Sample report

Prepared for: (Utility)

Date: 04/20/2025

Type of inspection requested: Asset deterioration inspection via drone

***Add on services requested:** Thermal reports of critical assets (reclosures, solid blade disconnects, distribution capacitors and regulators, potheads)

Scope of work: Next Level UAV performed aerial inspections of distribution system components with a focus on asset deterioration. Inspections included:

- Cross arms, insulators, conductor ties, and related hardware.
- Thermal scans of critical assets to detect abnormal heating.
- Visual inspections of structures and attachments for signs of mechanical, environmental, or thermal degradation.

Completion Timeframe: 35 days

Feeder ID: B1234

Report Summary:

The inspection of 745 structures on feeder B1234 identified 71 critical issues requiring immediate attention. Drone and thermal inspection services provided accurate, safe, and efficient data collection that will help guide reliability improvements and targeted maintenance planning.

Sample report

1. **Key Categories of Issues Found**

- **Cross Arms:** Splitting, rot, UV damage.
- **Insulators:** Hairline cracks, flashover damage, contamination.
- **Conductor Ties & Hardware:** Corrosion, loose or missing hardware.
- **Thermal Anomalies:** Elevated temperatures noted on select reclosers, potheads, and capacitor banks indicating possible internal failure or poor connections.

2. **Thermal Inspection Summary**

Critical assets with abnormal thermal signatures:

- **Reclosers:** 6 units with hotspot activity >15°C ΔT.
- **Solid Blade Disconnects:** 4 units showing heating near connection points.
- **Distribution Capacitors:** 2 units with uneven temperature profiles.
- **Regulators:** 1 unit with elevated bushing temperature.
- **Potheads:** 3 units with localized hotspots, potential deterioration.

3. **Risk Assessment**

Issues were categorized into severity levels:

- **Critical (Immediate Action):** 71 issues.
- **Moderate (Plan for Near-Term Maintenance):** [sample number, e.g., 124] issues.
- **Minor (Monitor):** [sample number, e.g., 210] issues.

Sample report

4. Recommendations

- **Critical Repairs:** Replace compromised cross arms, insulators, and hardware immediately.
- **Thermal Anomalies:** Conduct follow-up infrared inspection to verify persistence of hotspots; schedule replacements as needed.
- **Preventative Maintenance:** Consider accelerated inspection cycles for feeders with higher issue counts.
- **Asset Management:** Tag and document critical structures for inclusion in utility GIS and reliability planning.

Supporting Documentation

- Image Library: Customer will view notated drone imagery of critical issues and GIS located photos via user access.
- Thermal Reports: Files and analysis included in email.

Sample report

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Special Notes

- **Weather/Environmental Conditions:** All inspections were conducted in daylight under [said conditions: clear skies, wind ≤10 mph, no precipitation]. Adverse weather conditions may influence inspection quality and will be noted in final deliverables.
- **Inspection Limitations:** Inspections were performed visually and thermally via drone at safe FAA-compliant distances. Some defects (e.g., internal conductor damage, sub-surface wood decay, or hidden corrosion) may not be detectable without invasive testing.
- **Thermal Reports:** Thermal anomalies are reported relative to ambient and surrounding component temperatures (ΔT). Follow-up ground verification with a handheld IR camera or electrical testing is recommended before replacement decisions.
- **Safety Compliance:** All flight operations adhered to FAA Part 107 regulations, OSHA Minimum Approach Distances (MAD), and company-specific safety procedures.
- **Confidentiality:** This report and accompanying data are intended solely for the utility and should not be shared without prior authorization.

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