

Fifth Street Substation Alternatives

Black Hills Power has an obligation to provide safe, reliable power to its customers. It has been determined through substation checks and capacity limits that the reliability of the current substation is of concern. Black Hills Power has designed a low profile substation expansion plan as a corrective measure to ensure that the customers in the area are provided a reliable source of power. This is especially important at this location with the Rapid City Regional Hospital being fed off of this substation.

There are several aspects that must be taken into account when determining whether or not a location will be suitable for a distribution substation. Transmission line access, load center considerations, and distribution line infrastructure must be taken into account. Black Hills Power has pursued alternative sites in the area, but it has been determined that the current site is the best option to accommodate the changing load requirements.

Below are the alternative sites and a brief description of why the location is not currently being pursued:

- A site North of the St. Thomas Moore school to the South of Oakland Street was considered as a potential site for a new substation. St. Thomas Moore was unwilling to sell this property to Black Hills Power.
- A site on the East side of 7th Street between Cleveland and Indiana Street was looked at as an alternative but was thought that, since it was in a similar residential neighborhood, expanding the existing site was a better choice since there was already a presence on that site. This was the consensus of the City Staff as well.
- A site West of Fifth Street and South of the Hospital was also investigated as a potential site for additional substation capacity. This site was rejected as the property available would not accommodate our planned substation. The Fifth Street Substation would need to be upgraded in addition to building this new station as it was too far from the existing load center to accommodate all of the load.
- Reconstructing the station that exists on the existing piece of property without expanding the station was also considered. This plan was rejected as we could not accommodate the additional facilities needed on the existing piece of property.

Black Hills Power already has a substation South of Catron Boulevard that serves to the North of Catron Boulevard on 5th Street. Serving additional load from that site is not practicable as the distance to the load center is excessive.

The existing 5th Street site has most of the distribution infrastructure in place to take the power from that station to the customer loads in the area. This station is in the load center to serve the commercial and residential load in the area as well as the Rapid City Regional Hospital. Moving away from the load center would expose our customers to potential reliability issues, and would introduce the need for additional distribution infrastructure through the area. The location of the substation also impacts voltage levels. The site has an easily accessible transmission line that will eliminate the very difficult task of getting a transmission line to an alternate site.

The end result of the expansion will be a very reliable substation located at the load center of a very critical area. The low profile design in addition to extensive landscaping will minimize the visual impact of the substation. The substation will be more reliable and less intrusive than other alternatives due to the location.