



Berkeley Electric Cooperative, Inc.

Your Touchstone Energy® Cooperative

Post Office Box 1234, Moncks Corner, SC 29461

RE: Kiawah Island Outage – Saturday, December 26th, 2020

To Whomever it May Concern:

On the referenced date, Berkeley Electric Cooperative, Inc., experienced an outage that impacted the entire island of Kiawah, Freshfield Farms, and some additional areas on Johns Island. According to our records the outage began at 7:55 a.m. Unfortunately, it was around 9:30 p.m. that night before we restored all of our members on Kiawah Island. Understandably, an explanation is in order and I'll do my best to explain what happened and what we're doing.

I think it's important to understand the way that we normally serve the area to grasp what happened on Saturday and why it happened. I would like to refer you to attached diagram if it will help.

First of all, we have two switching stations on Kiawah Island. The first we refer to as our Kiawah station located at Kestrel Court off of Sora Rail Road. The second we refer to as our Vanderhorst station located off of Governor's Drive near Flyway Drive. These two switching stations are supplied power through two of our substations on Johns Island. The first is our Seabrook station located on Resurrection Road off of Betsy Kerrison Road. The second is our Legareville station located near Legareville Road. Normally, this is a solid arrangement that enables us to serve Kiawah Island from either of the two substations through the two switching stations.

Over a year ago we began the process of upgrading our Legareville station to double the capacity and provide redundancy to the area. This upgrade is to put us in a position to serve all the load in the area if a power transformer in one of the substations is not available. Ironically, this is to prevent what was experienced. A second power transformer for our Legareville station was ordered in the fall of 2019; deliveries are long even without a pandemic. We hired a contractor this summer to perform the necessary modifications and upgrades to the station. In October, the contractor needed our Legareville station to be taken out of service in order to safely perform some of the work. We accommodated this the best we could by serving all the load on Kiawah through our Seabrook substation. The expectation was that all the work would be complete and the new and upgraded Legareville station would be in service before the end of November. Unfortunately, there were unexpected delays in contract labor and material deliveries.

On the morning of the outage, one of the power transformers at our Seabrook substation went out. Our personnel had to go to the substation to verify there was no damage before they could re-energize this transformer. It was confirmed that it tripped out due to an overload and it was re-energized at 9:20 a.m. The dip in temperatures combined with windy conditions caused the loading to exceed our expectations. In a perfect world, we would not have been serving all of Kiawah Island through this substation at that time and this would not have happened.

Because there was little to no warming during the day Saturday, obviously the loads did not go down. Something that made this situation even worse is what we refer to in our industry as "cold load pickup." When a distribution system as we have on Kiawah Island is de-energized for a period of time it reaches what we call a "cold" state. So, when we re-energized the load, we were also "heating up" all the underground cable, transformers and other components in addition to our members' loading in their homes and businesses. This "cold load pickup" can result in load that is 2-5 times the normal load before everything was re-energized. This was the primary reason that it took so long for us to restore power to



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the entire island. This “cold load pickup” required us to put on portions at a time and then let the load “settle down.” In some cases, the “cold load pickup” resulted in fuses blowing on the distribution system that had to be replaced and re-energized.

The last thing we needed was for the power transformer at our Seabrook substation to go out again. Our engineering and operations personnel worked creatively and diligently to find a way to route power from our substation on Wadmalaw Island to Kiawah Island. When the last 34 services were restored Saturday night, we didn’t have any concerns about the loading on the power transformers.

The following Monday morning, December 28th, we pulled our personnel and contract resources together to find a way to get our Legareville substation to a point that it could be used if needed and to push to complete the upgrade. As of the time that I wrote this letter, the planned schedule is as follows:

1. Our mobile substation will be put in place at our Legareville substation by December 30th, 2020; this will give us an additional source to the island.
2. Original power transformer at our Legareville substation to be energized by January 12th, 2021; this will get us back to “normal.”
3. Completion of the Legareville substation upgrade by the January 23rd, 2021; this will provide us with the capacity and redundancy we have been seeking.

I realize that this is a lot of information to digest and includes some unfamiliar terms, but I hope that it assures you that this is not normal for us and that it actually occurred due to upgrades that were in the progress. If you need additional information or clarification, I may be reached at 843-899-8461 or timm@bec.coop.

Sincerely,

Timothy (Tim) A. Mobley, P.E.
V.P. of Engineering and Operations