

## Powering sustainable futures through data with advanced analytics and Generative AI

Energy and Utilities companies across the entire energy value chain, from exploration and production to transportation and distribution, are navigating complex data landscapes to optimize operations and enhance efficiency. By embracing AWS to modernize data infrastructure, these organizations can unify and standardize vast data sets—including smart grid analytics, renewable energy metrics, and real-time network monitoring—streamlining processes, driving cost-effective energy solutions, and maintaining operational integrity.

Caylent brings deep expertise in infrastructure modernization, data migration, and the integration of generative AI to address these industry-specific challenges. EnergyLake's modern data platform will enable the integration of diverse data streams into a unified model, enhancing risk assessments with comprehensive external data sets, and ensuring data integrity across all operations. This strategic approach not only accelerates compliance and reporting processes but also scales data ingestion capabilities, ensuring you are on the smartest and fastest path to being a resilient and data-driven energy corporation.

## Key Activities

### 01 — Discover

A workshop examining the current data lake foundation, establishing data exploration needs, and documenting requirements for data import, access patterns, and reporting compliance.

### 02 — Implementation

Delivering a well-architected baseline infrastructure, data ingestion routines, and security model supporting a data lake within a production account with up to 3 single schema sources imported.

### 03 — Enablement

An exploratory data analysis (EDA) lab providing hands-on experience using AWS Glue DataBrew and Lake Formation, performing CRUD and search operations via API, SQL queries via Athena, and data analysis with QuickSight.

## Engagement Details

### Highlights

- Replace vendors with AWS serverless services such as AWS Lake Formation, Amazon S3, AWS Glue, and AWS Glue workflows
- Easily scale your business, data sources, and pipelines through prebuilt IaC automation
- Run no-code data analysis leveraging Amazon Athena and AWS Glue DataBrew
- Establish a future-proof platform that's ready for next-generation AI and analytics

### Deliverables

- Data landscape educational workshop and requirements documentation
- Architecture diagram of data lake and data workflow designs
- MVP Serverless Data Lake
- EDA lab on data wrangling and stewardship
- Diagrams and documentation developed during the engagement (i.e. source code, scripts, templates, and other artifacts)