WHEN THE LIGHTS GO OUT

A Guide to Emergency Communications During a Wildfire or Earthquake

altadenafiresafe.org

Our Mission

The **Altadena Fire Safe Council** is working to reduce wildfire risk across our community through GIS-informed planning, science-based integrated vegetation management and regenerative land stewardship. We will pursue Firewise USA® neighborhood recognition by educating our community about home hardening, defensible space design, soil restoration and native plant landscaping.

Charity On Top (EIN #81-1198370) is a California-registered 501(c)(3) nonprofit foundation and is the official fiscal sponsor for the Altadena Fire Safe Council.

Equipment & Safety Disclaimer

The products featured on this site and pdf are provided for educational and informational purposes only. Altadena Fire Safe Council is not affiliated with or endorsed by any manufacturer listed unless explicitly stated. Product specifications, availability, and performance may change without notice. Users are responsible for reviewing manufacturer instructions, safety warnings, and regulatory requirements before purchase or use. Certain equipment — including generators, fuel-powered devices, respirators, and radio communication devices — may require training, proper ventilation, or licensing.

Some radios (e.g., Baofeng UV-5R) operate on licensed frequencies regulated by the FCC. Users are responsible for obtaining any required licenses and following all federal, state, and local regulations. Improper use can result in fines, interference with emergency communications, or other penalties.

Preparedness recommendations on this site and pdf are general in nature and are not a substitute for professional advice, official emergency guidance, or manufacturer instructions. In an emergency, always follow directions from local authorities.

For more information on FCC regulations for amateur radio, visit: **FCC – Amateur Radio Service (fcc.gov/licensing)**

Emergency Communications Plan

In California disasters, internet access often fails because power is intentionally shut off during wildfire risk (PSPS events) or physically damaged during earthquakes. The most resilient solution is satellite-based internet that bypasses local cable and fiber infrastructure.

Connecting to the Internet When the Power Goes Out

In California, communications fail in predictable ways. During wildfires, Public Safety Power Shutoffs (PSPS) can cut electricity for days. During earthquakes, infrastructure damage can disable cell towers, fiber lines, and neighborhood Wi-Fi nodes without warning.

The most resilient approach is layered:

- ❑ Grid-independent internet access
- ❑ Satellite or radio backup
- ❑ Neighborhood-scale coordination
- ❑ Reliable off-grid power

Your goal is simple: receive official alerts, communicate with neighbors, and reach emergency services — even if the grid and telecom networks fail simultaneously.

Home Internet Backup: Connecting via Satellite

In California disasters, internet access often fails because power is intentionally shut off during wildfire risk (PSPS events) or physically damaged during earthquakes. The most resilient solution is satellite-based internet that bypasses local cable and fiber infrastructure. Systems like **Starlink** allow households or community hubs to maintain broadband access if paired with backup battery power and solar charging. **The key principle:** internet access must not depend on local utilities.

Starlink

- ❑ Satellite internet independent of local cable
- ❑ Operates during PSPS outages
- ❑ Strong in semi-rural foothill communities
- ❑ High bandwidth — supports Wi-Fi calling

starlink.com

Satellite technology works by sending signals from space to antennas on earth, reaching areas that 5G can't, such as mountaintops, oceans, or distant national parks. When comparing a terrestrial network like 5G to satellite, the key difference is location. 5G is ideal for high-speed urban, suburban, and even some rural areas, while satellite technology fills in the gaps and provides coverage in places where cell towers can't reach. For smaller-scale or evacuation use, **Iridium GO!** provides portable satellite connectivity.

Portable Satellite: Iridium GO!

