



## Substations: Delivering Energy To Your Neighborhood

Black Hills Power places great emphasis on providing you, our valued customers, with safe, reliable energy. We are proud to be in the top 25 percent of electric utilities for reliability, as measured by the Institute of Electrical and Electronic Engineers in a yearly survey of 64 utilities.

Our electrical system includes generating plants, transmission and distribution lines and substations. Our substations play a key part in delivering power to our customers. In this article, we explain what substations are and why they are important for serving your power needs.

A typical substation contains transformers where electric voltage is changed – or transformed – from high voltage to low or from low voltage to high. Substations also include equipment to protect and control the flow of electricity. Circuit breakers, fuses (similar to what you have in your home's electric service panel but significantly larger) and regulators are some of the other equipment found in substations.

Black Hills Power engineers face three issues when designing and determining the location for substations – reliability, cost

and future expansion – and a good design strikes a balance among the three. Growth trends play a vital role when Black Hills Power looks at its system and determines whether to expand a substation or build a new one. BHP reviews growth information each year to determine changes to area electricity trends and substation needs.

The location of substations is important. A properly located and sized substation not only helps us to reliably serve the growing load in our service area, it also helps BHP route power through neighboring substations in its distribution system should there be an outage in an area.

The cost of building a substation can be substantial – as much as several million dollars, depending on the size and design of the station, the equipment installed, the cost of land and the amount of work needed to ready the site for construction. Expansion of an existing substation can often substantially lower construction costs through the use of infrastructure already in place at the site.

Black Hills Power is proud to provide customers with some of the most reliable

energy in the country. Substations play a key role in that responsibility. Look for more information about how energy is delivered safely and consistently to your home or business in future editions of Energy Connection.



Coming soon, you can receive and pay your energy bill online – for FREE!

Save time, save paper, save stamps.

Watch for details at

[www.blackhillspower.com](http://www.blackhillspower.com).



*Improving life with energy*



## BHP Teams Up With NeighborWorks And Western South Dakota Community Action To Weatherize Area Homes

Black Hills Power partnered with NeighborWorks Dakota Home Resources and Western South Dakota Community Action to weatherize homes in the Black Hills area as part of Black Hills Power's Weatherization Week and NeighborWorks' Warm & Safe programs.

"Our weatherization program shares information with customers about measures they can take to make their homes more energy efficient," said Chuck Loomis, vice president of operations for Black Hills Power. "For some who can't do the work themselves, we're providing time and energy to help."

Black Hills Power teamed with NeighborWorks Dakota Home Resources, a private, nonprofit corporation committed to

providing decent, safe and affordable housing, to identify customers who could not do the weatherization work on their own homes because of age, health or physical limitations.

Weatherization completed by the teams included inspecting and cleaning furnaces, replacing furnace filters, installing weatherstripping, caulking, expanding and non-expanding foam, window plastic, outlet gaskets and water heater pipe insulation, and wrapping water heaters 10 years old and older in a water heater blanket.

"It's in everyone's best interest to use energy wisely. Homeowners can do this by increasing the energy efficiency of their home," Loomis said.

## Seal Ductwork To Save On Heating And Cooling

In houses with forced-air heating and cooling systems, ducts are used to distribute conditioned air throughout the house. In a typical house, however, as much as 20 percent of the air that moves through the duct system can be lost because of leaks and poorly sealed connections. The result is higher utility bills and difficulty keeping the house comfortable, no matter how the thermostat is set.

Because some ducts are concealed in walls and between floors, repairing them can be difficult. However, exposed ducts in attics, basements, crawlspaces and garages can be repaired by sealing the leaks with duct sealant. In addition, insulating ducts that run through spaces like attics, garages, or crawlspaces that get hot in summer or cold in winter can save significant energy.

## Black Hills Power Sponsored events

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|-----------|---|
| Dec. 1-31 | Storybook Island<br>Holiday Lights<br>Storybook Island,<br>Rapid City, 342-6357 |
| Dec. 2    | Belle Fourche Parade<br>of Lights<br>Belle Fourche, 892-2676                    |
| Dec. 3    | Journey of Lights Parade<br>Hot Springs, 745-4140                               |
| Dec. 3    | Sturgis Parade of Lights<br>Sturgis, 347-2556                                   |
| Dec. 4    | Custer Parade of Lights<br>Custer, 673-2244                                     |
| Dec. 10   | Holidazzle Light Parade<br>Spearfish, 642-2626                                  |
| Dec. 18   | Whitewood Parade of Lights<br>Whitewood, 269-2247                               |
| Dec. 24   | Christmas Holiday<br>BHP Offices Closed   |
| Dec. 31   | New Year's Holiday<br>BHP Offices Closed  |