



## Electrical grid expert has never seen frost cause massive power outage



SaskPower says outage caused by heavy frost on the power lines, Lights back on across most of Saskatchewan

Jason Warick · CBC News · Posted: Dec 05, 2018 8:45 AM CT | Last Updated: December 5



Power lines sag under heavy frost near Wilcox, Sask. (SaskPower/Twitter)

An expert in North American electrical grids says he has never seen frost cause a major power outage.

"This isn't the craziest I've heard, but it is an unlikely explanation," said Robert McCullough, who has 40 years of experience consulting for public utilities and private energy firms in Canada and the U.S.

"It doesn't mean it hasn't happened. It just means in my 40 years in the business, I just haven't seen it."

Parts of Regina, Moose Jaw, Estevan and other communities had no power for much of Tuesday.

SaskPower official Jordan Jackle said it was caused by heavy frost on the power lines, and repeated that explanation in a follow-up news conference on Wednesday. The frost formed several days ago and worsened with a lack of sunshine, he said.

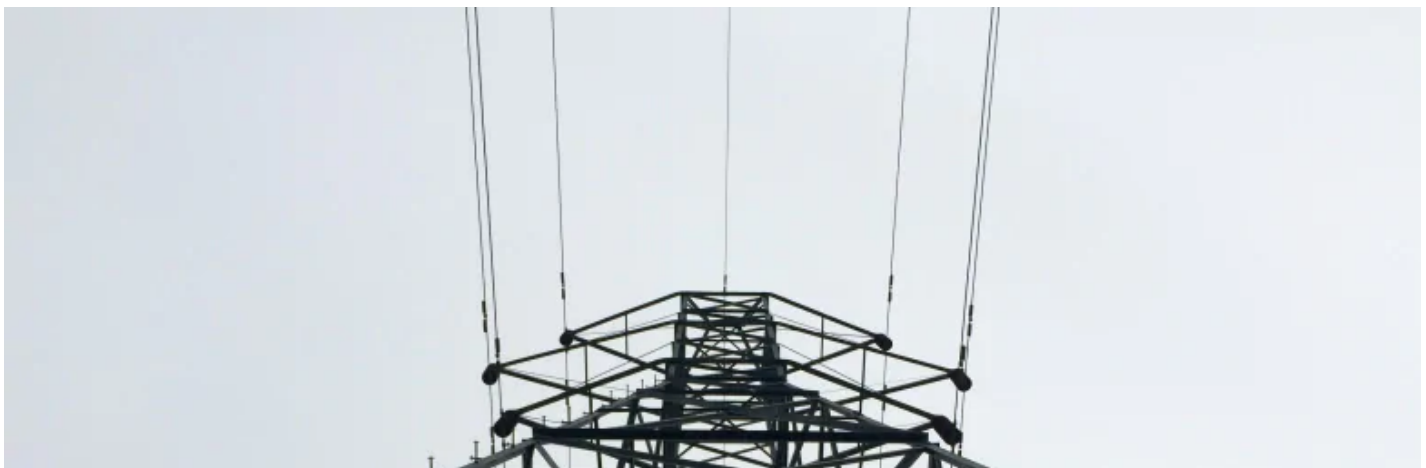
The frost caused multiple lines to fail, Jackle said.

