LIBERTY

AUTOMATED DESIGN SERVICES (ADS): ACCELERATING UTILITY INFRASTRUCTURE DESIGN WITH PRECISION AND COMPLIANCE

MODEL PRECISION.
DESIGN FASTER.
BUILD BETTER.

2026

Executive Summary

Utility providers operate under growing pressure to modernize aging infrastructure, meet complex regulatory requirements, and deliver capital projects on time and within budget. Yet traditional design workflows often lag behind, leading to delays, rework, and cost overruns across critical assets such as substations, generation plants, and battery energy storage systems (BESS).

4Liberty's Automated Design Services (ADS) offers a smarter approach. By combining Building Information Modeling (BIM), rule-based automation, and utility-standard templates, ADS delivers accurate, compliance-ready design packages faster and more efficiently. The result is shorter project timelines, fewer field errors, and improved cost predictability turning the design phase from a bottleneck into a performance advantage.

The Utility Design Challenge

- **Long Cycle Times** – Engineering design for routine infrastructure projects can take months to complete.
- **High Labor Costs** – Senior engineers are often consumed by repetitive, low-complexity tasks.
- **Version Control Risks** – Multiple stakeholders working on outdated plans introduces errors and delays.
- **Regulatory Complexity** – NERC, CPUC, OSHA, and municipal permitting create significant compliance demands.
- **Scalability Issues** – Utilities struggle to keep pace with multi-site programs or simultaneous capital projects.

The ADS Solution

ADS is a turnkey, BIM-enabled design platform tailored for utility infrastructure. It automates core workflows, embeds compliance from the start, and accelerates delivery without sacrificing accuracy.

Core Capabilities

- **Standards-Based Templates** – Built to reflect your utility's design rules, construction practices, and permitting requirements.
- **2D and 3D Precision Modeling** – Realistic, layout-accurate designs for substations, telecom, electric distribution, and fiber.
- **Automated Bill of Materials (BOM)** – Model-linked, procurement-ready material lists that align with scope and budget.
- **GIS & Asset Data Integration** – Ties designs to existing system maps and asset registries for full network alignment.
- **Compliance-Ready Outputs** – Automatically generates NERC, CPUC, and AHJ-compliant documentation packages.
- **BIM Clash Detection** – Identifies conflicts between security, architectural, and infrastructure systems early, reducing costly rework and ensuring seamless integration.
- **Lifecycle Digital Twin** – Creates a dynamic model that evolves with the facility, supporting compliance, lifecycle management, and continuous improvement.

Why Utilities Choose ADS

- **Design Acceleration** – Reduce typical cycle times, especially on repeatable infrastructure projects.
- **Cost Predictability –** Early and accurate BOMs support realistic budgeting and faster procurement.
- **Workforce Efficiency** – Allow high-value engineering resources to focus on complex system-level work.
- **Error Reduction** – Embedded design logic and validation reduce the volume of field changes and redesigns.
- **Scalable Deployment –** Easily apply to high-volume programs, joint trench coordination, and state-mandated improvements.
- **Cost Savings** – Lowers design costs while reducing ongoing operational expenses.

Proven Results

- **Substation Modernization Program:**
  - Reduced design timeline from months down to weeks
  - Achieved up to 20% cost savings through optimized layouts and procurement alignment
  - Delivered install-ready designs that passed first-round stakeholder review, reducing change orders
- **Telecom/Fiber Rollout:**
  - Lowered device counts by 26% while maintaining performance
  - Enabled simultaneous design of multiple service zones without workflow delays

Use Cases in the Utility Sector

- Electric Distribution Upgrades (pole replacements, feeder re-routes, service extensions)
- Substation Design and Expansion (including grounding, conduit, and security integration)
- Fiber and Broadband Deployment (make-ready plans, conduit, and fiber pulls)
- Renewable Interconnection Projects (solar, wind, and energy storage integration)
- Perimeter and Security System Design (video, access control, and intrusion detection for critical sites)

Scaling with Your Growth

ADS supports utilities facing capital project surges, regulatory deadlines, or broadband expansion initiatives. Whether tackling substation modernization or regional fiber deployment, ADS enables utilities to standardize, scale, and execute at speed without increasing design headcount.

With real-time coordination, reduced rework, and compliance built into the design, 4Liberty's ADS becomes more than a service, it's a force multiplier for your infrastructure program.

Expanding Partner Ecosystem

We are actively building partnerships with leading Architectural & Engineering affiliates and technology providers—including Hanwha, Axis, Commend, Motorola, Genetec, Milestone and many others—to ensure seamless integration, compliance, and scalability across verticals.

Conclusion

In a sector where project delays, compliance gaps, and cost overruns carry real consequences, ADS offers a clear edge. By modernizing how utility infrastructure is designed, ADS empowers teams to move faster, reduce risk, and improve outcomes from the drawing board to the field.

Let's Connect

Discover how ADS can transform your design workflows and strengthen your delivery strategy.

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Schedule a Demo

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