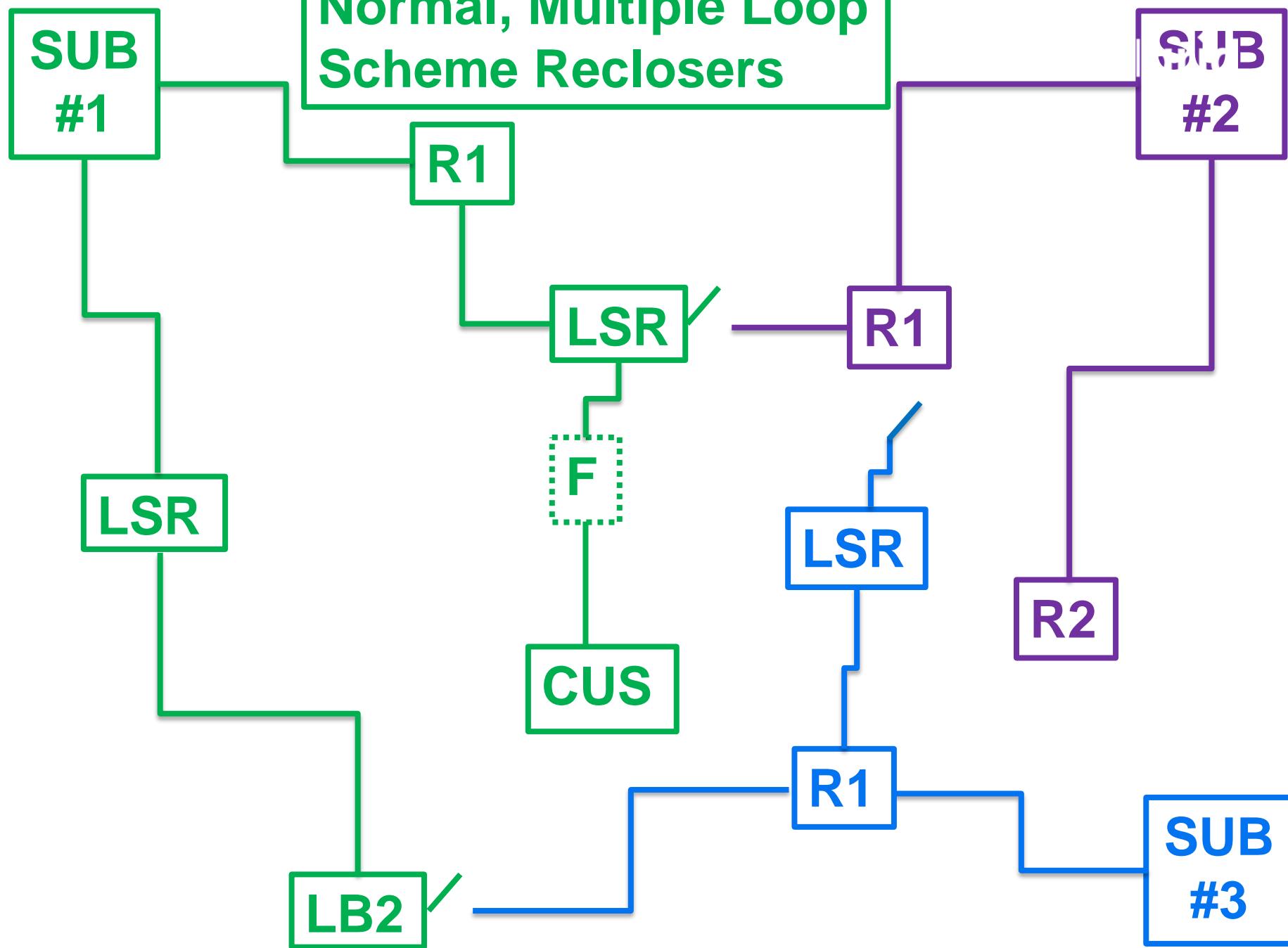


Normal, w Loop Scheme

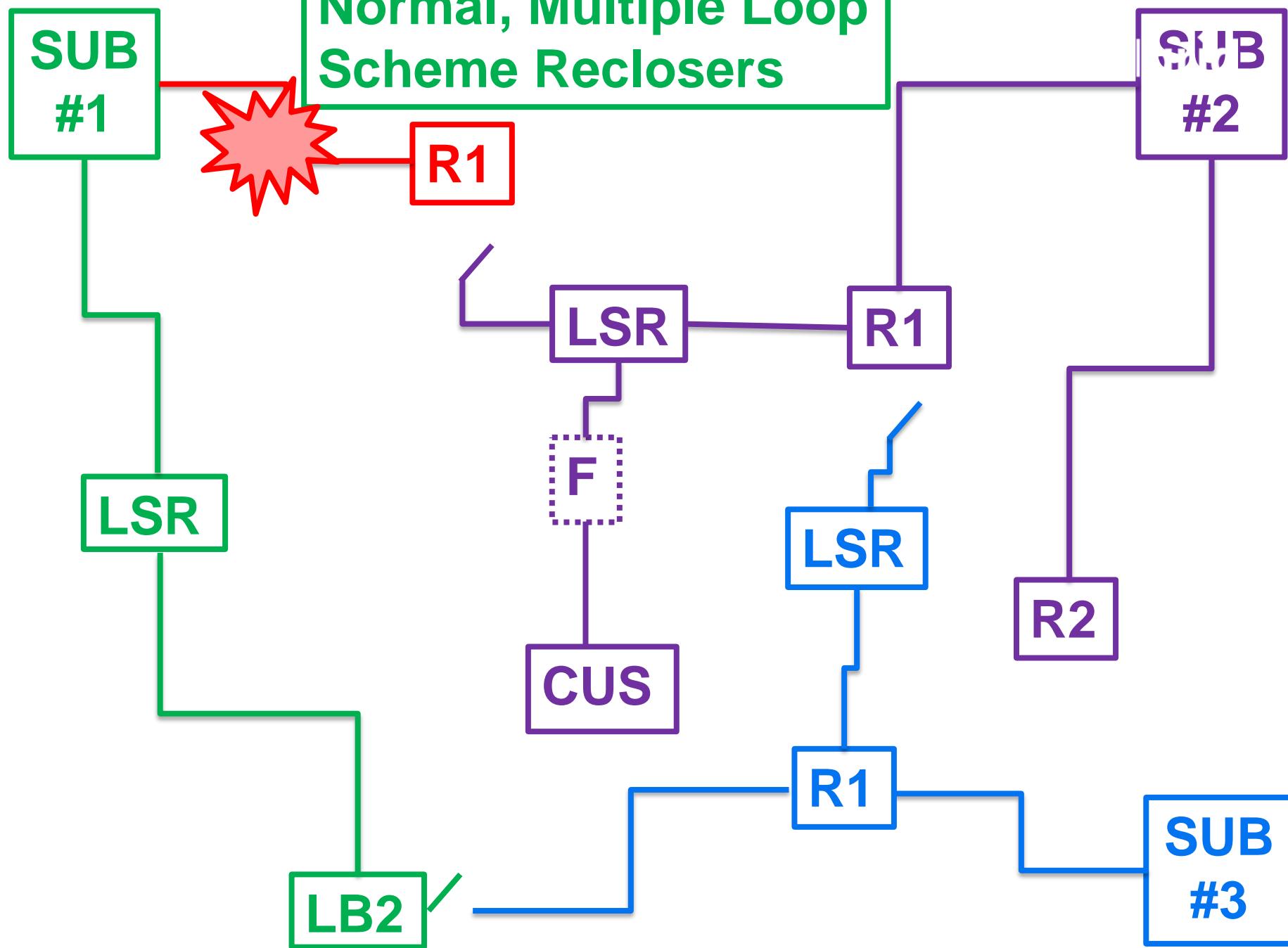




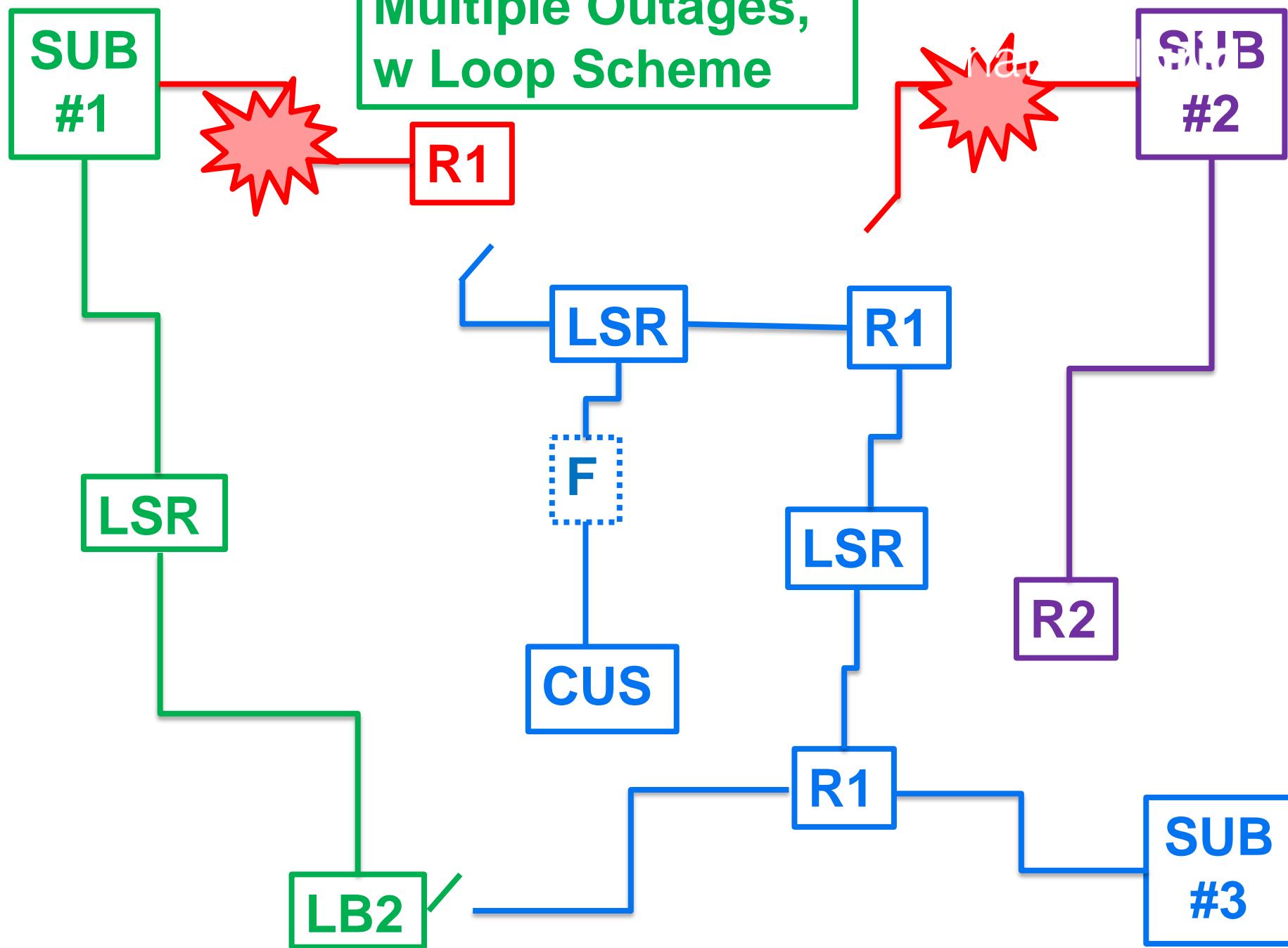
