

2008 Juneau Avalanche

April 16, 2008

Overview

On April 16, 2008 – at the end of an exceptionally snowy winter – a series of avalanches destroyed a 1.5 mile section of transmission lines that connect the city of Juneau to the Snettisham Hydroelectric Facility. More costly diesel backup generators were quickly employed for backup power. Officials projected that energy costs would increase 500%. In response, many residents took action to decrease power usage. Over the days immediately following the avalanche, power use in Juneau fell by 25% thanks to aggressive conservation actions by residents and businesses. Due to favorable spring conditions and the hard work of repairmen, the transmission lines were restored on June 2, earlier than initially expected.

Conservation Efforts

In response to the high costs of diesel, residents in Juneau looked to reduce power usage. Many residents reported lowering their thermostats, turning off lights, unplugging appliances and hanging clothing to dry. In fact, clothespins were reportedly difficult to find in town. Some stores sold out of energy saving compact fluorescent light bulbs. Municipal buildings such as the airport and water treatment plants were large users of electricity during this time (20-30% of the total energy expenditure in Juneau). Thus, residents attempted to also decrease water usage to further save on electricity costs.

What Causes Avalanches?

Avalanches are caused by four factors:

- Steep slope
- Snow cover
- Weak layer in snow cover
- A trigger such as wind, rain, human disturbance

In Juneau, the conditions are ripe for avalanches. Mt. Juneau rises swiftly and steeply above the community. Snowfall accumulates in Juneau along these steep slopes. Furthermore, rain in winter is common contributing to weak layers in the snow enhancing avalanche risk.

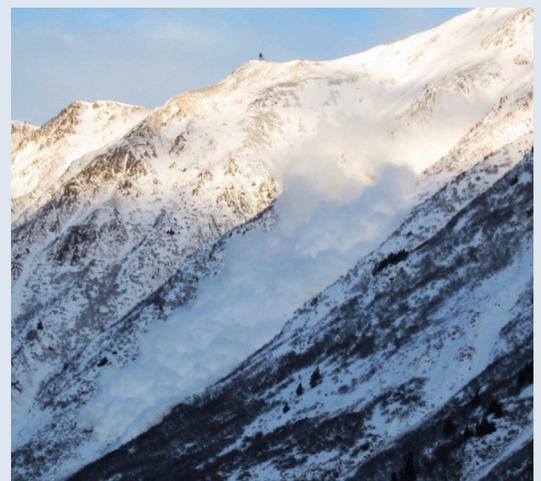


Photo by Terry Onslow, ADOT&PF



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Community Specific Response

Immediate Response and Action for Future Planning

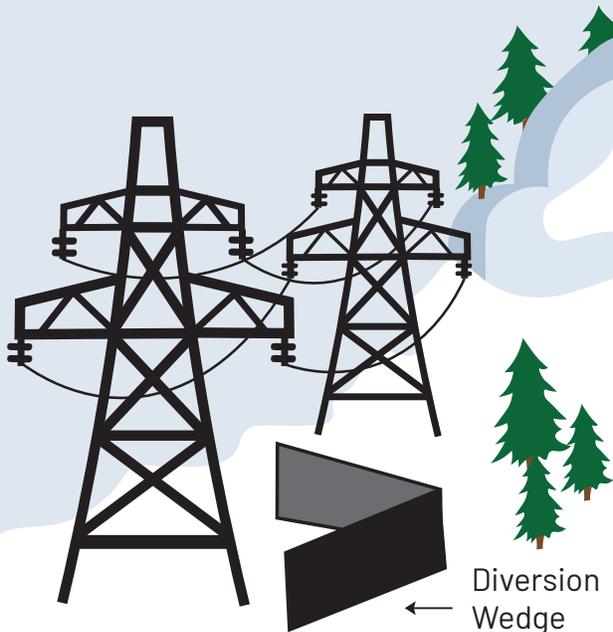
In response to the destroyed transmission lines, residents took action. Individuals changed their behaviors to decrease energy costs. Some of these energy saving behaviors continued after connection to the hydroelectric facility was restored. For instance, survey respondents reported thermostat temperatures of 2 °C lower on average even after the service disruption ended. City officials also made preventive changes to decrease future risks. This included building large metal structures along three transformer towers. These diversion wedges act to stop snow from knocking over towers. In addition, towers are now built with breakaway pieces so that if one tower fails, the neighboring towers are not immediately pulled down. Furthermore, new technology was introduced to trigger preventative avalanches. Daisy bells can deliver a more accurate and controlled blast helping to protect communities from the larger impacts of unplanned avalanches.



A Daisy Bell uses an oxygen and hydrogen mix to deliver blasts that cause controlled avalanches by collapsing the weak layer as a method of prevention.



Daisy Bell



Avalanche Information

Visit the City and Borough of Juneau Emergency Management website to learn more about current avalanche risks

<https://juneau.org/emergency/current-advisory>

To learn more visit us at: uaf-accap.org/projects/extreme-events-library

Sources: National Public Radio, Juneau Empire, Alaska Public Media, Cyberspace Snow and Avalanche Center, Lawrence Berkeley National Laboratory, New York Times, KTOO Public Media, American Council for an Energy-Efficient Economy, City and Borough of Juneau, Get Prepared: Government of Canada, Alaska Electric Light & Power

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