Wildfires 2007

Chris R. Hinshaw, ENP
Vice President, CPRA

Regional Communications System
GOAL

"We must be able to talk to whoever we need to talk to in order to complete our mission."

Chief Dennis Van Der Maaten
Carlsbad Fire Department,
Chairman, RCS Board of Directors
1995-2000

- **To provide SEAMLESS wireless communications for public safety and public service agencies throughout San Diego and Imperial county's.**
  - ***SEAMLESS means COMPATIBLE***
  - ***COMPATIBILITY means law, fire, EMS and others are able to talk readily with each other to coordinate their responses, resulting in saving lives and property.***

Regional Communications System STRATEGY

- **Goal strategy**
  - ***To achieve the goal through selecting wireless systems and equipment that are compatible with those currently in operation, and***
  - ***By using policy and technology to make incompatible systems interoperable with the RCS, and***
  - ***By influencing the direction and funding for interoperable communications through a successful model***
- **Public safety and public service personnel serving over 3 million people in the two counties using COMPATIBLE wireless public safety communication systems.**

Regional Communications System
Benefits of Approach

- **Interoperability between the region's public safety wireless communication networks.**
- **Greater user safety through discrete, secure communications and AVL capability.**
- **Increased efficiency of diminishing resources.**
- **Shared is BETTER!**
  - **Enhanced wireless coverage.**
  - **Enhanced disaster communications capability.**
  - **Economies of scale and scope.**
    - **Discount pricing on equipment**
    - **Shared operational cost**

Regional Communications System Governance

- **Partnering jurisdictions have approved a "Participating Agency Agreement".**
  - ***San Diego County Board of Supervisors authorizes RCS Board of Directors to administer system.***
- **Each member jurisdiction has seat on RCS Member Board.**
  - **Member Board approves budget.**
- **Board of Directors administers the RCS through staff supplied by County of San Diego.**
- **Board establishes pricing policies and decides who may be a customer/partner.**
- **RCS staff manages day-to-day operations with the RCS Board of Directors authority.**

Regional Communications System
PARTIES - COST

- Local, county and state participants
- Agencies may join as partners or may contract for use of the RCS
- Over 200 government agencies/departments on RCS
  - Capacity for over 30,000 users at less than 1% busies
- Initial San Diego County cost - ~ $83 million
  - ~ $39 million wireless backbone and County user equipment
- Imperial County cost - ~ $12 million
  - Backbone and user equipment
- Estimated system life is more than 15 years

Regional Communications System FUNDING - IMPLEMENTATION

- San Diego County RCS construction completed on schedule in 1998
- Project completed within $83 million budget
- Network Acceptance Test in November, 1997 revealed 96%+ coverage.
- Agency implementation began March, 1998.
  - Over 7,000 users at start-up
  - Currently more than 20,000 users

Regional Communications System
COVERAGE - TERRAIN

- **Coverage area:**
  - ***Two of California's largest counties***
  - ***Nearly 10,000 square miles***
  - ***Over 185 miles of U. S. - Mexico Border***
- **Terrain:**
  - ***Sea level at San Diego***
  - ***Over 7,000 feet at Palomar Mountain***
  - ***100 feet below sea level in City of Calipatria***

Regional Communications System
TECHNICAL SUMMARY

- **Motorola Smartzone 800 MHz**
- **Trunked, Simulcast**
- **Not Fully APCO 25 compliant**
  - **Mixed Mode Analog/Digital**
  - **3.6 KB/S System**
- **Embassy Switch**
- **IMBE Voice Coder**
- **Digital Encryption capable**
- **Sized for over 30,000 voice users**

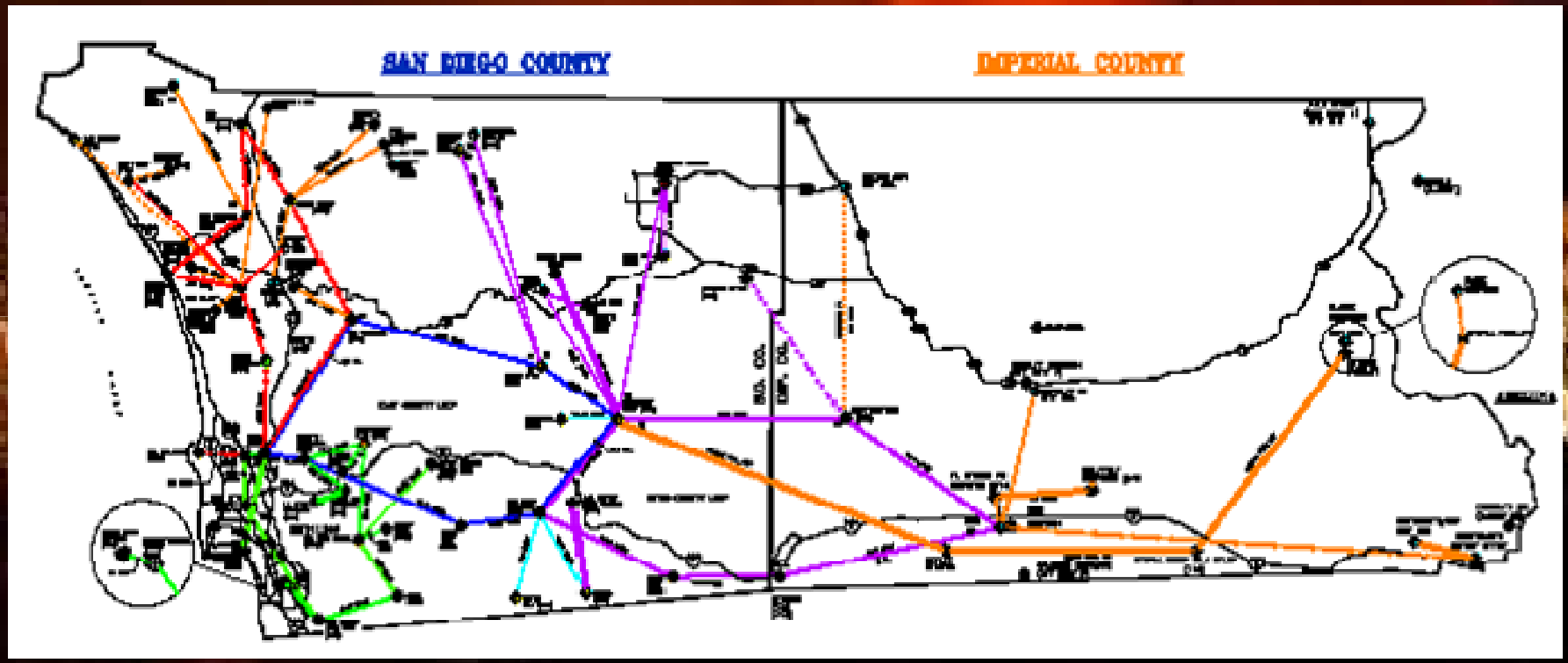
Regional Communications System TECHNICAL SUMMARY (cont'd.)

- **67 microwave relay sites (both counties)**
- **52 800 MHz repeater sites**
  - **San Diego County -** *45 repeater sites*
    - *Four simulcast cells (32 repeaters)*
    - *13 stand alone, non-simulcast repeaters*
  - **Imperial County -** *7 stand alone repeater sites*
- **186 frequency pairs (*POWER OF SHARING*)**
  - ***12.5 KHz, 821 MHz (NPSPAC)***
  - ***25 KHz, 806 MHz***
- **95% Coverage performance requirement**

The San Diego County – Imperial County Regional Communications System

- Sized for 30,000 Users
  - Currently 21,000 User IDs, 264 Agencies
    - All disciplines
    - All levels of government
- Average month:
  - 3.2 Million requests for channel assignment (“calls”)
  - 1950 delayed channel assignments (“busies”)
    - 450 typical in Simulcast Zones
    - 1500 typical in IR sites

