

Using Data To Increase Energy Resiliency



**A Case Study :
Wheat Belt
Public Power
District
Shows How Data
Can Improve
Reliability**

Why A Data-Driven Approach Is One Of The Most Efficient Ways To Increase Reliability

Utilities have tons of data. However, most utilities are dealing with legacy systems that have been patched together. Tim Lindahl, Wheat Belt's previous CEO, knows that being able to use data can make a real impact.

"I'm a firm believer in data analytics, it's part of my background in information technology" states Mr. Lindahl. Wheat Belt PPD became the 225th electric cooperative to use Aerinet Solution's PwrMetrix reliability tracking and analysis tool. Tim Lindahl recognized that the software could improve his decision-making. This integration and easy ingestion of data helps his utility maintain quality service in a more cost-effective manner.

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As a small utility, the only way to survive the pressures we face is to become more efficient - and data is the key to that efficiency," says Lindahl. "Small utilities have tended to fly by the seat of their pants - with a tool like PwrMetrix, we all can make better decisions.

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CEO, TIM LINDAHL

*Previous CEO at Wheat Belt
Public Power District*

Currently, General Manager of
Butler Electric Cooperative



Profile of Wheat Belt Pubic Power District (PPD)



Located in
Sidney,
Nebraska



3,600
miles to
cover



5,016
meters



Restores
residential
power under
12 hours



225th
cooperative
to use
PwrMetrix

Seeing The Data Increases Productivity

The first thing Mr. Lindahl noticed about the software was its use of graphical displays.

“As a CEO, I don’t have time to dig into data looking for answers,” says Lindahl. “PwrMetrix made an immediate impression with the dashboards. Information about our electric system was quick and easy to read. If there is another tool like this out on the market, I haven’t seen it.”

Wheat Belt Public Power District found value in PwrMetrix’s core attributes. The system eliminates the need to keep massive excel spreadsheets. Utilities’ productivity soars because it’s easy to calculate SAIDI (System Average Interruption Duration Index) and other reliability indices. Secondly, PwrMetrix tracks national reliability for electric cooperatives with detailed but anonymous data reported on each participating utility. Wheat Belt Public Power District can see anonymized data from other benchmarked cooperatives’ SAIDI scores to see how they compare to other utilities. This provides CFOs and GMs a way to educate their board regarding what is acceptable regarding power restoration times.

CUSTOMIZABLE DASHBOARDS

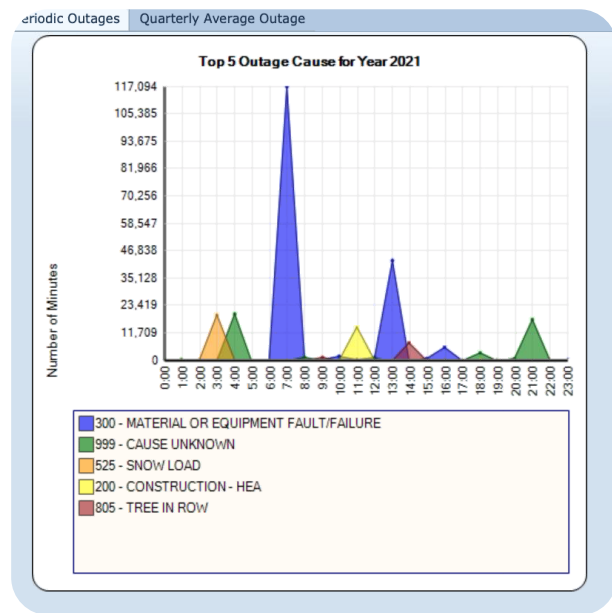
Dashboards can show outages by year, season, month, category and more.

Detailed reports show

- Cost by outage and category cause of outage and more
- Comparisons for year over year or month over month
- Reports provide detailed insights for future Distributed Energy Resource (DER) targets

More often GMs see increased planning investment and a better ROI when having data that can detail what needs to be delivered. Mr. Lindahl sees similarities to the National Rural Utilities Cooperative Finance Corporation (CFC) key ratio trend analysis of financial health. “I really don’t care what my neighboring investor-owned utility is doing,” he says, “but if I can get an apples-to-apples comparison to systems like us, our true peers, we can identify areas where we can improve.”

