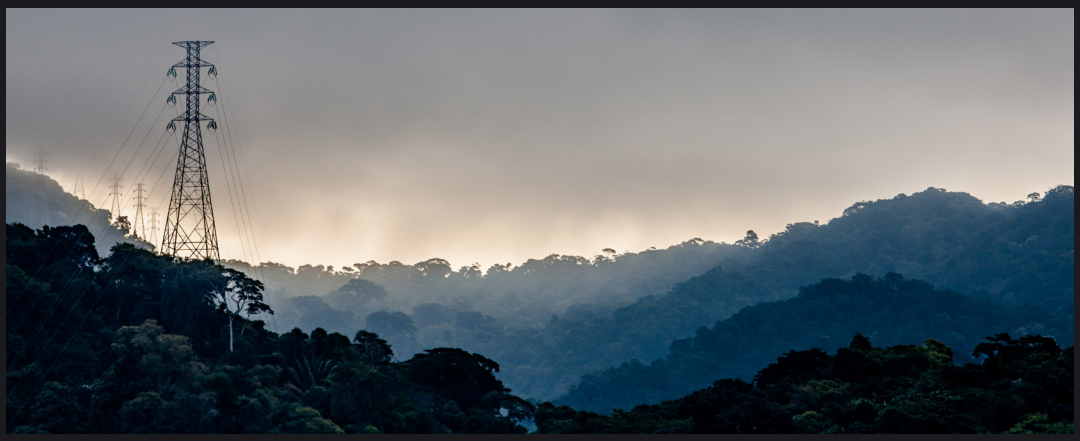
CASE STUDY

Ensuring regulatory compliance in complex electricity distribution networks



Key facts:

Company: Amazonas Energia

Industry: Energy

Country: Brazil

Octave products used: Networks *(HxGN NetWorks)*, InService *(HxGN InService)*

As the largest country in South America and the fifth largest country in the world, Brazil is home to over 200 million people. From epic city skylines and incredible coastal regions to the wetlands, outback and huge areas covered by the Amazon and Atlantic Rainforests, Brazil is massive – and especially challenging for utility companies.

Amazonas Energia (AmE) provides energy to 18.3% of the Brazilian territory (over 1.5 million square kilometers), with around 1 million customers across 107 locations. It is the main energy supplier to communities and cities in the middle of the rainforest, where weather threats like fire, wind and rainfall impose severe challenges to AmE network management and maintenance. This includes service disruptions, impacting service quality indicators that are reported on a regular basis to the National Electric Energy Agency (ANEEL), Brazil's electricity regulatory agency.

In such a complex environment, AmE aimed to enhance network and outage management efficiencies to improve indicators and, consequently, increase the quality of service provided. To achieve this, AmE chose Networks and InService.

Technologically robust and adaptable solution

AmE's former solution was outdated and incapable of adhering to regulations enforced by ANEEL, so the need to modernize was clear. Furthermore, there were clear expectations for the implementation of the new technology. AmE was looking for a mobile dispatch system that could meet its operational needs, including the integration of its operations in the capital city and other municipalities across the state, while reducing costs.

Seeking a reliable partner capable of implementing this new system, AmE selected Networks, a fully digital GIS-based asset management solution specifically built for utilities and telecommunications. The choice was influenced by Octave's vast experience in implementing software and supporting hundreds of utilities companies around the world, as well as the software's features and its ability to seamlessly integrate with other systems and processes.

Networks supports service improvements for the population and guarantees AmE adheres to regulatory compliance requirements. It also manages the registration of assets and consumer units (CUs) and increases operational efficiency to reflect improvements in regulatory indexes generated by post-operation teams responsible for disseminating data to ANEEL.

Improving operational efficiency

In addition to meeting regulatory compliance, AmE needed a solution that would improve the workflows of multiple teams and therefore chose InService, Octave's integrated outage management system (OMS) and mobile workforce management solution. This was critically important because users include multiple teams: users at the Distribution Operations Center (COD) who manage the distribution network, execute maneuver dispatches, respond to network failures and maintain assets; management teams at the Distributor's Geographic Database (BDGD) who oversee technical registration of assets; and post-operations teams who manage reports and indicators of the distributor's operations and then disseminate the information to ANEEL.

"When a consumer contacts AmE about a power failure, the commercial system AJURI immediately sends the event data to InService, which then identifies the possible location of the failure," said Rodrigo Moreira, technical director at AmE. "Other consumers are also likely to experience an outage, so the COD operator evaluates the closest team with adequate resources for emergency maintenance. As soon as the resource is dispatched, a notification is immediately sent to a third-party mobile/analytics application available on field workers' smartphones, enabling users to report the service closure to the COD operator once the work is completed."

As soon as the migration to the new technical distribution management system was complete, AmE immediately met regulatory compliance and several technical operation indicators, including the Continuity Equivalent Duration (DEC) and the Continuity Equivalent Frequency (FEC). The data update and migration process is continuously evolving with the aim of reducing latency time from a period of one week to one day. These indicators are directly linked to the technical quality of the electrical energy supply and ensure compliance with quality standards established by ANEEL.

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'Amazonas Energia has been performing within regulatory limits'

In a public hearing that was held by the Mines and Energy Commission of the Chamber of Deputies in Brasília to discuss AmE's operational challenges two years after implementing Octave's solutions, ANEEL acknowledged AmE's improvements, especially in meeting regulatory requirements.

"We have two indicators that are used in the world of energy distribution, which are equivalent duration and frequency," said ANEEL representative André Ruelli. "After the inspection process (executed by ANEEL), it was confirmed that Amazonas Energia has performed within regulatory limits."

Future challenges

Although AmE met regulatory requirements, the Brazilian Association of Electricity Distributors (Abraade) pointed out the lack of support to expand inspections to combat illegal connections and excessive charges, which increase the cost of maintaining and operating the system.

In response to this, Ruelli provided insights into the scale of AmE's operations reinforcing that despite facing non-technical losses exceeding 122% in the lowvoltage market, AmE showed improvement in reducing complaints and meeting service deadlines. Ruelli also emphasized the logistical complexities of the region, which pose additional challenges to energy distribution.

What's next

As it faces these challenges, AmE plans to continue working with partners that effectively contribute to improving its services.

"AmE will continue to enhance solutions linked to the operation and maintenance process of the distribution system, seeking to evolve and expand the solutions implemented, increasing operational flexibility and reliability, and ensuring system stability despite the communication challenges in the region," said Moreira. "This also includes the integration with new systems such as advanced metering infrastructure and customer interface."

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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