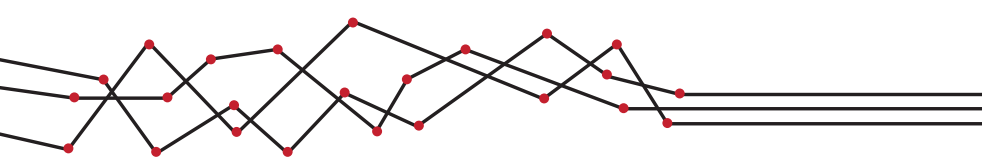
A Critical Shift from Data Silos to Smart Decisions

How cloud access is transforming energy operations



gdm
GIVING
DATA
MEANING

The energy sector relies on vast amounts of infrastructure and operational data to monitor assets, ensure regulatory compliance, and manage operational risks

However, traditional data access methods depend on fragmented systems, outdated databases, and manual data transfers – all of which hold companies back. These limitations result in delayed decision-making, inefficiencies, and potential compliance risks.

In response, GDM has launched a cloud-based, real-time data access solution that eliminates these barriers. GDM now enables companies to seamlessly integrate GDM content into their internal systems by leveraging Snowflake, a leading cloud-based data analytics and storage platform.

"Customers constantly ask the same question: 'Where are the solutions?' They don't want just another product. They want integrated solutions that help them transition their businesses forward," says Brian Hall, President of GDM Inc.

Companies are looking for ways to modernize their data management. The new initiative to provide two energy companies with early access to GDM content via Snowflake has demonstrated the transformative impact of real-time, scalable cloud access to enriched information.

This white paper explores:

- **The key challenges facing energy data management**
- **How a cloud-based solution solves these challenges**
- **Why cloud-based access is a critical industry development**
- **How two companies are using this solution to improve operations and decision-making**
- **The future of cloud-based energy infrastructure data**

Data complexity in the energy industry

Energy companies manage massive volumes of infrastructure data, from pipeline specifications and facility locations to incident reports, risk profiles, and environmental impact assessments.

However, accessing and managing this data effectively remains a significant challenge despite its importance. Many companies have infrastructure data scattered across multiple departments, stored in different formats, and often find it outdated.

"Two of the biggest challenges for companies are data silos and data currency. Without real-time access, they risk making decisions based on outdated or incomplete information, which can lead to serious operational and compliance issues," says Marc Lehmann, Vice President of Business Services of GDM Inc.

These aren't minor challenges. Pipeline integrity teams, regulatory compliance officers, and operations managers may use different databases, leading to inconsistencies in reporting and decision-making. Without a centralized, real-time solution, companies risk operational inefficiencies, non-compliance, and missed opportunities to optimize performance.

"Risk management and compliance aren't one-time tasks — they have to be managed every day. And the only way you can do that effectively is with accurate, real-time, accessible data," says Hall.

Here's how these challenges impact company operations:

- **Data silos and inconsistent access**
  One of the most significant hurdles energy companies face is data fragmentation across different teams and software platforms. Each department may rely on different versions of the same data, leading to misaligned strategies and decision-making gaps.

- **Slow, manual processes**
  Many companies still rely on batch data updates, requiring manual extraction, transformation, and loading (ETL) processes that delay access to critical information.

- **Infrastructure constraints and costs**
  Many companies, especially mid-sized and smaller operators, lack the IT resources to efficiently manage, store, and analyze large datasets. On-premise storage requires dedicated IT teams to manage servers and security, complex, costly ETL processes to integrate third-party data, and significant infrastructure investment to scale operations.

- **Compliance and risk management**
  Regulatory agencies require accurate, transparent, and up-to-date pipeline and facility records. However, manual updates and fragmented reporting systems can lead to compliance gaps.

The solution: Cloud-based access to GDM content

Energy companies have struggled with fragmented, inconsistent, and difficult-to-access infrastructure data for decades. GDM recognized this industry-wide challenge and developed a cloud-based solution called the Converge Data Store to eliminate these barriers by opening access to GDM's vast amount of content via Snowflake.

Access to GDM's energy infrastructure data via a cloud-based platform ensures:

- **Secure, traceable data access with audit logs**
- **Proprietary risk data integration for enhanced compliance**
- **Automated updates to prevent regulatory discrepancies**

"With the Converge Data Store, teams can use data platforms like Snowflake to access information from one centralized location. Instead of making copies and sharing files manually, they can access the most current data in real time, eliminating delays and reducing human error," says Lehmann.