San Diego-Imperial County Regional Communications System



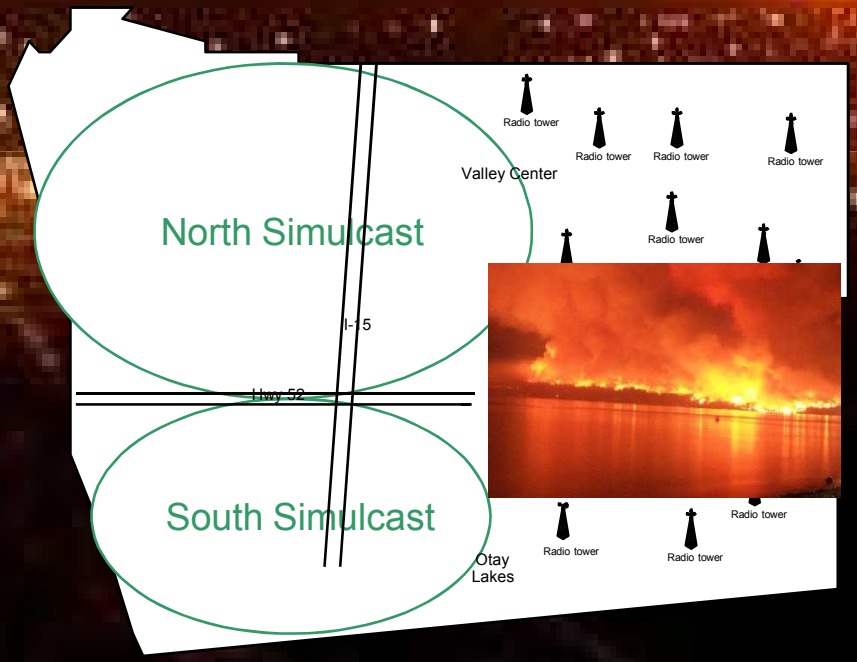
RCS 2003/2007 Comparisons

Cedar Fires 2003

265,355 PTT's 9% of 1 month's normal traffic

104,605 busies 19.1 sec

2003

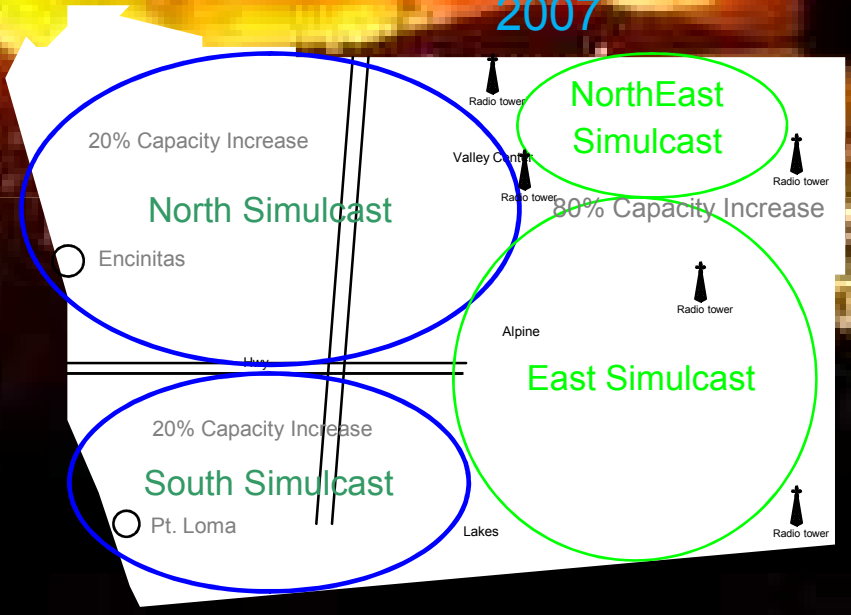


2007 Wildfires

264,048 PTT's 8% of 1 month's normal traffic

33,021 busies 5.6 sec

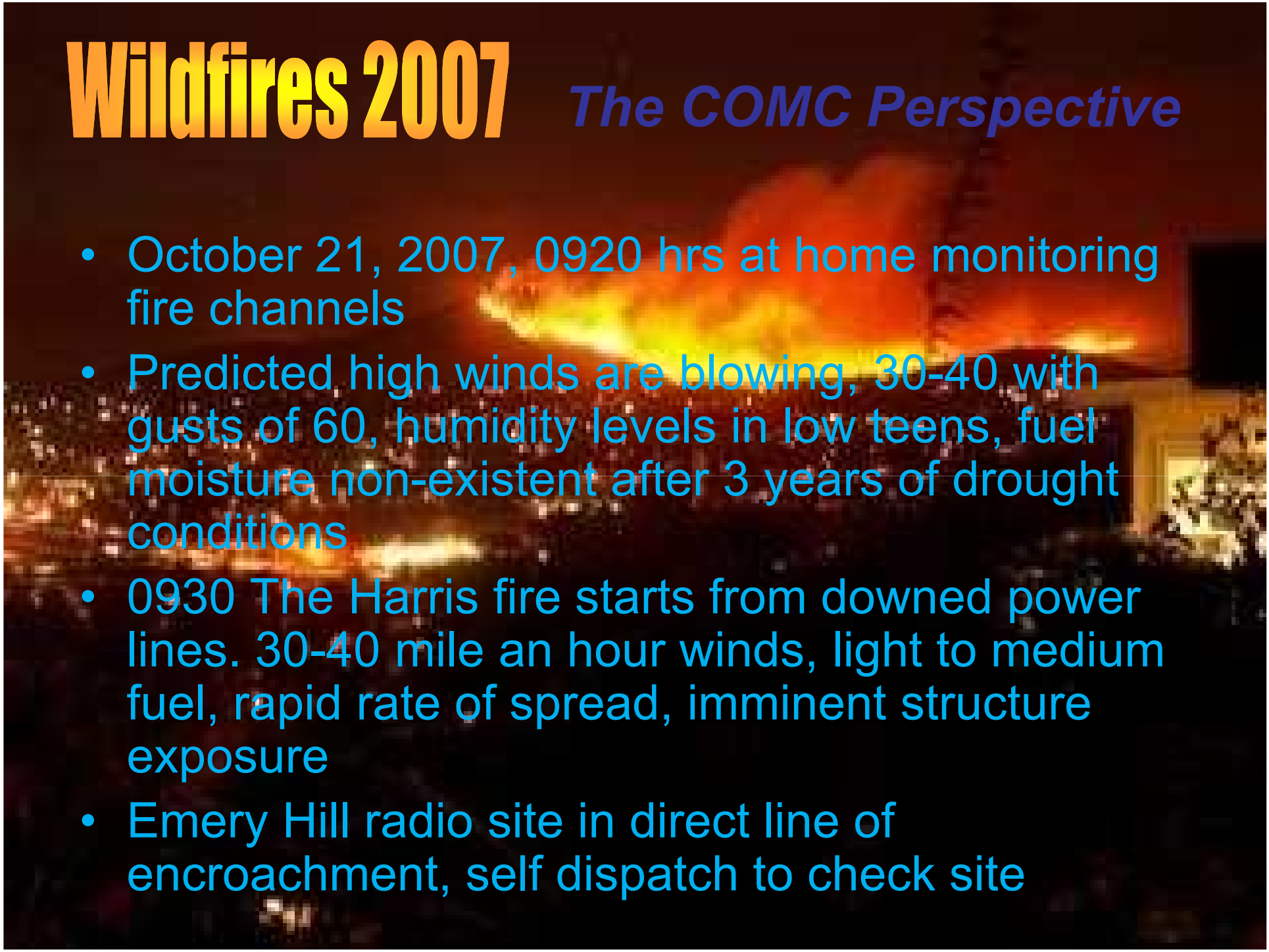
2007



Angel Fire June 2007

4 busies in Simulcast

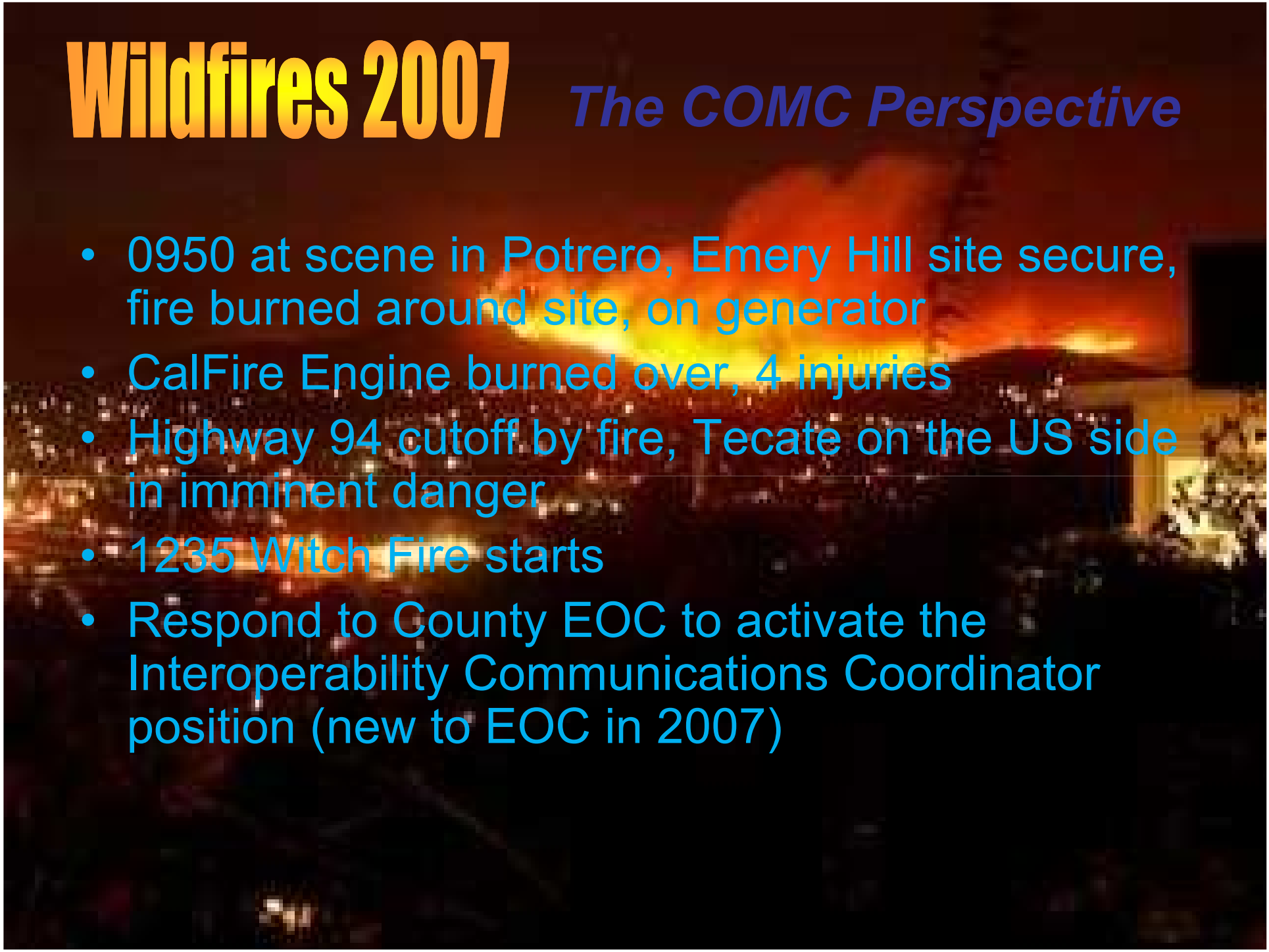
1100 busies on Banner IR



Wildfires 2007

The COMC Perspective

- October 21, 2007, 0920 hrs at home monitoring fire channels
- Predicted high winds are blowing, 30-40 with gusts of 60, humidity levels in low teens, fuel moisture non-existent after 3 years of drought conditions
- 0930 The Harris fire starts from downed power lines. 30-40 mile an hour winds, light to medium fuel, rapid rate of spread, imminent structure exposure
- Emery Hill radio site in direct line of encroachment, self dispatch to check site



