

## GE to Demonstrate Grid Resilience Technology in Puerto Rico for Rapid Power Restoration Following Extreme Weather Events

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- Awarded a three-year, \$4.5 million project from the U.S. Department of Energy to develop and pilot an automated power system with sensors, software, distributed solar + storage, and other features that enables communities to rapidly restore power following severe weather events like a hurricane
- Aiming to improve restoration time by 50-75% for large-scale weather events
- Key focus of the project will be to use Distributed Energy Resources to develop power restoration technologies that could help underserved communities in Puerto Rico and serve as a model for all communities

**NISKAYUNA, NY – November 10, 2022** – With severe weather events like Hurricane Fiona devastating communities and knocking out electricity for weeks before power can be fully restored, GE today announced it has been awarded one of several projects supported by the U.S. Department of Energy (DOE) to develop new grid resilient technologies that allow communities to rapidly restore power following such events. The total funding of GE's project will be \$4.5 million, with \$3 million from the DOE and an industry cost-share of approximately \$1.5 million.

GE Research, together with the National Renewable Energy Laboratory (NREL); LLMA Energy, which operates and manages the electrical grid in Puerto Rico; Sandia National Laboratories; and GE's Renewable Energy and Digital businesses will develop and demonstrate an automated power restoration system in Puerto Rico that would enable a community to rapidly restore electricity following extreme weather events.

**Dr. Bilgehan Donmez**, a Senior Engineer in Electric Power Systems at GE Research and project leader, said GE's solution could serve as a model for communities to quickly restore power in the future following severe weather events, stating, "Following Hurricane Fiona in mid-September, it took several weeks before many communities in Puerto Rico had their power fully restored. We're aiming to develop and demonstrate an automated power system in Puerto Rico that would cut the restoration time from weeks and even months to just hours or days."



(Pictured left to right): Project leader, Dr. Bilgehan Donmez, with GE Research grid resilience team members, Sumit Bose, Maazhong Gong, Aditya Kumar, and Hullas Sehgal, in front of a GE inverter that is part of the Research's Lab's 6 MW Future of Energy Outdoor Test Facility located on its Niskayuna, NY campus. The Test Facility, equipped with inverters, a solar array, and GE Reservoir energy storage units, represent key building blocks of resilient power systems and are necessary to develop automated restoration solutions.

GE's automated rapid power restoration system will use sensors to collect outage data directly after a weather event occurs. The grid software will then process this data to rapidly assess power outage impacts in a given community and determine the most feasible actions to restore power. GE's system will then automate this response through the dispatch of DER management systems that tap into the solar and battery back-up power system to initiate a black start, delivering electricity independently to communities until the larger grid network can be restored.

This project will integrate the expertise of GE's Digital and Grid Solutions businesses. Building on GE Digital's Distributed Energy Resource Management System, called [Open Edge DERMS](#), which enables electric utilities to dynamically manage and orchestrate distributed energy resources (DERs), black-start service and the coordination and continuous operation of local resources under extreme weather conditions will be key innovation focus areas. The team also will develop new technologies using GE Grid Solution's microgrid and GE Digital Grid Software's DER management solutions as building blocks for real-time control and optimization of DERs and loads, with resiliency of community grids as the primary objective.

Donmez noted that a key focus of the project will be to demonstrate an automated restoration system that could help underserved communities quickly restore power and recover from a severe weather event.

**Donmez said**, "All too often, it's the underserved communities that are the last to see electricity restored to their homes and businesses following a severe event. Our hope is that being able to automate the process for restoring power in these communities faster, we will have a system that could serve all communities. Our demonstration project in Puerto Rico will serve as an instrumental proving ground to develop, test, and validate our system."

### About GE Research

GE Research is GE's innovation powerhouse where research meets reality. We are a world-class team of scientific, engineering and marketing minds working at the intersection of physics and markets, physical and digital technologies, and across a broad set of industries to deliver world-changing innovations and capabilities for our customers. To learn more, visit our website at <https://www.ge.com/research/>.

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