



Securing America's Critical Infrastructure with Enterprise Vision AI

How CelPlan and Vaidio modernized security operations for one of the nation's largest municipal utilities

Vaidio | CelPlan

The Customer

The utility at the center of this case study is one of the largest municipally-owned energy providers in the United States. It delivers electricity and natural gas to more than **900,000 electric customers** and nearly **375,000 natural gas customers** across a major metropolitan area and portions of seven surrounding counties.

Its operational footprint is among the most diverse in U.S. public power:

- A diverse generation portfolio that includes natural gas, coal, nuclear, solar, and wind
- Thousands of miles of electric transmission and distribution
- Thousands of miles of natural gas distribution infrastructure
- Power plants, substations, data centers, maintenance yards, and unmanned remote sites

As a public power utility, every operating dollar saved is reinvested in the community, funding the modernization, resilience, and safety of the people and assets that keep the lights on. When the time came to bring the utility's surveillance and security into the modern era, they chose **CelPlan** as their security integrator and **Vaidio** as the AI platform behind the deployment.

The Opportunity: Modern Security at Public-Power Scale

The utility's video surveillance footprint had grown across many sites and project phases over the years. With the organization still expanding and AI now a practical tool for security operations, the objective was straightforward: unify that footprint onto a single modern platform and add intelligence to it. Three priorities shaped the initiative:

Unified visibility

Bringing systems deployed across many sites and project phases together under a single, centrally managed platform.

Proactive intelligence

Augmenting the utility's skilled operators with AI, so the team could focus its attention where it mattered most across thousands of streams.

Built to scale

A platform engineered to perform across diverse site profiles and to grow alongside the utility's expanding footprint.

"We needed a platform that could unify a highly complex environment while giving us the flexibility to adapt to each site's unique requirements." — Utility physical security leadership

The partnership: trusted security engineering since 2023

CelPlan has served as the utility's security integrator since 2023, partnering with the customer's security and IT organizations to design, deploy, and continuously evolve their enterprise video infrastructure. What began as a video management system modernization has expanded through multiple project phases into a full enterprise security platform. The relationship has scaled because the engineering has delivered.

The Solution: an Enterprise AI Vision Platform, Engineered for Scale

CelPlan first modernized the utility's underlying video surveillance infrastructure, building a modern enterprise architecture with 85 distributed video servers across 79 facilities, consolidating every camera into a single unified view and integrating natively with existing systems. With that foundation in place, the next step was intelligence: turning a unified camera network into a proactive security platform. That is where Vaidio came in.

POWERED BY VAIDIO

Enterprise Advanced Video Analytics

CelPlan engineered and deployed an analytics system built on the Vaidio AI Vision Platform. The distributed architecture runs AI detection and analysis close to where video is generated, which delivers faster real-time detection, lets analytics scale across geographically dispersed sites without overwhelming the network or the SOC, and lowers backhaul bandwidth requirements. The utility runs advanced AI analytics across critical sites in its network, with coverage continuing to expand across the deployment as the analytics layer rolls out.

Precision tuning is where the platform earns its value. Unlike traditional "black box" analytics, Vaidio lets CelPlan's engineers optimize analytics **camera by camera**, accounting for placement, field of view, lighting, and operational role. The payoff is high-confidence detection on the cameras that matter and far less noise everywhere else.

"Vaidio gave us the flexibility to design around the customer's infrastructure, not the other way around." — CelPlan project lead

Advanced Analytics Deployed for the Customer

Intrusion detection

People and vehicles in restricted areas across substations and remote assets.

PPE monitoring

Safety compliance at active operational sites.

License plate recognition

Vehicle identification at ingress and egress points.

Object detection

Tracking across heterogeneous environments.

Alerts flow directly into existing SOC workflows in a structured, prioritized format, letting operators triage and respond instead of monitoring continuously.

Engineered Deployment, End to End

CelPlan owns the full delivery lifecycle, which is why the program has scaled cleanly through multiple expansion phases since 2023.

Design and engineering

Detailed architecture for both the video system and the Vaidio-powered analytics layer, including server placement, compute and storage sizing, and site-specific design.

Procurement and installation

Full lifecycle procurement; 1,300+ cameras and 100+ servers installed; equipment pre-staged before field install.

Testing and QA

Site-by-site testing prior to handover with installation reports and acceptance checklists.

Training and support

Two-tier training for administrators and end users, plus specialized SOC and Security Investigation Team training.

"By combining Vaidio with the utility's existing systems, we turned a complex camera network into an intelligent, proactive security platform, all without forcing a rip-and-replace." — CelPlan engineering team

Results

The utility now operates a true enterprise AI vision platform: centrally managed, fully integrated with existing systems, and engineered to scale alongside the organization.

Proactive detection

Advanced AI analytics deployed and expanding across the network

Unified visibility

1,300+ cameras across 79 facilities

Asset protection

Stronger protection across corporate and operational sites

Execution

Delivered on time and on budget

Trusted partnership

Multiple expansions since 2023

Lifecycle support

Ongoing maintenance from CelPlan

Operational Improvements

The platform transformed day-to-day security operations across the deployment.

Operator burden lifted

Operators traded continuous stream-watching for clean, alert-driven workflows, focusing only on the events that mattered.

False positives plummeted

Camera-by-camera AI tuning filtered out the noise and surfaced real threats with sharper precision.

Security outcomes elevated

Continuous AI vigilance combined with prioritized alerting delivered faster, more accurate response across every critical site.

Investigations went from hours to minutes

AI metadata, license plate recognition, and object tracking compressed forensic review timelines and accelerated incident response.

About CelPlan

CelPlan Technologies is an engineering-led systems integrator and prime contractor specializing in mission-critical security for complex, large-scale environments. Headquartered in Reston, Virginia, CelPlan brings more than three decades of experience designing, deploying, and sustaining critical infrastructure for government, utility, and enterprise clients.

CelPlan combines deep RF, network, AI, and physical security engineering with end-to-end integration capability that spans solution architecture, AI and video analytics design, equipment specification, factory staging, installation, commissioning, integration with existing operational systems, and lifecycle support.

CelPlan's strength in critical infrastructure work is engineering continuity. The same team carries a program from architecture through deployment, integration, and long-term lifecycle support, rather than passing it between separate vendors at each phase. That continuity is backed by decades of experience across substations, generation facilities, data centers, and remote operational sites, and by the practical knowledge of how to integrate with the existing operational systems, networks, and physical environments that real utility deployments involve.

For this customer, CelPlan serves as prime integrator and lifecycle security partner, owning the engineering, deployment, and ongoing evolution of one of the most ambitious enterprise AI vision programs in the U.S. public power sector.

celplan.com →