The Snowflake platform enables companies to:

- **Centralize data access, ensuring all teams work with the same, up-to-date datasets**
- **Access real-time updates, removing delays caused by traditional batch-processing methods**
- **Streamline regulatory compliance, providing secure, traceable data management**
- **Reduce IT infrastructure burdens, eliminating the need for companies to host, manage, and maintain on-premise data storage**
- **Integrate proprietary company data with GDM content**
- **Facilitate data flow and access, ensuring teams get the data they need, when and where they need it**

"Snowflake's architecture allows us to scale efficiently. It separates storage from computing, meaning even large queries can be processed quickly without slowing down the system. That ensures clients get fast, reliable access to data without performance issues," says Grant Fox, Vice President, Development for GDM, Inc.

GDM content can also be accessed directly with business intelligence tools like Power BI and is already integrated into existing industry solutions like GDM Converge, AccuMap, or geoSCOUT, to ensure companies gain as much value as possible.

Why cloud-based access is a critical industry development

Cloud-based data access has far-reaching benefits, enabling energy companies to improve efficiency, reduce risk, and enhance compliance.

"The trend in cloud technology goes beyond storage to creating meaningful, useful, and integrated experiences. We are making data work for people," says Hall.

Here are a few use cases where cloud-based access to industry data will prove most valuable.

Pipeline and facility monitoring

Energy companies need real-time access to pipeline and facility data to manage assets and mitigate risks. With enhanced access to data, companies can also improve how they monitor operational changes and make decisions.

For example, operators may need to adapt integrity management plans because new technology is being implemented company-wide, or shifts in asset risk profiles require adjustments to inspection frequency.

Risk assessment and integrity management

Managing pipeline safety, structural integrity, and environmental impact requires proactive data access.

Adopting cloud-based data workflows enables companies to assess pipeline risk in real time using GDM's proprietary risk data and internal analytics. These workflows automatically flag high-risk assets, reducing the need for manual assessments. Companies can also ensure that cross-functional teams work from the same risk assessment data, improving operational coordination.

Regulatory compliance and reporting

Regulatory agencies require energy companies to provide accurate, auditable data. Companies often struggle with outdated records, discrepancies, and compliance risks without a real-time, cloud-based system.

"One of the first customer use cases was comparing enhanced GDM data against regulatory data to detect discrepancies. As we release more detailed risk data, we expect even greater adoption for risk assessment and regulatory compliance," says Fox.

A cloud-based approach allows companies to proactively identify discrepancies between internal pipeline data and government records, allowing them to correct any inconsistencies before audits. Real-time access to data reduces the administrative burden of regulatory reporting, ensuring faster, more reliable submissions.

Increased security with reduced IT costs and administrative burden

A transition to cloud-based data access can significantly reduce IT resource dependency. Teams that rely on FTP-based data transfers are vulnerable to error and delay and use precious resources on high-maintenance workloads with little room for process improvement. Traditional FTP transfers also offer limited security and the inability to audit logs to keep track of why and how colleagues use or need the data.

"Instead of companies needing custom ETL processes to handle multiple file deliveries, they can now set up an API connection directly to a live data repository. That means no more manual updates — everything is already precompiled and ready for them to use," says Fox.

A cloud-based approach frees IT teams to focus on higher-value work, such as automating risk assessments and integrating AI-driven analytics.

Managing environmental and reputational impact

Companies that rely on outdated or incomplete data face higher environmental risks, which can lead to financial penalties, reputational damage, and operational disruptions, significantly impacting a company's bottom line.

A cloud-based solution allows organizations to monitor environmental risk factors in real time, ensuring compliance with environmental safety standards. They can respond to incidents faster, leveraging GDM's cloud-based data integrations to access historical and real-time data. They can also improve public trust and regulatory relationships by demonstrating proactive risk management.

Better decision-making with real-time data

Many companies use old-fashioned practices like batch processing pipeline data overnight to keep updated data available to various teams. Failed refreshes cause delays, often requiring manual troubleshooting and restarting the next day.

A shift to real-time access eliminates uncertainty, allowing teams to act based on the most up-to-date information available.

> "The biggest advantage for customers is common access to the same, most up-to-date data across all platforms. Whether they're using our Converge application or their own internal analytics, they're always working with the latest version, eliminating discrepancies and outdated information," says Fox.

A Real-world impact: Customer case studies

Access to real-time, high-quality infrastructure data is a fundamental shift in how energy companies operate. The shift to cloud-based data access has removed inefficiencies, improved risk management, and allowed teams to focus on high-value work instead of struggling with outdated processes.

Veren Inc. and Ember Resources have been early adopters of accessing GDM content via Snowflake. Their experiences demonstrate the measurable benefits of cloud-based access and provide valuable insights for other organizations considering this shift.

Case study #1: How Veren is breaking down data silos and strengthening risk management

Veren is a leading North American oil producer with assets in central Alberta and southeast and southwest Saskatchewan. Taking a holistic approach to energy management, Veren drives success by combining innovation, operational excellence, and the expertise of its people.

