

Is Your Plant Prepared for a Hurricane?

Facts & Figures

- The 2005 hurricane season caused more than \$21 billion in estimated total damage.
- That damage included \$5 billion in commercial losses.
- NOAA predicts another active North Atlantic hurricane season for 2006.

Benefits of Planning and Preparing

- Manufacturers in hurricane-prone areas can benefit (and help save lives) by planning and preparing now.
- Planning helps operators understand when and how to shut down operations and start them up again.
- Being prepared can minimize downtime, facilitate restarts, reduce property losses, and minimize damage to assets and records.

Resources

For more information about preparing for hurricanes, visit the DOE Industrial Technologies Program Web site, www.eere.energy.gov/industry/hurricaneready, and the Department of Homeland Security's Ready.gov Web site, www.ready.gov/business.

As they roared through the Gulf Coast in 2005, Hurricanes Katrina and Rita didn't spare industrial plants. The damage they caused helped to boost natural gas and petroleum prices and caused widespread shortages of materials and products. Many facilities in the region sustained severe flood damage, and it was extremely difficult for some plants to obtain the energy and raw materials they needed to restart operations in the aftermath of the storms.

With winds that can top 150 miles per hour, severe hurricanes can cause catastrophic damage to industrial plants in coastal areas and even hundreds of miles inland. The U.S. Department of Energy's Industrial Technologies Program (ITP) works closely with many industry partners to improve U.S. industrial energy efficiency and environmental performance, and ITP supports national, regional, and local efforts to help plants prepare for these devastating storms.



In 2005, Hurricane Katrina caused extensive damage to many industrial sites in the Gulf.

Planning and Preparing

Manufacturing facilities that plan and prepare for high winds, flooding, loss of power and raw materials, disruptions in infrastructure, and other challenges posed by hurricanes find that they can often minimize damage to their assets. And they can also save lives.

Although each storm is different, it is important to know your plant's vulnerabilities and how to reduce them. First, assess your plant's current situation, including your insurance coverage. Then, start formulating plans for preparing your facility; obtaining emergency backup power, supplies, and replacement parts; coordinating evacuations; and shutting down and restarting operations. Take advantage of all federal, state, and local resources that can help you plan and prepare.

A guide produced by the Federal Emergency Management Agency (FEMA) to help protect plants, industries, and businesses outlines several steps you can take in planning, preparing, and implementing your plant's response to a hurricane. Please see the table on page 2 for a summary of these steps.



Steps to Take to Prepare for Hurricanes

1. Establish a planning team

- Choose a leader and staff based on their skills and capabilities.
- Assign specific tasks to either individuals or teams.

2. Analyze capabilities and hazards

- Assess current preparations, potential risks, impacts of power failures and structural damage, and ways to mitigate damage.
- To prepare for flooding, contact your local floodplain manager or other official to learn your risk; use flood-resistant building materials; erect physical barriers; anchor tanks and other structures.
- To prepare for high winds, reinforce roof and siding panels; cover windows and doors; anchor tanks; remove loose objects from your site.
- Have emergency backup power—e.g., a generator, battery storage, or combined heat and power (CHP) system; obtain utility contact information for power outages.

3. Develop your plan

- Plan for before, during, and after an emergency; establish protocols for employees' safety and site readiness.
- Prioritize a list of site preparations; update emergency power and supply options.
- Establish emergency communication systems and backups.
- Establish staff responsibilities and procedures for shutdown, recovery, and restart.
- Develop an evacuation plan, including support for employees.
- Establish procedures to shut down utility and process operations safely.
- Find ways to protect business records, materials, inventory.
- Update your list of contacts for before, during, and after the emergency.

4. Implement your plan

- Track the storm's path and intensity through the National Hurricane Center.
- Stay in touch with your state's emergency operations center.
- Stay in touch with corporate headquarters, other plants, employees, customers, and suppliers.
- Carry out procedures for site preparation, emergency backup, shutdown, and evacuation.

Learning from Others

Industrial plants learned some key lessons in 2005 while coping with the effects of the hurricanes. Here are some of them:

- Establish several ways to maintain critical communications with managers, suppliers, and customers both during and after the emergency; consider creating a mobile emergency operations center.
- Prepare for flooding, usually the most serious obstacle to restarting operations.
- Prepare to quickly shut down key utility supplies like air, oxygen, nitrogen, steam, natural gas, and other raw material feeds.
- Establish plant evacuation routes, know the evacuation routes for your city or region, and communicate them to employees.
- Maintain internal contact lists so you can locate employees quickly.
- Maintain current contact information for emergency response groups.
- Investigate how to provide temporary housing, basic amenities, and medical services to employees, if necessary.

Know where you can obtain help, and request assistance from utilities, state emergency management groups, and relief organizations, as needed. If you produce materials critical to restoration, let local emergency operations centers know how you can help. Start planning today!

The U.S. Department of Energy's Industrial Technologies Program works with U.S. industry to improve industrial energy efficiency and environmental performance. The program invests in high-risk, high-value R&D to reduce industrial energy use while stimulating productivity and growth.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

For More Information, Contact:

EERE Information Center
1-877-EERE-INF (1-877-337-3463)
www.eere.energy.gov

DOE Industrial Technologies Program
www.eere.energy.gov/industry
www.eere.energy.gov/industry/hurricaneready

American Red Cross
www.redcross.org

Federal Emergency Management Agency
www.fema.gov

National Hurricane Center
www.nhc.noaa.gov

Ready.gov
www.ready.gov/business

U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability
www.oe.energy.gov

U.S. Department of Homeland Security
www.dhs.gov

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