Emergency Communication Tools

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Agenda

- Who we are and who we support
- Before a communications impact
- Cellular wireless network
- Plan old telephone service
- Satellite (high-earth fixed and low-earth orbit)
- Ultra high-frequency radio
- High-frequency radio
- GridEx VI

California ISO

Within its balancing authority area, the California ISO:

- Maintains reliability on the grid
- Manages the flow of energy
- Oversees the transmission planning process
- Operates the wholesale electric market

For much of the western U.S., the ISO:

- Operates the Western Energy Imbalance Market (EIM)
- Serves as Reliability Coordinator (RC West)

California ISO

Folsom headquarters
300K sq ft
1K people on site

Lincoln
40K sq ft
Hot/hot back-up site

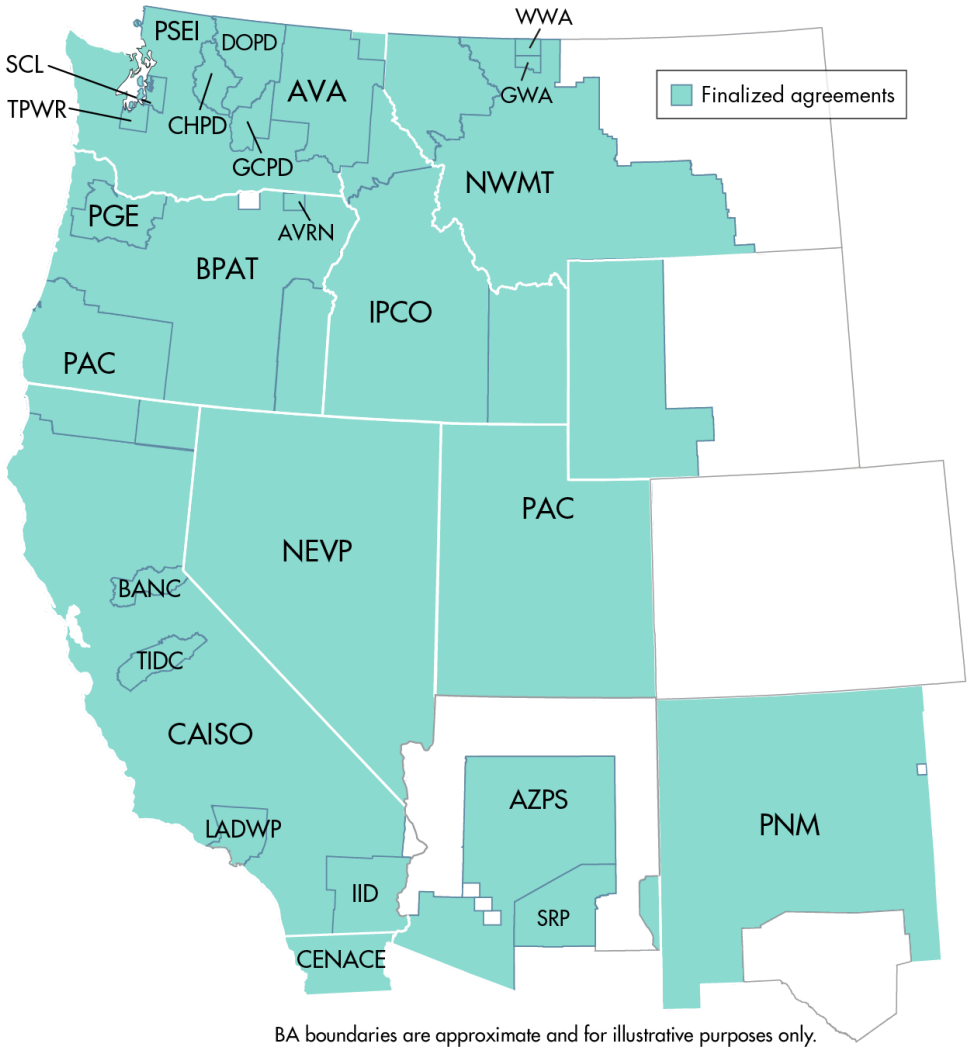
RC West

The ISO became the reliability coordinator for the majority of the Western Electricity Coordinating Council (WECC) in 2019.

