

iCAT – Precision Energy Price Forecasting



Executive Summary

iCAT partnered with Clouadar to create a scalable energy price forecasting platform for an energy sector client. Using AWS services like Amazon S3, SageMaker, and Fargate, the solution automated data handling, enhanced forecasting precision, and reduced costs. The client achieved faster processing, improved decision-making, and a future-ready architecture, solidifying iCAT's role as a trusted IT partner.

Customer Challenge

iCAT's customer, a key player in the energy sector, required a solution to accurately forecast energy prices using large, complex datasets. The data included historical energy prices, weather patterns, and real-time market events. The challenge lay in processing these vast amounts of information efficiently and using machine learning models to generate highly accurate forecasts.

The customer needed a reliable, automated, and scalable platform to manage this data and drive decision-making. Without a robust solution, their ability to compete in the volatile energy market was at risk. iCAT, while possessing the domain expertise, partnered with Clouadar to design and implement a solution tailored to their customer's requirements.

Partner Solution

Clouadar collaborated with iCAT to design and implement a state-of-the-art energy price forecasting solution using AWS services. The architecture was built to address scalability, automation, and precision, ensuring seamless operations for iCAT's customer.

Data Aggregation and Storage:

Using Amazon S3, iCAT's customer consolidated their diverse datasets, creating a centralized data repository. This data lake allowed the storage of structured and unstructured data, enabling efficient access and processing for machine learning pipelines.

Workflow Orchestration and Automation:

AWS Step Functions were employed to orchestrate complex workflows, automating the ingestion, transformation, and validation of data. Step Functions coordinated the triggering of AWS Lambda functions to handle data cleaning and preparation, ensuring high-quality input for the machine learning models.

About iCAT



iCAT is a Belgian IT consulting company that partners with businesses across industries to address complex IT challenges. With a reputation for delivering cutting-edge solutions, iCAT specializes in leveraging innovative technologies to empower their clients and drive digital transformation. In this case, iCAT sought Clouadar's expertise to develop a scalable, cloud-based energy price forecasting solution for one of their energy sector customers.

Machine Learning and Model Management:

Machine learning models were trained, deployed, and monitored using Amazon SageMaker. The models were optimized for forecasting energy prices with precision, leveraging SageMaker's built-in capabilities for scalable training and deployment.

Compute Resource Management:

Computational workloads were containerized and executed using Amazon ECS with Fargate. This allowed iCAT's customer to scale operations dynamically, ensuring efficient resource utilization during peak workloads while maintaining cost efficiency.

Fully Integrated, Automated Solution:

The solution provided end-to-end automation, with Step Functions integrating data ingestion, preparation, and machine learning workflows. This reduced manual intervention and ensured consistent operations for iCAT's customer.

Results and Benefits

The AWS-based architecture delivered measurable results for iCAT and their energy sector customer:

- **50% Faster Processing:** Workflow automation with Step Functions and Lambda significantly reduced the time required for data preparation and analysis.
- **Increased Forecasting Accuracy:** Machine learning models trained on high-quality data in SageMaker produced highly accurate predictions, improving decision-making for energy pricing strategies.
- **30% Cost Savings:** Fargate's serverless model eliminated infrastructure management overhead and reduced operational expenses.
- **Scalable and Future-Ready:** The architecture seamlessly handled increasing data volumes and positioned iCAT's customer for further growth and innovation.

By delivering this solution, iCAT enhanced its customer's operational efficiency and reinforced its reputation as a trusted IT partner capable of addressing the most complex challenges in the market.

About Clouadar

We are a team of highly skilled AWS Cloud Architects, offering rock solid solutions for any type of business. We design, build and operate high available and scalable cloud infrastructures based on [Amazon Web Services](#).

Not only are we an AWS Premier Consulting Partner with multiple AWS certifications, competencies & specialties, but we are also an AWS Solution Provider, AWS Managed Service Partner, AWS Well-Architected Partner, AWS Public Sector Partner and ISO/IEC 27001 certified for information security.

