

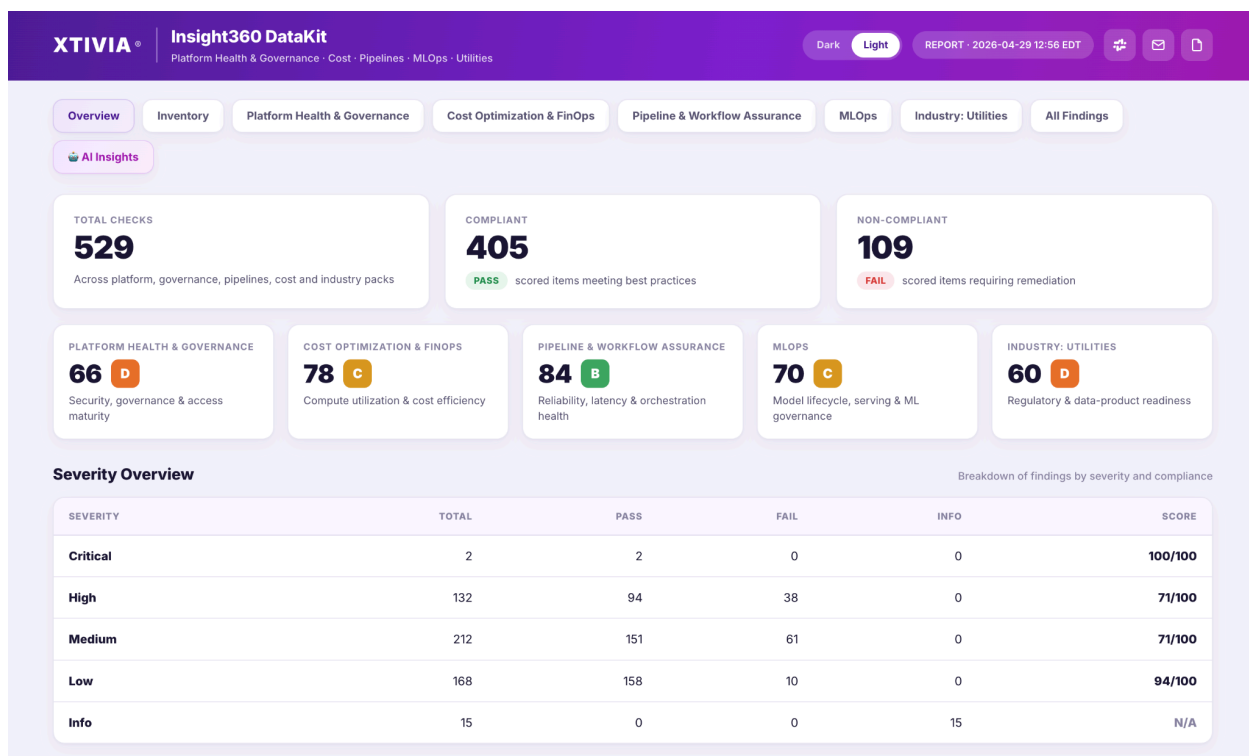
Insight360: Ensuring Your Utility Data Lakehouse Is Ready for Gold Data Products

ORGANIZATION

An integrated U.S. energy company serving more than 3 million customers across Arkansas, Louisiana, Mississippi, and Texas had built a Databricks lakehouse ingesting SCADA telemetry, ETRM trade data, maintenance records, environmental feeds, and wholesale billing records. The Bronze and Silver layers were working. But when leadership asked whether the Gold data products were trustworthy enough to replace legacy reports, the platform team could not answer with confidence.

CHALLENGE

The platform was built to serve five enterprise data products: **Generation Dispatch Performance** feeding MISO day-ahead bidding decisions, **Energy Trading P&L** with PPA valuations and FERC-reportable settlement reconciliation, **Wholesale Billing** with demand determinants and rate schedules, **Regulatory Compliance** covering NERC CIP posture and EPA emissions reporting, and **Asset Health** models driving capital planning and outage scheduling. Each depended on the integrity of every layer beneath it.



TECHNICAL SOLUTION

XTIVIA was engaged to run an Insight360 assessment — 529 automated checks across governance, security, jobs, cost, MLOps, and a 32-check Industry Utilities Pack purpose-built for energy platforms. What followed did not just validate the platform — it fundamentally shaped the Gold data products the client deployed into production.

The Industry Utilities Pack delivered the most consequential findings. Three checks directly reshaped the Gold product design before launch.

The screenshot displays the 'AI Insights' section of the XTIVIA platform. It features three tabs: 'Industry: Utilities', 'All Findings', and 'AI Insights'. The main content area is titled 'Utility Domain Data Readiness Failures' and is marked as 'SYSTEMIC'. It lists four findings:

- **[UTL.020: 0 of 10 FERC EQR Fields Present]** The FERC EQR trade data table is missing all ten required fields, meaning the organization currently has no machine-readable basis for regulatory trade reporting and faces potential compliance exposure.
- **[UTL.030: 0 of 10 SOX Audit Columns]** Settlement and billing determinant tables contain none of the required financial-close audit trail columns, eliminating the ability to demonstrate SOX-compliant change tracking for regulated financial data.
- **[Telemetry Age: 431 Hours]** Generation telemetry data is nearly 18 days stale against a 24-hour freshness requirement, rendering operational analytics and outage risk models unreliable for real-time or near-real-time decision support.
- **[Trade-to-Settlement Linkage: Absent]** No common key exists between trade capture and settlement tables, making position reconciliation, mark-to-market validation, and counterparty exposure reporting impossible without manual intervention.