The company is recognized for its disciplined business strategy, strong safety culture, and unwavering commitment to environmental stewardship. Embracing new technologies and data-driven decision-making allows Veren to set the standard for efficiency, sustainability, and responsible energy production.

An upstream oil and gas producer, Veren faced a common industry challenge: data silos and inefficiencies in managing pipeline integrity and compliance. Their previous data management approach involved manual data extractions, outdated spreadsheets, and fragmented internal datasets, leading to delays, discrepancies, and increased regulatory risk.

Dave Lucas, Team Lead, Data Management and Architecture at Veren, shared his insights on the company's experience leveraging GDM content access via Snowflake. He reflected on the challenges Veren faced before cloud-based access and the advantages they gained through this transition.

Challenges before cloud access

Veren was experiencing typical data silos and recognized identifying and breaking down these silos caused inefficiency across teams and organizational processes.

"Data can be in physical silos that cause real obscurity, where you don't even know where the data is, or where it's simply inaccessible because of people and processes. Either way, these issues slow everything down and break the system," says Lucas.

- **Data fragmentation**
  Different teams accessed different versions of the same data, leading to inconsistencies.
- **Manual data transfers**
  Pipeline risk data was sent via FTP sites or email, causing delays and security risks.
- **Regulatory compliance complexity**
  Regulatory reporting required time-consuming reconciliation between internal data and government records.

Outcomes enabled by cloud-based access to content

Once Veren began accessing GDM's data directly via Snowflake, the team immediately noticed improvements.

"Data loading failures and time to access data improved immediately. Our move to Snowflake has led to numerous cases where performance has dramatically changed, multi-hour processes to move data between systems reduced to minutes or seconds — no failures, no need for someone to babysit it," says Lucas.

- **Direct data access without transfer**
  No more file extractions or FTP delays. Data is now live, shared, and accessible instantly.
- **Improved risk management**
  Veren now compares its internal pipeline risk data with GDM's content, allowing for proactive corrections before regulatory reviews.
- **Enhanced compliance**
  The ability to audit discrepancies between internal data and regulatory records has strengthened their position with regulators, reducing compliance-related risks.
- **Operational efficiency gains**
  Pipeline integrity teams now work from a single source of truth, eliminating redundant data validation processes.

"We're now able to do discrepancy reporting between what the government thinks our data is and what we know our data is. That's something we didn't have before, and it's been highly valuable for proactively managing compliance," says Lucas.

Veren's case demonstrates how cloud-based access improves both efficiency and decision-making. Eliminating data silos and manual processes positions the company to proactively manage infrastructure risk, reduce operational delays, and strengthen compliance confidence.

"Cloud-based sharing is making the entire industry stronger. Every company that joins in makes the ecosystem more valuable, and that's why we're investing in it," says Lucas.

EMBER

Case study #2: How Ember automates data workflows and frees up resources for strategic work

Ember Resources is one of Canada's largest shallow gas producers and a leading consolidator of shallow gas assets in the Western Canadian Sedimentary Basin. With a proven track record of organic growth, repeatable drilling success, and strategic expansion, Ember continues to strengthen its position as an industry leader.

Backed by strong partnerships and exceptional assets, Ember is committed to developing energy solutions for future generations. The company actively explores innovative technologies to enhance environmental and economic sustainability, ensuring long-term success. With a solutions-based approach, Ember works collaboratively to create positive, lasting outcomes for its industry and the communities it serves.

A high-volume well operator, Ember struggled with outdated data refresh processes and bottlenecks in workflow automation. Troubleshooting failed data transfers burdened their IT and analytics teams, leaving little time for innovation and strategic improvements.

Lonnie Chin, Manager, Data and Information Services at Ember Resources, shared his perspective on Ember's journey to cloud-based data access via Snowflake. He provided valuable insights into the challenges of traditional data management and the improvements Ember has realized through a more modern approach.

Challenges before cloud access

Manual data transfers slowed processes, often failing overnight. Their teams would arrive each morning wondering what had gone wrong, creating a regular expectation of delays and errors.

"Now, instead of spending half the day just figuring out what happened, we can start looking at why it happened and what to do next. That's a huge shift," says Chin.

- **Overnight data refresh failures**
  Running queries and data transfers on on-premise servers meant processes often failed overnight, leading to manual restarts and lost time.
- **Limited automation and high maintenance workloads**
  IT teams spent significant time maintaining legacy systems, leaving little capacity for process improvements.
- **High stress and barriers to productivity**
  Employees were stuck firefighting daily issues rather than optimizing workflows.