Normal, Multiple Loop Scheme Reclosers

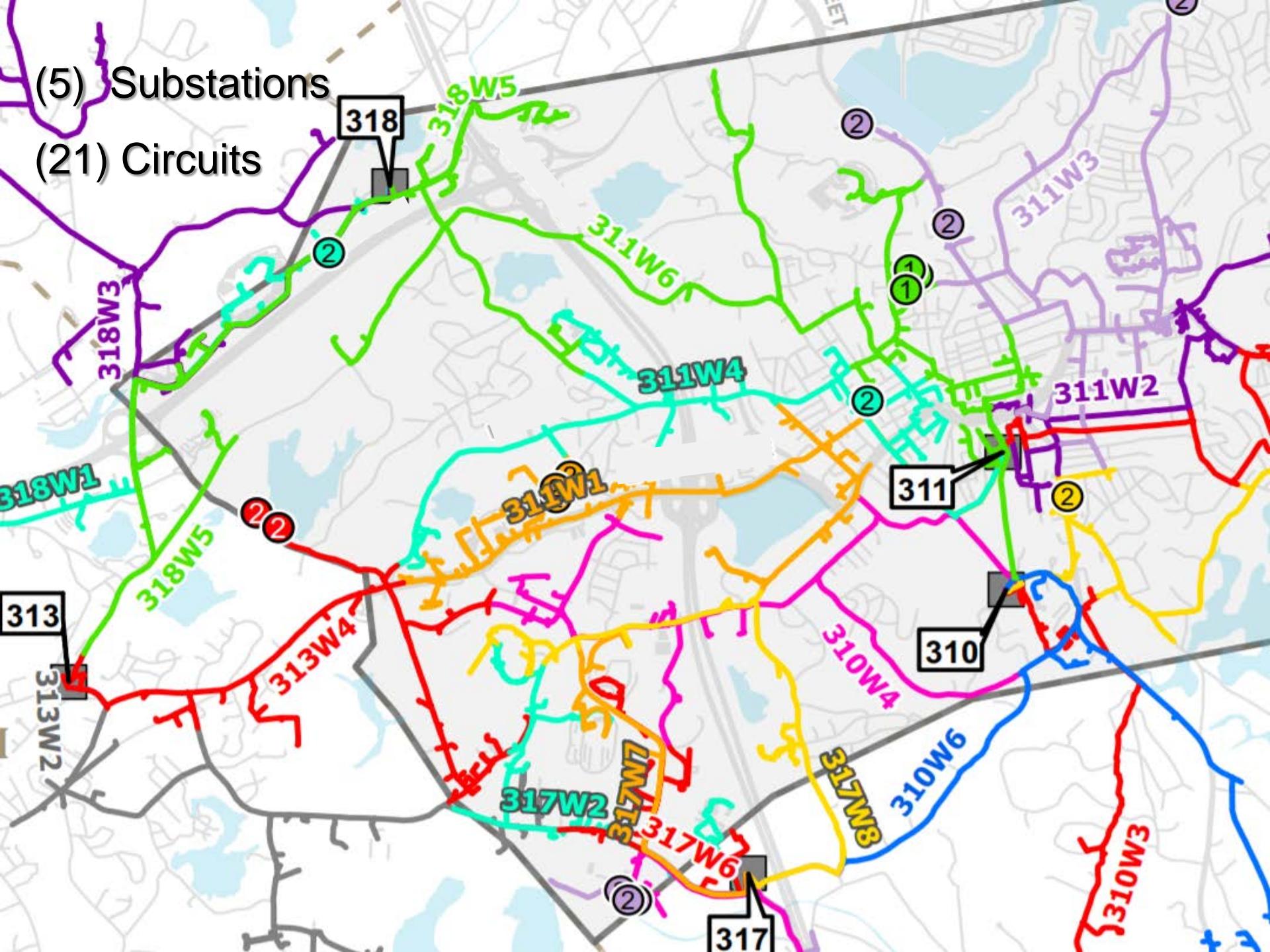


Normal, Multiple Loop Scheme Reclosers



