



Distribution Automation and Distribution Management System

Energy Committee Briefing
May 14, 2014



EXISTING AUTOMATION

Monitor and control equipment inside 15 substations:

- ✓ Control breakers
- ✓ Control transformers
- ✓ Monitor equipment status (breaker opened or closed)
- ✓ Measure electrical values (line loading)
- ✓ Monitor equipment condition (oil temperature)



FUTURE DISTRIBUTION AUTOMATION

Control, monitor and automate equipment **outside** substations on the distribution system:

- ✓ Improve System Reliability
 - Reduce outage duration
 - Reduce outage frequency
- ✓ Improve Operational Efficiency
- ✓ Improve Safety

WHAT IS DISTRIBUTION AUTOMATION (DA)?

✓ Field systems that:

- Monitor equipment
- Remotely control devices
- Automatically detect and isolate faults
- Automatically restore electric service to customers

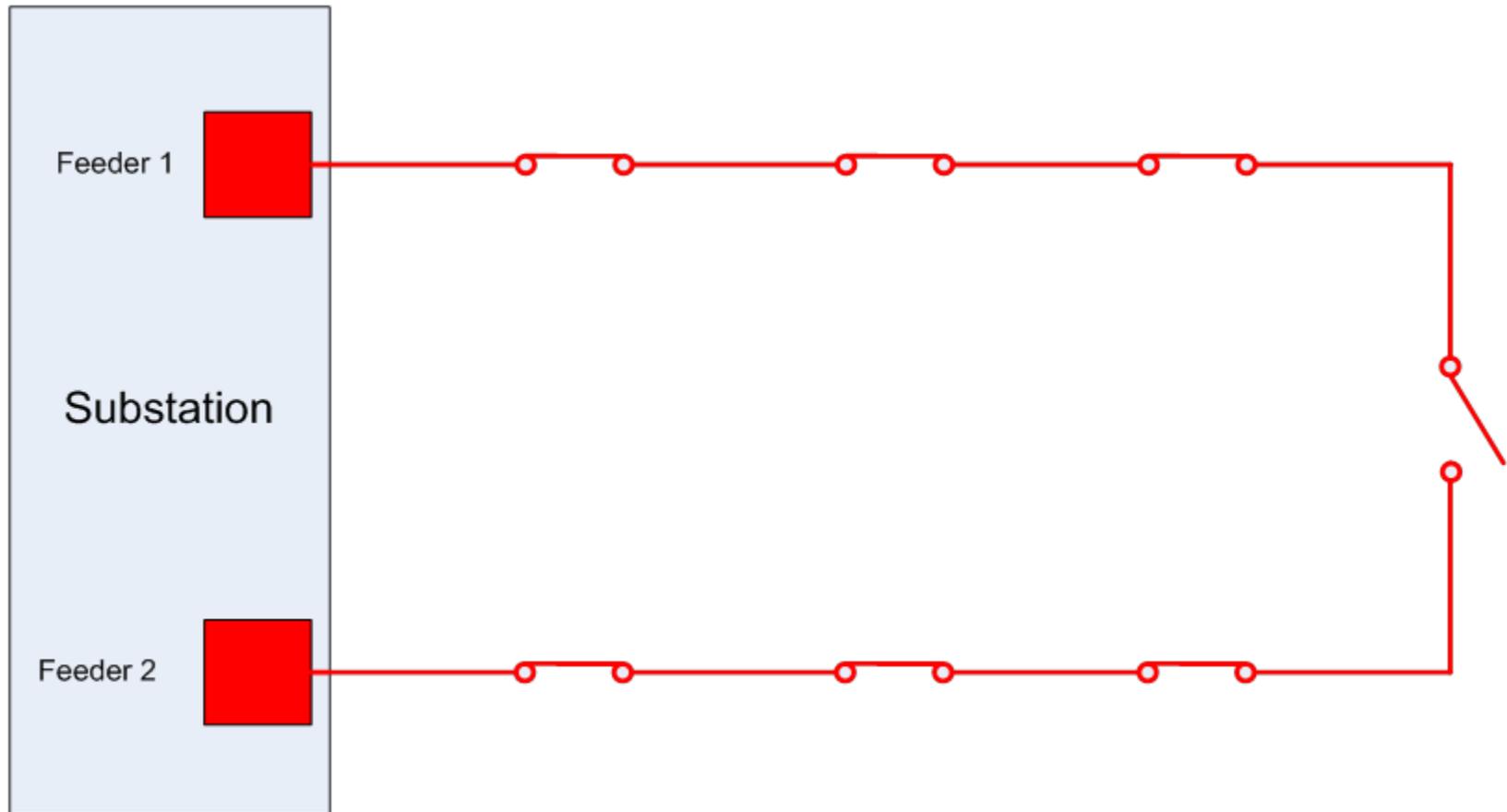


WHAT IS DISTRIBUTION MANAGEMENT SYSTEM (DMS)?