Outcomes enabled by cloud-based access to GDM content

With Snowflake and GDM's direct data access, Ember's teams transformed how they work:

- **Real-time access eliminated refresh failures**
  No more overnight processing failures; teams access data instantly when needed.
- **Process automation and AI integration**
  With structured data access, Ember could automate pipeline inspections, asset evaluations, and risk assessments, freeing up time for higher-value work.
- **Reduced IT burden**
  Moving data operations to the cloud eliminated the need for manual ETL processes, allowing IT teams to focus on optimization rather than troubleshooting.
- **Improved employee well-being**
  The shift from firefighting daily issues to strategic decision-making drastically reduced stress and burnout.

For companies hesitant about adopting cloud-based data access, Ember's experience demonstrates how automation and real-time access can transform workflows and workplace culture.

"Accessing GDM data via Snowflake provides real-time access and automation while eliminating the maintenance burden. It lets us move away from just keeping things from breaking so we can focus on improving how we work," says Chin.

Beyond efficiency gains, Ember saw unexpected operational shifts. Employees were more engaged because they were no longer bogged down by repetitive tasks, and decision-making became more proactive as teams had faster access to clean data. Cloud access provided scalability, allowing them to integrate AI-driven automation with ease.

"The biggest surprise? People are happier. They have time to think, to try new things, to be creative. It's no longer just about putting out fires," says Chin.

Key takeaways from Veren and Ember's experiences

These experiences are proof points for energy companies considering cloud-based access to energy infrastructure data. Whether the goal is better risk management, regulatory compliance, operational efficiency, or automation, the Converge Data Store has delivered tangible benefits for companies willing to modernize their approach to data access.

➔ Cloud-based data access eliminates data silos

Both companies moved from manual processes and fragmented datasets to real-time, centralized access.

➔ Regulatory compliance and risk management improve

Direct data integration allows for instant discrepancy reporting and proactive compliance actions.

➔ IT and operational efficiencies increase

Eliminating manual refresh processes and redundant data transfers reduced wasted time and improved cross-functional collaboration.

➔ Automation frees up resources for innovation

Teams shifted from firefighting issues to actively improving processes, making better use of skilled employees' time.

For organizations still relying on on-premise systems, manual processes, and outdated data refreshes, these case studies highlight the risks of inaction and the advantages of a cloud-first approach.

The future of cloud-based energy infrastructure data

The energy industry is undergoing a major digital transformation, shifting toward real-time, cloud-based data access as a standard for efficiency, compliance, and automation. GDM is well-positioned to support this shift, helping companies transition from legacy data systems to a future-proof, scalable solution.

"Every company that moves to cloud-based data sharing strengthens the entire industry. It's about improving efficiency, compliance, and decision-making across the board," says Hall.

Expanding cloud-based offerings

The experiences of GDM customers illustrate how cloud-based data access is just the beginning of an industry-wide shift. As more companies adopt data-sharing platforms, the benefits multiply.

GDM is expanding its cloud-based offerings, ensuring compatibility with multiple cloud providers, such as Databricks and AWS for advanced analytics and Oracle Cloud and Azure for enterprise-wide integrations.

AI and predictive analytics integration

Automation and AI-driven analytics are set to redefine how energy companies manage infrastructure data. GDM, incorporating predictive analytics, automated workflows, and real-time monitoring, can help energy companies evolve from reactive to proactive infrastructure management.

Strengthening industry collaboration

The energy sector is moving toward a more collaborative approach to data access and risk management. Companies recognize that industry-wide data sharing improves efficiency, compliance, and environmental stewardship.

GDM is committed to supporting evolving regulatory frameworks by directly engaging policymakers and industry leaders. The long-range goal is to expand partnerships with operators, service providers, and environmental agencies to refine data insights further.

"We're continuously evolving our models based on industry needs. We work closely with customers to refine our risk models, ensuring they always have the most relevant and actionable insights," says Lehmann.

As the industry shifts toward smarter, cloud-based decision-making, GDM continues to lead the way, empowering companies with the data they need to operate efficiently, responsibly, and profitably.

GDM: Proactive data solutions that help you work smarter

GDM is the industry leader in providing energy companies with data, software, and services to manage infrastructure more effectively. We understand the complexities of operating assets spread across thousands of kilometres and diverse terrains, and we know that better data access leads to better decisions.

"The best solutions come from understanding what our customers need and working closely with them to build something that solves their problems," says Hall.

Our approach ensures that when one company benefits from improved data access, the ripple effect extends to its peers, creating a stronger, more efficient energy sector for everyone. With the Converge Data Store, we are leading the transition toward real-time, cloud-based data access, ensuring the energy industry moves forward together.

GDM's content, accessible on Snowflake, is ready for companies looking to modernize their data access. Whether your goal is better compliance, reduced IT overhead, or automated workflows, the time to transition is now.

Ready to explore the benefits of cloud-based access with GDM's team of experts?

Contact GDM today to take the next step toward a more efficient, scalable, and secure data strategy.

Contact GDM