



Current Comments

Energizing South Central Nebraska



SOUTH CENTRAL PUBLIC POWER DISTRICT, NELSON, NEBRASKA

OBJECTIVE: To make electricity available at the lowest cost consistent with sound economy and good management.



Manager's Column

By
Max VanSkiver

THE CONCEPT OF DEMAND

Last month, we discussed the concept of electrical demand. Electrical demand is the term used to describe the maximum power required by a consumer or a group of consumers over some defined duration of time, often a month or a year. It was noted that utilities are required to have power production capacity in excess of that needed to meet the maximum demand imposed by their consumers.

If a utility “stood alone”, it had to have a safety margin (reserves in utility speak) adequate to replace its largest generator should it trip off or lose access to the grid.

On the other hand, if a utility had adequate transmission ties to neighboring utilities, it could reduce its production reserves to a level required by the regional reliability organization. In the case of NPPD, for example, reserve requirements could be reduced from about 900,000 kW to about 400,000 kW.

REGIONAL VIEWPOINT

Late in 2008, the Nebraska Public Power District (NPPD) and Nebraska’s other major electric utilities,

signed membership agreements to join the Southwest Power Pool (SPP).

The SPP manages the construction and operations of approximately 11,000 miles of transmission lines that operate at 345,000 volts or higher within its footprint. The SPP studied and authorized the 345,000-volt transmission line that NPPD is planning to build in north central Nebraska. The new line will improve reliability and reduce constraints on the flow of power.

In 2014, SPP launched its “Integrated Marketplace”. This was a major event. Prior to that, each major utility was responsible for matching its generation to the net electrical load within its own control area (operating footprint). On March 1, 2014, 16 independently managed control areas were merged into 1 managed by the SPP.

Without adequate transmission interconnections, the Integrated Marketplace cannot work. The SPP Integrated Marketplace dispatches the least expensive generation plants to run to the extent possible, saving all participates and their customers money. An analysis by SPP implied annual savings to Integrated Marketplace participants of about \$400 million annually.

During 2015, utilities serving parts of Montana, eastern Wyoming, North Dakota, South Dakota, and northwestern Iowa joined the SPP.

The most recent data available to me indicated that the SPP footprint now covers about 546,000 square miles. As of the end of 2016, utility members of the Southwest Power Pool operated 790 generating plants to supply power over 65,755 miles of transmission line to retail utilities such as South Central Public

Power District serving people, farms and businesses in all or parts of 14 states from southeastern New Mexico and northeastern Texas to the Canadian border.

NEBRASKA PUBLIC POWER DISTRICT

In addition to 92,000 consumers NPPD serves at retail, NPPD supplies power to other utilities (like South Central) at wholesale that provide electric service to another 310,000 retail consumers. NPPD operates in 86 of Nebraska's 93 counties.

NPPD operates a diverse spectrum of power plants; coal, nuclear, wind, hydroelectric, gas/oil and is also a net purchaser of power from the SPP wholesale energy market during times when it is economically appropriate. However, thanks to the attributes of NPPD's power plants, NPPD is a net seller into the Integrated Market place on an annual basis.

NPPD's 5,267 miles of transmission and subtransmission lines serve 315 NPPD substations. NPPD owns about 2,700 miles of distribution lines in addition to the lines it operates in leased communities.

NPPD represents roughly 5 to 6% of SPP's total generation resources and load.

NEBRASKA ELECTRIC G&T COOPERATIVE

NPPD supplies power to South Central through our contract with the Nebraska Electric Generation and Transmission cooperative (NE G&T). The NE G&T was created in 1956 to procure and preserve an affordable and reliable power supply for rural electric systems and represent its members at both state and regional levels.

One of the first accomplishments of the NE G&T after its formation was the construction of transmission lines from Federal hydroelectric projects in the Dakotas to Nebraska. The NE G&T built about 300 miles of transmission lines and 4 substations to bring inexpensive hydroelectric power to Nebraska. This project was not easily accomplished as instate generators opposed it.

The NE G&T was an early supporter of integrated resource planning as a means to hold down power supply costs and was a key player in the development of the load management program operated by NPPD.

NE G&T took a lead role in the development of the NPPD wholesale contracts offered in 2001 and 2015,

which benefited all NPPD customers, not just G&T members.

NE G&T represents roughly 30 to 35% of NPPD's total contracted load.

LOCALLY

South Central Public Power District takes power directly from 4 NPPD transmission substations. Three of the NPPD substations serve South Central's 69,000-volt subtransmission system. The other serves 34,500-volt subtransmission lines in the Republican River valley in southern Nuckolls County.

