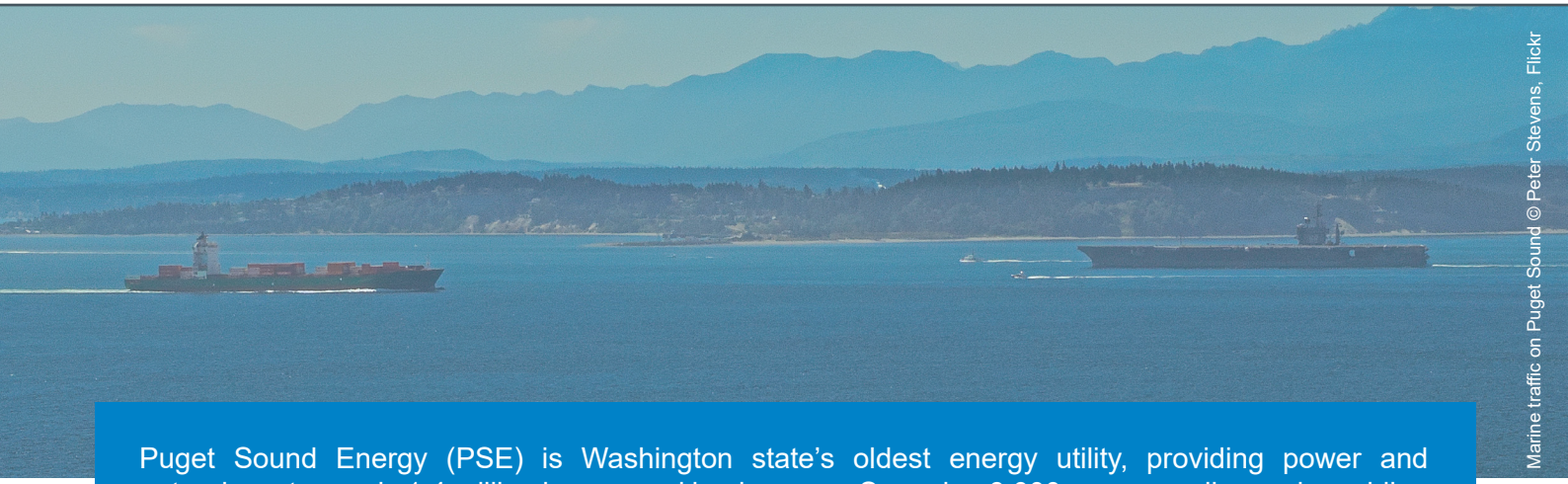
Ferry on Puget Sound © Tiffany Von Arnim, Flickr

Multiple radio channels and real time data transfer for Puget Sound Energy

Puget Sound Energy
Bellevue, Washington, USA

mimomax



Marine traffic on Puget Sound © Peter Stevens, Flickr

Puget Sound Energy (PSE) is Washington state's oldest energy utility, providing power and natural gas to nearly 1.4 million homes and businesses. Spanning 6,000+ square miles and providing electricity to over one million customers and gas to a further 790,000, PSE's service territory is home to some of the world's most-recognized brands, including Microsoft, Amazon.com and Starbucks.

CHALLENGE

PSE were looking to link a new mobile radio site to transfer voice and data over hilly terrain with a path distance of 9 miles (14km). Given the critical nature of the utilities industry and the high expectation of grid reliability from a number of nationally significant customers, PSE needed to ensure that the linking to this site was secure and offered high availability.

Furthermore, latency and jitter are serious factors for the transfer of PMR voice and data traffic for mission critical applications. As a result, PSE were requiring a solution that could deliver the high performance that they required with the assurance that the system would not fail in a state of emergency.

In addition, the repeater sites would be at busy RF sites which had the potential to be subject to interference due to the large number of transmitters in adjacent or nearby bands. While exploring many options, PSE also encountered the reliability limitations of lower cost solutions and the high installation and maintenance costs associated with some of the high reliability solutions on the market. Although the link path was only 9 miles, the cost to lay a fiber connection was considered too high (buried fiber being more than 10 times the cost of a narrowband link) and also ran the risk of vulnerability in extreme scenarios such as earthquakes. Given the challenge in isolating and correcting problems in a buried fiber link, the organization sought a different solution which would offer the required reliability but would also be easy to deploy and cost-efficient.

