



Becoming Resilient: Disaster Planning and Recovery

NREL Experts Assist Before and After a Disaster

The National Renewable Energy Laboratory (NREL) is the nation's leader in energy efficiency and renewable energy technologies, practices, and strategies. For the last 15 years, NREL has provided expertise, tools, and innovations to private industry; federal, state, and local governments; nonprofit organizations; and communities during the planning, recovery, and rebuilding stages after disaster strikes.

NREL's energy resiliency program offers a broad range of services, including whole-community energy planning, on-site technical assistance, energy-efficient design and rebuilding strategies, and clear information for decision makers. Our comprehensive energy solutions address the full spectrum of disaster planning and recovery.

Disaster Planning and Recovery Technical Assistance *Reliable Third-Party Expertise in Energy Efficiency and Renewable Energy*

PREPAREDNESS AND PLANNING

NREL advises on how to:

- Improve resistance and resiliency (microgrids, building efficiency, islanding capabilities, etc.).
- Plan for secure, sustainable, and safe communities.
- Establish policies and codes that support sustainability, security, and safety.

RECOVERY AND REBUILDING

NREL identifies opportunities to:

- Deploy on-site technology demonstrations (e.g., emergency backup power).
- Incorporate energy efficiency, sustainability, and renewable energy measures into disaster recovery efforts.
- Design sustainable, resilient buildings.

Leading-Edge Energy Solutions

Natural and man-made disasters have devastating economic, social, and environmental impacts on communities. NREL works directly with emergency managers, community leaders, and home and business owners to deliver technologies, tools, and long-term energy solutions for each phase of disaster recovery.

Whole-Community Planning

NREL conducts whole-community energy planning that includes sustainable energy efficiency and renewable energy technologies and strategies to improve the safety, health, and resilience of the community.

Long-Term Vulnerability Reduction

To lessen the adverse consequences of future disaster events, NREL assesses and designs resilient and sustainable energy systems and facilities.

Economic Recovery, Policy, Financing, and Partnership Development

NREL partners with local stakeholders to advise communities on how to return to a healthy economic state by developing new sustainable and economically viable businesses and employment opportunities. By assessing

Using comprehensive energy efficiency and renewable energy expertise, NREL offers long-term, whole-community solutions for a sustainable, energy-resilient infrastructure.

potential policy and financial options for energy improvements, NREL provides data-driven, unbiased recommendations tailored to each community. Experts also help establish optimal partnerships and foster collaboration with key disaster response and recovery stakeholders.

Energy-Efficient Buildings, Training, and Outreach

NREL offers resilient residential and commercial building solutions that effectively support the core needs of sustainable communities. NREL leads strategic and tactical efforts, such as trainings and large-scale communication, to provide key stakeholders with relevant and effective information to educate and generate community buy-in to ensure success.

Grid Analysis

Disasters often have a tremendous impact on grid systems, but this can become an opportunity for leaders to make enhancements that advance grid resiliency and security for the future. NREL has extensive resources, including facilities for testing, to help communities improve grid integration and realize significant savings from fewer power outages; lower electricity costs; and reduced electricity waste, theft, and variability of transmitted voltage.

Disaster Recovery Projects

Galena, Alaska

In May 2013 the Yukon River overflowed its banks with water and ballistic ice, severely impacting the remote Alaskan community of Galena. To help the community recover more effectively and prepare for future floods, the Federal Emergency Management Agency (FEMA) funded NREL to identify energy-efficient rebuilding solutions, including measures to increase the efficiency and resiliency of the power plant. NREL also worked with community, state, and federal stakeholders to explore options to increase building energy capacity and resiliency.

New York and New Jersey

In October 2012, Hurricane Sandy left nearly 5 million people without electricity, and caused fires and extensive property damage. With funding from FEMA, teams of NREL technical experts provided on-the-ground assistance in New York and New Jersey during recovery efforts to educate communities about rebuilding more energy efficiently, incorporating appropriate renewable energy technologies, diversifying transportation solutions, and implementing sustainability measures.

Greensburg, Kansas

After a devastating EF-5 tornado destroyed or damaged 95% of the town of Greensburg in 2007, local and state leaders decided to rebuild as a model green community. Funded by the U.S. Department of Energy (DOE), NREL provided technical expertise to city and community leaders, local businesses, homeowners, and builders, and conducted analysis and energy modeling to demonstrate and implement successful, cost-saving energy solutions.

New Orleans, Louisiana

Hurricane Katrina—the single largest catastrophe in U.S. history—and Hurricane Rita struck the Gulf Coast in 2005. In 2007, DOE funded NREL to help New Orleans incorporate energy efficiency into its rebuilding efforts for K-12 schools and homes, and provided technical support and analysis to improve energy policy efforts.

International Support

NREL also provides technical assistance to support international communities, such as such as American Samoa and Haiti, with incorporating clean energy into disaster preparedness and recovery.

NREL's deployment and market transformation activities encompass the laboratory's full range of technologies, which span the energy efficiency and renewable energy spectrum. NREL staff members educate partners on how they can advance sustainable energy applications and provide clients with best practices for reducing barriers to innovation and market transformation.

NREL's mission is to be the leader in technology innovation and to advance renewable energy efforts around the world. Let NREL help propel your organization toward a more sustainable future.

To find out how we can help your organization, contact Eliza Hotchkiss at 303-384-7309 or eliza.hotchkiss@nrel.gov.

www.nrel.gov/disasterrecovery

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