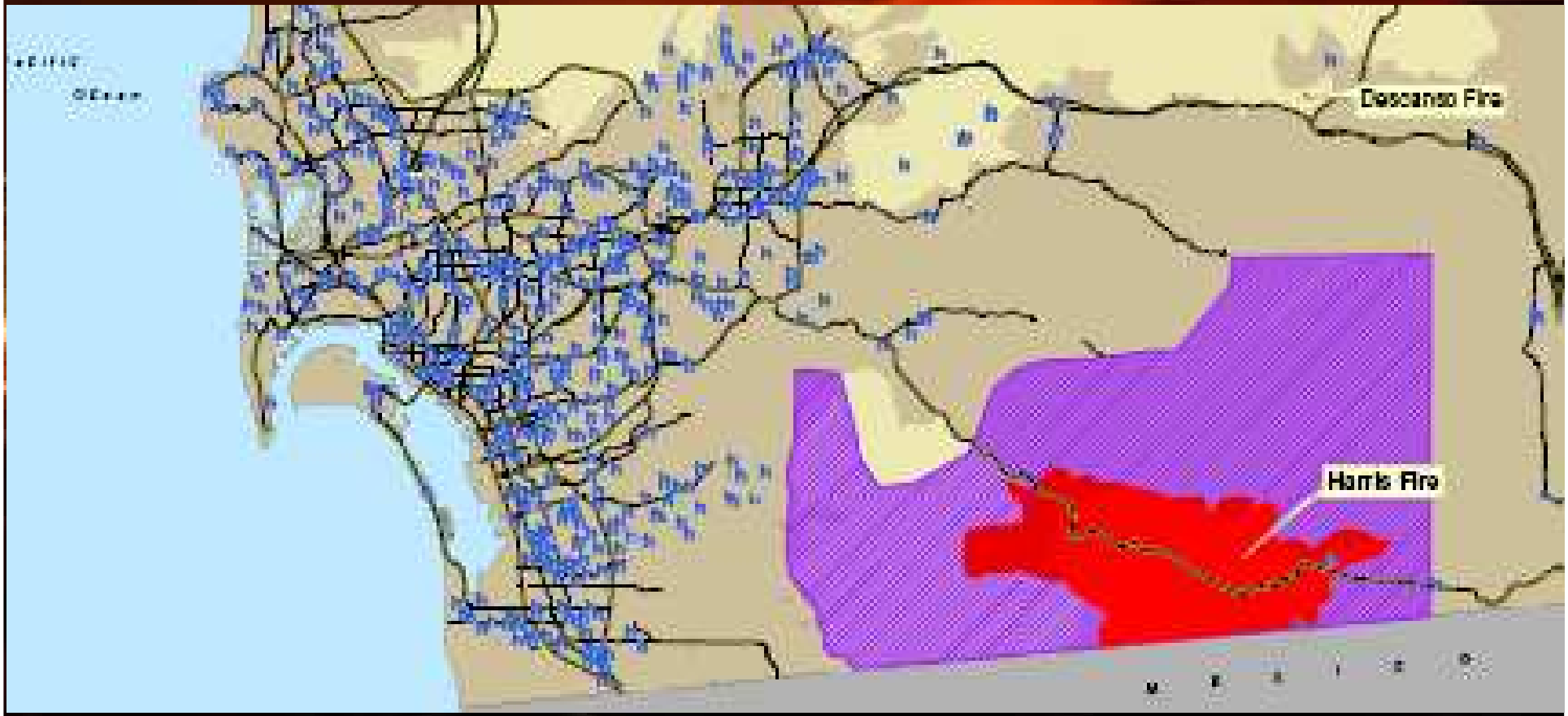
Wildfires 2007

The COMC Perspective

- 0950 at scene in Potrero, Emery Hill site secure, fire burned around site, on generator
- CalFire Engine burned over, 4 injuries
- Highway 94 cutoff by fire, Tecate on the US side in imminent danger
- 1235 Witch Fire starts
- Respond to County EOC to activate the Interoperability Communications Coordinator position (new to EOC in 2007)

Wildfires 2007

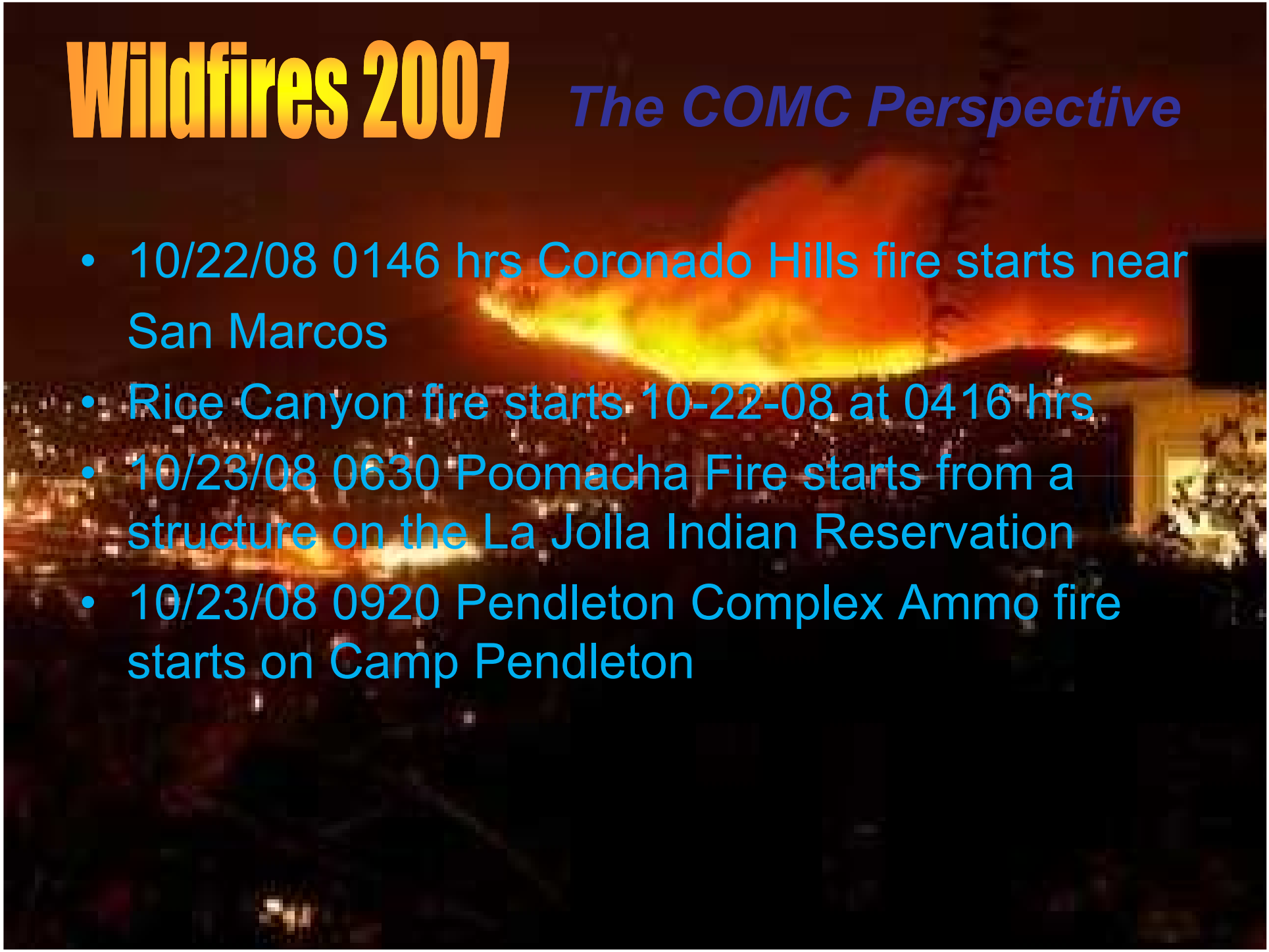
The COMC Perspective



Wildfires 2007

The COMC Perspective

- In accordance with California Mutual Aid protocol all wild land fires in the State use VHF Hi-band for command and tactical communications
- In San Diego all Public Safety agencies use 800MHz RCS for daily operations, fire have both VHF and 800MHz radios
- CHP use both RCS and VHF lo-band, CBP use VHF hi-band Federal channels
- Potential for communications interoperability issues



