

# Wind Storm Outage Chronology and Highlights

Jan. 15, 2007

**By the numbers** (count based on start of outage Sunday morning through restoration Thursday night; all numbers rough estimates as of Friday):

Customers without power	More than 20,204 at height of outage (based on latest calculations)
Total cost to PUD	Estimated at \$1.4-\$1.9 million
Trouble tickets written	800
Total electric repair personnel in field (including outside crews)	@130
Outside crews assisting	2 Douglas Co. PUD 2 Okanogan County PUD 3 Benton County PUD 2 Franklin County PUD 6 contract (Hawkeye) 7 Asplundh
Fiber customers without service	@300
Fiber repair personnel (including contract help)	@25
Fiber cable replaced	@12,000 feet of distribution and backbone cable (no estimate yet on how much still needs to be replaced at homes/businesses)
PUD staff on phones	8-10 staff on phones during peak times;  switchboard/call center staffed nonstop from 10 a.m. Sunday through 11 p.m. Monday; operators work 5 a.m. to 10 p.m. remaining days  call center disbanded 5 p.m. Thursday  staff (2-3) also answered phones at Chelan office from 6:30 a.m. through 10 p.m. each day
Calls answered	More than 5,000

Media briefings/interviews	@50 from Sunday through Friday morning; plus five all-media news releases issued and Web updates at least three times daily
Web visits (for outage updates)	@3,000 (with Web site down Sunday afternoon and Monday morning)
Total repair-related staff hours (field crews, CTC, dispatch, call center, warehouse, administrative)	@13,500 (9,000 for field crews) equals @337 40-hour work weeks
Trees down	400-500 affecting power lines, mostly evergreens 25 RI Hydro Park 10 Walla Walla Point Park (down or leaning)
Facilities damage	Water from melting snow flooded CTC communications equipment room Sunday afternoon/evening, shorting out radio and phones; techs restored operations by midnight

## **Basic chronology/highlights:**

### **Sunday, Jan. 7**

Wind begins blowing hard about 10 a.m. Power outages reported. Areas affected include primarily Manson (and south shore of Lake Chelan), Entiat, and many parts of Wenatchee

Power poles snapped in two; 400-500 trees blown into lines; roofs damaged

System Operations staff mobilizes in “war room” at CTC to manage outage restoration efforts with operations engineers and others

Emergency call center established at Headquarters at 10 a.m.; staff and crews called in; updates to media begin; Web updates provided

Initial estimates at noon place number of customers without power at 7,500-10,000; estimates rise rapidly through the afternoon to more than 19,000 at 5:50 p.m.

Warning issued for water conservation in southern Wenatchee/Squilchuck areas fed by Skyline reservoir

Power goes out to pumps at Eastbank Hatchery; WDFW staff quickly rigs emergency gas-fired pumps and water lines to keep fish mortality to less than 10 percent, primarily subyearling Chinook and steelhead

Outside crews from other PUDs notify us they will be here to assist Monday morning

Wenatchee school officials notified in late afternoon about power disruption and damage so they can decide whether to cancel Monday classes (they do)

As winds subside, crews work into the evening and are able to restore power to all Wenatchee substations; estimated 14,300 customers remain without power into the night

### **Monday, Jan. 8**

Power restored to about 5,000 through Sunday night-Monday morning

Fiber-optic network damaged in several places; Web service disrupted for PUD and others

City opens disposal site for tree debris at Lincoln Park

Backup power connected to Skyline water reservoir to stabilize system and avoid boil-water advisory; water conservation advisory lifted at 3 p.m.

Power restored to small pockets of customers through the day as five outside crews and five contract crews join PUD crews; damage assessments are made so crews can know priorities

Number of customers without power remains about 7,100 by evening

### **Tuesday, Jan. 9**

Estimated 3,300 customers remain without power as of noon.

