

Tideland Topics

REAL PEOPLE. REAL POWER.

A NEWSLETTER FOR THE MEMBER-OWNERS OF TIDELAND ELECTRIC MEMBERSHIP CORPORATION

MICROGRID UPDATE: Ocracoke project continues to reap rewards

It has been nearly 9 months since the Ocracoke microgrid became fully operational. We thought now would be a good time for a project update.

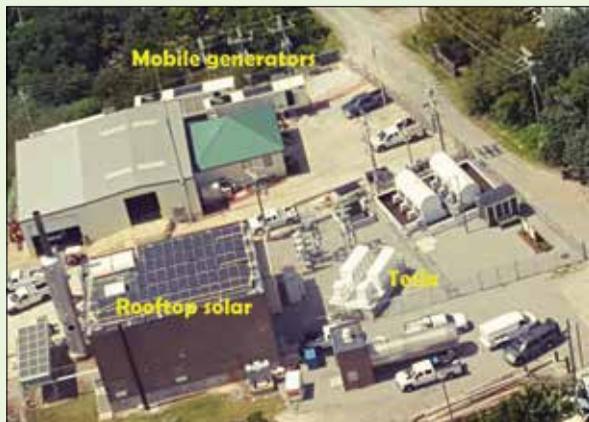
Ocracoke receives grid power via the Highway 12 transmission line that traverses Hatteras Island. Tideland takes delivery of that grid energy at a substation in Hatteras Village, where it then travels via submarine cable beneath Hatteras Inlet to the north end of Ocracoke.

When Ocracoke first received transmission power via Hatteras Island in 1965, the Rural Electrification Administration

required the island to continue to maintain its own generating plant to provide emergency service in the event of an outage.

The island's current 3-megawatt generator was installed in 1990

and is routinely used to provide peaking power on the hottest summer days when the island is hosting thousands of vacationers. The generator is owned by the NC Electric Membership Corporation (NCEMC), the power supplier



This aerial image was taken during this summer's transmission outage while mobile generators were powering the island.

for 20 of the state's electric cooperatives including Tideland. While the generator is not nearly large enough to independently power the island during peak tourist

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Residential rates decline Nov. 1

All Tideland EMC residential accounts will be billed under lower winter rate schedules effective November 1. For Rate 1 and Rate 3 members, that means the base residential rate per kilowatt hour (kWh) will drop from 11.968¢ to 11.027¢. For Rate 2 and Rate 4 time-of-use members, the on-peak demand charge will fall from \$10.75 per kWd to \$9.75 per kWd while the 6.8¢ per kWh base rate remains constant. All electric rate schedules are subject to the wholesale power cost adjustment (WPCA) which currently stands at \$7.49 per 1,000 kWh.

That will make the billed cost per residential kWh in November 11.776¢ for rates 1 and 3, down from 12.717¢ in October. For time-of-use members the blended rate per kWh (base rate + WPCA) will remain at 6.8749¢.

Winter base rates will remain in effect through April 30, 2018.



Message to our Member-Owners: Cooperation among co-ops

By Paul Spruill
General Manager & CEO

Right-of-Way Maintenance

Healthy and safe utility right-of-way takes all of us working together.

If you are considering new plantings this fall, remember to maintain proper distance from power lines taking into consideration the tree's mature height.

And never plant or erect any structures underneath power lines including shrubs or fencing. Our trucks and personnel need unobstructed room to work. The same applies to areas around padmount transformers which provide access to equipment necessary for underground electric service.

Over the years, Tideland has been the beneficiary countless times of an important co-op principle: cooperation among co-ops. When disaster strikes, we know we can depend on our fellow co-ops to come when needed.

In September, we were on the giving end. Hurricane Irma produced the largest power outage in US history affecting

are also grateful to the members of Slash Pine EMC who took very good care of our crews and showed their appreciation in numerous ways.

We're proud to be one of more than 900 electric cooperatives in the US. And it's nice to know we all have friends in high places whenever we need them.



4 million people in five states. As part of the response effort, Tideland EMC crews traveled to Homerville, Georgia to help Slash Pine EMC restore power.

Our linemen were accompanied by several teams of men from our tree trimming contractor Lucas Tree Experts. We want to thank both the Tideland and Lucas crews for leaving their families to travel south and help those in need. We

Members of the Tideland and Lucas Hurricane Irma recovery team: TW Allen, Timmy Ipock, Greg Morris, Jonathan Lee, Kane Cox, Phillip Sawyer, Matthew Neal, Jacob Hardison, Josh Dunbar, Kenneth Miller, Michael Miller, Tony Crawford, David Spicknall, Glenville Huffman, David Jackson, Willis Burgette and Jeffrey Shiflett.