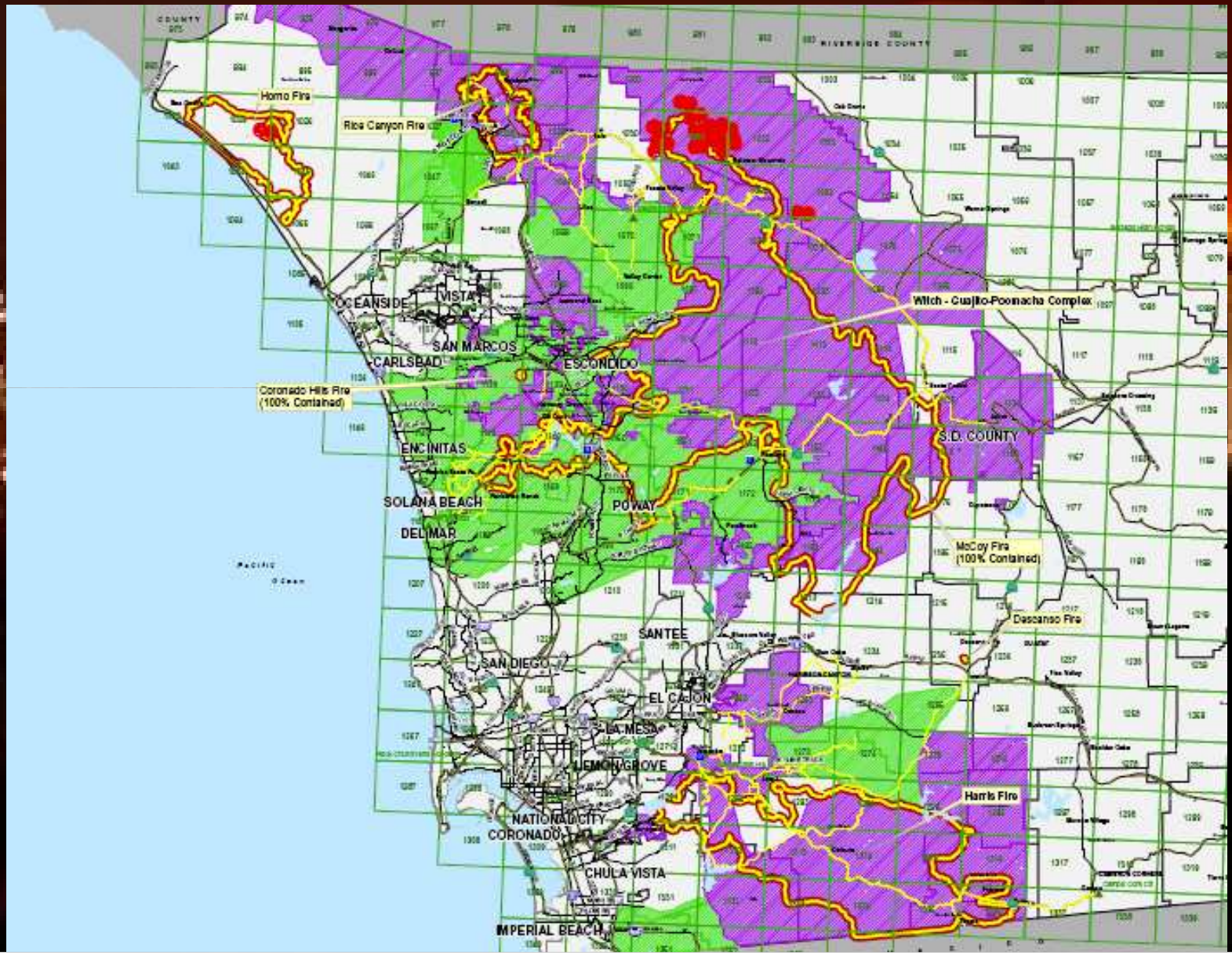
Wildfires 2007

The COMC Perspective

- 10/22/08 0146 hrs Coronado Hills fire starts near San Marcos
- Rice Canyon fire starts 10-22-08 at 0416 hrs
- 10/23/08 0630 Poomacha Fire starts from a structure on the La Jolla Indian Reservation
- 10/23/08 0920 Pendleton Complex Ammo fire starts on Camp Pendleton

Wildfires 2007

The COMC Perspective



Wildfires 2007

The COMC Perspective

- **2007 Fires (Oct 21st to 26th):**
  - **1,226,678** calls (38% of a normal month in 6 days)
    - Single Busiest Day **264,048** calls (10/22/07)
  - **33,021** busies (average busy duration of **5.6** seconds) (1950 average busies per month)

Wildfires 2007

The COMC Perspective

- SDG&E reports 80,000 customers lost power.
  - 1,880 poles, 290 transformers and about 35 miles of overhead electrical wire replaced.
  - Restoration completed 11/12/07
- AT&T estimates:
  - more than 2,000 poles, 1.5 million feet (~284 miles) of copper and 500,000 feet (~95 miles) of fiber were destroyed in San Diego County alone, surpassing damage from the 2003 fires.
  - Restoration 11/30/07

Wildfires 2007

The COMC Perspective

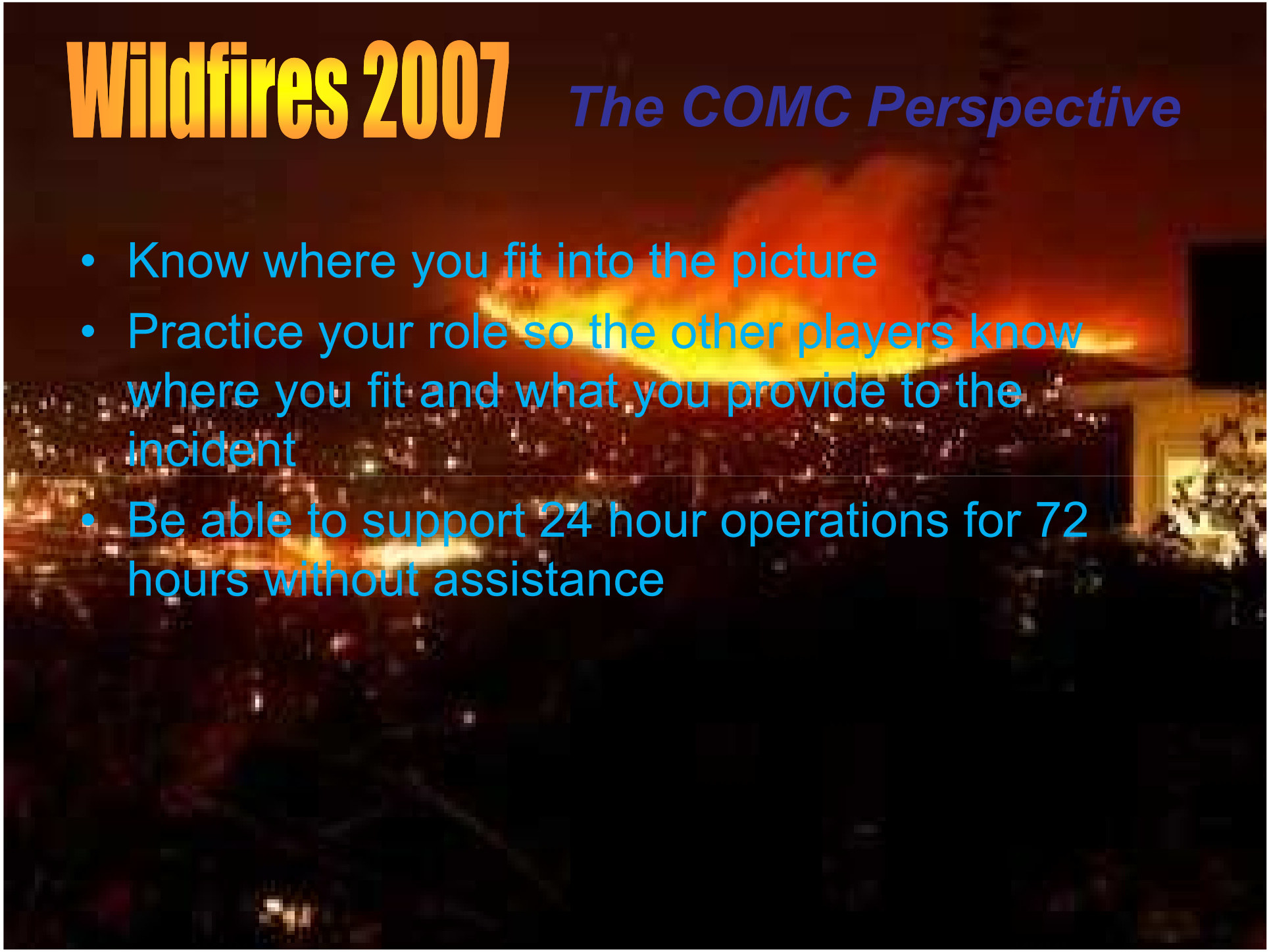
- What do you do when you run out of resources?
- How do you interface with Communications Unit Leaders (COML) on three major incidents?
- How do you address interoperability with 4 major radio systems in use?
- How do you order resources with two ordering points? (Monte Vista for Fire and EOC for everyone else)

Wildfires 2007

The COMC Perspective

- Primary importance is to be at the decision making center.