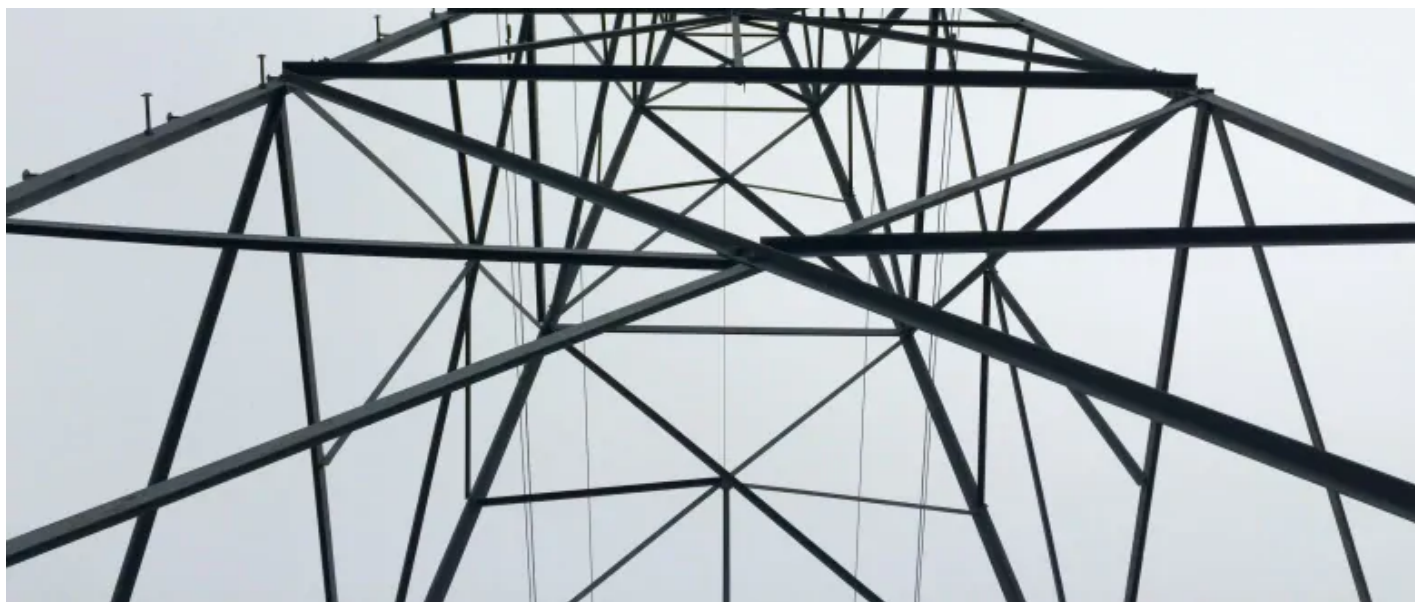
- [\*\*SaskPower works overnight to restore power across province\*\*](#)
- [\*\*'It's a good thing it's not real cold': Dark winter night during power outage in southeast Sask.\*\*](#)

"We lost two very important transmission lines in the south-east, which caused the outage. The level of grid instability caused by that transmission loss is what caused our power stations at Poplar River and Boundary Dam to go down," Jackle said Wednesday.

In one case, a wire that doesn't carry power snapped off under the frost and contacted the transmitter lines, which shorted out, Jackle said. Crews cut off the wire that was causing the short in order to get the transmission line back up.

The power stations were brought back online before the transmission lines were, he said. That means power was available, but there was a gap between that repair and when it could be carried to people's homes.





Transmission lines, like the one seen here, were responsible for the chain of events that shut down three power stations, Jordan Jackle said. (Gary Solilak/CBC)

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SaskPower estimated between 175,000 and 200,000 households and businesses lost power during the height of the blackout.

The Crown utility said a power failure Wednesday morning in communities north of Saskatoon including Cudworth, Wakaw and Colonsay was not related to Tuesday's event, but was likely also related to frost.

## SaskPower gets 33,000 calls

Jackle said SaskPower received 33,000 calls from concerned residents.

"We had hundreds of people in the company working to get this power back on, whether it's out in the field or in various control rooms across the area. We really do thank everyone for their patience and their support," Jackle said.

