CUSTOMER CASE STUDY

Automating Commercial Operations for a Major Power Producer

Streamlining multi-source ETL pipelines to eliminate manual data entry and accelerate decisions

Solution: Python & SQL ETL Pipeline **Industry:** Power Generation **Use Case Focus:** Automated Data Pipelines & ETL

GOALS

- Eliminate manual operational and market data consolidation workflows.
- Establish a secure and centralized single source of truth.
- Accelerate daily commercial and operational reporting timelines.
- Free up valuable staff time for high-impact strategic analysis.

CHALLENGES

- Fragmented data collection from diverse APIs, FTPs, and emails.
- High risk of human error from manual data entry processes.
- Delayed and inconsistent commercial reporting and decision-making.
- Excessive staff hours wasted on low-value administrative tasks.

SOLUTIONS

- Built automated Python ETL pipelines to ingest multi-source partner data.
- Centralized commercial data in a secure SQL Server database environment.
- Integrated Power Query in Excel for dynamic, self-service reporting.
- Deployed Power Automate to ingest and process daily email attachments.

RESULTS

- Reduced daily manual data processing efforts by over 90 percent.
- Established consistent and rapid near real-time business data availability.
- Reallocated valuable staff hours from data entry to strategic analysis.
- Created a scalable foundation for advanced analytics and machine learning.

EXECUTIVE SUMMARY

A leading independent power producer automated its daily commercial operations by replacing error-prone manual workflows with robust data infrastructure. The utility previously struggled with fragmented data consolidation from multiple external APIs, FTP servers, and email attachments. By implementing Python-based ETL pipelines, a centralized SQL Server database, and Power Automate flows, the organization established a single source of truth. This modern architecture cut manual data processing workloads by over 90%, ensuring near real-time data access for rapid, strategic decision-making.

The Challenge of Manual Data Aggregation

A leading independent power producer faced severe operational bottlenecks due to fragmented, manual data consolidation processes. Daily commercial workflows required staff to compile market and operational data scattered across external partner APIs, secure FTP servers, and daily email attachments. This manual intervention was highly repetitive, consumed valuable engineering hours, and introduced significant risks of data entry errors and reporting inconsistencies. Ultimately, these delays hindered the company's ability to make agile, time-sensitive commercial decisions in a dynamic energy market.

Architecting an Automated Data Pipeline

To address these systemic inefficiencies, the organization designed and deployed a modern, automated data ingestion and transformation framework. Engineers built robust Python-based ETL pipelines to programmatically extract and normalize data from external partners like Tenaska, Pharos, EDF, and S&P. This newly structured data was centralized within a secure SQL Server database, establishing a single source of truth. Additionally, Power Automate and OneDrive flows were deployed to parse email attachments automatically, which triggered scheduled processing scripts and enabled dynamic Excel Power Query reporting for business users.

Operational Impact and Scalability

The automated infrastructure immediately transformed daily commercial operations, reducing manual data processing workloads by over 90 percent across the organization. Financial and operational analysts who previously spent hours on tedious data compilation were successfully reallocated to high-value strategic analysis and commercial decision-making. This transition ensured consistent, near real-time data availability and guaranteed reporting accuracy across the business. Looking forward, this highly structured SQL database and automated workflow provide a scalable, future-proof operational foundation ready to support advanced predictive analytics, machine learning, and sophisticated power forecasting models.