A Year after Katrina: What Have We Learned?
Disaster planning and preparedness crucial for all NW utilities
by Brenda Phillips

Hurricane Katrina formed over the Bahamas on August 23, 2005, and just eight days later it was gone. But the devastation created by those eight days became the costliest and one of the most deadly natural disasters ever. At least 1,836 people died, with another 705 still classified as missing. The storm left three million people without electricity. The economic impact to just Louisiana and Mississippi has been estimated at over $150 billion dollars.

On December 26, 2004, the undersea Indian Ocean earthquake erupted with its epicenter off of the west coast of Sumatra, Indonesia. With a magnitude between 9.1 and 9.3, it the second largest earthquake ever recorded on a seismograph. The quake shook the ground for up to 10 minutes in some locations, triggering other earthquakes as far away as Alaska. Researchers have determined that the energy released from the original earthquake was equivalent to 0.8 gigatons of TNT — about the same amount of energy that is used in the entire U.S. over 11 days! The Indian Ocean earthquake also triggered a series of tsunamis with waves up to 100 ft. tall. The tsunamis crashed against and wiped away shores in Indonesia, Sri Lanka, India, Thailand, and Africa. As a result of the earthquake and resulting tsunamis, 186,983 people died and another 42,883 adults and children are still missing. This death count is over 100 times more than the people we lost in the U.S. as a result of Hurricane Katrina — and scientists say it could happen to us here in the Pacific Northwest.

How could this disaster happen in the Pacific Northwest?

Too few people on the West coast have heard about the Cascadia fault that lies under the Pacific Ocean; but this fault is the one that could recreate the Sumatra tsunami from Alaska all the way down to California. “Because the Cascadia fault dips under the land, it is a great comparison to Sumatra. For Portland to feel the Cascadia earthquake, it only needs to be around an 8.0-8.5; Sumatra was a 9.0, as was the last Cascadia earthquake in 1700,” said Yumei Wang, a geotechnical engineer on the Geohazards Team at the Oregon Department of Geology and Mineral Industries. “The last earthquake was 306 years ago; they occur along the fault every few 100 years so the time is right for the next one.” So it may not happen today, tomorrow, or even in most of our life times, but according to Wang, it will happen. “The biggest terror for Oregon and the Pacific Northwest is not terrorism, it’s Cascadia,” she said. “A terrorist attack is possible, but Cascadia will happen. And when it does it will cause a tsunami and devastate low-lying areas along the coast.”

When it hits, what will happen to the Pacific Northwest?

Looking out her office window in downtown Portland, Ore., Wang points to buildings that won’t be standing after the next Cascadia earthquake; she points to the many bridges that cross the Willamette River and explains that the drawbridges won’t be working after the earthquake which will prevent ships and supplies from getting into downtown via the river. Portland is a good 100 miles from the Pacific Ocean; if buildings could fall this far inland, what about the coastal cities that line the Pacific? What can the utilities that support the coastal towns do to prepare? According to Gary Cockrum, communications manager at Oregon’s Central Lincoln PUD, they decided to create a disaster plan after the Sumatra tsunami because their coastal utility is in a tsunami zone.

Others in the Northwest, regardless of being inland or coastal, should take the same action because according to Wang, all of the Northwest will be affected by the earthquake and tsunami: cities as far as Boise, Idaho, may feel the tremors, possibly knocking out their power; if the Bonneville Dam cracks or breaks, utilities that rely on it for power will not receive any until it is repaired; inland utilities may be needed in coastal towns or other states, leaving their own city short staffed. “Utilities everywhere recognize they are an important part of the nation’s critical infrastructure, said Jimmy Eiland, a Continuum Education + Training trainer who will be leading the upcoming NWPPA class, Planning for the Unexpected: Utility Disaster Preparedness. “Protecting this infrastructure requires a team effort across the country.”

The what-ifs are endless, but the action plan for all utilities should be the same: make sure your utility has an effective disaster plan.

What should be included in any disaster plan?