- ❑ Reliable backup Wi-Fi solution
- ❑ Turns smart devices into a connectivity tool
- ❑ Enables voice calls, SMS, SOS alerts, GPS
- ❑ Stay connected without roaming charges
- ❑ Connect up to five devices wirelessly

iridium.com

Emergency Communications Plan

Satellite Messaging with iPhones	
Apple has integrated satellite messaging into its recent flagship models: the **iPhone 14, 15,** and **16** series, plus the **16e**. These devices, running iOS 18 or later, offer a range of satellite-enabled services. Emergency SOS via satellite can help you connect with public emergency services under exceptional circumstances when no other means of reaching emergency services are available.	❑ Emergency SOS
	❑ Roadside Assistance
	❑ Share your location via satellite
	❑ Communicate with contacts when off the grid
	apple.com
Satellite Messaging with Android Phones	
On the Android side, satellite messaging is currently limited to **Google's Pixel 9** series phones and **Samsung Galaxy S25** series models on **Verizon** and **T-Mobile**.	❑ Emergency SOS
	❑ Send GPS location to emergency contacts
	store.google.com
Satellite Messaging (When Internet Isn't Necessary)	
When cell towers are overloaded or damaged, satellite text communication is often more reliable than voice calls. Compact devices like the **Garmin inReach Mini 2** allow two-way texting and SOS activation anywhere with sky visibility. **Why it's powerful in earthquakes:** Text messages often succeed over satellite when voice calls fail.	❑ Two-way text messaging
	❑ SOS with 24/7 monitoring
	❑ Works anywhere with sky visibility
	❑ Excellent battery life
	garmin.com
The **ZOLEO** offers a more budget-friendly alternative integrated with your smartphone. Satellite messaging ensures you can contact family or emergency services even if regional telecom systems collapse.	❑ Affordable entry point
	❑ Integrates with smartphone
	❑ Simple emergency text solution
	zoleo.com

Messaging Apps That Don't Rely on Internet Connection		
Bridgefy	**bridgefy.me**	Bridgefy is a free messaging app that works without the Internet.
Briar	**briarproject.org**	If the Internet's down, Briar can sync via Bluetooth, Wi-Fi or memory cards, keeping the information flowing in a crisis.
Bitchat	**bitchat.free**	Decentralized peer-to-peer messaging application that operates over bluetooth mesh networks.

Emergency Communications Plan

Neighborhood Alert Systems When Telecoms Go Down	
Wildfires spread fast. Earthquakes isolate blocks. You need hyperlocal communication. Localized communication tools that operate without internet or cell service are essential. A budget-friendly two-way radio (walkie-talkie) that operates on VHF/UHF frequencies. Widely used for emergency communication and community preparedness networks.	**Peer-to-Peer: Two-Way Radio** ❑ No license is required to purchase this radio ❑ Output Power: 4/1Watts ❑ Hight /Low RF Power Switchable ❑ Large LCD Display **baofengradio.com**
For longer-range voice coordination, amateur **(HAM) radio** remains the gold standard. Training and licensing resources are available through ARRL. (**arrl.org**) A resilient neighborhood should not rely solely on smartphones. Licensed operators provide long-range voice communication entirely off-grid.	**Gold Standard: Amateur (HAM) Radio** ❑ Works via battery or solar ❑ Connects to emergency nets across LA County ❑ Integrated with response groups like CERT **buytwowayradios.com**
Power & Charging (Your Communications Are Only as Good as Your Battery)	
Communications equipment is only effective if powered. Multi-day outages are common during PSPS events and post-earthquake recovery. Portable power stations such as the **EcoFlow Delta Series** or the **Goal Zero Yeti Series** can run routers, satellite devices, and radios.	**Portable Power Station: EcoFlow Delta 2** ❑ Fast solar recharge ❑ Runs routers, Starlink, radios ❑ Expandable battery capacity **us.ecoflow.com** **Premium Option: Goal Zero Yeti Series** ❑ Rugged and proven ❑ Excellent for community hubs ❑ Integrates with rooftop solar **goalzero.com**
Pairing battery storage with 200W–400W foldable solar panels allows indefinite operation in sunny California conditions. Every communications plan must include battery storage and renewable recharge capacity.	**AllPowers Solar Charging Panels** ❑ 200W–400W foldable solar panels ❑ Essential for extended PSPS outages **iallpowers.com**

Practice Protocols & Communication Trees

The most advanced communications equipment in the world is ineffective without a clear plan for how people will use it. During California wildfires and earthquakes, confusion spreads faster than reliable information. Power outages, overloaded cell towers, and evacuation stress make spontaneous coordination nearly impossible. That is why practice protocols and communication trees are foundational to resilient neighborhoods.

