

Northern Neck Electric Cooperative: **Case Study**



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New IDAS™ System Expands Coverage, Supports AVL



A case study prepared by Icom America Inc.
Manufacturers of high-performance, award-winning radios for over 55 years.

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Northern Neck’s new IDAS narrowband system upgrades lead to a state-of-the-art solution that supports AVL to cover their 18,360 residential and commercial meters.

Background

Northern Neck Electric Cooperative (NNEC), a non-profit rural electric distribution cooperative located in Warsaw, Va., services 15,800 members in six counties across the state of Virginia. The co-op has served Virginia for more than 72 years and its mission has been to provide reliable service at a reasonable cost.

Searching for a Smart Solution

The co-op operates a two-way radio system for wide area coverage across its expansive service territory to dispatch and communicate with field workers. Reliable communications are essential for ensuring employee safety, improving service and reducing operational costs.

In June 2008, NNEC launched a search to replace its wideband radio communications system. The system, which dated back to the late 1980s, needed replacing to comply with the FCC’s January 1, 2013, narrowband deadline. The co-op was also interested in implementing a cost-effective AVL solution at a later date.

“We needed a base repeater system that could provide coverage for a system that extends at least 40 miles from the base office, which is centrally located,” explains Jim Moss, vice president of operations for NNEC. “The new system needed to be 12.5 kHz, or preferably 6.25 kHz, capable of digital communications, and able to cover our service territory.”

Moss carefully researched available options and decided the logical approach was to jump directly to 6.25 kHz technology, bypassing 12.5 kHz entirely. His goal was to find a reliable, flexible 6.25 kHz system at a competitive price that was capable of integrating an AVL system and third-party GPS mapping solution.

Featured Products:

- Icom F3161D Portable Radio
- Icom F5061D Mobile Radio
- Icom FR5000 Repeater



Jumping Directly to IDAS™ 6.25 kHz

NNEC solicited bids for a new narrowband system from three vendors, including David Lankford of the Small Business Group, who proposed a system based on Icom's IDAS technology.

"Northern Neck had already done its research. It was familiar with Icom's IDAS system and knew it wanted to take the step to 6.25 kHz now, rather than later," says Lankford, a partner with the White Stone, Va.-based Icom dealer.

The co-op closely evaluated each proposal, looking at overall value, as well as functionality. "We knew that large pieces of infrastructure like mobile radio systems could carry a high price tag," Moss says. "We also realized we wanted to choose a system that could carry us well into the future and not become quickly outdated."

After considering each bid, NNEC chose Icom because its IDAS system was very competitively priced and capable of providing a low-cost AVL solution, Moss says. "Icom also had a 6.25 kHz solution," he says. "We decided to make the jump now rather than later. It was an easy decision."

Before purchasing the new system, the co-op installed a demo system on its office tower at the 150-foot level to see how well it would perform at the outer edge of its service territory. When it worked well at this level, Moss knew it would also perform well at its future 300-level tower location.

A Smooth Transition to Digital

In May 2009, Northern Neck purchased and installed its new Icom IDAS very narrowband system consisting of 30 F3161DS portables, 45 F5061D mobile units, and an FR5000 base repeater with 150 watt amplifier, duplexer and power supply. There is one channel for normal repeater operation and a second talk-around channel for truck-to-truck communications.

System installation and programming were performed in-house by NNEC's team of IT professionals. Mike Hyde, manager of IT, coordinated the equipment set-up and installation. Although his radio experience was limited, he says system installation went very smoothly. "The vendors were willing to work with us to make the installation a success," he says.

The base system was installed first, operating at 25 kHz in analog mode while the new F5061D mobile units were installed. The mobiles were programmed to operate in the old mode as well as the new. The co-op also added channels for neighboring electric cooperatives that operate VHF high-band mobile radio systems.

Once all of the mobile units were installed, the co-op switched them to the new digital channel. At this point, the base repeater automatically began operating in the digital mode at 6.25 kHz and personnel began using the new F3161DS portables.

“The new Icom system is giving us very good system coverage and the sound is crystal clear,” Moss says. “We are impressed and very satisfied with our results.”

Implementing the AVL Solution

Although NNEC wanted to implement an AVL solution, it waited until after installing the new Icom IDAS system to begin working out the specifics of its location application.

Location capabilities benefit utilities in several ways. By tracking workers and vehicles, utilities can operate more efficiently and respond more quickly to incidents by dispatching the closest personnel.

“Seeing that our Icom system was capable of pulling GPS information back to the office from our mobile units, we bought Garmin GPS 18x receivers and added a DB25 connector for the radio connection and a DB9 connector for a computer connection,” Moss explains.

The mobile radios are programmed to auto-transmit every 10 minutes. The GPS data is then mapped on the co-op’s Partner Software Map Viewer mapping application.

The new location capabilities were put to the test during February’s massive snow storm that swept across the Northeast United States. “During the storm, I could watch the outages (on the map) and see the trucks responding to them,” Hyde says. He says the system performed well and helped the utility respond to the outages more quickly.

“For a utility of our size, this system made sense in a lot of ways,” Moss says. “We purchased a system that should take us well into the future, and we look forward to new applications as they are developed, including Icom’s upcoming computer-based dispatch/console function.”



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