Multiple Outages, w Loop Scheme





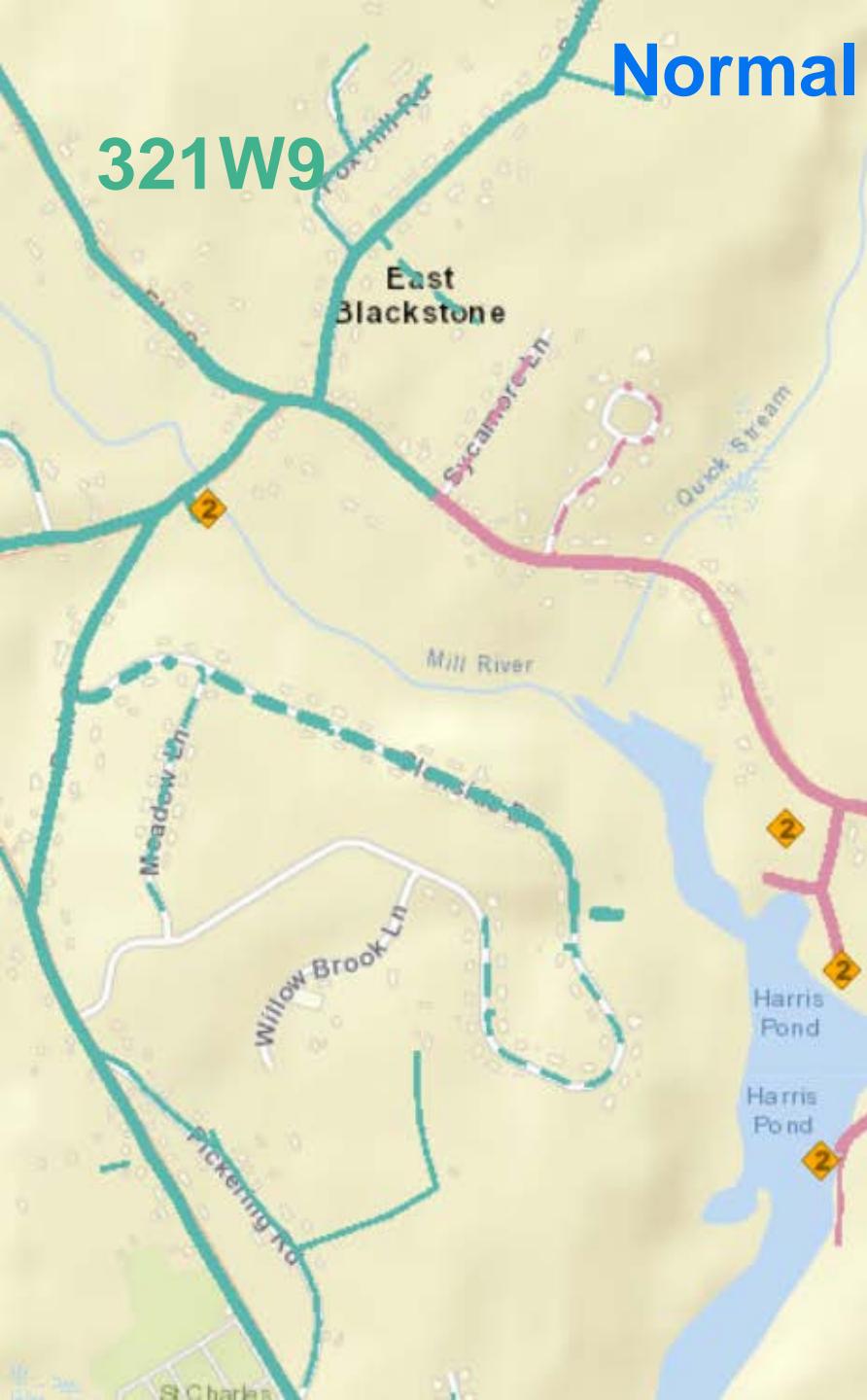
(5) Substations

(21) Circuits

Normal Configuration