A practice protocol defines exactly how information flows during an emergency: who initiates contact, which tools are used first, what backup systems activate if the first fails, and how confirmation is documented. A communication tree organizes households into a structured call-and-response network, ensuring no one is missed. Each person contacts two or three others, who then contact two or three more, creating a cascading alert system that works even when technology is limited.

Preparation transforms chaos into coordination. The goal is not just to own devices: it is to rehearse their use until communication becomes automatic under stress.

Neighborhood Alert Systems When Telecoms Go Down	
Practice Protocols & Communication Trees	**Redundancy: The California Rule of Three**
Technology without coordination creates confusion. Establish a block captain system with clear primary and backup contacts. **Define a communication hierarchy:**	Wildfire and earthquake resilience depends on layered redundancy. **Every household should maintain:**
❑ Internet-based messaging	❑ Three ways to receive alerts
❑ Satellite text	❑ Three independent power sources
❑ Mesh network	❑ Three communication methods
❑ HAM radio	If one layer fails, the next remains operational. Redundancy is the foundation of disaster communications resilience.
❑ In-person check-ins	
Recommendation for California Households	
If budget allows, the most resilient stack for wildfire & earthquake zones is:	**This layered system ensures:**
	✓ Internet access
✓ Starlink + EcoFlow battery + solar panels	✓ Satellite SOS
✓ Garmin inReach for each evacuation kit	✓ Neighborhood alerting
✓ goTenna devices shared among block captains	✓ Long-range radio backup
✓ One licensed HAM operator per	✓ Power independence

Official Emergency Alert Systems & Apps

Receiving early warnings is critical before networks degrade.		
CAL FIRE	Monitor wildfire updates. Wildfire incident updates & evacuation warnings.	**fire.ca.gov**
Watch Duty	Real-time wildfire mapping & evacuation zones (excellent for Southern California).	**watchduty.org**
Los Angeles County Office of Emergency Management	Sign up for local alerts.	**ready.lacounty.gov**
USGS	Earthquake early information and ShakeAlert details.	**earthquake.usgs.gov**
Ready.gov	National preparedness guidance and communication templates.	**ready.gov**
Alert LA County	The county's official mass notification system. Critical for receiving evacuation warnings and emergency instructions via phone, text, or email.	**alert.lacounty.gov**
City of Pasadena Office of Emergency Management	Provides city-specific alerts, evacuation information, and disaster preparedness updates relevant to Pasadena and surrounding foothill communities.	**cityofpasadena.net**

How to Design a Neighborhood Communication Tree

A neighborhood communication tree is a structured, cascading alert system that ensures every household receives critical information quickly — even if power, cell service, or internet are down. The goal is speed, redundancy, and accountability.

Below is a practical framework you can use for a Fire Safe Council, block association, or hillside community.

Step 1:	**Step 2:**
Define Your Coverage Area	**Appoint a Block Captain (and Backup)**
Start small and logical.	Redundancy rule: No single point of failure. **Responsibilities:**
❑ 8–15 households per “micro-cluster” is ideal	❑ Initiate alerts
❑ Align clusters by geography	❑ Confirm message receipt
❑ Consider terrain — wildfire spreads uphill	❑ Conduct welfare checks if needed
	❑ Escalate to leadership or emergency nets
Step 3:	**Step 4:**
Build the Tree Structure	**Establish a Communication Hierarchy**
Example: 12-Household Cluster Visually, it looks like a branching tree.	Define which system is used first, second, and third. **Example hierarchy:**
Captain contacts:	1. Internet (text group, Signal, WhatsApp, email)
❑ House A	2. Satellite text (Garmin/ZOLEO)
❑ House B	3. Mesh radios (goTenna)
❑ House C	4. HAM radio net
❑ Each of those contacts: 2–3 additional homes	5. Physical door knock
No one contacts more than 3–4 households because speed matters.	Write this order down and print it.

