nationalgrid

## Customer Background

National Grid is an energy company delivering electricity and natural gas to more than 20 million customers across New York and Massachusetts. The company is focused on providing safe, reliable energy while transforming its networks to support a cleaner energy future.

## Company Profile

**Name** National Grid
**Industry** Energy & Utilities
**Headquarters** Waltham, MA USA
**Website** nationalgridus.com

As the business aimed to support use cases like short-term forecasting and operational visibility, National Grid needed to improve how operational data was delivered to Snowflake. Legacy batch pipelines introduced delays, limited access to raw data, and were difficult to scale and maintain—making it challenging to meet the growing need for more timely, flexible data access.

In May 2025, National Grid selected HighByte Intelligence Hub to alleviate these challenges and build a scalable data foundation.

> *"Our legacy pipeline was slow, difficult to update, and limited how much data we could get into Snowflake. By introducing HighByte, we were able to significantly increase the number of assets available for analysis and reduce data latency."*

**David Garrison** Principal Data Architect at National Grid

## CHALLENGE

- Legacy data pipelines relied on batch ETL processes that ran every few hours.
- Pipelines often failed and required manual reloading, hindering operational usage.
- Of the **1.5 million grid assets** available, only **~60,000** were successfully delivering data to Snowflake, severely limiting analysis.
- Pre-aggregated data helped reduce volume, but this approach also limited analytics.
- Adding new assets to a legacy data pipeline took **~6 weeks** to implement.
- Multiple business teams needed faster access to grid data for forecasting, planning, and operational decision-making.

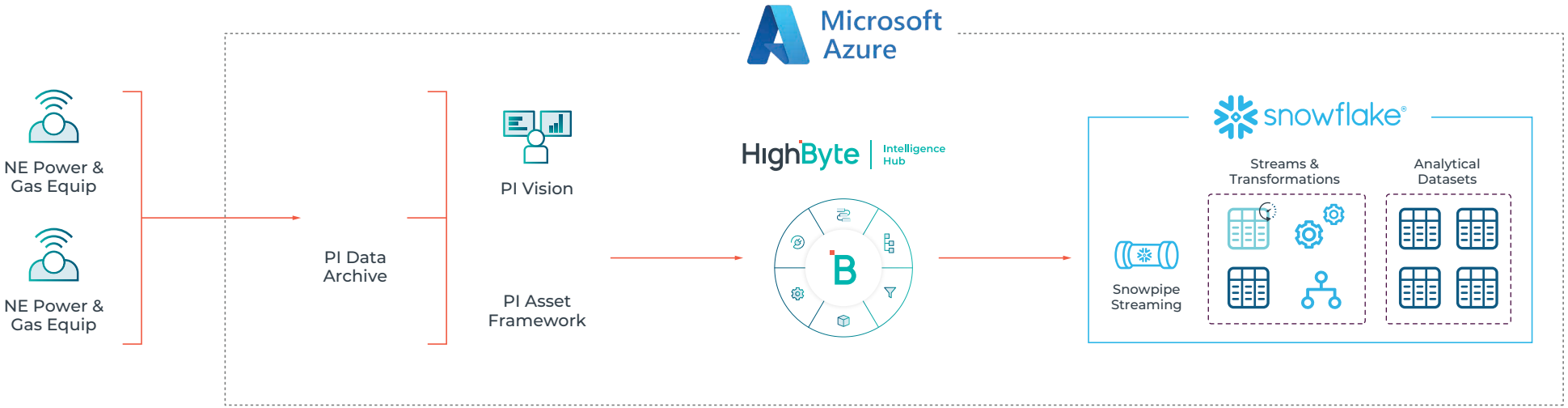
## APPROACH

- Deploy HighByte Intelligence Hub to modernize the industrial data pipeline and streamline data flow from operational systems to the cloud.
- Connect directly to operational source systems and transform batch data into a continuous data stream.
- Deliver measurement data to the cloud, allowing teams to perform flexible aggregations and analytics based on their specific use cases.
- Leverage the PI Asset Changes input type in the Intelligence Hub to capture and stream only new or changed records, minimizing data transfer overhead and ensuring efficient, low-latency delivery of operational data to the Snowflake Data Cloud.
- Deliver measurement metadata through a dedicated pipeline at a reduced frequency, enriching data in Snowflake with source context—including engineering units, tag descriptions, and data quality indicators—so consumers have the information they need to accurately interpret and analyze measurements.

## BENEFITS

- Expanded the number of grid assets available for analytics by approximately **10x**, significantly improving operational visibility.
- Reduced data latency to **under 15 minutes**, enabling near real-time insights for forecasting and grid operations.
- Enabled a streaming data architecture that replaces legacy batch-based pipelines.
- Simplified the process of onboarding new assets and updating data pipelines.
- Created a **scalable data foundation** to support future analytics, forecasting, and grid modernization initiatives.

# National Grid Reference Architecture




*"National Grid's transition from legacy batch pipelines to a streaming data architecture demonstrates how utilities can improve the timeliness and scalability of operational data delivery. With HighByte Intelligence Hub, National Grid is able to expand data availability across the enterprise, reduce latency, and build a more flexible foundation to support forecasting and other data-driven grid initiatives."*

**John Harrington** Chief Product Officer at HighByte

Watch **National Grid's Full Session On-Demand**.

## WHAT'S NEXT

- Scale data pipelines to support additional grid assets and divisions.
- Expand streaming data capabilities to additional operational systems and asset types.
- Enable new analytics use cases, including forecasting and digital twin initiatives.
- Transition additional teams from legacy pipelines to the new streaming architecture.
- Continue strengthening the data foundation to support future Industrial AI and optimization initiatives.

## About HighByte

HighByte is an industrial software company addressing the data architecture and integration challenges faced by global manufacturers as they digitally transform. HighByte Intelligence Hub, the company's proven Industrial DataOps software, provides modeled, ready-to-use data to the Cloud using a codeless interface to speed integration time and accelerate AI use cases. Learn more at **highbyte.com**.