Reliability coordinators:

- Have authority and responsibility for grid stability
- Monitor the interconnected grids in the West for compliance with federal and regional standards
- Authorize measures to prevent or avoid system emergencies in day-ahead or real-time operations
- Lead system restoration following major incidents

[Visit the RC West webpage]



Before a communications impact

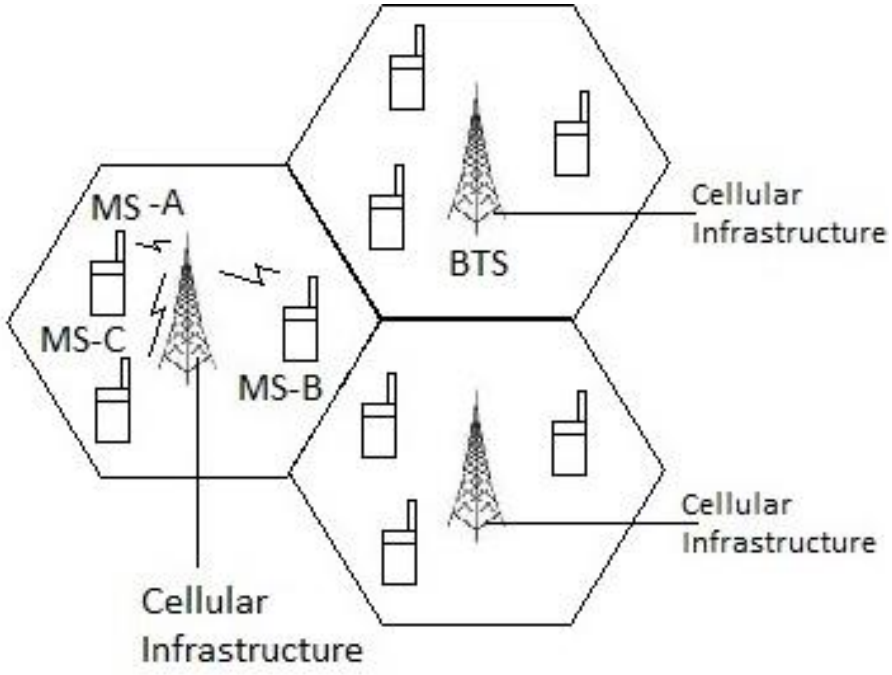
When electricity supplies get tight, the California ISO uses a series of notifications to inform market participants and the public of potential energy shortages. The ISO's Alerts, Warnings, and Emergency messages announce escalation of adverse grid or market conditions.

[See the System Alerts Warnings and Emergencies Fact Sheet]

DID YOU KNOW?

Voice over Internet Protocol, also called IP telephony, is a method and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol networks, such as the Internet.

Cellular wireless network



Benefits

- Voice / data capable
- Internet of Everything model
- Easy to use
- Integration with other systems
- Easy to set up

Drawbacks

- Inside / outside reception
- Lack of emergency backup
- Throttling
- Coverage areas
- Recurring cost

DID YOU KNOW?

A cellular network is a communication network where the link to and from end nodes is wireless. The network is distributed over land areas called "cells", each served by at least one fixed-location transceiver. These base stations provide the cell with the network coverage which can be used for transmission of voice, data, and other types of content. (600-896MHz)

GETS and WPS

Government emergency telecomm service (GETS)

Provides these essential personnel priority access and prioritized processing in the local and long distance segments of the landline networks, greatly increasing the probability of call completion. GETS is intended to be used in an emergency or crisis situation when the network is congested and the probability of completing a normal call is reduced.

Wireless priority service (WPS)

Supports national leadership; federal, state, local, tribal and territorial governments; and other authorized national security and emergency preparedness users. It is intended to be used in an emergency or crisis situation when the wireless network is congested and the probability of completing a normal call is reduced.

CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY

Plain old telephone service

Benefits

- Voice / fax
- Easy to use
- If facility is impacted
- Cheap

Drawbacks

- Last mile copper
- Going away
- If region is impacted
- Recurring cost

DID YOU KNOW?

Copper telephone lines that support POTS (Plain Old Telephone Service) are an aging infrastructure that's getting more and more expensive to maintain. Major telephone providers have already started phasing out their support of analog POTS lines – promising for a full phase-out, nationwide.

Satellite

Benefits

- Voice / Data
- Easy to Use

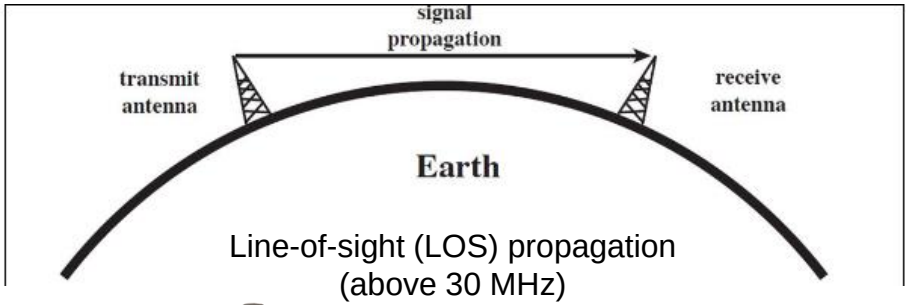
Drawbacks

- Infrastructure Needed
- Volume Limitations
- Atmospheric Dependent
- Very Expensive
- Recurring Cost

DID YOU KNOW?

