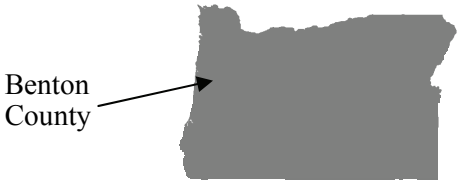
FEMA

Best practices

Disaster Mitigation Working in Oregon



Mitigation Investments Bring Safety and Reliable Power

Effective mitigation can break the cycle of disaster damage, reconstruction and repeated damage. It lessens the financial impact on individuals, communities and society as a whole.

A recent study by the Multi-hazard Mitigation Council shows that each dollar spent on mitigation saves society an average of four dollars.

Wind, snow, and ice cause damage to power systems

Benton County, Oregon— Electrical power outages are a familiar experience when winter storms bring high wind, heavy snow, ice and falling trees. All of these can cause severe damage to transmission lines, poles and transformers.

Consumers Power Inc. (CPI) is a consumer-owned electric power cooperative that serves parts of Benton and five other Oregon counties. Director of Operations & Engineering Greg Pierce said he knows that prevention of storm damage and resulting service disruption requires continuous maintenance and investment in upgrades to the utility's electrical distribution system.

Pruning and removing "hazard trees" is part of the solution. Permanent system improvements can also be cost effective.

"These can sometimes include adding more poles to reduce spans and reduce stress on poles and arms," said Pierce. "Using new technology such as more flexible and durable insulators and fiberglass cross arms is another way to reduce storm damage."

Relocating the power lines to underground conduit, while expensive, can also sometimes be an excellent alternative. This approach has helped CPI to improve the reliability of power from its Corvallis substation to a major hospital and surrounding campus of 13 other buildings on Medical Hill just north of the city. The mitigation project was developed in partnership with Good Samaritan Hospital, Corvallis Clinic, and the Benton County Emergency Management Council.

As a consumer-owned utility, CPI was eligible to apply for financial assistance from the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) to replace a troublesome section of its

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Good Samaritan Hospital

12,470-volt feeder line that serves the health care complex. The project was approved and completed in 2003. Moving the wires underground has significantly reduced power outages caused by winter storms.

HMGP funding is administered by the Oregon Office of Emergency Management FEMA. FEMA provides 75 percent of the eligible costs of approved projects.

CPI is now in the pre-application process for HMGP funding to begin a similar project to further improve the reliability of electrical service to the hospital campus and surrounding area. A nearby section of the main overhead feeder line passes through a 4,330-foot right-of-way corridor that has no road access. Part of the densely wooded area is very wet and muddy, making it difficult during most of the year to make repairs, replace poles or prune trees. The CPI proposal is to move the transmission lines underground by digging a trench in part of the problem area, and to use horizontal boring equipment to install the line beneath the ground. This type of work requires "best management practices" to minimize disturbance of wildlife and other natural resources.

Approval of grant-funded hazard mitigation projects requires proof of a clear benefit to the community. An obvious fact is that critical medical facilities depend on reliable sources of electricity.

The grant application will include a benefit-versus-cost analysis that includes the history of power outages from this section of line along with associated repair expenses. Approximate costs to utility customers who lose power will also be considered. The proposal must also describe and analyze alternative solutions. An example would be rerouting the power around the entire problem area by using an existing road right of way. Detailed cost estimates of the proposed new work are another critical part of a successful grant application.

The safety of utility workers is another important factor to be considered. Emergency repair work during bad weather is dangerous!

New insulator technology

"The cost of power failures and emergency repairs is just too much for our customers and our utility" said Pierce. "We've found that continuous improvements can bring safety, reliability and savings year after year."

Underground power conduit

Project site visit