  That could be at;
  - ICP (Incident Command Post)
  - DOC (Department Operations Center)
  - EOC (Emergency Operations Center)
  - Expanded Dispatch
- Be a decision maker in the Logistics Branch



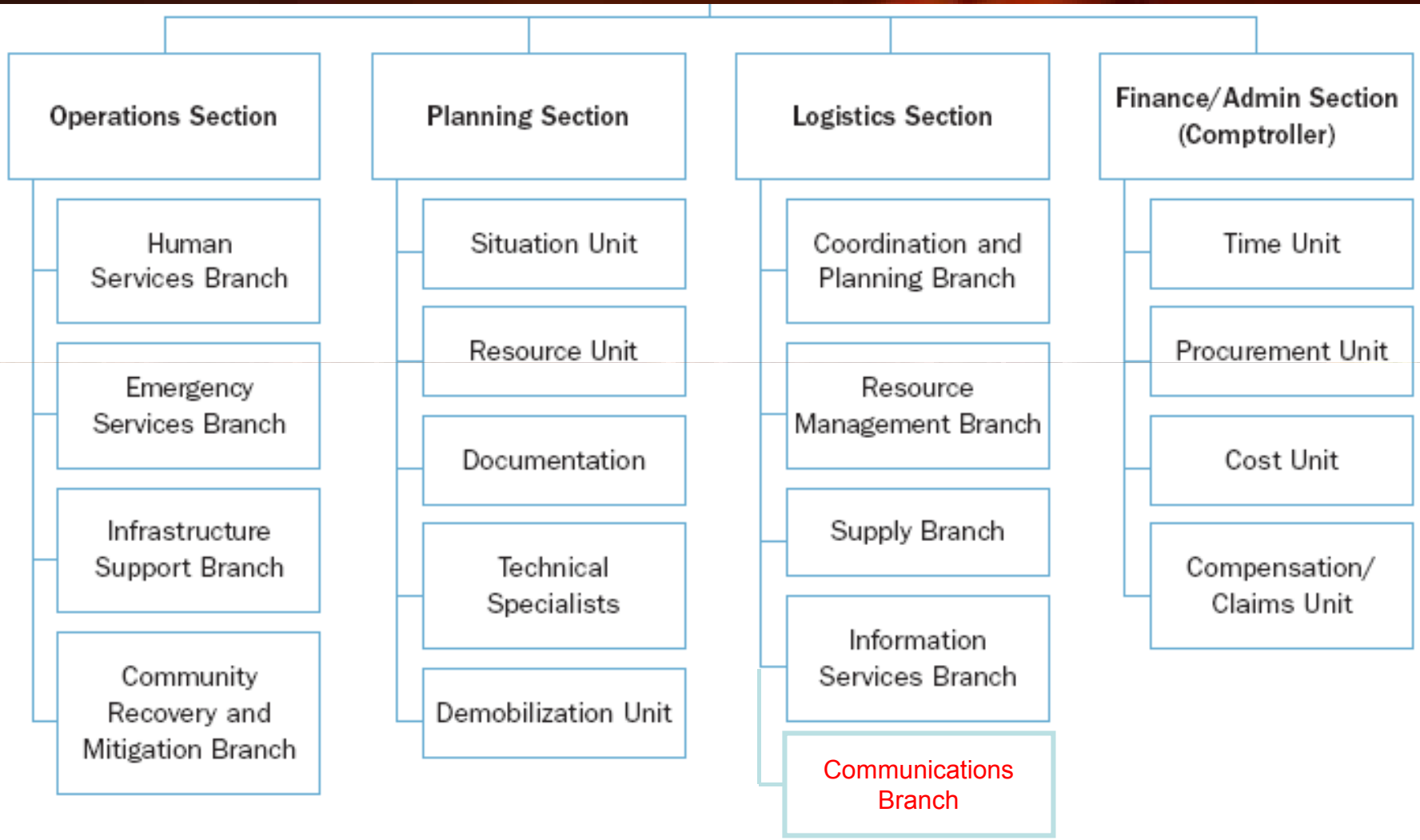
Wildfires 2007

The COMC Perspective

- Know where you fit into the picture
- Practice your role so the other players know where you fit and what you provide to the incident
- Be able to support 24 hour operations for 72 hours without assistance

