



Smart neighborhoods and communities have been popping up rapidly in recent years. With their environmental focus, these communities are transforming the traditional idea of a village into one with advanced systems and modernization. A smart neighborhood is designed to reduce energy consumption by integrating high-performance homes with the newest innovations in technology. These neighborhoods promote the connection between sustainability and livability through easy-to-use energy-efficient and renewable energy systems.

Heron's Nest, an environmental village in Shallotte, North Carolina, is doing just that. The village has designed every detail to align with its core vision of creating "attractive and affordable homes that provide clean air, clean water and clean energy." For this vision to become a reality, it took collaboration among developer Adams Group Architects, local electric cooperative Brunswick Electric and its power supplier, North Carolina's Electric Cooperatives. Through their efforts, Heron's Nest offers an inspiring story as North Carolina's first residential microgrid.

Once the community is in full operation, each of its homes will include rooftop solar panels, grid interactive water heaters, smart thermostats, an option for electric vehicle charging, and a solar garden with battery storage. In addition to Brunswick Electric's advanced metering infrastructure (AMI), meters will also be included on the solar panels and battery storage. According to Jim Musilek, director of innovation and business development for North Carolina's Electric Cooperatives, the team has also kicked around the idea of developing a neighborhood app for residents to monitor solar production and to receive alerts, such as whether the neighborhood is running on battery power during an outage.

Heron's Nest Smart Home Features

- Solar Rooftop Panels
- ENERGY STAR Appliances
- Energy Efficient Heat Pumps
- Smart Thermostats
- Energy Efficient Smart Water Heaters
- Windows with Low E Glass
- Electric Vehicle-Ready Homes
- Energy Efficient Lighting
- Energy Efficient Insulation
- Efficient Framing Methods
- Passive Solar Design



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Our goal is for the residents of Heron’s Nest to not have to know or think about whether there is a grid outage outside of the neighborhood.

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*Jim Musilek, Director of Innovation and Business Development
North Carolina’s Electric Cooperatives*

Heron’s Nest has chosen to use grid interactive water heaters with Carina Technology control modules integrated at the factory, these modules allow the water heaters to be grid interactive. Just as in a typical home, residents of the community receive power from the electric grid, but they are supplemented by rooftop solar and a community solar garden. The key distinguishing factor, however, is the community’s ability to stay powered despite changes to the main grid. Heron’s Nest residents will continue to receive power from each home’s solar panels, the community solar garden and the large community battery even when the grid is down, as a result of storms, for example.

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The partnership between developer, builder, and energy team has allowed us to build a community vision that will enhance all aspects of the residents’ lives.

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*Graham Adams, President
Adams Group Architects*

“The cooperative’s goal is to provide an enhanced level of reliability and resiliency for the residents of Heron’s Nest,” said Jim. This is extremely beneficial for both residents and their electric cooperative. During weather events and other peak times, Brunswick Electric can control the demand response water heaters and thermostats, if the resident opts in, to better manage the grid and ensure the delivery of reliable and affordable power to all cooperative members.

As for the future development of communities like Heron’s Nest, Jim believes that we will likely see similar projects happening across North Carolina. “I think there are definitely market segments that are interested in these types of technologies,” said Jim. “As North Carolina continues to grow and cooperatives continue to pursue innovative energy solutions, I believe we will continue to see more projects like Heron’s Nest that bring together all of our new technologies on a larger scale.”



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