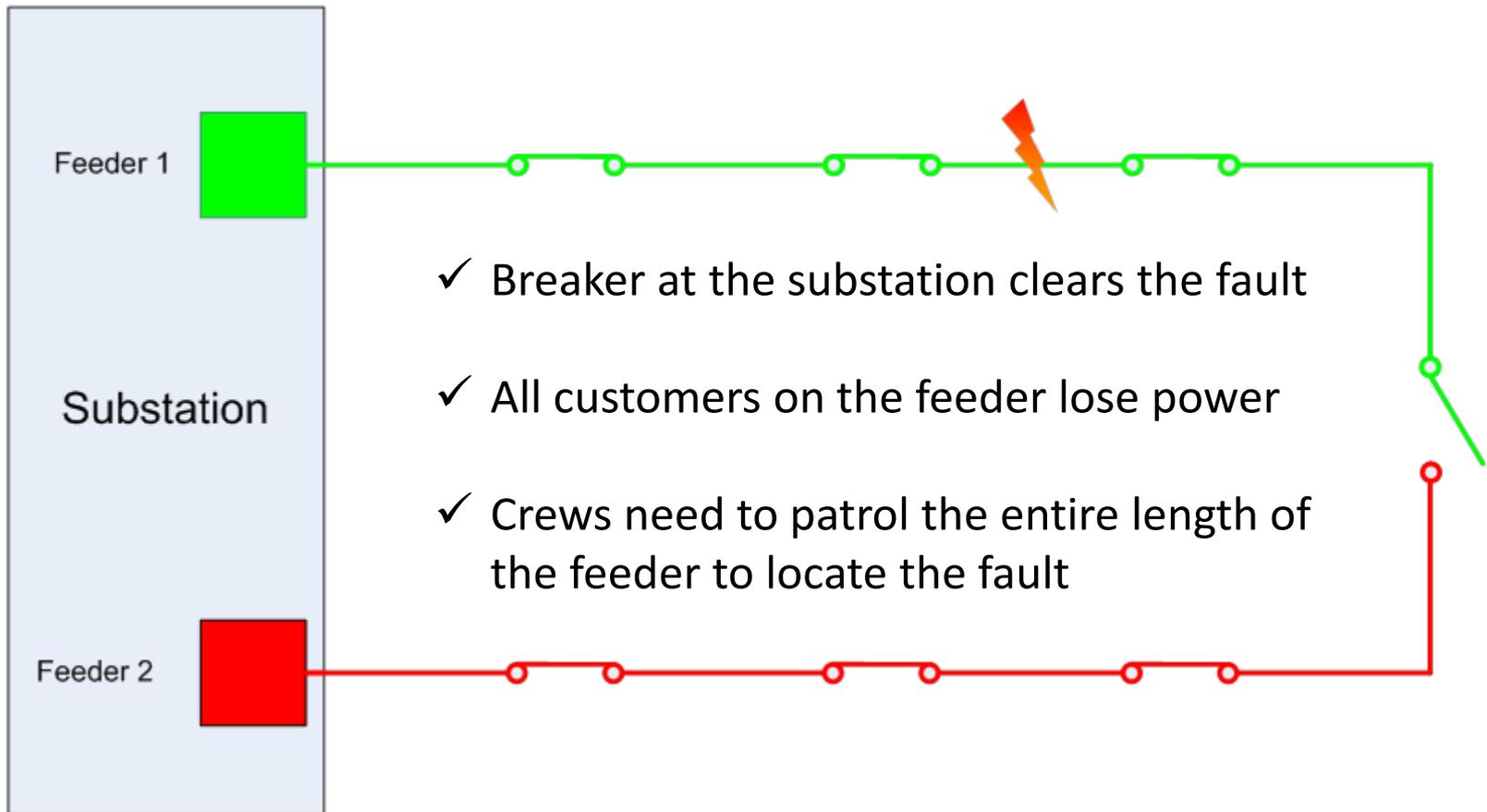
- ✓ **Software platform for:**
 - Demand response
 - Energy delivery optimization
 - Support electric vehicles and solar technologies
 - Other applications

