

UTILITY & PIPELINE INSPECTIONS

Utility and Pipeline companies are required by Federal and State laws to routinely inspect their infrastructure and assets to ensure public safety. SqwaQ and our drone/VTOL partners significantly improves the data collected, reduces the cost of the inspections, and can introduce automation with artificial intelligence (A/I) to facilitate data analytics. The net effect is lower cost, better data, automation while compliant with regulations. In addition drone-based inspections can also reduce the insurance premiums than other methods. Listed are some of the inspections.



PIPELINE INSPECTIONS

- Encroachments/ROW Easements
- Visual or non-visual leaks
- IR or Thermal hot-spots
- Corrosion on pipes

SOLAR FARM INSPECTIONS

- Search for hot-spots
- ROW Encroachments
- Identify poor cells/panels

WIND TURBINE INSPECTIONS

- Blade/bonding integrity
- ROW Encroachments
- Corrosion detection

UTILITY LINE INSPECTIONS

- Visual Inspections
 - Encroachments
 - ROW Clearance
 - Overgrowth plants/trees
 - Corrosion
 - Rot of Poles/Crossarms
 - Insulators/mechanical
 - Bolts/Screws/Connectors
 - Birds or other animals
- Natural Disaster Damage
- Electrical Power lines down
- Fire Damages
- Telephone pole warps or bending
- Substation visual inspections



ADVANCED PIPELINE & UTILITY INSPECTIONS

Worldwide energy consumption is at an all-time high demand. In order to keep up with this demand, the power and energy companies are continuing to improve their efficiencies using advanced technologies. Here are a few examples of how energy companies can take advantage of UAVs during their various inspections.

PIPELINE INSPECTIONS

Pipelines transporting oil, gas, salt water, and other chemicals must be inspected on a routine basis to not only extend pipe life but also to ensure community. Environmental issues have caused significant and expensive problems for many pipeline networks. Here are some of the things to consider to make your pipeline inspections safer, better, quicker, and cheaper.

- Allow UAVs with camera and/or video recorder to visually inspect for many kind of anomalies
- Use infrared/thermal cameras to check hotspots and potential chemical or gas leakage
- Multispectral sensors can analyze plant-kill zones to identify potential leaks
- Leak detectors or gas sensors can also help identify potential issues
- Allow advanced A/I software programs to use photos or video to automate further analysis or closer inspection

UTILITY INSPECTIONS

Utility inspections are required by federal, state, and some local agencies. Several assets can be inspected by UAVs including: power generation, sub-stations, transmission/distribution, telephone poles, and high-voltage towers. The benefits are: increased safety, lower costs, and quality improvement. Inspections include:

- Comprehensive visual inspections for distribution and transmission lines
- Routine, fault isolation, and emergency/disaster assessment inspections
- ROW planning for new transmission/distribution lines or new tower locations

SOLAR FARM & WIND TURBINE INSPECTIONS


Solar farms require periodic monitoring to ensure they are performing at proper expectations. Cells &/or panels will need to be removed & replaced if they reach low efficiency thresholds. There are several causes: inverters, combiners, module issues, string failures, tracking alignment, and several others. UAVs with FLIR or other thermal sensors with cameras RGB Color Capturing combined can offer:


- Identify Hot-Spots and low performing cells/panels
- Optimize solar farm conversion and meet all regulations
- Wind Turbines need inspections to keep them operating safely. Blades on a wind turbine need to be routinely inspected and can cost up to \$1M
- Based on inspection data, maintenance can be proactively planned based on the thermal information captured
- UAV inspections can find delamination issues or bad bonding, which can prevent costly repair
- LiDAR/Thermal/High Definition cameras can scan external and internal structures on blades



SQWAQ FOR FIXED/MOBILE/AERIAL BANDWIDTH

SqwaQ is providing MVNO (Mobile Virtual Network Operator) service offerings across diverse cellular networks for Fixed/Mobile/Aerial high bandwidth needs of **n x 4G LTE**. Our market Verticals include: Oil & Gas, Aviation, Drones, Utility, Pipeline, Security, GIS, Construction, Smart Agriculture, Public Safety & Emergency Response, Telemedicine, DOD, and DHS.

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