

CUSTOMER CASE STUDY

Commercial Operations Automation for Independent Power Producer

Streamlining ETL pipelines and database architecture to eliminate manual reporting bottlenecks

Solution: Python & SQL Server ETL Pipeline **Industry:** Power Generation

Use Case Focus: Commercial Operations Automation

GOALS

- Automate daily commercial data infrastructure.
- Streamline manual commercial operations workflows.
- Improve data reliability across systems.
- Accelerate critical commercial decision-making.

SOLUTIONS

- Built Python-based ETL data pipelines.
- Centralized data in SQL Server environment.
- Integrated dynamic Excel Power Queries.
- Deployed Power Automate email extraction.

CHALLENGES

- Manual consolidation of diverse data sources.
- High risk of data entry errors.
- Inconsistent timelines for operational reporting.
- Excessive staff hours spent on repetitive tasks.

RESULTS

- Reduced daily data processing by 90%.
- Eliminated manual data extraction workloads.
- Provided near real-time operational data.
- Built scalable foundation for future analytics.

EXECUTIVE SUMMARY

A leading independent power producer successfully overhauled its manual commercial operations by implementing an automated, Python-based ETL data infrastructure. Prior to the project, the producer suffered from high error risks, inconsistent reporting, and massive labor overhead due to manual data consolidation from emails, FTP servers, and partner APIs. Centralizing this data into SQL Server and deploying automated workflows reduced manual daily processing workloads by over 90 percent. This modernization established a single source of truth, accelerated daily business decisions, and built a robust foundation for advanced analytics.

The Challenge of Fragmented Operations

The independent power producer faced significant operational bottlenecks due to fragmented daily workflows. Commercial teams manually collected and consolidated critical market and operational data across diverse formats, including APIs, FTP servers, and daily email attachments. This labor-intensive methodology increased the probability of data entry errors and led to highly inconsistent reporting timelines. Valuable engineering and analysis hours were consumed by routine administrative duties, preventing staff from executing strategic reviews and delaying essential, time-sensitive commercial decisions in a highly competitive power market.

Implementing Automated Data Pipelines

To address these inefficiencies, a modern automated data infrastructure was engineered to streamline processing. Python-based ETL pipelines were deployed to ingest and transform data automatically from external market partners. This information was centralized within a secure SQL Server environment, establishing a unified single source of truth. The architecture utilized Power Automate and OneDrive to ingest daily email attachments instantly, triggering scheduled processing scripts. Business users were equipped with integrated Excel Power Queries, facilitating secure, on-demand reporting and self-service analytics without manual database queries.

Empowering Future-Ready Decisions

The deployment of the automated ETL framework completely transformed daily commercial workflows for the power producer. Daily manual processing requirements decreased by over 90 percent, allowing the commercial team to pivot focus toward high-value market analysis. Real-time data availability minimized operational lag and enhanced the agility of commercial decision-making processes. Additionally, the centralized, clean data repository established a scalable foundation to support the organization's long-term digital roadmap, preparing them for advanced predictive forecasting, machine learning, and sophisticated portfolio analytics.