321W9

344W4



108W60

108W51

Tree Took Primary
Down – P1 Elm St
and part of the
108W60 circuit

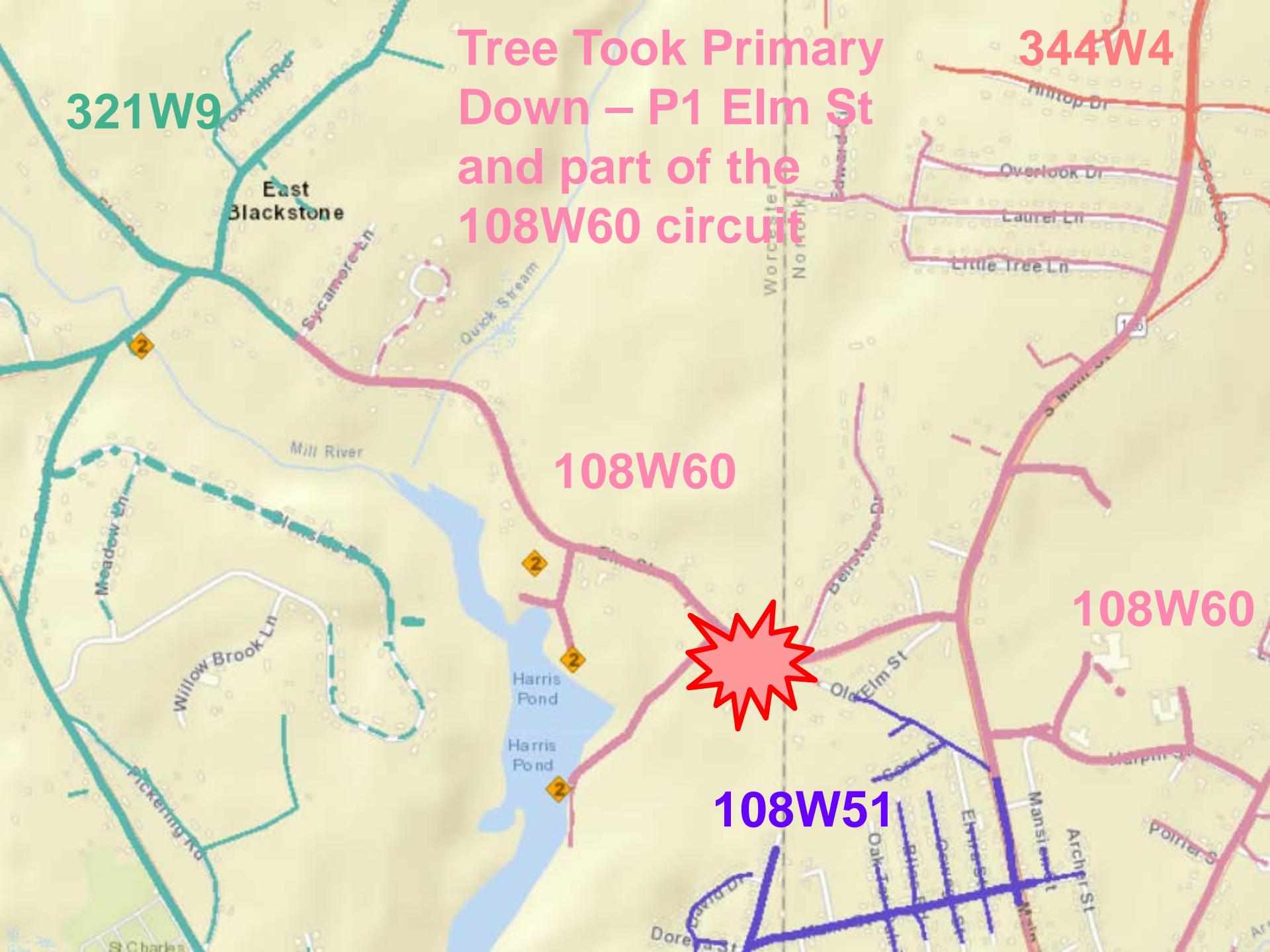
