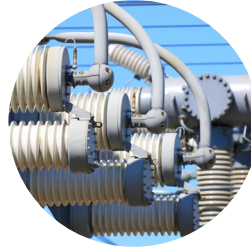




consoles you can count on



Black Hills Energy Case Study

Black Hills Energy is a diversified investor-owned electric utility (IOU) based in Rapid City, South Dakota, with additional corporate offices in Denver, Colorado and Papillion, Nebraska. Black Hills Energy serves 777,000 natural gas and electric utility customers in Colorado, Iowa, Kansas, Montana, Nebraska, South Dakota, and Wyoming. The company also has a business segment that generates wholesale electricity, produces natural gas and crude oil, and mines coal. More than 1,948 employees are treated as partners to produce results that improve life with energy.

Among the most treacherous terrain in the contiguous United States, the mountainous topography of Black Hills is subject to extreme conditions throughout the year – especially in the winter, when up to 40 inches of snow falls, blocking off access to the outside world. The terrain poses a particular challenge for radio coverage, with plains at 3,000 feet and peaks up to 7,000 feet that can inhibit signal transmission. The extreme winter weather means that some radio sites in the Black Hills are inaccessible for up to six months each year, and power outages are not uncommon.



Multiple Challenges

Black Hills Energy had multiple needs it wished to address: replace an old simplex radio system that didn't provide reliable network coverage; ensure connectivity for a variety of components, including Cisco telephones; create redundancies during outages; incorporate new recording technology to ensure superior and accurate service; and allow for the dispatching of calls across coverage areas to ensure the safety of field crews.

Additionally, BHE felt underprepared for a “worst-day” event — if a disaster or “white powder” event were to render its primary dispatch facility inaccessible or unusable, how could it assure continuous, seamless, and uninterrupted mission-critical communications?



The Legend of the “Chinook Wind”

On January 22, 1943, the Black Hills of South Dakota became part of a meteorological legend — registering the world’s fastest recorded rise in temperature in an extreme not seen before or since.

In a two-minute span starting at 7:30 a.m., a “Chinook Wind” — the name given to a type of downhill gust resulting from an airmass squeezed between extreme high and low pressure systems riding along the mountains—increased temperatures from minus-4 to 45°F. The temperature eventually rose to 54°F by 9 a.m. before dropping back to minus-4°F — a 58-degree drop — in 22 minutes.

The Avtec Advantage

Fortunately, advancing technologies meant that BHE could assemble its “dream team” of communications equipment vendors— not simply to address its myriad challenges and wish-list items, but to ensure that this leap forward would position it for easy upgrades and expansion in the future.

Having already enjoyed more than a decade of reliable service from its legacy Avtec DSPatch™ console product, BHE was eager to deploy Avtec’s newest console — the Scout™ VoIP dispatch solution — as the anchor of its bold new communications system, knowing it could seamlessly integrate all of its desired technologies.



An Integrated Solution

Avtec installed 11 new Scout consoles — six at Black Hills Energy’s primary communications site in Rapid City, South Dakota; and five at its new disaster recovery center across town.

Other components deployed during the upgrade included:

- A trunked radio solution supplied by Tait Communications, featuring two TaitNet MPT 1327 Trunked Radio systems, comprising 13 sites in the Black Hills and multiple backup sites in Colorado and Wyoming. Other features include two-line dispatch terminals (LDT), Tait TN5100 nodes, each including a digital audio switch (DAS), and Tait mobiles and portables.
- VPI’s award-winning EMPOWER™ software-based interaction recording solution, which facilitates Automatic Call Recording (ACR) via a built-in bridge (BIB) of agent IP phones in SIP protocol.
- A Cisco telephone system featuring a variety of handsets and communication devices.

Beyond the assurance that the Avtec’s Scout™ would provide the needed integration and continuous uptime demanded by Black Hills Energy, it provided technological advantages beyond that of its legacy system, including:

- Pure IP voice recording (radio and telephony)
- Portable dispatch solution for disaster mitigation and recovery
- Ability to monitor and control links and diagnose remote connectivity issues
- Easy expansion to meet current and future needs
- A direct IP interface to all major digital radio and telephony platforms to future-proof their communications investment
- A reduction in TDM leased line costs

Guaranteed Uptime

At Black Hills Corporation, peace of mind isn't just an ethereal concept, it's an absolute necessity. With more than 350 employees reliant on the dispatch solution devised by Avtec and its partners, nothing can be left to chance. "We are liable for people's lives," said Brandon Olsen, technical project manager for Black Hills Corporation. "If our people don't take the right steps, somebody could get hurt."

In deploying Scout in its new disaster recovery center, BHE had the flexibility to maintain full remote operations through the same communications node; or to use the center as a standalone facility, should a major disaster render its primary equipment unusable.

Other benefits derived from the next-generation system include:

- Intuitive, easy-to-use-interface: Avtec's customized Scout interface minimized downtime, allowed for continuity and made training a snap. Likewise, VPI's CAPTURE™ system expedites the process of searching for, and locating, recordings, and allows the user great flexibility in playing and exporting the files.
- Enhanced liability protection: VPI's recording solution captures employee and customer communications seamlessly, catalogs it intuitively — and safely stores it for ready retrieval, should issue resolution hinge upon the recordings.
- Administration and security: Automated checks ensure the system's ongoing health, and provide early warnings should trouble spots be detected.
- Built-in redundancies: Ready backups minimize the risk of network failures — and ensure that coordinated responses are facilitated during power outages.
- Long life cycle: Components are future-proof, and each aspect of the system can be expanded; support migration to digital upgrades; and allow for remote diagnostics and upgrades of software.

Project Outcome . . .

Though it has not yet had to activate its disaster recovery center, BHE is better prepared for the challenges it can't predict — and also the ones it can. Population growth, new equipment, new strategic partnerships, and new technologies are certainties for any utility, but with the future-proof Scout console system, BHE can easily expand its footprint and capabilities to meet these demands.

Today, BHE has been able to set up 11 regional talkgroups allowing dispatchers to communicate efficiently with specific teams of users on a day-to-day basis.

In particular, outage teams have been assigned to talk-groups for prompt response during storm-restoration work.

With seamless interoperability and coverage between BHP and Cheyenne Light Fuel and Power, dispatchers are able to coordinate responses to outages throughout both areas with improved speed and efficiency.

In-built system redundancy minimizes the risk of network failure, improving both service and worker safety.



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100 Innovation Place | Lexington, SC 29072
www.avtecinc.com

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