Satellite communication refers to any communication link that involves the use of an artificial satellite in its propagation path. Satellite communications tend to use high frequency signals: 300 MHz – 30 GHz

Very / ultra-high frequency radio



Line-of-sight (LOS) propagation
(above 30 MHz)

Benefits

- Voice / data
- Easy to use
- Digital / analog
- No recurring cost
- Prices vary

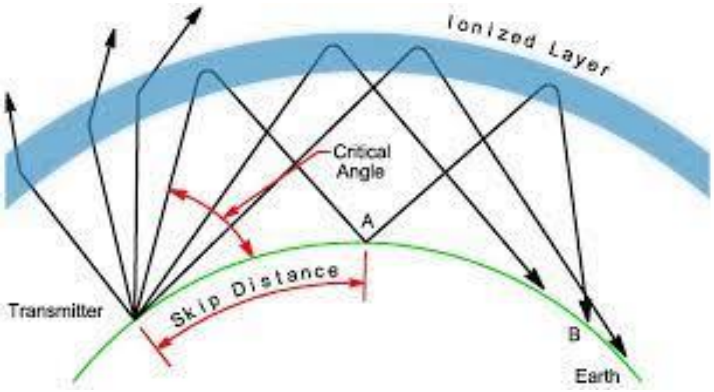
Drawbacks

- More than 30 miles will need infrastructure
- Fed Comms Commission License
- Atmospheric Dependent

DID YOU KNOW?

VHF (30-300MHz) and UHF (300-3000MHz) radios are suited for long distances indoor and outdoor use.

High frequency radio



Benefits

- Voice / data
- Easy to use
- Digital / analog
- No infrastructure
- Government supported
- Free access in an emergency
- 30 miles to 3,000 miles
- Use of email, LAN, mobile app
- No recurring cost
- Prices vary

Drawbacks

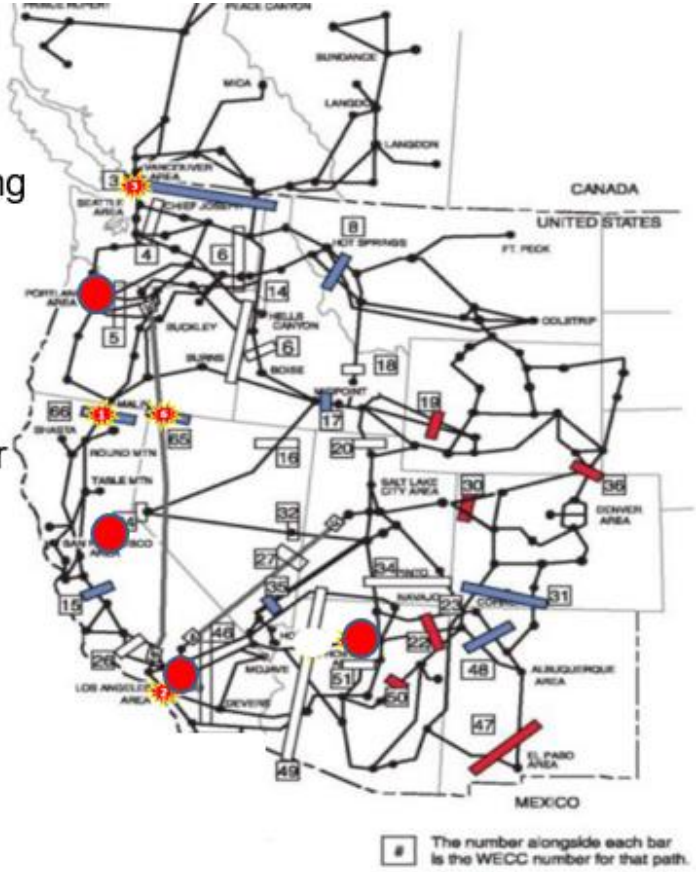
- Atmospheric dependent

DID YOU KNOW?

The band is used by international shortwave broadcasting stations (3-30 MHz) emergency communication using the moon or ionized layer of the earth to bounce off radio signals.

GridEx HF Testing

- DHS SHARES will assist to relay messaging
- CalOES participating
- RC West Entities
  1. Salt River Project
  2. CAISO RC
  3. CAISO BA
  4. Los Angeles Dept of Water and Power
  5. Bonneville Power Administration
- Goals
  1. RC ⟷ BA
  2. BA ⟷ Utility
  3. Utility ⟷ RC ⟷ BA
  4. Leverage State / Fed Resources



Questions?

To learn more about the California ISO, visit www.caiso.com