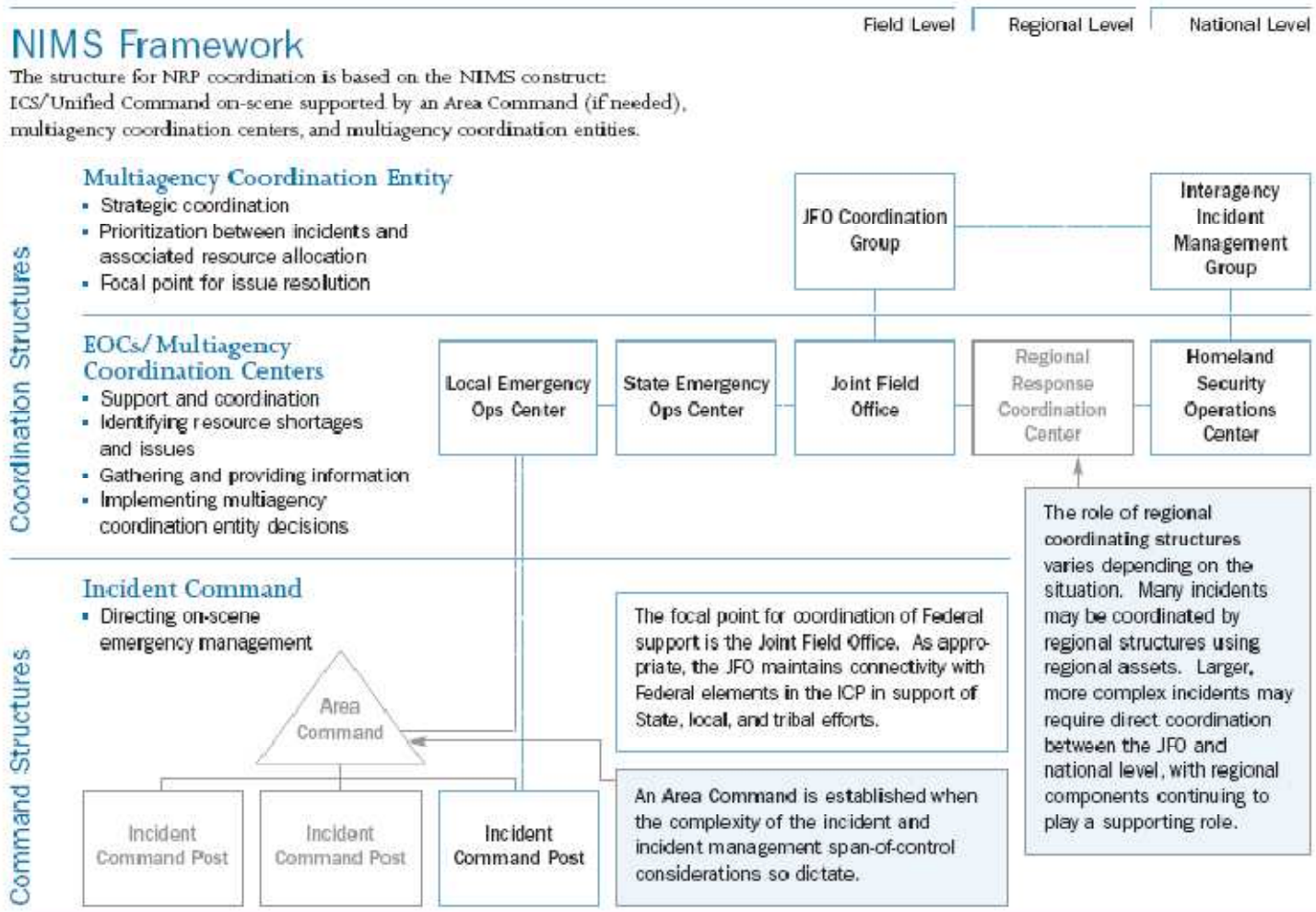
Wildfires 2007

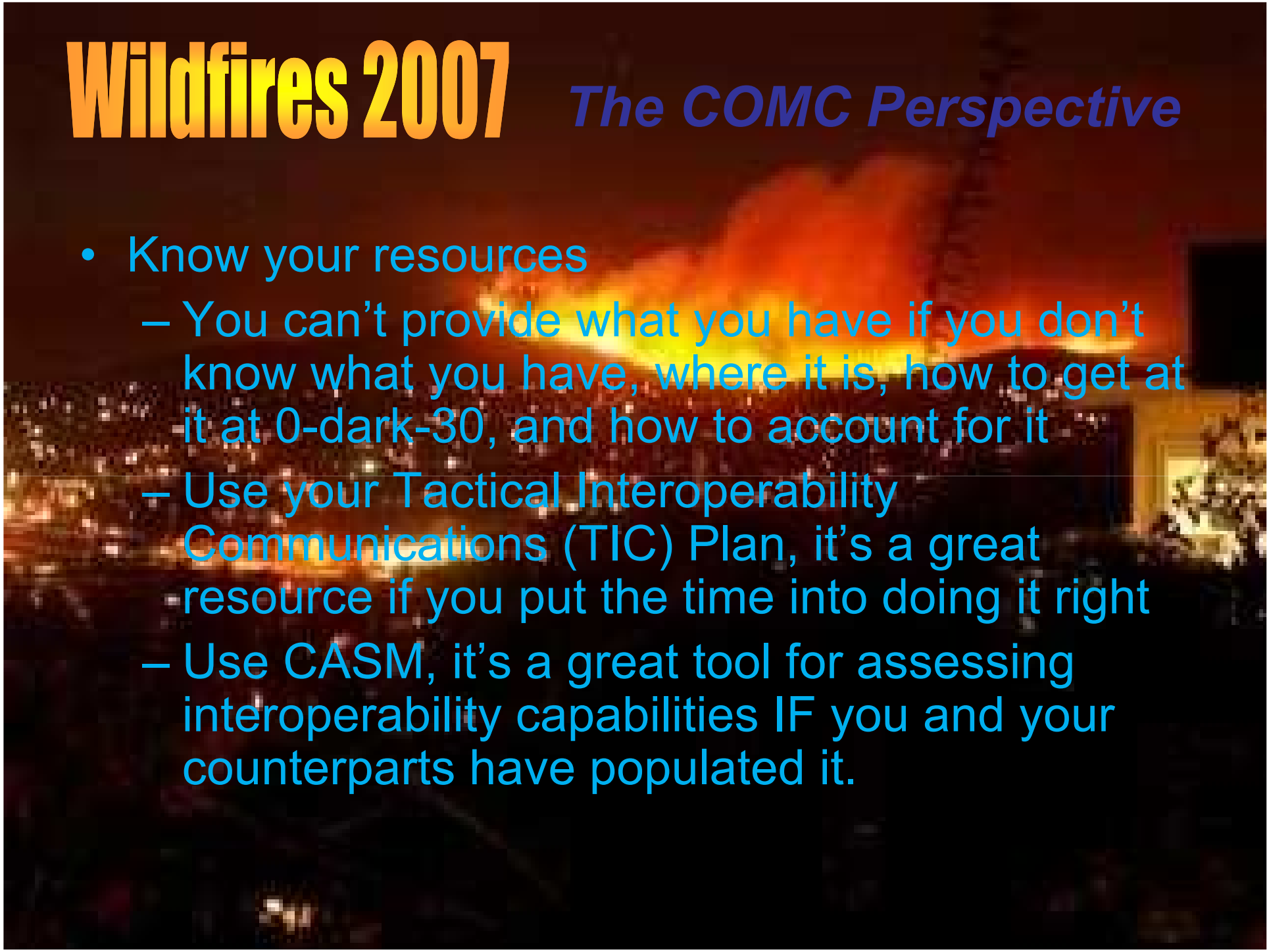
The COMC Perspective



Wildfires 2007 *The COMC Perspective*

FIGURE 3. Structure for NRP coordination



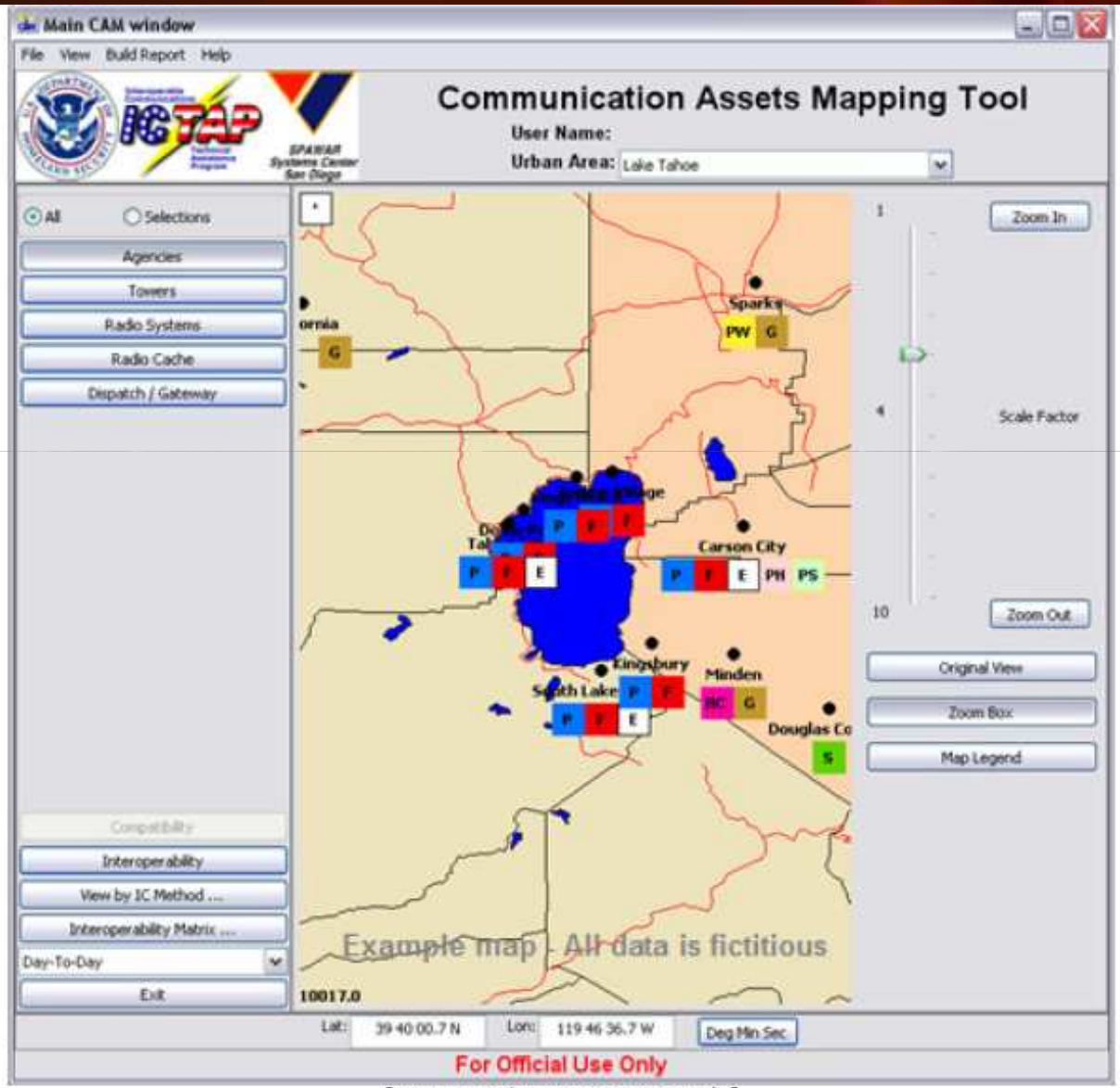


Wildfires 2007 *The COMC Perspective*

- Know your resources
  - You can't provide what you have if you don't know what you have, where it is, how to get at it at 0-dark-30, and how to account for it
  - Use your Tactical Interoperability Communications (TIC) Plan, it's a great resource if you put the time into doing it right
  - Use CASM, it's a great tool for assessing interoperability capabilities IF you and your counterparts have populated it.

Wildfires 2007

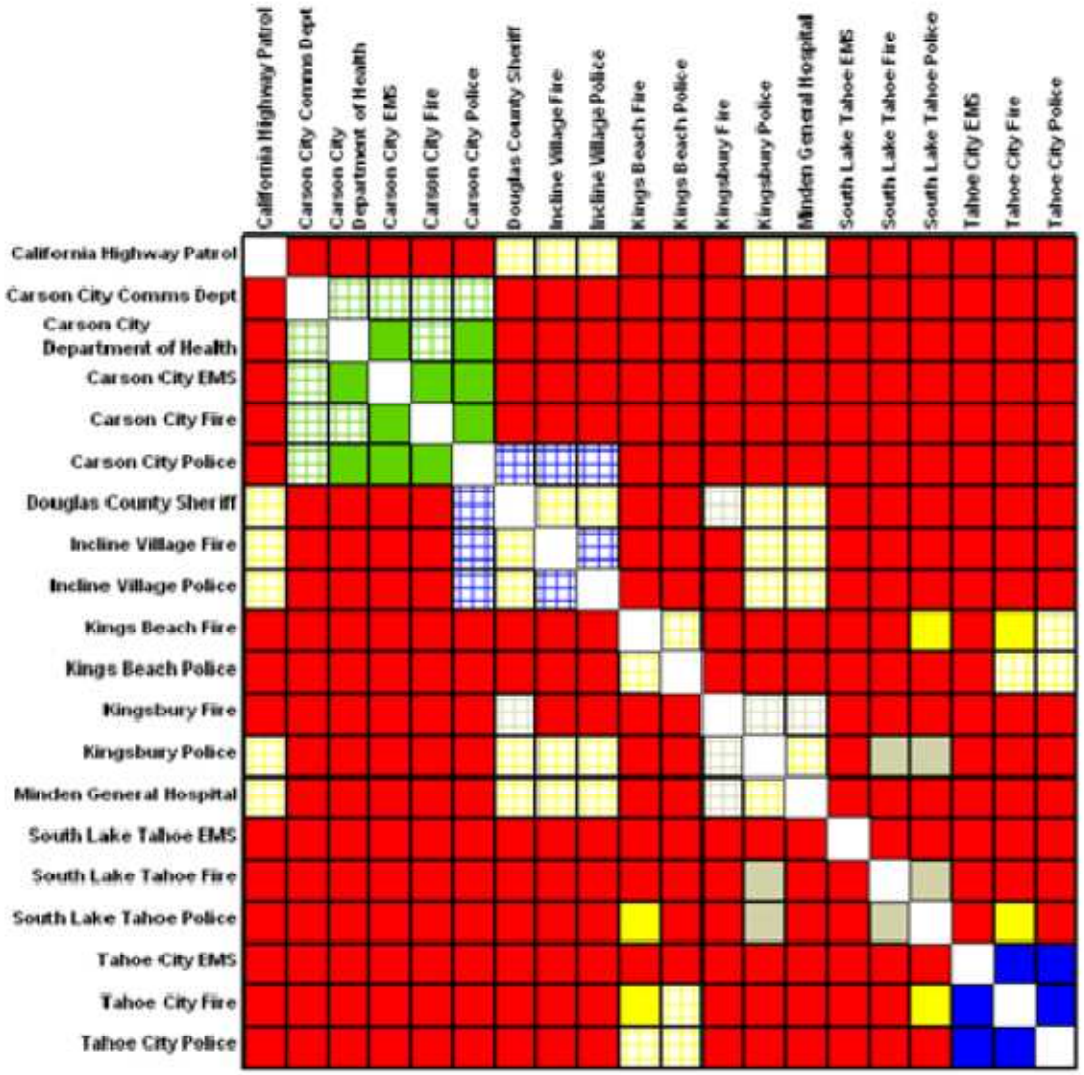
The COMC Perspective



[CAM Opening Screen Example]

