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Case Study



Duke Energy develops pioneering methane emissions monitoring platform on Microsoft Azure with Accenture and Avanade

Do what matters

Duke Energy has prioritized reducing methane emissions as part of its clean energy transformation. The company recognized an opportunity to lead its industry and set an ambitious goal for its natural gas utility business to achieve net-zero methane emissions by 2030.

To realize this goal, Duke Energy developed an innovative, end-to-end solution built on [Microsoft Azure](#) and [Microsoft Dynamics 365](#) that delivers new ways to detect, monitor, and remediate methane emissions.

Industry-wide challenges to accurate, timely emission monitoring

Historically, natural gas utility assets such as pipelines and meters have been difficult to monitor on a frequent basis, so emissions reporting has relied on calculated estimations. “The current industry standard uses calculated data to report methane emissions, which leaves room for inaccuracies when it comes to actual methane levels,” says Brian Weisker, Senior Vice President and Chief Operations Officer, Natural Gas at Duke Energy.

As the company explored new detection and monitoring methods, it sought a rigorous, end-to-end approach that would lay the foundation for leak detection, emissions measurement, expedited remediation, and predictive ongoing maintenance. Duke Energy brought in Accenture, Avanade – a joint venture between Accenture and Microsoft – and Microsoft to co-innovate a pioneering solution that would help meet its ambitions and potentially advance industry and regulatory standards.

Company Name: Duke Energy

Company Size: 10,000+

Country: US

Industry: Energy & Resources

Solutions: AI, Microsoft Azure, Dynamics 365

Creating a first-of-its-kind methane emissions monitoring and remediation solution

Duke Energy chose to develop its solution on Azure and Dynamics 365, then worked with Accenture and Avanade to build it.

The new platform monitors baseline methane emissions from natural gas utility assets. It ingests data from satellite monitoring and ground-level sensing technology that can detect methane emissions that previous technology might not identify. [Analytics and AI](#) are applied to rapidly assess the data and provide near-real-time insights. The solution quantifies and prioritizes findings in graphic dashboards, making data easily consumable at multiple levels of the organization.

With pinpoint-accurate geolocation data, workers can deploy near-real-time leak remediation.

“Fixing leaks more quickly keeps methane in the pipes and out of the atmosphere.”

- Lauren Crowe

Director of Business Transformation and Continuous Improvement, Natural Gas Business, Duke Energy.

The solution also has the potential to predict and prevent future leaks and system vulnerabilities. The platform is already delivering results with more accurate, holistic insights for operational and leadership decision-making.

“This platform will re-imagine how natural gas local distribution companies calculate methane emissions and perform leak surveys and improve the expediency in which leaks may be repaired, resulting in dramatically lower methane emissions.”

- Brian Weisker

Senior Vice President and Chief Operations Officer,
Natural Gas at Duke Energy

Accelerating the achievement of net-zero methane emissions for the energy industry

Once scaled across all asset types, emission categories, and jurisdictions, the platform will help Duke Energy's natural gas business reduce methane emissions and achieve net-zero methane emissions by 2030. Importantly, this solution has the potential to accelerate the journey to net-zero emissions across the entire natural gas supply chain, from production facilities to mid-stream pipelines to local utilities.

“Our work with Duke Energy and Microsoft demonstrates how technology, innovation and artificial intelligence can help address sustainability challenges. Together, we can show others how to achieve their sustainability goals.”

- Mark Schuler

Managing Director at Accenture

About Duke Energy

Duke Energy is one of America's largest energy holding companies. Its natural gas business serves 1.6 million customers in five states.

About Avanade

Avanade is the leading provider of innovative digital and cloud services, business solutions and design-led experiences on the Microsoft ecosystem. With 43,000 professionals in 25 countries, we are the power behind the Accenture Microsoft Business Group, helping companies to engage customers, empower employees, optimize operations and transform products, leveraging the Microsoft platform. Majority owned by Accenture, Avanade was founded in 2000 by Accenture LLP and Microsoft Corporation. **Learn more at www.avanade.com.**

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About Accenture

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