Before moving, research energy costs

The excitement of moving into a new home can quickly wear off when the first energy bills arrive. Unfortunately, many fail to research the energy cost history of a new residence before signing the lease or going to closing. It pays to do your homework beforehand. Ask the realtor or landlord to provide you access to the home's utility bill history. If you notice periods of high energy use ask for an explanation. There could have been an equipment failure that has since been rectified. Once satisfied the energy bills will be manageable you can truly say, "Home Sweet Home."

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season, it can provide enough energy in the off-season as long as island residents heed calls for conservation as needed. The presence of the diesel generator made Ocracoke an ideal site for NCEMC's first microgrid project.

Solar panels mounted on the roof of the diesel generating plant provide 15kW of renewable energy as the sun moves across the sky.

To limit the risk of equipment damage in the event of flooding during a major storm, a raised concrete pad was constructed to serve as a platform for the project's Tesla battery installation. Inverter units, located at the end of each of the battery lineups, give the system a great deal of flexibility. They enable the battery units to be charged by sources other than the solar panels. That helps when the days are short or the weather is poor. The batteries can connect not just to the solar panels but also to the grid or the diesel generator, when necessary. They charge during periods of low demand, such as late at night and early in the morning. The electricity is available when demand peaks and power is more expensive—or whenever back-up energy is needed.

Each nearly 4,000-pound Tesla Powerpack is made up of 16 individual lithium-ion battery pods. Built with a cooling and heating system adapted from the Tesla Model S automobile batteries, the Powerpacks can store 1 MWh of

energy, which is roughly the amount of electricity used by 330 homes in one hour. That isn't enough to power the island during an outage, but it can assist the diesel generator during its start-up, when initial demand can exceed the generator's capacity. That makes for a smoother transition when outages occur.

The final key features of Ocracoke's microgrid system are devices installed in participating homes and businesses on the island.

The Ecobee is a wi-fi enabled thermostat. The co-op can remotely change the thermostat settings a few degrees to reduce



peak electric loads. Members are informed beforehand that a demand response event will occur, and they can override the thermostat adjustments at any time. Members can also monitor and control their thermostat settings remotely using their computer or a mobile device. As of mid-October, 197 Ecobees had been installed at Ocracoke.

Water heater controls are another tool for demand response that are located within members' homes and businesses. Using cellular technology, the co-op can make small adjustments in hot water temperature in the stor-

age tanks, but allow hot water to flow when the member calls for it. These adjustments generally go unnoticed by consumers, but taken together, can significantly reduce power demand.

We learned one valuable lesson during this summer's Outer Banks transmission outage: To help reduce load when the mobile generators were put in service we asked NCEMC to keep both the water heaters and air conditioning systems turned off until the generator load leveled out. We quickly heard from about a dozen program participants who asked us to release their air conditioning systems and water heaters because they had decided to stay on their own whole house generators so they could have full use of their appliances and other household equipment. So we will be putting those households within their own sub-group so they are not affected by future emergency load control events.

At press time, NCEMC officials had not yet had an opportunity to island the microgrid, which means disconnecting from grid power and powering the island via the microgrid. The first such event was scheduled for 4 am on August 3, but was postponed due to the transmission outage. Officials were hoping to conduct the operation in late October.



1.

REMOVE WINDOW AIR CONDITIONING UNITS SO YOU CAN CLOSE THE WINDOW TO REDUCE DRAFTS

2.

MAKE SURE YOUR FIREPLACE DAMPER IS CLOSED WHEN THE FIREPLACE IS NOT IN USE

3.

OPEN DRAPES AND BLINDS TO ALLOW SOLAR HEAT GAIN FROM THE SUN

4.

BOOST INDOOR HUMIDITY IF NECESSARY (50% IS AN IDEAL LEVEL) TO INCREASE COMFORT AND WARMTH

5.

BE SURE TO CHANGE YOUR HVAC SYSTEM FILTER EVERY 30 DAYS AND AVOID THE USE OF THICK PLEATED FILTERS UNLESS YOUR HVAC SYSTEM HAS BEEN SPECIFICALLY DESIGNED FOR EXTRA FILTRATION

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Tideland EMC is an equal
opportunity provider & employer



Our offices will be
closed Nov 23 & 24

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- (1) mail: U.S. Department of Agriculture
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 - (2) fax: (202) 690-7442; or
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- This institution is an equal opportunity provider.

HEADS UP FOR FARM SAFETY

Stay safe around downed power lines. Consider all lines, equipment and conductors to be live and dangerous.



If the vehicle is on fire, or you must exit for other safety reasons, follow these steps:

1. Jump clear of the vehicle. Do not let any part of your body or clothes touch the ground and the machinery at the same time.
2. Land with feet together and hop away in small steps to minimize the path of electric current and avoid electric shock.
3. Keep going until you are at least 40 ft. away.
4. Call for help. Make sure no one gets within 40 ft. of the downed line.
5. Do not re-enter the area or vehicle until emergency responders and your electric co-op crews determine it is safe.