More outside crews arrive from Benton PUD, Okanogan PUD

Access restricted to area of Crawford and Miller as crews use crane to rebuild transmission/distribution lines in area where 85-foot poles snapped

Wind warning for 45-mph gusts Tuesday night is dropped to a wind advisory later in the day, easing fears about a repeat of Sunday's damaging gale

PUD office staffers hand carry information hand-outs to Wenatchee outage areas to answer customer questions

Number of customers without power in early evening down to 2,100

Power restored to many of 600 customers in Entiat Valley about midday

Several hundred more customers lose power through the night as wind gusts pick up on Wenatchee Heights and in Malaga area

Apple Valley Chapter of Red Cross moves shelter to Fifth and Western in Seventh-day Adventist Church

PUD issues cold-weather tips as freezing temperatures are predicted to arrive Wednesday night through the weekend

### **Wednesday, Jan. 10**

Early estimate of customers without power rises to 2,300 due to Wenatchee Heights problems during the windy night

More crews arrive from Okanogan PUD and from Burlington area

PUD issues request for homeowners to control aggressive dogs as crews move into individual neighborhoods and back yards to finish hard-to-reach restoration work

Crews de-energize distribution line at Manson and south shore of Lake Chelan in order to clean out trees and make repairs more feasible; power not restored until late evening

PUD brings 240-ton crane into service to help reset poles in hard-to-reach areas along Miller Street near Washington Park

Crews plan to work through the night to build on momentum established during a day that sees 500 more customers restored to power

PUD office personnel again go to neighborhoods with fliers to hand out and add coffee and cookies for customers still without power

### **Thursday, Jan. 11**

Power restored to an additional 1,000 customers by early morning; remaining number without power estimated at 500-600

Douglas PUD sends two service crews to assist

More attention turns to restoring fiber service, with good progress being made on electrical connections

South Miller Street remains closed near Crawford intersection as heavy line work is finished; customers near Crawford-Miller alerted to expect periodic planned outages of 1-2 hours during the day as areas are brought back to service

PUD issues general alert for energy conservation with near-zero temperatures forecast for Thursday night into the weekend

Call center demobilized at 5 p.m.

Crews work late into the evening to get power restored to all but a handful of customers; last crews go home about 11 p.m.