The footer of the interface includes 'XTIVIA - Databricks Insight360 - 2026', 'xtivia.com Databricks Services Contact', and '© 2026 XTIVIA Inc. All rights reserved'.

Generation Telemetry Freshness (UTL.002) — The SCADA-to-Bronze pipeline had not refreshed within the 24-hour operational threshold. The Generation Dispatch Gold product was computing capacity factor and availability from stale data. In MISO day-ahead markets, a dispatch bid based on stale availability can trigger reliability penalties or leave revenue on the table. The finding led to a freshness SLA enforced by automated alerting tied directly to this check.

Billing Determinant Completeness (UTL.007) — The billing tables were missing MWh quantity fields and commercial rate determinants. The ingestion pipeline extracted position and pricing data, but not the settlement-specific fields needed to compute wholesale invoices. The Wholesale Billing Gold product would have launched structurally incomplete — with invoices lacking demand-charge components and rate-schedule references. The finding triggered a pipeline redesign before promotion.

PPA Pricing Data Quality (UTL.018) — PPA pricing records lacked contract ID linkage, pricing period boundaries, escalation rates, and index references. The ETRM source had this data, but the extraction pulled only current mark-to-market values — not the contractual terms needed to audit a valuation back to its basis. For a utility managing 15-20 year PPAs with complex escalation formulas, this is both a financial risk and a FERC compliance gap. The finding drove a full redesign of the PPA data model in Silver.

The pack also confirmed strengths: EPA Environmental compliance scored 100% across all CEMS, emissions, and monitoring checks — giving leadership confidence to retire the legacy compliance extract. The maintenance and reliability data linkage passed, confirming that the Asset Health Gold product's foundation was sound.

The Platform Foundation

Beyond utility-specific checks, three platform patterns threatened every Gold product simultaneously. Across 17 production jobs, **zero had failure notifications**, 14 lacked task timeouts, and 15 ran under

personal user identities. A single expired token would have silently halted all five Gold product pipelines. The fix was one standardized job template — resolving 58 findings with a single operational change.

The assessment found **465 broad table grants** to generic principals, meaning every user could access trading positions, billing data, and employee records. Group-based RBAC through Unity Catalog replaced blanket access with function-scoped permissions. Table documentation sat at **16% comment coverage** against a 70% threshold — meaning consumers of a column like `gen_output_mw` had no way to know if it was gross or net output.

Insight360's AI layer — powered by Databricks Foundation Models — found that 14 of 17 jobs “passing” the service principal check actually had the value “Not specified.” The true adoption rate was 6%, not the 82% the score reflected. The AI also identified a compound risk: no IP access lists + 465 broad grants + no monitoring = an undetectable unauthorized access path to all 306 managed tables. Each finding alone was High severity; together, a Critical exposure chain.

BUSINESS RESULT

The assessment was completed in under two weeks. Remediation took 90 days across three phases: identity and access hardening (0–30 days), operational resilience (30–90 days), and governance maturity (90–180 days). The five Gold products launched with validated data quality profiles, enforced freshness SLAs, and governed access controls. The legacy reports were retired. Insight360 now runs monthly, catching regressions before they reach the Gold layer.

The transformation was not in the pipeline — those were always well built. It was in the assurance that surrounded them. Insight360 moved the client from “*we think it's ready*” to “*we've verified it against 529 checks, including 32 utility-specific quality standards, and closed every gap.*”

KEYWORDS

Databricks, Insight360, Utility Data Lakehouse, Gold Data Products, Energy Sector, SCADA, ETRM, MISO, FERC, NERC CIP, EPA CEMS, PPA, Unity Catalog, Data Governance, Platform Assessment, MLOps, Generation Dispatch, Wholesale Billing, Data Quality

SOFTWARE

Databricks Lakehouse Platform, XTIVIA Insight360, Databricks Foundation Models, Delta Lake, Unity Catalog, Apache Spark, Databricks SQL

ABOUT XTIVIA

At XTIVIA, we've provided IT solutions and consulting services for over 30 years. We offer a wide range of services, including technology assessments, IT service and asset management, software development, data analytics, cloud migration, DevSecOps, ERP, and enterprise content management. Our team of experts is dedicated to each discipline, ensuring that our clients receive the best possible service. We've partnered with industry leaders to bring our clients the latest solutions. Through strategic acquisitions, we've acquired talented people who are experts in their industries, passionate about what they do, and committed to providing exceptional service to our clients. Whether you need to improve your IT infrastructure or implement new software solutions, XTIVIA is here to help you achieve your business goals. Contact us today to learn more about our services. XTIVIA has offices in Colorado, New York, New Jersey, Texas, Virginia, and India. www.xtivia.com