First, keep in mind that no matter where your utility or business lies, a disaster plan is always a must because of the number of potential disasters here in the Northwest: floods, fires, landslides, windstorms, volcanoes, and of course, earthquakes and tsunamis. And in today’s world of Unabombers and 9-11, it is sad but true that not all disasters are even acts of nature any more. “The reality is that disasters can now be man-made (terrorism, computer failures, etc.) and advanced planning is necessary to enable a quick and efficient recovery from whatever caused the disaster,” said Eiland.

With that in mind, a common, easy-to-use template for disaster plans includes the four following areas: 1) prevention, 2) preparedness, 3) response, and 4) recovery.

Prevention

Wang and many others suggest that the first thing everyone needs to do is assess their utility’s risk and prevent what disaster they can. This can include determining where the faults are near your building/utility and what the risks are for damage; differentiating between the immediate losses and the long-term losses; analyzing what you can and can’t
do, what is and isn’t cost effective; deter-
moving what systems are vulnerable and
by how much; and making plans for
emergency response for what can’t be
done.

She added that utilities should also
adopt tsunami designs in building codes,
build smarter structures to avoid disas-
ters, and bolt transformers down. “One
of the easiest things to do is ensure that
all transformers are bolted to the pad,”
said Wang. “It is super easy and cheap
to do this, and by doing so you can save
so much money, time, and manpower. It
is crazy expensive to have to replace a
transformer. If you have the ability to
upgrade your transformers, or any other
large machinery, make sure you get ones
with better seismic performance; ones
that are not too heavy.”

The U.S. Department of Homeland
Security also suggests businesses secure
all the ways people, products, and sup-
plies get into their buildings; conduct a
room-by-room walkthrough to deter-
mine what can be strapped down; and
regularly install patches to computer software.

Preparedness

Once you have analyzed your disas-
ter possibilities and prevented what
damage you can, you need to prepare
for the disasters that you cannot stop.
“To me, the most important part of the
plan is coming up with an idea, prior to
an event, of which departments or indi-
viduals will be handling all of the differ-
ent facets of the effort to restore power
and aid our employees,” said Michele
Knauf, engineering & operations sup-
port supervisor at Washington’s Mason
County PUD No. 3, which created their
original disaster plan almost 10 years
ago in 1998.

It may sound ominous, but this is an
area of the country that faces danger
from wildfires, earthquakes, tsunamis,
and more. “You have to keep the plan
flexible enough to address any type of
disaster,” said Ed Mahlum, IT manager
of Flathead Electric Cooperative (FEC) in
Montana. “This is done by realizing we
have to get the key people together, look
at the particular situation at the time,
develop a plan to meet the particular
situation from within the confines of our
general plan, and then implement the
particular plan.” A key feature of FEC’s
64-page Disaster Recovery Plan is their
disaster table top scenario which they
visit once a month in their regular
department manager meetings. “This
helps us think about specifics and things
like: Do key employees need to report to
work or what if they are torn between
taking care of their family first and then
work? Who needs to always keep at
least a half tank of gas in their vehicles?
Things like that,” said Mahlum.

Other ways to be prepared include
obtaining management commitment
from the highest levels possible; keeping
a reserve fund for disasters, or a storm
fund, larger than you ever anticipate
needing; preparing emergency supply
kits (see sidebar on pg. 26); and running
emergency drills. “Every year we run an
emergency drill and in April 2005 we
had just run a drill with a category 4
hurricane. However, it was the flood
that really did us in; we weren’t pre-
pared for the water to stand for two to
three weeks,” said Daniel F. Packer,
president and chief executive officer of
Entergy New Orleans, Inc. “When creat-
ing your disaster plan, be as expansive
as possible for what the worst could
possibly be.”

Response

“The U.S. has a brazen attitude
about how a big earthquake will affect
us compared to the disasters in other
areas of the country or even third world
countries,” said Wang. “We will have
the same problems they had: buildings
will collapse, earth-moving equipment
will be in short supply, bridges will be
down, hospitals will be overloaded,
power will be out, hazmat sites will not
be prepared, and we will have an abun-
dance of waste water.”