How to Design a Neighborhood Communication Tree

Step 5:	**Step 6:**
Collect and Secure Contact Information	**Assign Welfare Check Protocols**
For each household gather:	After an earthquake or fast-moving wildfire:
❑ Primary phone number	❑ If no response within 10 minutes → escalate
❑ Secondary phone number	❑ If still no response → physical check (if safe)
❑ Email	❑ If unsafe → notify emergency services
❑ Radio call sign (if applicable)	**Clearly define:**
❑ Special needs or mobility limitations	❑ When to evacuate
Store: Digitally (secure shared file), printed copy in emergency binder. **Privacy note:** Share only within the cluster.	
Step 7:	**Step 8:**
Design Alert Codes (Keep It Simple)	**Conduct Quarterly Drills**
Example:	**Run simulations:**
CODE RED – Immediate evacuation	❑ 48-hour power outage
CODE ORANGE – Prepare to evacuate	❑ Cell network failure
CODE GREEN – All clear	❑ Wildfire evacuation
CHECK – Welfare check request	❑ Earthquake at night
Short, consistent messaging reduces panic.	**Test:**
	❑ How long did the tree take to activate?
	❑ Did everyone confirm receipt?
	❑ Did batteries last?
	Practice exposes weak links before disasters do.

How to Design a Neighborhood Communication Tree

Step 9:	Step 10:
Integrate With Larger Networks	**Keep It Visible & Updated**
Coordinate with:	Outdated trees fail under stress.
❑ Local CERT teams	❑ Review every 6 months
❑ Fire Safe Council leadership	❑ Update after move-ins or move-outs
❑ HAM radio operators	❑ Post a simplified diagram in emergency binders
❑ Neighborhood watch groups	
The communication tree should plug into a larger emergency net, not operate in isolation.	
The Golden Rules	
✓ No one is responsible for more than 3–4 contacts	
✓ Every captain has a backup	
✓ Every cluster has multiple communication methods	
✓ Every system is tested regularly	
✓ How long did the tree take to activate?	
✓ Every household knows who contacts them	

How to Design a Neighborhood Communication Tree

1. CLUSTER LEADERSHIP		
CLUSTER NAME		
COVERAGE AREA	**Street:**	**Zone:**
DATE UPDATED:		
CLUSTER LEADERSHIP	**Primary Block Captain**	
	Name:	
	Phone:	
	Backup Phone:	
	Email:	
	Radio Call Sign (if applicable):	
	Deputy / Back Up Block Captain	
	Name:	
	Phone:	
	Backup Phone:	
	Email:	
	Radio Call Sign (if applicable):	
2. COMMUNICATION HIERARCHY (Circle Order of Use)		
1. Internet Messaging Group		
2. Satellite Text Device		
3. Mesh Radio		
4. HAM Radio		
5. Physical Check-In		
Primary Platform Used		
Secondary Platform		
Radio Channel/Frequency		

How to Design a Neighborhood Communication Tree

3. TREE STRUCTURE	
	Captain Contacts
Household A	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
	Household A Contacts
Contact 1	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
Contact 2	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:

How to Design a Neighborhood Communication Tree

3. TREE STRUCTURE	
	Captain Contacts
Household B	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
	Household B Contacts
Contact 1	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
Contact 2	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:

How to Design a Neighborhood Communication Tree

3. TREE STRUCTURE	
	Captain Contacts
Household C	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
	Household C Contacts
Contact 1	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:
Contact 2	**Name:**
	Address:
	Primary Phone:
	Secondary Phone:
	Special Needs/Mobility:

How to Design a Neighborhood Communication Tree

4. DESIGN ALERT CODES (KEEP IT SIMPLE)	
Example:	
	CODE RED – Immediate evacuation
	CODE ORANGE – Prepare to evacuate
	CODE GREEN – All clear
	CHECK – Welfare check request
Custom Local Codes (if any):	

5. WELFARE CHECK PROTOCOL		
If no response within:		**minutes**
Escalation Steps:		
1.		
2.		
3.		
Emergency Services Contact Number		