“I feel that in the way we have historically been collecting and reporting on our outages, we’ve been missing key aspects that could make the information both more accurate and more valuable,” says Lindahl. PwrMetrix can digitally sort and report on meters by type of service.



Above: Top 5 outage visual graph

Clean and Prioritize the Data

Wheat Belt Public Power District serves more than two meters per mile over 3,600 square miles in a sparsely populated Nebraska panhandle. A good portion of the services are irrigation pumps and stock wells. When winter storms sweep across the panhandle, Wheat Belt Public Power District crews concentrate on residential restoration. “We’ll get service restored to our residential accounts in 12 hours or less, and leave the irrigation sets and other seasonal accounts until later. But those still count as outage hours in the overall data, and it reflects poorly for the reliability indices,” says Lindahl.

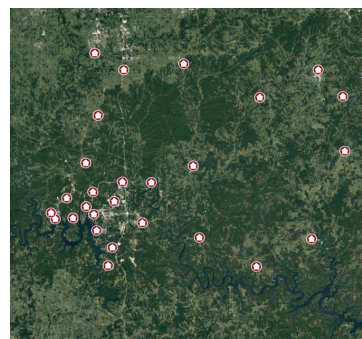
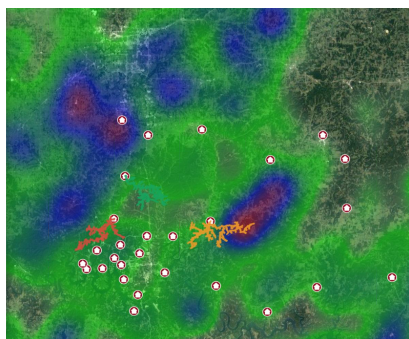
The first step for Wheat Belt PPD was to “clean up” and standardize the data coming from their systems. This makes the data manageable to integrate that data seamlessly into the PwrMetrix software.

Once that was complete, the cooperative began running detailed reports on system operations. These reports and customized dashboard graphics can show different visuals all the way down to the individual feeder level.

Reporting Is Just the Beginning for Eliminating Outages

Wheat Belt PPD had been operating with some educated guesses about where and when outages affected the system. The initial reports began eliminating the guesswork by mapping out recent outage history in telling detail.

“Some of what has been identified we had an inkling about, but this validates it,” says Lindahl. “We know we tend to see ice storms in April. We can now clearly see those outages are worse in April. The dashboards clearly validate our perceptions of which circuits, which substations, see the most problems.”



Visual GIS reports detail where the issues arise and can show the best and worst performing assets

The Next Step is Becoming Proactive Instead of Reactive

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One thing that PwrMetrix has invalidated is a perception held by our Board of Directors that our reliability had decreased.

Looking at the information we are now obtaining from PwrMetrix we can show that the actual trend is completely the opposite.

It can seem like we are battling outages all the time. But when you normalize the major weather events, we have been hit with, the data shows that the frequency of major outage events has gone down over time.

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Mr. Lindahl

While he is happy to find “validation on what we’ve always thought”, the greater value may be in correcting misperceptions or shining a light on issues that were overlooked.

“It may allow us to reverse course in areas and make more prudent investments in future. This is just the tip of the iceberg in how we can use this tool. There is so much more potential. I look forward to PwrMetrix incorporating artificial intelligence AI and moving into the predictive analysis. But right away it’s providing us with information that we didn’t have easily available up until now. like what I see (with PwrMetrix).”

Mr. Lindahl recently accepted a General Manager position at Butler Electric Cooperative in Kansas. Aerinet continues to work with Wheat Belt PPD and is supporting Butler in a joint consulting opportunity with Butler Electric Cooperative.

For more information regarding this case study, please contact us at aerinet.com