

AELP crews attack avalanches before they strike

By [Jacob Resneck, KTOO](#) March 24, 2017
[Community](#), [Energy & Mining](#), [Juneau](#), [Weather](#)

Most of Juneau's power is hydroelectric. Getting that power to the community requires transmission lines that traverse miles of avalanche country. That's why Alaska Electric Light and Power Company (AELP) uses helicopters to trigger slides to prevent destructive avalanches from knocking out the power.

Flying at about 4,000 feet in a chartered AStar helicopter, AELP's avalanche forecaster Mike Janes gives the lay of the land.

"This is all power coming from Snettisham where we're headed and the [Lake Dorothy project](#) is over there," he points to high tension power lines that traverse an area across from Taku Inlet southeast of Juneau.

Extreme swings in temperature — blame it on climate change — have made the snowpack in the mountains less stable. That's kept avalanche control crews busy.

"In the time that I've been doing this we've had record snow years at alpine and record low snow years at alpine all within a few years here. If anything it's making it more extreme," he said.

The bird's-eye view has its limitations and the helicopter touches down near the summit of 3,300-foot Arthur Peak.

Avalanche technician Kanaan Bausler runs a simple test on the snowpack.



Avalanche technician Kanaan Bausler records the results of a stability test he'd run March 21 on the snowpack on Arthur Peak above AELP's transmission line. (Jacob Resneck/KTOO)

"Basically we cut out a block in the snow and try to see how the energy, that we are putting on the snowpack by tapping on it with our shovel, how that transfers through the block," he explained.

"Sudden collapse! Wow, that's pretty exciting."

Warmer conditions that bring rain or wet snow can form a weak layer on top of a snowpack. When the weight from a top layer exceeds the strength of an underlayer, it fails — triggering an avalanche. These readings mean this snowpack is unstable.

"This test definitely was a red flag for stability conditions from what we just saw here," Bausler said.

It's not long before Mike Janes returns in the helicopter. Dangling about 150 feet below is a device called a [Daisybell](#). Fully loaded, it weighs about 1,000 pounds.

The Daisybell creates a concussive blast by blending oxygen and hydrogen, then adding a spark that ignites the mix.

"You can see the flash," Bausler says from the ground as he acts as a spotter. "It creates quite a nice explosion — a pretty good punch for the snowpack."

Gone are the days of throwing explosives from the air. This is a cheaper — and safer — solution.

Hovering at just a hundred feet the pilot of the helicopter positions the Daisybell just a few feet over snowpack that's layered into a natural cornice on the cliff's edge.

There hasn't been much movement. Then the radio crackles as the crew realizes they'd triggered something big.

"You can't see it but we got probably 100-foot wide — it looks like it's down on that layer," Janes tells the crew. "I don't know which shot it happened on. But it pulled about 20 feet below one of the shots we already made."

After 45 minutes of firing the crew's work is done — for now.

Modern avalanche control is often more methodic than dramatic. There haven't been any huge slides this afternoon but the area has been secured.

“Any day that we can come out and trigger some snow off the slope that isn't just stacking up there and waiting for a bigger slide to come — then we feel pretty good about that,” Bausler said.

Juneau was [cut off from hydro power for 45 days](#) in 2008 after a [massive slide knocked out transmission lines](#). AELP had to burn diesel to keep the lights on.

It was as environmentally unfriendly as it was expensive for the company and ratepayers.



Much of Alaska Electric and Power Company's power grid running from its hydro plants to the Juneau community traverse remote Avalanche-prone terrain. (Courtesy AELP)

After that experience, the utility [invested millions into its avalanche control program](#). With the help of state grants, the company [erected barriers](#) to protect its most vulnerable transmission towers.

Avalanche crews will work through spring to keep nearly 60 miles of overhead transmission lines protected from slides. That should keep hydropower flowing to Juneau's households and businesses during even the snowiest months.