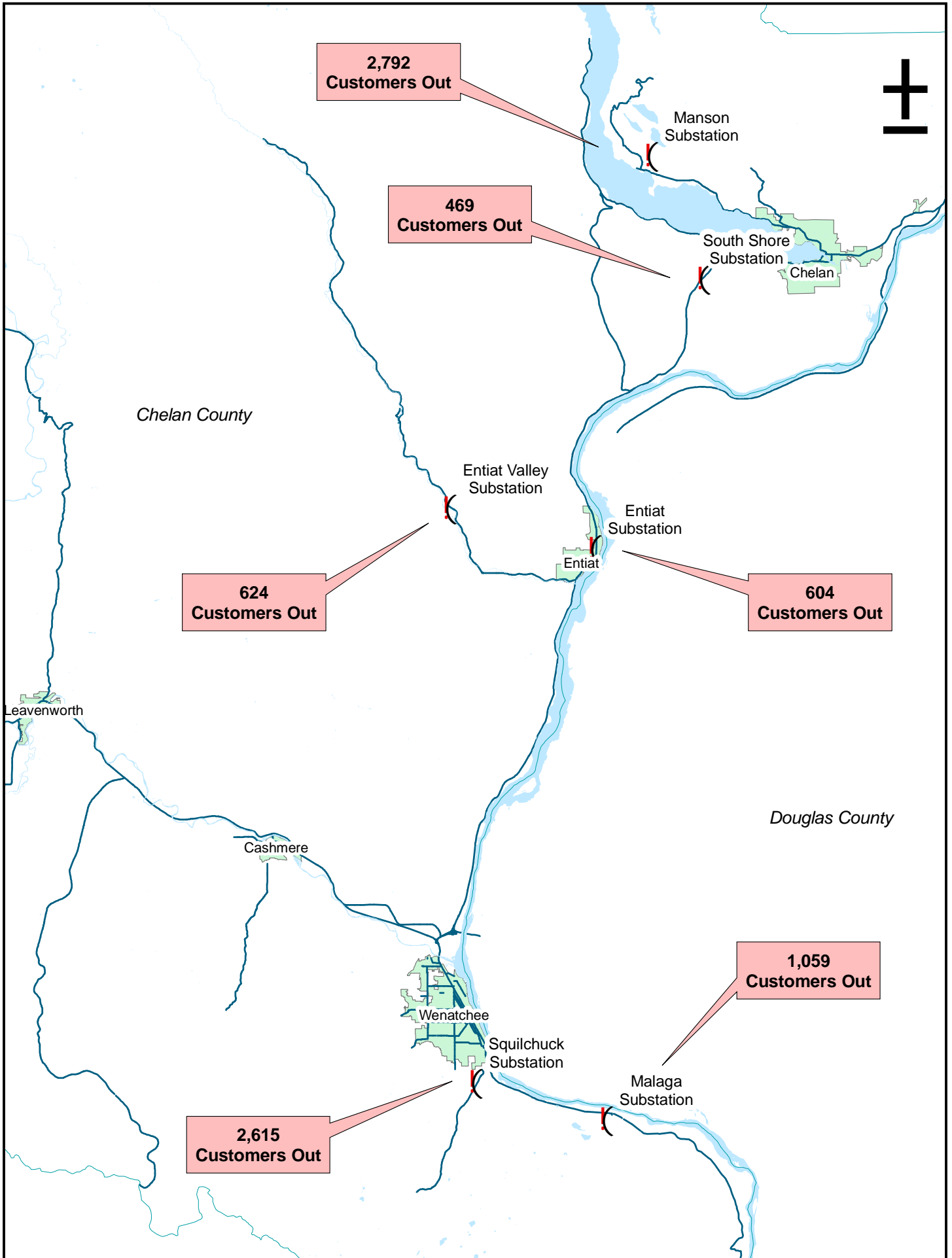
### **Friday, Jan. 12**

Avalanche system issues notice of “no reported outages” at 8:30 a.m. !!!

Final media briefings made.

Analysis and evaluation of manpower, costs, materials goes into high gear.

Many crews rest.