Wildfires 2007

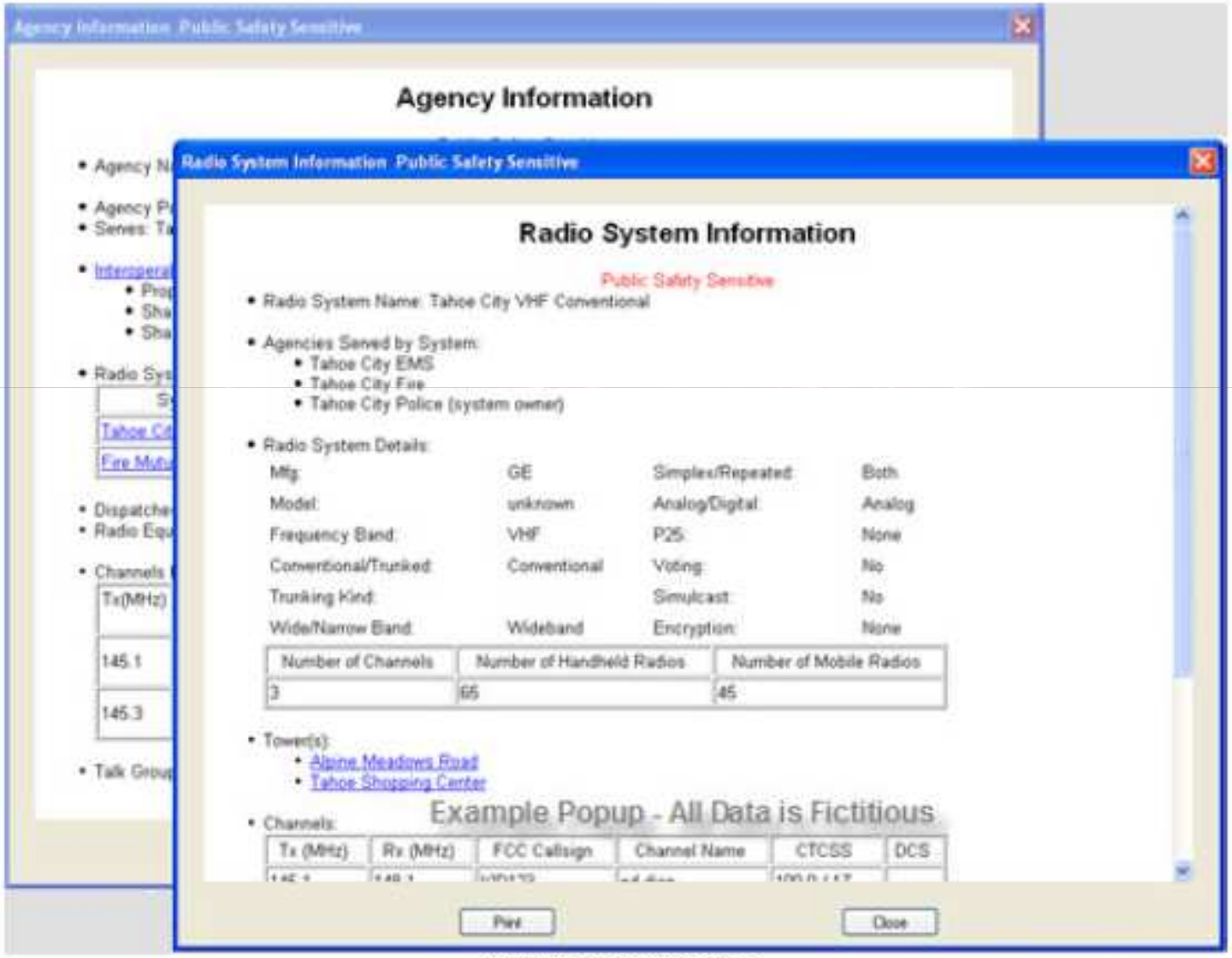
The COMC Perspective



Example Matrix - All Data is Fictitious

[CAM Interoperability Matrix Example]

Wildfires 2007 *The COMC Perspective*

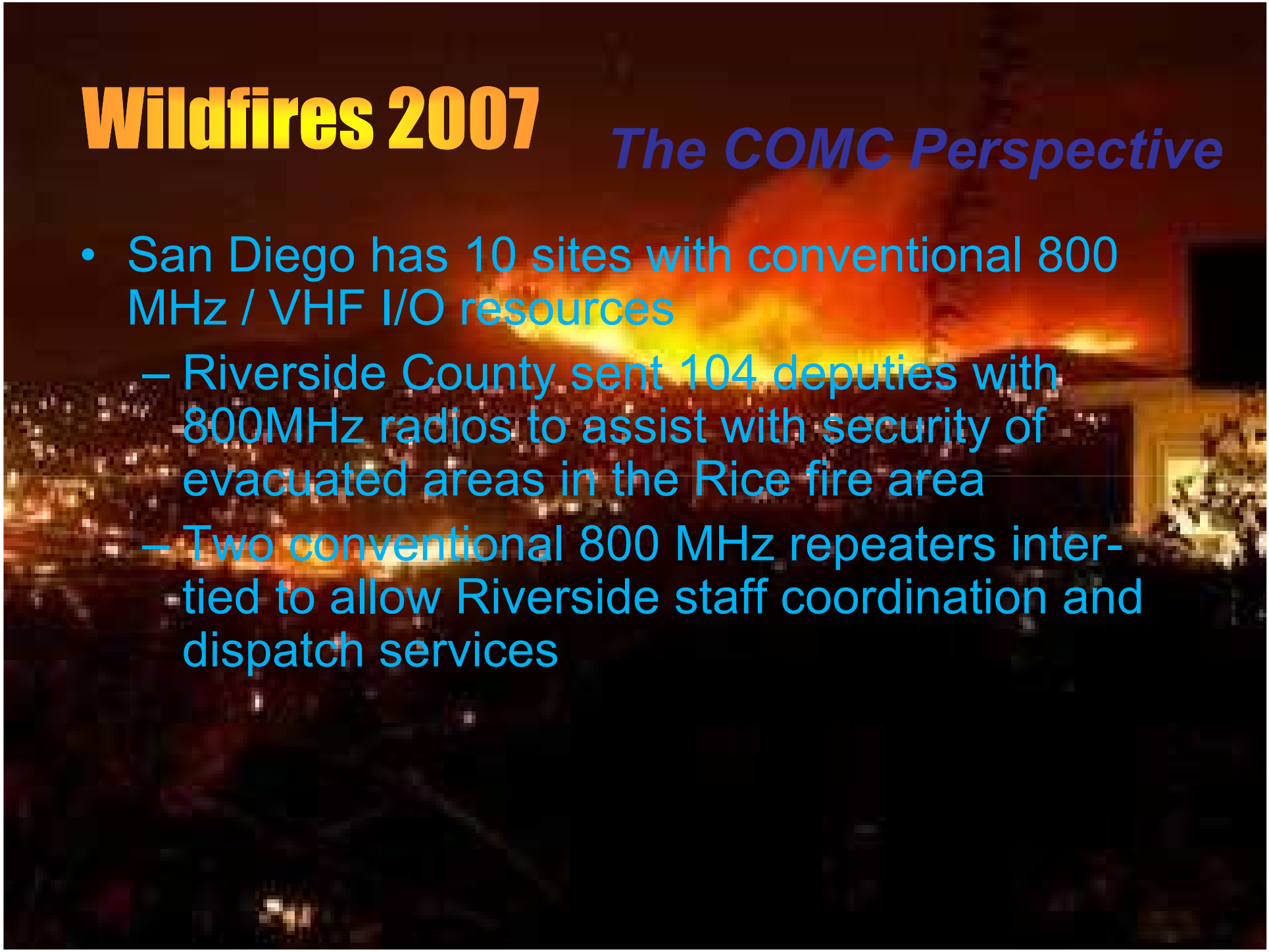


[CAM Popup Example]

Wildfires 2007

The COMC Perspective

- Support supplied by COMC at the EOC
  - VHF frequencies and infrastructure for command and tactical operations (Red2, Grey, Yellow)
  - Logistical support to the Witch base camp
  - Material support to Sheriff's ICP's and Fire ICP's
  - Ordered communications material via the EOC
    - Extra radios
    - Batteries
    - Satellite communications trailers



Wildfires 2007

The COMC Perspective

- San Diego has 10 sites with conventional 800 MHz / VHF I/O resources
  - Riverside County sent 104 deputies with 800MHz radios to assist with security of evacuated areas in the Rice fire area
  - Two conventional 800 MHz repeaters inter-tied to allow Riverside staff coordination and dispatch services

Wildfires 2007

The COMC Perspective

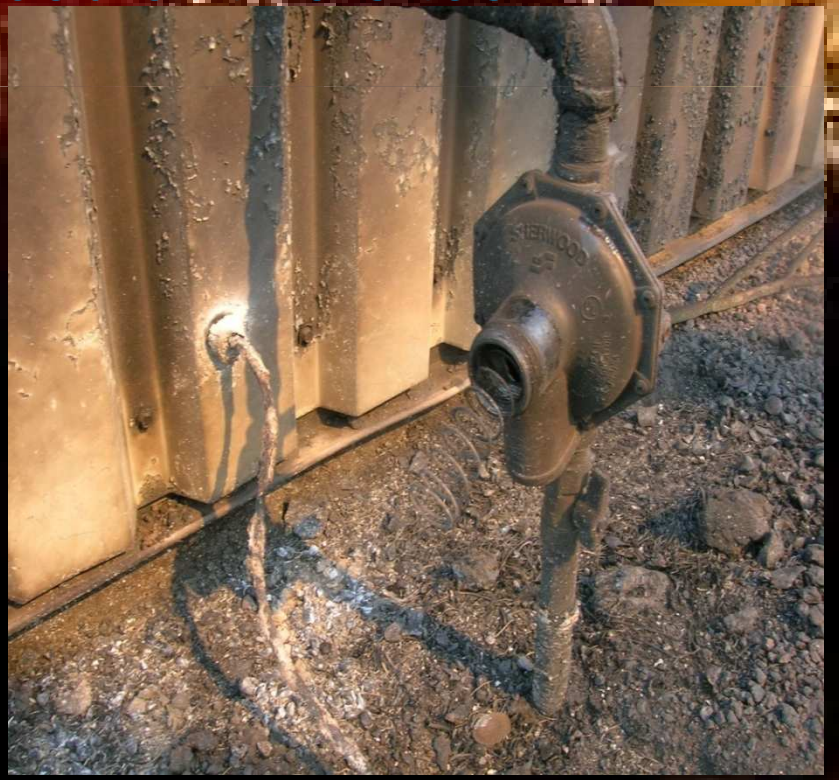
- 386 portable radios dispersed
  - 136 From cache and spares
  - 250 rental from Motorola over-night from Schaumberg
- 386 radios recovered – 1 broken – 1 radio carry case missing
  - Be sure you ordered thru channels so the INCIDENT pays for the broken/missing equipment and rentals

