



## ***BPA guards against winter outages***

**Bonneville Power Administration**  
**FOR IMMEDIATE RELEASE: WEDNESDAY, December 12, 1997**  
PR 56 97

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**PORTLAND, Ore.** – Electrical problems that could cause a power outage this winter are accidents just waiting to happen. But the Bonneville Power Administration isn't waiting.

BPA will patrol nearly 1,000 miles of its transmission lines in western Washington and western Oregon by helicopter Dec. 17-19. From 100 feet in the air, the helicopter observers use a thermal imager to look for hot spots, heat produced from a poor connection on a transmission line. Hot spots can indicate a variety of electrical problems ranging from faulty conductor splices to loose terminal pads to corroded switch connections. If hot spots are not detected early, they could overheat to the point of failure, which would lead to a line outage.

BPA is the only utility in the area that actually owns its own FLIR 2000 A/B series thermal imager. FLIR is both a company name and an acronym for forward looking infrared radar. "This is a great way for BPA to spot accidents before they happen," said Art Ashton, manager of BPA's aircraft services. "We have one of the nation's biggest transmission systems, so it's important that we insure superb reliability."

The thermal imager is an infrared camera that detects thermal energy and transforms it into a television image. The camera is mounted under a BPA helicopter and controlled by a joystick inside the helicopter. The observer sits at a video display unit and monitors the images as the pilot flies over substations and transmission lines. The temperature of objects is determined by the shade of the image, white being the hottest. Pictures are viewed directly on the monitor and recorded on a portable video tape recorder simultaneously. Tapes are reviewed later for accuracy.

The thermal vision equipment is also used to test new lines at low voltage before they are energized. "This gives transmission maintenance crews another tool to use to find problems that cannot be seen with the naked eye," said Eric Rairdon, a helicopter pilot. "It adds a whole new dimension to work in."

Wholesale power customers also benefit from this service. In the process of checking lines for trouble spots, a helicopter observer may not find any problems on BPA's lines but may find something unusual on the interconnections with a customer's line. If an observer finds a hot spot, the customer is immediately notified so corrections can be made.

Besides using the thermal imager on the helicopter to look for problems, BPA sends a line patrol observer up in the helicopter to visually patrol all of BPA's transmission lines at least three times a year.

BPA maintains one of the largest and most reliable transmission systems in the United States. The BPA system stretches over 15,000 circuit miles and makes up 80 percent of the region's high-voltage transmission capability.

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