- ✓ **DA systems will be integrated with DMS to further optimize systems operations**

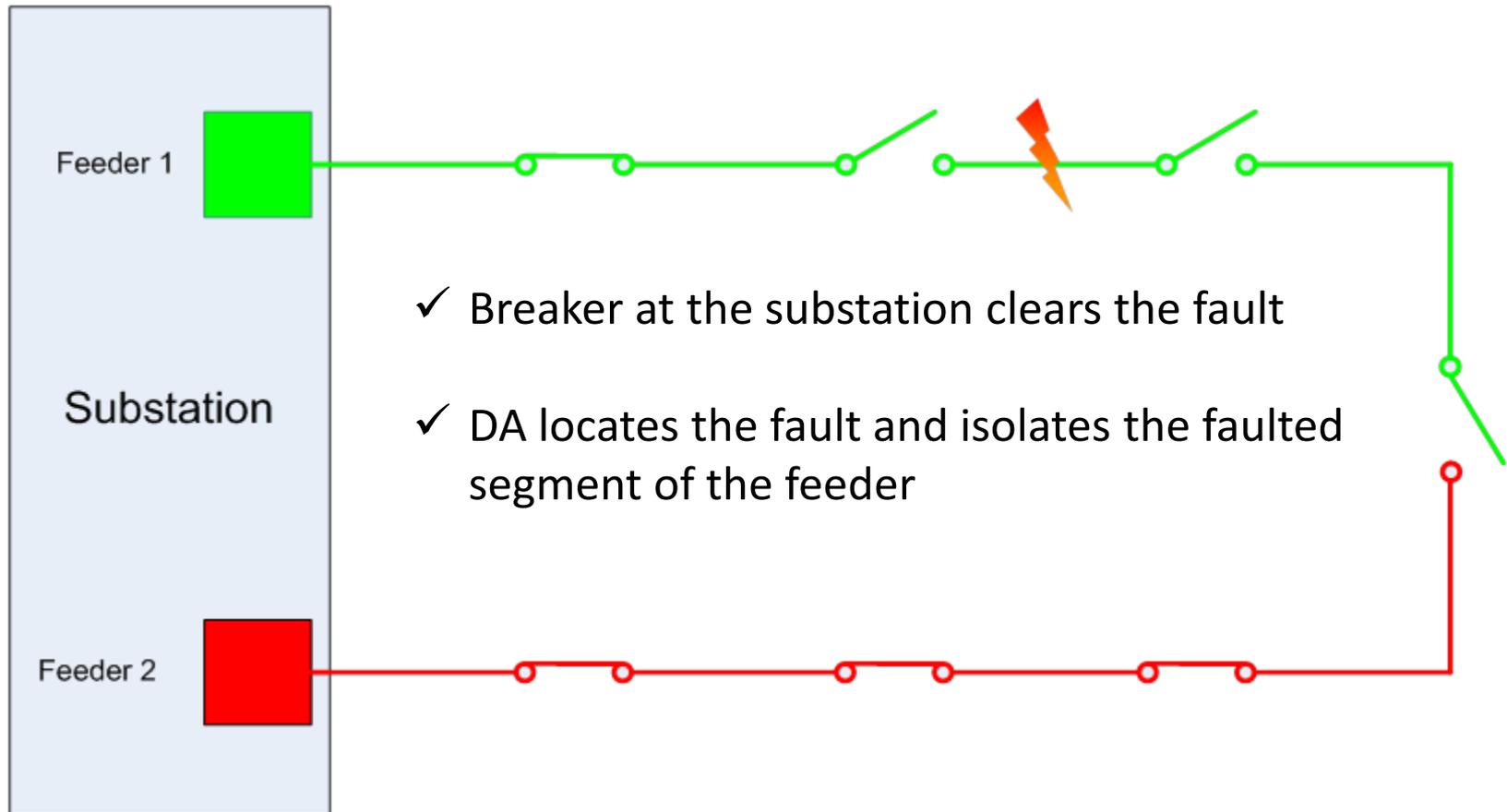
SUBSTATION WITH TWO FEEDERS



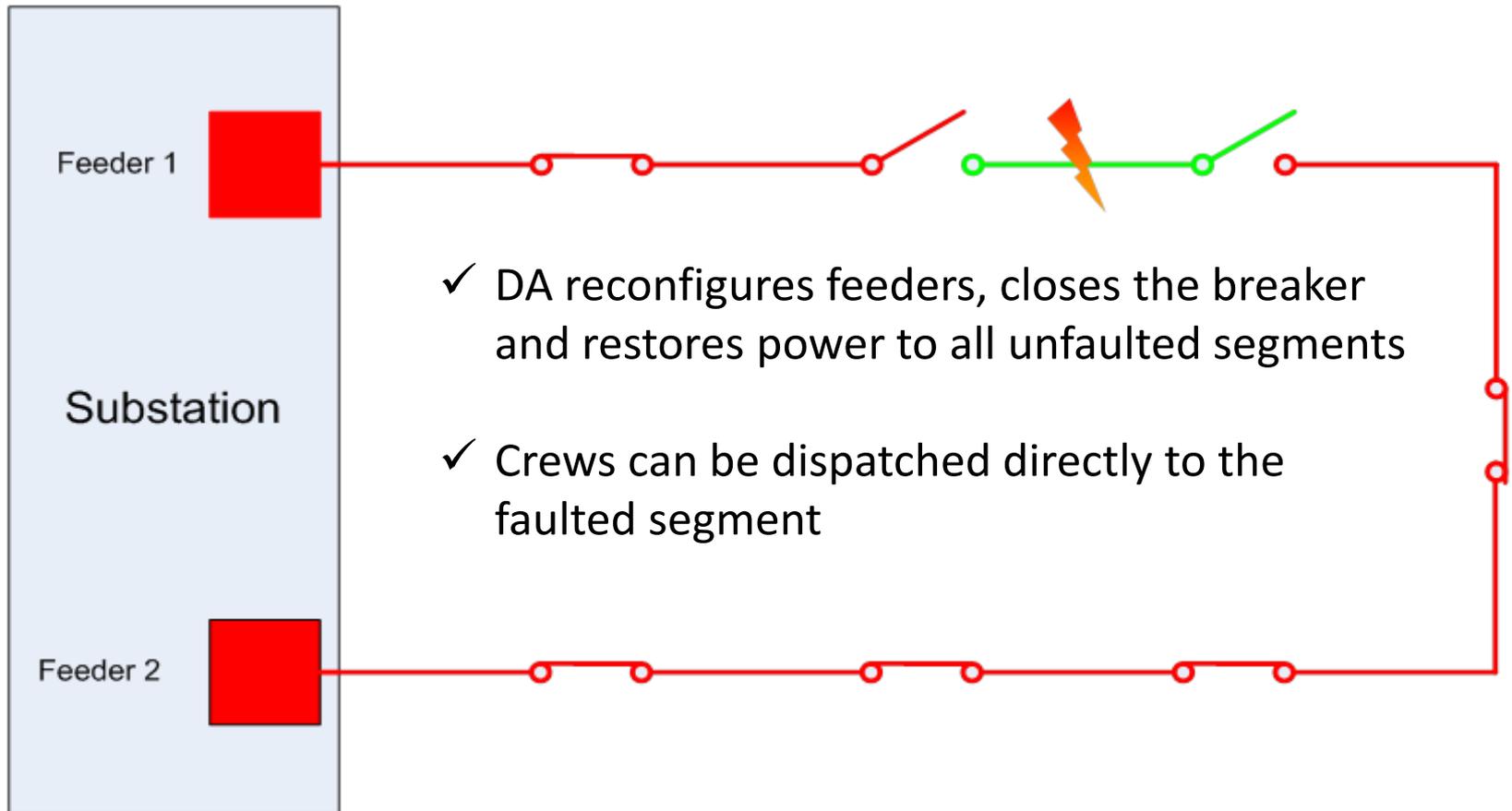
EXISTING: FEEDER FAULT WITHOUT DA



FUTURE: FEEDER FAULT WITH DA – FAULT ISOLATION



FUTURE: FEEDER FAULT WITH DA – SERVICE RESTORATION



IMPLEMENTATION PLAN

✓ DA initiatives:

- Implement 10 distribution systems by 2019
- Install switches and communication equipment
- Project cost - \$6.5M
- Pilot test 2014/2015



✓ DMS Initiatives:

- Complete upgrading Energy Management System in 2017
- DMS software implementation in 2019/2020
- Integrate with DA systems
- Estimated cost - \$12M



Questions?