Douglas County

Chelan County

1,420  
Customers Out

Western  
Substation

4,271  
Customers Out

College  
Substation

Miller  
Substation

1,599  
Customers Out

Wenatchee  
Substation

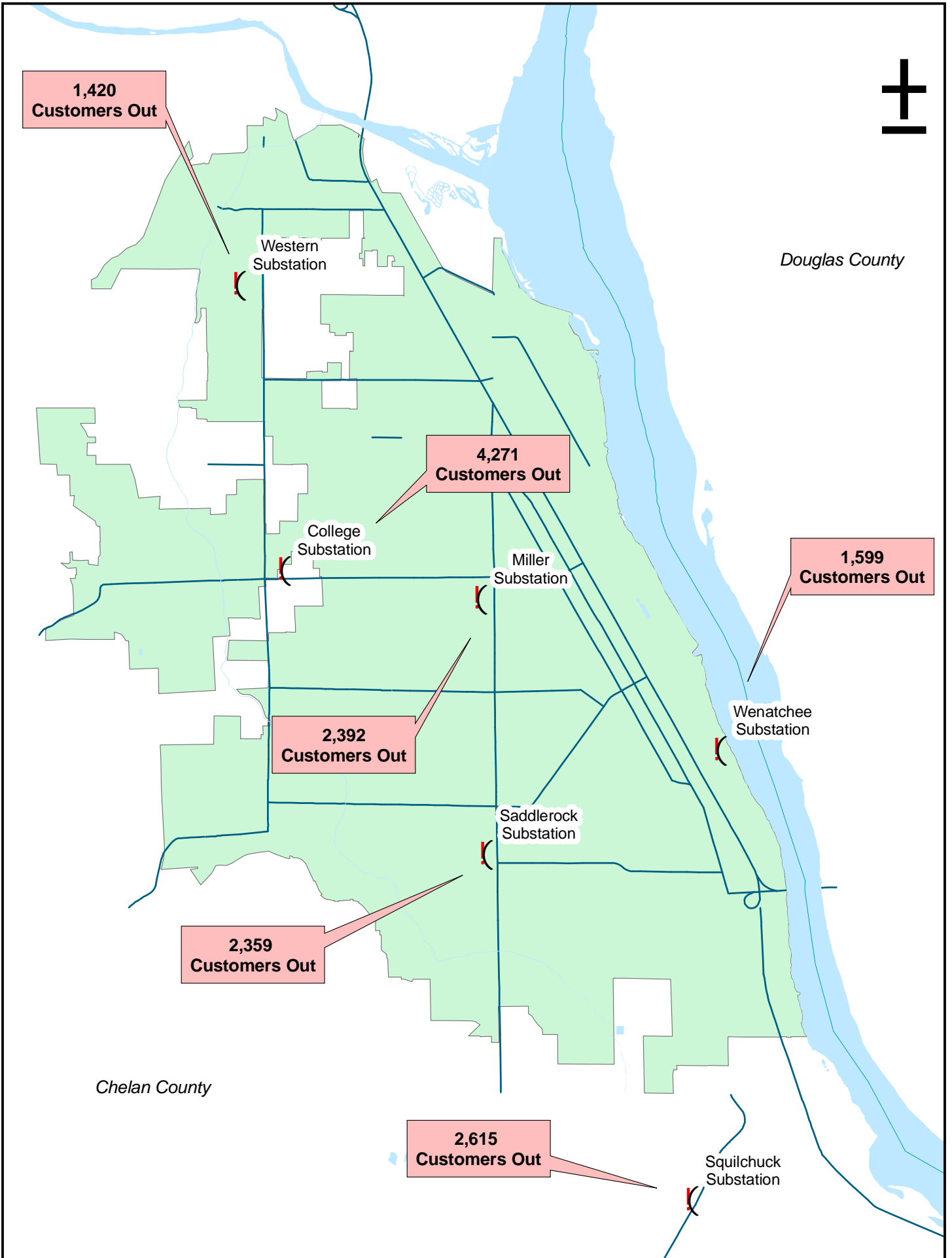
2,392  
Customers Out

Saddlerock  
Substation

2,359  
Customers Out

2,615  
Customers Out

Squilchuck  
Substation



# How your power is restored

## After the storm has passed

**Step 1:** Transmission towers and lines supply power to one or more switchyards. These high-voltage lines seldom fail, but they can be damaged by severe wind. One line can serve tens of thousands of people. If one of these lines is damaged, it would get attention first.

Hydro Project

Transmission Switchyard

**Step 2:** Chelan County PUD has 36 substations, each can serve up to several thousand homes and businesses. When there is a major outage, the distribution substations are checked to see if it's a transmission problem getting power to the substation, or a problem at the substation. Repairs made at the substation can restore power quickly to many, many customers.

Local Substation

**Step 3:** Main distribution lines carry power from substations into a central point in a neighborhood. When power is restored on distribution lines, whole neighborhoods and business districts may see the lights come back on as long as there are no problems further down the line.

Severe storms and wildfires can cause power outages. Fallen trees are the main culprit during storms. These outages can affect thousands of PUD customers. Restoring power to our customer-owners is a BIG job and involves much more than removing a tree limb from a line or throwing a switch. Once electricity is restored to critical health care and public safety facilities, the PUD's main goal is to restore power safely, to the greatest number of customers, in the shortest time possible. Your cooperation and patience are much appreciated.

**Step 5:** Sometimes there will be storm damage on every service line between houses and the nearby pole-mounted or underground transformer to houses. As repairs to individual services are made you may see that your neighbor has power and you don't. If that's the case, call the PUD at 1-877-783-8123 or 663-8121 to let them know your situation.

**Step 4:** Power lines off main distribution lines carry electricity to utility poles or underground transformers serving one to several homes or businesses. PUD crews move to working on these lines after repairs to the main distribution lines are done and prioritize locations based on getting the largest number of customers back in service.

