NERC Lessons Learned:

“Substation Fires: Working with First Responders”

“Current Drone Usage”

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• **Title**  
  – Substation Fires: Working with First Responders

• **Source of Lesson Learned**  
  – WECC

• **Date Published**  
  – February 26, 2019
• Two substation fire events occurred that highlight the importance of having an incident response procedure and command structure
• Arc flash on a 12 kV feeder circuit breaker within an enclosed substation
  – Fire department dispatched to extinguish the fire but ability to respond was delayed
• 230 kV transformer high-side bushing failed in an outdoor substation
  – An incident command post was established across the street promptly on the arrival of utility and fire department personnel but without needed equipment for transformer fire suppression
Lesson Learned

- Establish a working relationship with local fire departments in advance
- Establish clear Incident Commander role
- No forced entry into unmanned substation
- Specific procedures for transformer fires
- Additional advice for first responders provided

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• Title
  – Current Drone Usage

• Source of Lesson Learned
  – Florida Reliability Coordinating Council, Midwest Reliability Organization, ReliabilityFirst, SERC Reliability Corporation, Texas Reliability Entity, WECC

• Date Published
  – February 28, 2019
Problem Statement

- Some entities have begun using unmanned aerial vehicles (UAVs), commonly called “drones,” for various purposes resulting in reduced cost, increased safety, and more schedule flexibility
  - Storm Damage Recovery
  - Line, Structure, and Substation Inspections
  - Station Security
  - Generation Inspections
Lesson Learned

- Cost/Benefit
- Internal rules for usage
- Guidelines for patrolling lines
- Drone limitations
- Recovery on loss of guidance signal
- FAA regulatory requirements