

Utilities & Energy

INDUSTRY CONTEXT

Utilities and energy operators manage high-risk infrastructure that must remain secure, safe, and operational—often across remote, unmanned, or geographically dispersed sites. Substations, generation facilities, transmission corridors, and maintenance zones expose workers and the public to electrical, mechanical, and environmental hazards. Many locations lack reliable grid power or network connectivity, making traditional communication tools unreliable during outages or severe weather.

Utility operators require rugged, off-grid, and automated communication systems that deliver clear, visible warnings and operational messaging—without dependence on local infrastructure.

Scenario

A remote substation undergoes maintenance during a storm-related outage. Crews are on site, the public passes nearby, and unauthorized access presents a serious safety risk. Static signage cannot be updated, and conventional systems fail without grid power.

BotIQ Systems Solution

BotIQ delivers a resilient safety and communication layer designed for utility environments:

- Solar-powered Dynamic Digital Displays deploy at substations, work zones, and access points—no trenching, wiring, or permits required.
- Precision Sensing LiDAR monitors perimeter activity, movement near energized equipment, and restricted zones.
- The LiDAR Controller evaluates events and triggers automated warnings.
- Cellular connectivity enables remote updates during outages.

- Optional audio alerts reinforce warnings in outdoor environments.

This ensures continuous safety communication and perimeter awareness—even during power and network disruptions.

UTILITIES & ENERGY USE CASES

Use Case 1: Substation Perimeter & Restricted Area Protection

Description

Prevent unauthorized access to energized equipment and restricted utility zones.

Example Display Messages

- “HIGH VOLTAGE — KEEP CLEAR”
- “AUTHORIZED PERSONNEL ONLY”
- “DANGER — ELECTRICAL HAZARD”
- “NO TRESPASSING — AREA MONITORED”

Value

- Reduced unauthorized access
- Improved public safety
- Stronger regulatory compliance

Use Case 2: Maintenance & Field Crew Safety Messaging

Description

Communicate active maintenance work and protect crews operating near live infrastructure.

Example Display Messages

- “LINE WORK IN PROGRESS”
- “CREW ON SITE — STAY BACK”
- “EQUIPMENT ENERGIZED”
- “WORK ZONE — DO NOT ENTER”

Value

- Improved worker awareness
- Reduced incident risk
- Safer field operations

Use Case 3: Emergency & Outage Communication

Description

Provide clear messaging during outages, severe weather, or emergency response events.

Example Display Messages

- "POWER OUTAGE — CREWS RESPONDING"
- "STORM DAMAGE — KEEP CLEAR"
- "EMERGENCY REPAIRS IN PROGRESS"
- "AREA TEMPORARILY CLOSED"

Value

- Clear public communication
- Reduced confusion and complaints
- Improved emergency response coordination

Use Case 4: Remote Site Monitoring & Safety Awareness

Description

Maintain safety messaging at unmanned or remote utility sites.

Example Display Messages

- "REMOTE FACILITY — AUTHORIZED ACCESS ONLY"
- "MONITORING ACTIVE"
- "NO PUBLIC ACCESS"
- "CONTACT UTILITY OPERATOR"

Value

- Continuous site awareness
- Reduced vandalism and tampering
- Reliable operation without on-site staff

Use Case 5: Temporary Work Zone & Public Safety Messaging

Description

Deploy temporary safety messaging at roadside or neighborhood work zones.

Example Display Messages

- "UTILITY WORK AHEAD — SLOW DOWN"
- "CREWS WORKING — USE CAUTION"
- "SIDEWALK CLOSED — USE DETOUR"
- "LANE RESTRICTION AHEAD"

Value

- Improved public compliance
 - Reduced work zone incidents
 - Faster setup and teardown
-

OPTIONAL ENHANCEMENTS FOR UTILITIES & ENERGY

- AI Cameras: Detect intrusion, loitering, and unsafe behavior
 - Audio Alerts: Audible warnings in outdoor or high-noise environments
 - Solar Power: Fully off-grid operation
 - Cellular Connectivity: Remote updates during outages
-

WHY BOTIQ SYSTEMS FOR UTILITIES & ENERGY

- Designed for remote, high-risk environments
 - Operates during outages and extreme weather
 - Automates safety communication and perimeter awareness
 - Reduces reliance on manual monitoring
-
-