

Lesson Learned

Tower Climber Incident

Primary Interest Groups

Reliability Coordinators (RC)
Balancing Authority (BA)
Transmission Operators (TOP)
Transmission Owner (TO)

Problem Statement

On an August day, a climber was reported to be on the top of a tower shared by three circuits (a 500 kV circuit, a 230 kV circuit, and a 115 kV circuit). As a result, the three circuits were required to be manually removed from service to protect the safety of the climber while taking into account system limitations that may be caused by their removal from service. They were later returned to service after the climber was reported to be safely down from the tower.

Details

On the day in question, the TOP control center received a call that reported a civilian tower climber in one of the 230/500 kV corridors. The line crew closest to the area was called to investigate. In 15 minutes, the area police and emergency services were on site as well as the TOP line crew. The on-site crews observed that the climber had climbed to the very top of the tower. As per the TO's corporate policy, the event was deemed a public safety hazard.

The TOP reported to the RC that a climber was on the top of a tower that is shared by three circuits. It was decided to remove the three circuits from service with their reclosers blocked to protect the safety of the climber.

In order to mitigate any post-contingency voltage instability or thermal issues in the area, import schedules on a nearby interface were curtailed to 53% of its pre-event value. Later, imports were curtailed to 21% of the pre-event value. The export/import transfer capability on the same interface was limited to the latter value for the rest of the day. To compensate for the curtailed imports, internal generation was increased. In addition, all the area load rejection schemes were armed.

To prepare for the 230 kV and the 115 kV circuits to be removed from service, the TOP reduced the load on the transformers supplied by these circuits and then manually removed the 500 kV, 230 kV, and 115 kV circuits from service.

The TOP's field crew coordinated with police and emergency services as they managed the situation by preparing a clearance to allow a crane to access the area and retrieve the individual. Field crews remained on site with police and emergency services to assist and monitor the situation while providing support and ensuring safety.

To reflect the new system configuration after removing the three circuits from service, the RC was required to update the operating security limits for all relevant interfaces and declare emergency transfer capability in the area where the circuits are located. A Reliability Coordinator Information System (RCIS) message was issued.

Roughly 2.5 hours from the beginning of the event, the TOP reported the climber was down from the tower and in police custody. Once the climber had descended, the RC and the TOP began working to return the circuits to service. The RC issued an RCIS message to indicate that emergency transfer capability in the area where the circuits are

located were rescinded. Also, the area recloser schemes were disarmed along with the lifting of the import limits on the interface with neighbors.

Corrective Actions

- Following the incident, the TOP conducted an evaluation of the tower to compare it against the relevant safety requirements. It was found that no visible danger/warning signs were installed; this was rectified immediately.

Lesson Learned

Transmission line structures are potential targets for unauthorized climbing, posing a safety hazard to the climber, operational risks to the entity, and a potential service loss to customers.

- TOs/TOPs should consider having policies in place that provide direction on the installation of deterrents to prevent unauthorized climbing ensuring the safety of members of the public.
- TOs/TOPs should have policies in place that outline how to respond to public safety hazards to ensure safety for members of the public.
- Procedures on how to communicate with various stakeholders during such events need to be in place. Communication among the TOP, RC, first responders, Local Distribution Center, etc. was vital in identifying the incident, its exact location, and the resources available to control the situation. Such actions allowed the TOP to minimize the electrical hazard by working with the RC to emergently remove the circuits from service until the incident was resolved.
- TOs/TOPs should establish a minimum above grade height for tower climbing aids that discourages unauthorized climbing and consider additional deterrents within their policies.

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