6. POWER & DEVICE CHECKLIST
❑ Portable battery charged
❑ Solar panels accessible
❑ Satellite device charged
❑ Radios charged
❑ Printed contact list updated

How to Design a Neighborhood Communication Tree

7. DRILL LOG	
Date	
Scenario Tested	
Time to Full Contact	
Issues Identified	
Resolved?	

How to Design a Neighborhood Communication Tree

8. REDUNDANCY CHECK (California Rule of Three)
❑ 3 Ways to Receive Alerts
❑ 3 Power Sources
❑ 3 Communication Methods
Notes:

Emergency Radios: Your Most Reliable Information Lifeline

When wildfires move quickly or an earthquake disrupts power and telecommunications, access to verified information becomes critical. Cell networks can become overloaded, internet service can fail, and power outages may last for days. A solar-powered emergency radio provides an independent, grid-free way to receive official alerts, evacuation orders, weather updates, and recovery information directly from public agencies.

In California, emergency radios are especially important during Public Safety Power Shutoffs (PSPS) and fast-moving wildfire events, when conditions can change hour by hour. Radios that receive NOAA Weather Radio alerts allow you to monitor real-time warnings even if your phone has no signal. Because they operate on multiple power sources — solar panels, hand cranks, rechargeable batteries, and disposable batteries — they continue working when other systems fail. **An emergency radio is not just a backup device; it is often the first and most stable source of trustworthy information during a disaster.** Every household should have at least one primary radio and a secondary backup stored in a go-bag, fully charged and tested regularly.

Emergency Radios	
For California wildfire and earthquake preparedness, the best solar emergency radios do three things well: 1) Receive NOAA weather + AM/FM alerts; 2) Recharge multiple ways (solar + hand crank + USB); 3) Power other small devices (USB output for phones).	
Midland ER310	**Eton Sidekick**
❑ NOAA Weather Alert with SAME technology	❑ Rugged design
❑ Solar panel, hand crank, rechargeable battery	❑ Solar + hand crank + rechargeable battery
❑ AAA backup	❑ Bright LED flashlight
❑ USB output for charging phones	❑ NOAA Weather Alert
❑ Loud, clear speaker	❑ Bluetooth speaker capability
❑ Flashlight + ultrasonic dog whistle	**Best For:** Go-bags or mobile evacuation kits
Best For: Primary household emergency radio	**Bonus:** Doubles as a Bluetooth speaker
Midland ER310	**Kaito KA500**
❑ Affordable	❑ 6 power sources
❑ Solar + hand crank + micro-USB charging	❑ NOAA + AM/FM + shortwave
❑ NOAA Weather + AM/FM	❑ Telescopic antenna for improved reception
❑ Power bank capability	**Best For:** Those wanting expanded band coverage
Best For: Backup radios for family members	

Emergency Radios: Your Most Reliable Information Lifeline

What to Look for (California Specific)	
Wildfire Priority	**Earthquake Priority**
❑ NOAA Weather Alert with SAME capability	❑ Multiple power sources
❑ Loud alert tone	❑ Long battery life
❑ Strong antenna reception	❑ USB charging for phone
Solar Panel Reality	
Solar panels on radios are maintenance chargers, not primary power sources. **Expect:**	
❑ 30–60 minutes of sunlight = limited runtime	
❑ Hand crank = faster recharge during emergencies	
❑ Best practice = recharge from a portable power station	
Recommended Pairing Strategy	**Best Research & Alert Resources**
For a wildfire/earthquake-ready household:	✓ National Weather Service: **weather.gov**
❑ 1 Primary radio (Midland ER310)	✓ CAL FIRE: **fire.ca.gov**
❑ 1 Backup radio (RunningSnail or Eton)	✓ NOAA: **noaa.gov**
❑ Portable battery station (EcoFlow or Goal Zero)	
❑ Foldable 200W solar panel	

Products shown are for informational purposes only. Users are responsible for following manufacturer instructions, safety guidelines, and local regulations. Certain devices may require licensing or regulatory compliance. Always use equipment responsibly and follow official emergency guidance.