The map at the top of Page 3 shows layout of our subtransmission system and the substations we serve from it.

Most of South Central's 182 miles of 69,000-volt lines were constructed in two distinctive periods, between 1962 and 1968 and between 2003 and 2010.

The original 69,000-volt construction (1962-68) consists of 118 miles of line and 10 substations. Four additional substations were built along the original line to support growing loads during the 1970's and 80's. Replacement of most of the 34,500-volt line acquired from NPPD in 2000 and growing loads brought us to the present total of 182 miles of 69,000-volt line and the 20 substations served from it.

The 7 miles of 34,500-volt subtransmission lines in the Republican River valley in southern Nuckolls County is all that remains of just under 120 miles of 34,500-volt line acquired from NPPD. These lines are powered by the NPPD substation at Superior. South Central built the Hardy substation in 2003 to provide better service to the community of Hardy and the surrounding rural area.

Since we cannot provide a subtransmission tie line to provide redundancy, we have developed distribution tie line capacity to back up lower Republican River valley loads from our Guide Rock, Nelson, and Oak substations. A distribution tie line between the Hardy and Superior East substations provides a way to keep the distribution system east of Superior energized when one of those substations is down for service.

The 189 miles of subtransmission line and 23 substations provide power to the roughly 2,300 miles of 12,500-volt distribution lines that South Central operates to distribute power to our electric consumers.

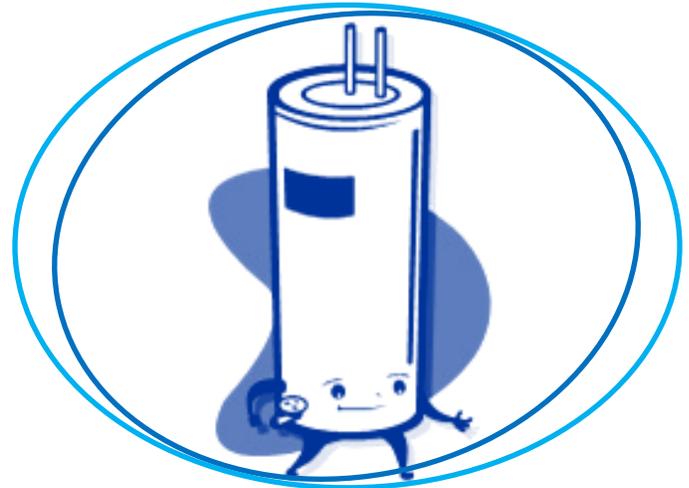


HARVEST SAFETY



- Know the location of power lines and keep tall farm equipment at least 20 feet from them.
- Use care when raising augers or the bed of a grain truck or cart. It can be difficult to estimate distance and sometimes a power line is closer than it looks. When moving large equipment or high loads near a power line, always use a spotter to make certain that contact is not made with the wire.
- Always lower portable augers or elevators to their lowest possible level (under 14 feet) before moving or transporting them. Variables like wind, uneven ground, shifting weight, or other conditions can combine to create an unexpected result.
- Never attempt to raise or move a power line to clear a path.
- As in any outdoor work, be careful not to raise any equipment such as ladders, poles, or rods into power lines. Remember, non-metallic material such as lumber, tree limbs, tires, ropes, and hay will conduct electricity depending on dampness and dust and dirt combination.

Time to replace your Water Heater?



South Central Public Power District has incentives available for our customers who make the switch to or upgrade their electric water heating systems in their homes.

Contact our office for details on these incentives.

402-225-2351 1-800-557-5254



CURRENT COMMENTS

Newsletter of the
**SOUTH CENTRAL
PUBLIC POWER DISTRICT**
Nelson, Nebraska
Board of Directors

John Greer _____ President
David Woods _____ Vice President
David Hamburger _____ Secretary
James Hoffman _____ Treasurer
Neal Carpenter _____ Director
Philip Wehrman _____ Director
Dean Zalman _____ Director
John Hodge _____ Attorney
Max VanSkiver _____ General Manager

Nelson Office Hours
(8 a.m. to 5 p.m., Monday through Friday)

402-225-2351 or 1-800-557-5254

For **Billing Questions**, please call:
(M-F, 8am-5pm)

402-225-2351 or 1-800-557-5254

For **Power Outages**, please call:
(Any time of the day or night)

402-225-2351 or 1-800-557-5254

NOTICE

The regular meeting of the board of directors of South Central Public Power District is held the third Tuesday of each month at 9 a.m. at the district's office in Nelson, Nebraska.

Newsletter Editor: Royce Schott