Because of this, the response section
is critical to any disaster plan. Your util-
ity will need to respond to employees
and customers, and your employees
themselves may have to respond to their
own family members — whatever they
need to do, they will need to be adapt-
able to whatever situation is thrown at
them. When asked how the company’s
mission changes in the face of disaster,
Packer responded: “First you need to

Left: Plate Tectonic map of the Pacific Northwest. Right: Photo of road damage near Fairbanks,
Alaska, caused by an earthquake in 1964.
figure out who to help and in what areas. Your employees take on a search and rescue function, something that is not in their job description. With our situation, a priority was getting the water out, something else we were not used to doing.”

Additionally, each response scenario will be different from the last or from another utility’s. “We had many unique challenges from Katrina and Rita: severe substation flooding; security threats due to gangs and looting; the corporate headquarters were evacuated; customer and employee homes were damaged; workforce was extremely tired and many had to relocate, but still work; and our generators were damaged,” said Packer. “But our first priority was restoration without injuring any of our employees. We emphasized safety over speed.”

Recovery

According to the National Response Plan (NRP) from Homeland Security, facilitating “recovery of individuals, families, businesses, governments, and the environment” is yet another important step to the overall plan. Recovery is what drives FEC’s plan: “The mission of the Disaster Recovery Plan is to establish defined responsibilities, actions, and procedures to recover the FEC electrical and communications system in the event of an unexpected and unscheduled interruption.”

The recovery phase is where everyone tries to get back to how they were before the disaster. During this time, crucial activities include: cleaning and restoring damaged sites; rebuilding property; re-employing people; and contacting insurance agents, and FEMA, if necessary. This may be the most difficult phase for some people because like Packer said, “Getting electricity and power back to houses and people is the closest thing to magic.”

If one thing is taken away from this article, it needs to be what Wang said to summarize the disaster planning process: “You need to plan out everything and ask yourself if you have done everything in a smart way.” Cut no corners!

For additional resources and more specific information about disaster preparedness, please see the sidebar at the right for references.

Resources to Help with Disaster Planning

- www.ready.gov (Emergency planning information and materials for businesses and individuals)
- www.usgs.gov (U.S. Geological Survey. Includes current information on natural hazards, including earthquakes, floods, tsunamis, landslides, wild fires, and hurricanes.)
- www.fema.gov (Federal Emergency Management Agency)
- www.redcross.org (American Red Cross. Provides a Disaster Services tab for specific information.)
- http://www.nrc.uscg.mil/nrchp.html (National Response Center. The sole federal point of contact for reporting oil and chemical spills.)
- http://firstgov.gov/Government/State_Local/Disasters.shtml (Governmental gateway to disaster-related Web sites.)
- http://www.training.fema.gov/emiweb/ (Emergency Management Institute. EMI serves as the national focal point for the development and delivery of emergency management training to enhance the capabilities of federal, state, local, and tribal government officials, volunteer organizations, and the public and private sectors to minimize the impact of disasters on the American public.)
- www.noaa.gov (National Oceanic & Atmospheric Administration. Track storms through NOAA weather satellites, get the latest weather maps, and learn how to protect yourself and your community from severe weather.)
- www.disasterhelp.gov (A single location where the public and private businesses can easily access disaster information and services provided by government agencies and non-governmental organizations.)
- www.dhs.gov (Department of Homeland Security)
- www.disasterplan.com (Provides contingency planning and disaster recovery information. Includes sample plans, maps, and presentations.)
- http://recovery-disaster.info (Provides disaster recovery templates, directory, and definitions.)

Personal Disaster Supplies Kit

The following supplies should be kept in your home, your place of business, and any place where you might be without power for several hours or more. If you are lucky enough to bring your pet to work, or have pets at home, don’t forget to include pet food and extra water for your furry friends. This list is an abbreviated version of what the American Red Cross suggests; for the complete, detailed list, please visit http://www.redcross.org/services/disaster/beprepared/.

- A flashlight with extra batteries. If gas leaks are at all possible, do not use candles or open flames.
- A battery-powered radio to receive news updates.
- Enough non-perishable foods for at least three meals per person.
- At least one gallon of water per person.
- At least three day’s worth of prescription medications along with non-prescription medications that you take, such as aspirin or antacids.
- A complete first aid kit, which includes such things as bandages, latex gloves, and antiseptic wipes.
- Personal hygiene items such as toothbrush, soap, and contact lens supplies.