321W9

344W4

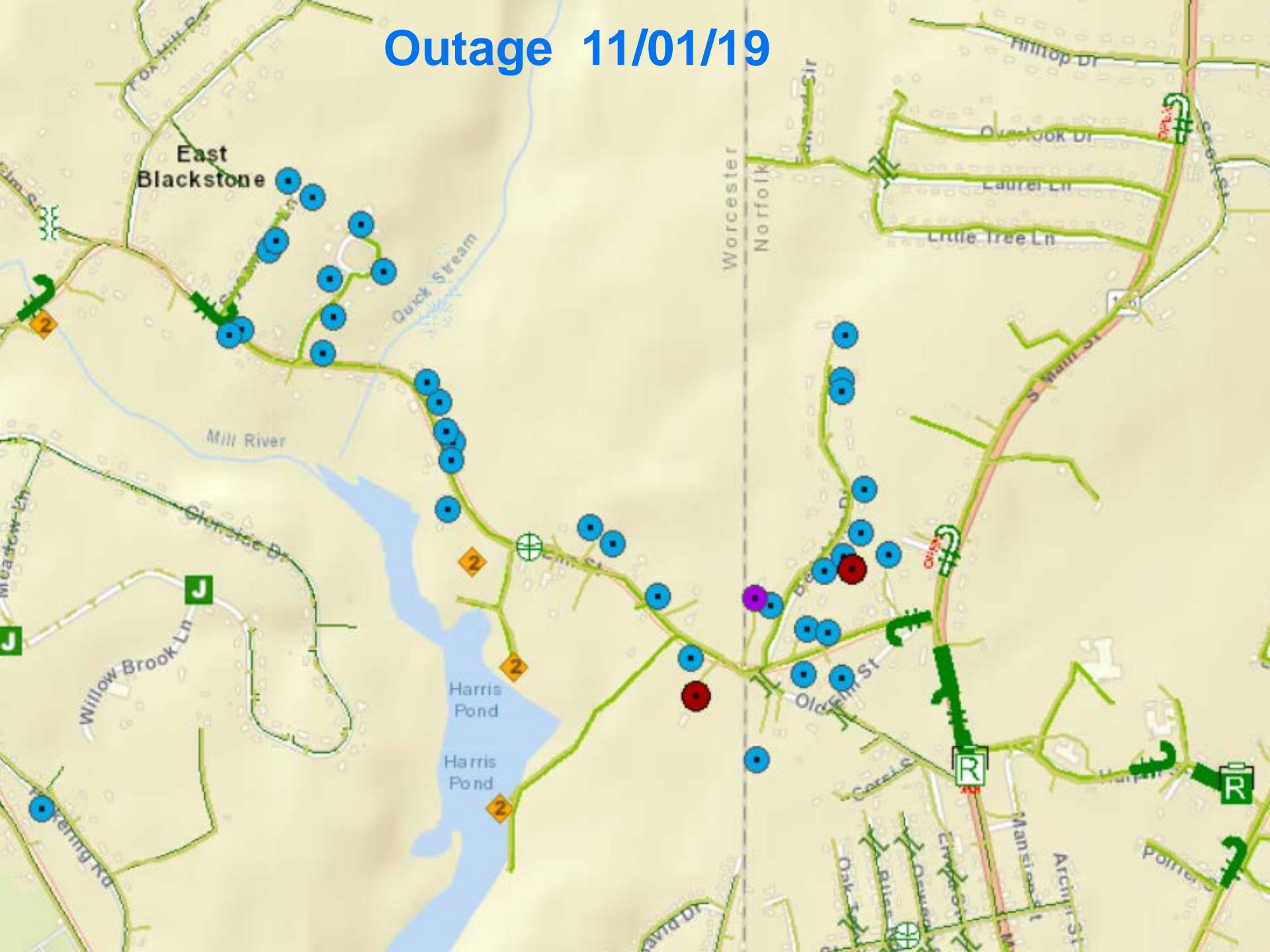
108W60

108W60

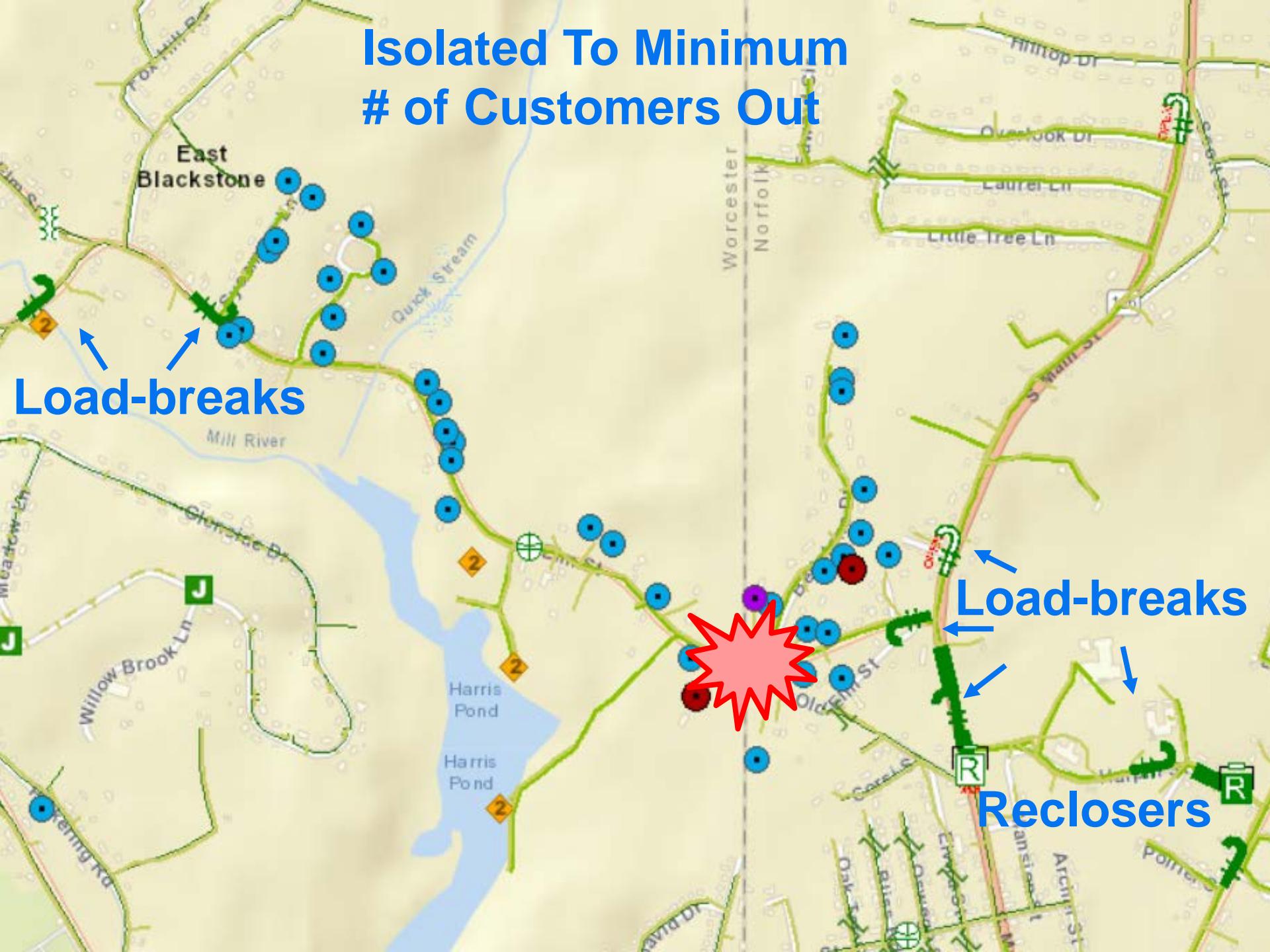
108W51



Outage 11/01/19



Isolated To Minimum # of Customers Out





Report Outage

Outage Status

Outage Central



nationalgrid

Number of Customers Out:

