



Case Study

Emergency Response for Load Tap Changer Failure

City of New Richmond, WI Electric Utility

The City of New Richmond, WI public power utility, New Richmond Utilities, serves 5,300 customers via three substations. In June 2022, one of the company's lead electrical superintendents observed a performance issue with the load tap changer (LTC) on the power transformer located at their newest substation. After careful review, the superintendent reached out to EPS to help further identify and remedy the issue at their western Wisconsin substation.



Background

New Richmond Utilities is a municipally owned and operated electric and water utility located in New Richmond, Wisconsin. Founded in 1890, this public utility company now serves roughly 5,300 customers whom they strive to offer the lowest possible rates with the highest quality of service. As a trusted utility, the company is responsible for maintaining three substations with a capacity over 75 megawatts as well as some 68 miles of overhead and underground conductor. Therefore, it is imperative that all transformers be operating at full capacity delivering electricity to their customers.

The Challenge

New Richmond Utilities observed a performance issue with one of its three substation power transformers with the potential to impact service to its customers. The timing of this issue was concerning as it was during the peak summer season. New Richmond Utilities employees knew they needed to act fast to ensure their customers' service would not be interrupted.

To avoid customer disruptions, New Richmond Utilities immediately reached out to EPS for their attending support. Since EPS has been providing planning, engineering, and maintenance services to New Richmond Utilities over the last 20 years, EPS engineers were armed with an intimate knowledge of the client's functional operation and therefore, able to assist with confirming the source of the problem remotely. From there, EPS dispatched field technicians to immediately investigate the problem and determine whether new parts/equipment were needed to restore the transformer to service. Given EPS team members were already in the area for previously scheduled maintenance and meetings, the crew would not have to be dispatched for a second trip, saving New Richmond Utilities valuable time.

Once EPS field technicians were on the ground in New Richmond, WI, it was clear the LTC wasn't operating properly. Further field inspection identified internal mechanical components had failed within the LTC, leaving New Richmond Utilities with two options:

- 1) Order an extensive list of parts and repair the LTC or,
- 2) Completely replace the internal failed LTC assembly.

The Solution

After careful review of their options and considering lead times, New Richmond Utilities determined their best option was to completely replace the LTC at the substation. Within a few days the detailed investigation was complete, the correct replacement assembly was located, and an order was placed for delivery. Schedules were then set to be ready for installation upon the arrival of the new LTC. Additionally, other planned maintenance work was factored into this outage so once completed, the substation could remain online until the next maintenance cycle was reached.





New Richmond Utilities had full confidence in EPS to complete the task at hand due to the 20-year relationship we have providing quality service and maintenance. EPS's knowledge of New Richmond Utilities' infrastructure also came in handy as EPS already had many of the equipment drawings available, aiding the swiftness of the process.

“When our substation went down with an LTC failure, EPS was our first call. They were able to quickly respond for diagnostic assistance and presented us with repair and replacement options. EPS was able to acquire the replacement LTC and have all materials on site in a relatively short time frame despite our industry's current supply chain issues. The installation was completed ahead of schedule and under budget. From engineers to technicians, we were well supported and extremely pleased with the work performed to get our substation back online.”

-Weston Arndt, Electric Superintendent, New Richmond Utilities



Conclusion

From start to finish, EPS was able to assist New Richmond Utilities with their failed LTC within two months. The transformer and substation were restored to full capacity, allowing New Richmond Utilities customer to experience uninterrupted service during their peak summer months. Not only was EPS able to help a valued client deliver service to their customers, but they were also able to identify potential future issues by providing proactive maintenance, helping to keep New Richmond Utilities on the grid for years to come.



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