

New Jersey TransitGrid Protects Critical Assets

CHALLENGE

Major tropical storms pose a high risk to critical infrastructure on the East Coast of the United States. For instance, in 2012, Superstorm Sandy caused extensive physical damage in New Jersey and New York, including a substantial power outage. In addition to the resulting public safety issues, vital rail transportation that link New Jersey and New York were severely disrupted, causing significant economic impacts to the region.

SOLUTION

Following Superstorm Sandy, rebuild efforts led by rail operators, including the NJ Transit Corporation, focused on protecting transportation infrastructure against physical damage. Recognizing the dependence on electricity supply, NJ Transit Corporation proposed the development of a resilient transportation microgrid called NJ TransitGrid, a first-of-its-kind microgrid capable of keeping the power running during a grid outage.

The conceptual design for the microgrid resulted from a collaboration among NJ Transit Corporation, the NJ Board of Public Utilities, the Department of Energy, and DOE's Sandia National Laboratories. They used Sandia's Energy Surety Design Methodology, which optimizes the use of distributed energy resources and smart grid technologies, with consideration of physical and cyber security, to develop the conceptual design.

IMPACT

The collaboration led to a \$410 million grant from the Federal Transportation Administration to deploy the microgrid. When completed, the NJ TransitGrid will comprise a large-scale gas-fired power plant capable of generating more than 100 megawatts and a host of distributed energy technologies, including solar power, combined heat and power, electric vehicles, demand response, and energy storage. It will also service critical transportation assets operated by the NJ Transit Corporation and Amtrak. Finally, it will supply energy and ancillary services to the grid during normal conditions, and enhanced energy resilience during localized or regional grid outages.

Contact

Abraham Ellis, Sandia National Laboratories
aellis@sandia.gov or 505.844.7717



TransitGrid is part of a comprehensive effort in New Jersey to prepare and protect critical infrastructure against extreme events like Superstorm Sandy. Source: NJ Transit

In November 2014 the U.S. Department of Energy launched the GMLC, a strategic partnership between DOE and the national laboratories to bring together leading experts and resources to collaborate on national grid modernization goals.

This integrated effort builds on prior individual projects at the national laboratories to deliver grid-related advancements, such as **TransitGrid**.