>5000

1001-5000

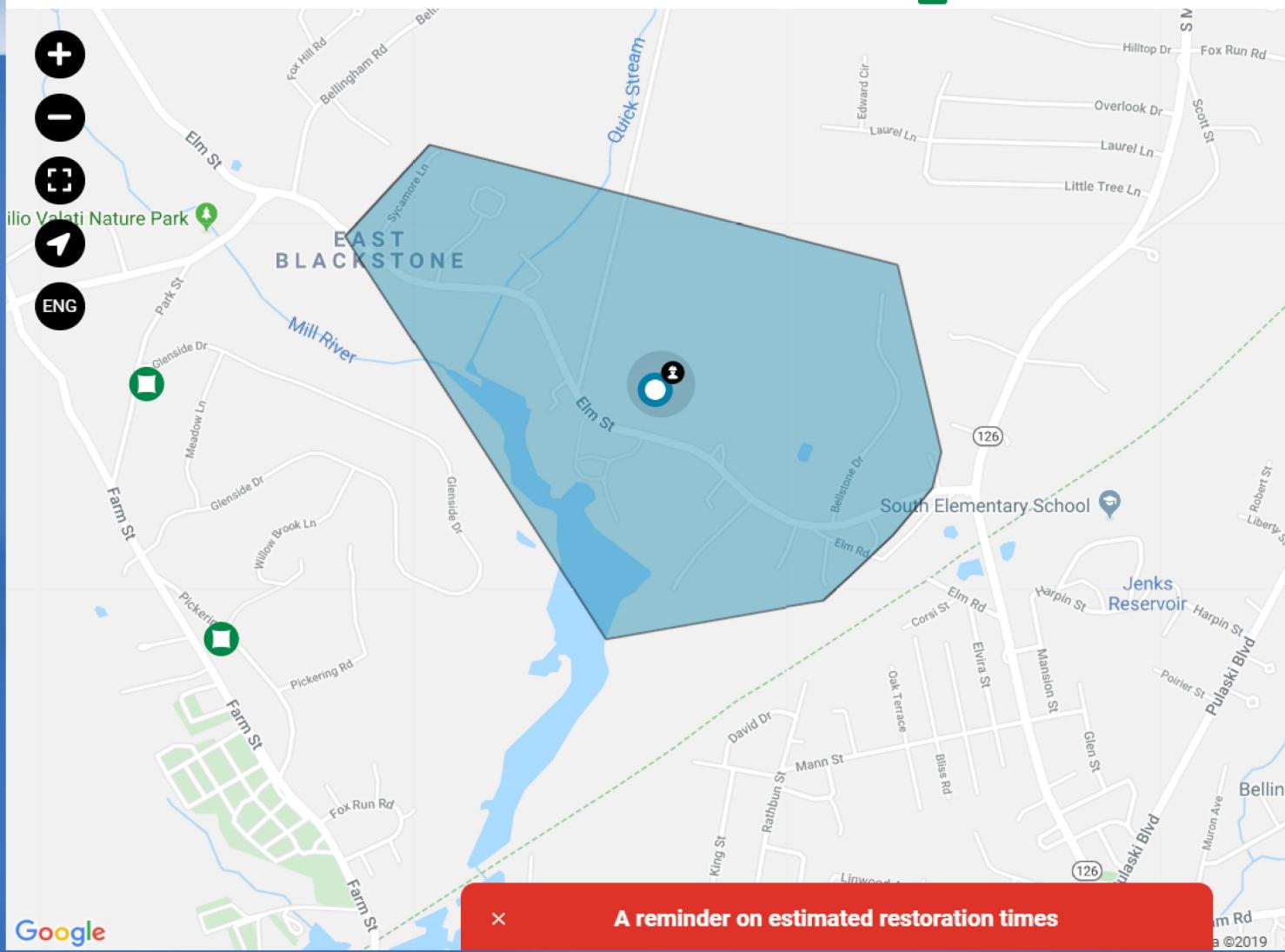
501-1000

51-500

<=50

Multiple

Crew

Service Area 

OUTAGE INFORMATION

✓ Town
Bellingham,
Blackstone

⚠ Customers Affected
144

⌚ Start Time
Nov 1, 2019, 12:44 AM

⌚ Estimated Restoration
Assessing Condition

🔧 Crew Status
Assigned

Magnify/Zoom

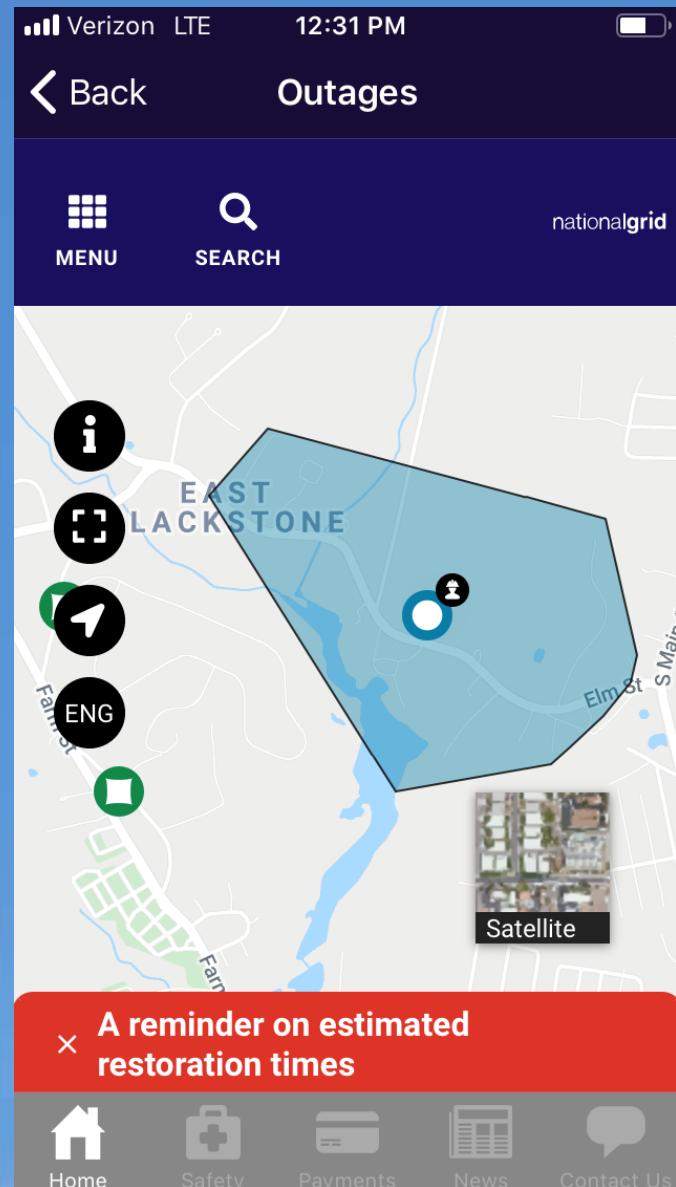
Report Outage

Check Outage Status

Mobile App



- To register for text alerts, text REG to NGRID (64743)
- Enter Cell Phone or Account Number
- Report an outage
- Check status



Restoration Strategies

nationalgrid

- Public Safety first – 911 Fire and Police Priorities
- Isolate to minimize customers affected
- Substation Breaker
- Reclosers
- Load-breaks
- Outage Info



Safety During Restoration

- Bucket trucks do not operate in winds >35mph
- System may be switched to abnormal configuration
- Access, mobility, and safety challenges during weather events
- Restoration depends on nature and location of fault, and options available





Grid Of The Future

- More renewables - solar, wind
- More automatic capabilities
 - More customer visibility
 - More battery storage
 - More tele-metrics

Preparing For Storms – www.redcross.org

- Have A Plan – Meet Up Spot / Communication Plan
- Prepare Your Vehicle - (Winter and Summer)
 - Maintenance - battery, tires, wipers, emergency kit
 - Scraper, shovel, sand, warm clothing, matches
- Prepare Your Home – (Winter and Summer)
 - Loose Items Should Be Secured
 - Maintenance – heating, cooling, water system
 - Fireplace – properly vented, wood
 - Medications, phone numbers, cash

Summary

- What An Outage Is
- Electric Grid Operations
- Safety Of Public, And Workers
- Preparing For Storms
- Action Items:
 - National Grid App
 - www.redcross.org