SOLUTION

PSE chose a Mimomax 900MHz NDL linking solution to link to an MPT-IP LMR repeater. Selected for the ultra-spectral efficiency, the Mimomax solution can deliver a large number of radio channels with very low latency and jitter (latency typically 8ms in a 25 kHz channel). The link can also support all open PMR network standards including MPT 1327, MPT-IP, P25, DMR, TETRA and QS Simulcast in trunked and conventional configurations.

The 900MHz frequency band was selected because of the availability of spectrum and the fact that using 900MHz MiMO panel antennas provided a high gain of 16dBi with independent horizontal and vertical polarizations. Equipped with a fully enclosed radome, this low-cost antenna was also a good fit for harsh weather conditions.

Specializing in "customized" wireless linking solutions, Mimomax worked closely with PSE to design a solution meeting their unique requirements. The NDL link equipment was delivered preconfigured and tuned to the customer's specifications and was tested under laboratory conditions for a week to ensure performance met the specifications provided by Mimomax. As a result of the successful lab test, the equipment was subsequently deployed into the field without any issues due to the radio's ability for "Plug and Play" with most PMR systems.

"Combining low latency and high bandwidth with easy plug 'n' play deployment offered PSE an excellent PMR linking alternative to the substantial expense of laying fiber."

PAUL REID | GENERAL MANAGER NORTH AMERICA - MIMOMAX WIRELESS

Solar and Wind Farm: Puget Sound Energy's Wild Horse © Jeff Wilcox, Flickr

RESULTS

Offering ultra-high spectral efficiency and exceptionally low latency, Mimomax NDL radios have provided PSE with a linking solution capable of supporting multiple radio channels with real-time data transfer and low error rates. Improving network efficiency, the NDL solution also provides higher data throughput in less RF bandwidth, resulting in return on investment in spectrum and substantial cost savings. In addition, Mimomax radios have the capability of integrating seamlessly with other onsite IP-based equipment such as rout ers – a flexibility allowing ease of implementation and further reduction in the cost of ownership.

Furthermore, Mimomax NDL radios deployed in the end customer's network are equipped with remote Configuration, Control & Monitoring Software (CCMS). The CCMS allow system operators to access their network "over-the-air" (web-based) without having to visit the site physically, thereby reducing travel time and offering lower associated support costs for PSE in the future.

KEY BENEFITS

- Improved network efficiency resulting in greater return on investment in spectrum
- Solution supports multiple radio channels with real-time data transfer and low error rates
- Less travel and lower support costs via over-the-air configuration
- Easy plug'n'play deployment
- MiMO panel antenna offered 16dBi gain

ABOUT PUGET SOUND ENERGY

Location: Bellevue, Washington

Industry: Electricity & Gas Utility

Services: Serving more than a million customers in a 6,000 square mile service area in the Puget Sound region of Western Washington, PSE is committed to providing safe, sustainably produced low-cost energy.

mimomax

About Mimomax

Mimomax develops wireless communications solutions for narrowband channels which enhance visibility and control - right to the edge of our customer's networks.

Our award-winning radios utilize Multiple Input, Multiple Output (MIMO) technology combined with full duplex communications and ultra-low latency to provide our customers with communications solutions which optimize data throughput and provide rapid feedback and control of their mission-critical assets.

Winner of the 2018 UTC IMPACT Award for Mimomax Tornado Radio.

US Office

4630 East Elwood St, Suite 4
Phoenix, AZ 85040
Phone: 602 441 2448
Email: sales@mimomax.com
mimomax.com

Regional

Western North America: Dennis Sullivan, dennis.sullivan@mimomax.com
Eastern North America: Keith Woodall, keith.woodall@mimomax.com
Australia, New Zealand: Ronald Martinez, ronald.martinez@mimomax.com
International: Paul Reid, paul.reid@mimomax.com

May 2020