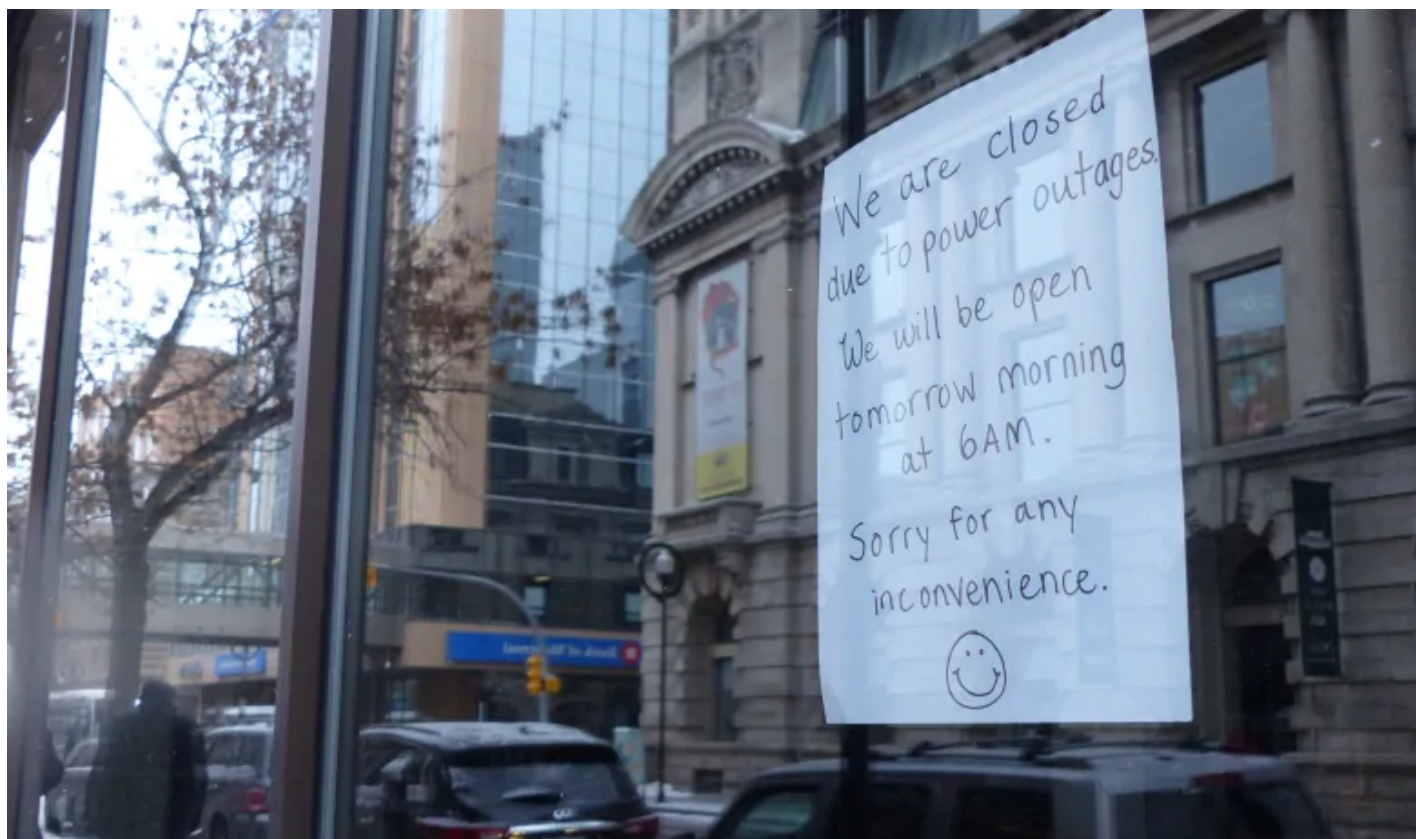
Oregon-based expert McCullough, who has worked for utilities in Newfoundland, Quebec, Ontario, Manitoba and B.C., is skeptical. He admitted he has no specific knowledge of the Saskatchewan incident, but said he's never heard of frost alone causing this kind of shutdown known as a "cascading distribution outage."

He said ice storms frequently weigh down and damage individual lines, but don't cause the shutdown of three, or even one, power plants.

"It doesn't cascade up to a region-wide outage. The system should be resilient to handle frost," he said.

Much more frequently, the cause is the failure of a power plant itself or human error.

For example, officials initially blamed U.S. blackouts on the East Coast of 2003 on downed trees, he said. In the end, it was revealed to be human miscommunication and error. McCullough compared it to his cat knocking a vase off the table and then hiding in the corner.



Some businesses to close for the day Tuesday in downtown Regina due to the massive outage. (Bryan Eneas/CBC News)

When asked if SaskPower's plants are too sensitive to weather events like this, Jackle said "we build these systems very robustly."

"This was a very unique weather event," Jackle said.

In fact, he said it was the largest SaskPower outage since 1981 and lost half of its total generation capacity when the three power stations went down.

McCullough said it will be interesting to read an official report on the incident. Canadian and American utilities file reports on major outages to the North American Electric Reliability Corporation. He expects it to be filed soon.

An initial review of the NERC website Wednesday afternoon did not show any filing. Calls to staff there were not immediately returned. Jackle said he wasn't sure if SaskPower will make the filing.

Jackle said they'll review the incident to see if they can learn from it. He said there could be more smaller outages in the coming days because the frost is still thick in some areas.

It's likely not feasible to manually knock the heavy frost off transmission lines to prevent events like this since there are so many power lines in the province, he said.

Power remained out late into the night Tuesday just outside Rosetown, but a worker reached at the Dinsmore health centre Wednesday morning said power had returned.

All hospitals in the Saskatchewan Health Authority were reporting normal activities and all schools in Regina and Moose Jaw will be open.

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