Wildfires 2007 *The COMC Perspective*

- 6 Public Safety Communications Sites were burned over
  - All 6 sites remained on the air
  - 5 RCS sites, 1 State of CA / Federal site
    - Two sites received retardant "pretreatment"
    - Some radome, antenna, and feed line damage at RCS sites
    - 1 propane regulator damaged

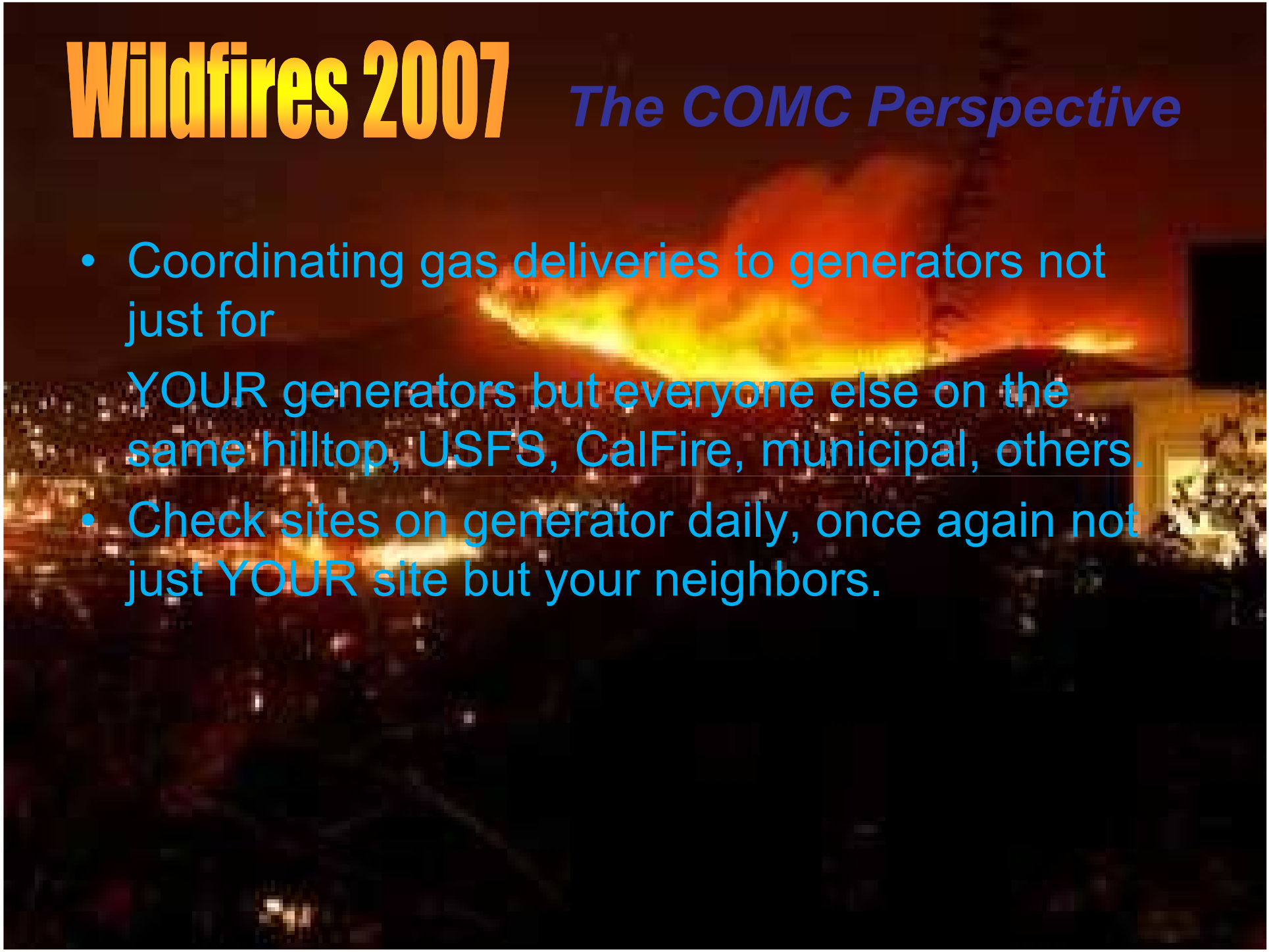
Wildfires 2007 *The COMC Perspective*

- 19 RCS Communications Sites on Generator
  - Power to last site restored 11/12/07
  - Generators will be replaced at two sites



Wildfires 2007

The COMC Perspective



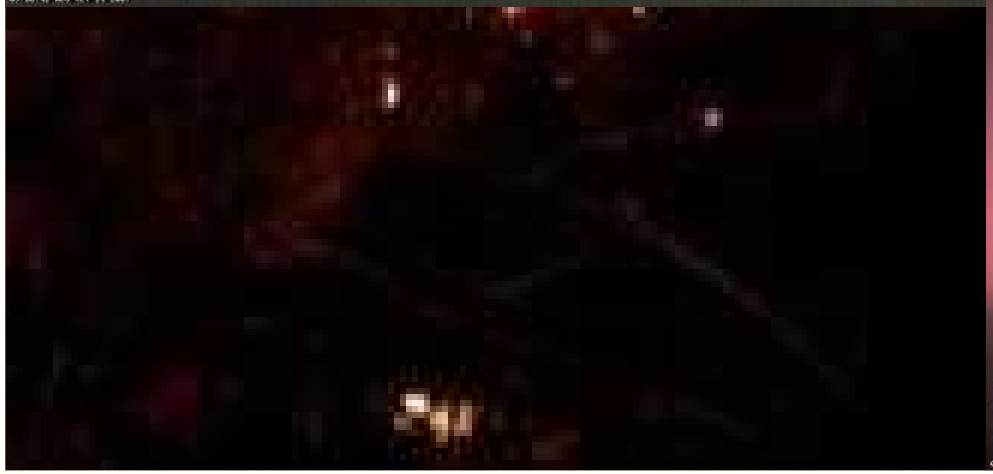
Wildfires 2007

The COMC Perspective

- Coordinating gas deliveries to generators not just for
  YOUR generators but everyone else on the same hilltop, USFS, CalFire, municipal, others.
- Check sites on generator daily, once again not just YOUR site but your neighbors.

Wildfires 2007

The COMC Perspective



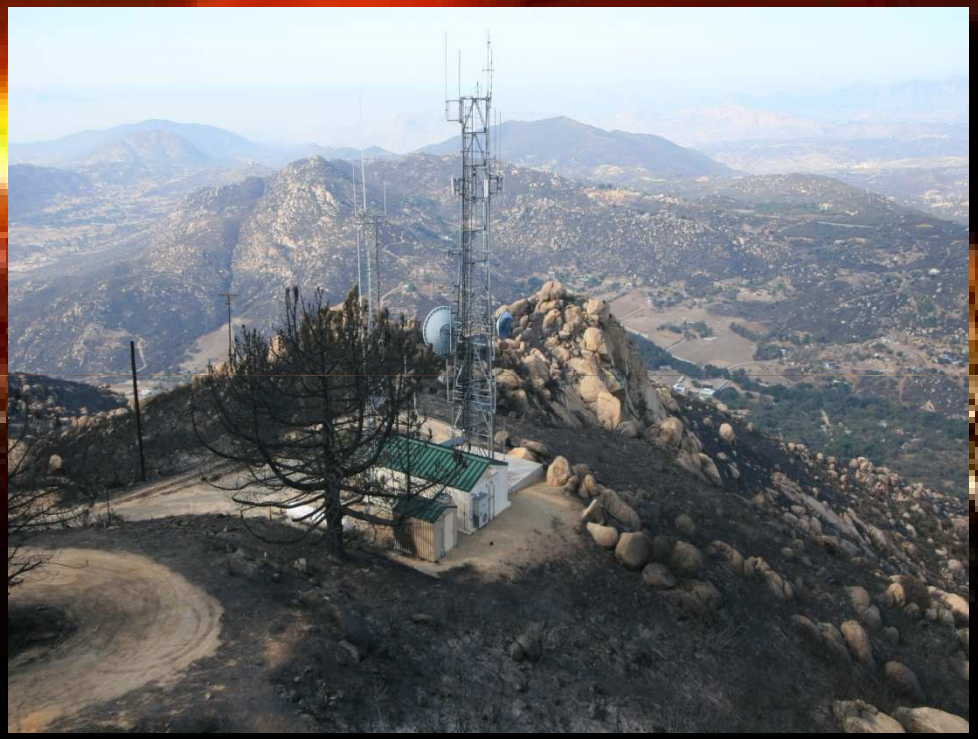
Wildfires 2007

The COMC Perspective

Lyons Peak: 10/24/07 @ 09:30 (Burn over + 3 hours)

Wildfires 2007

The COMC Perspective



Wildfires 2007

The COMC Perspective

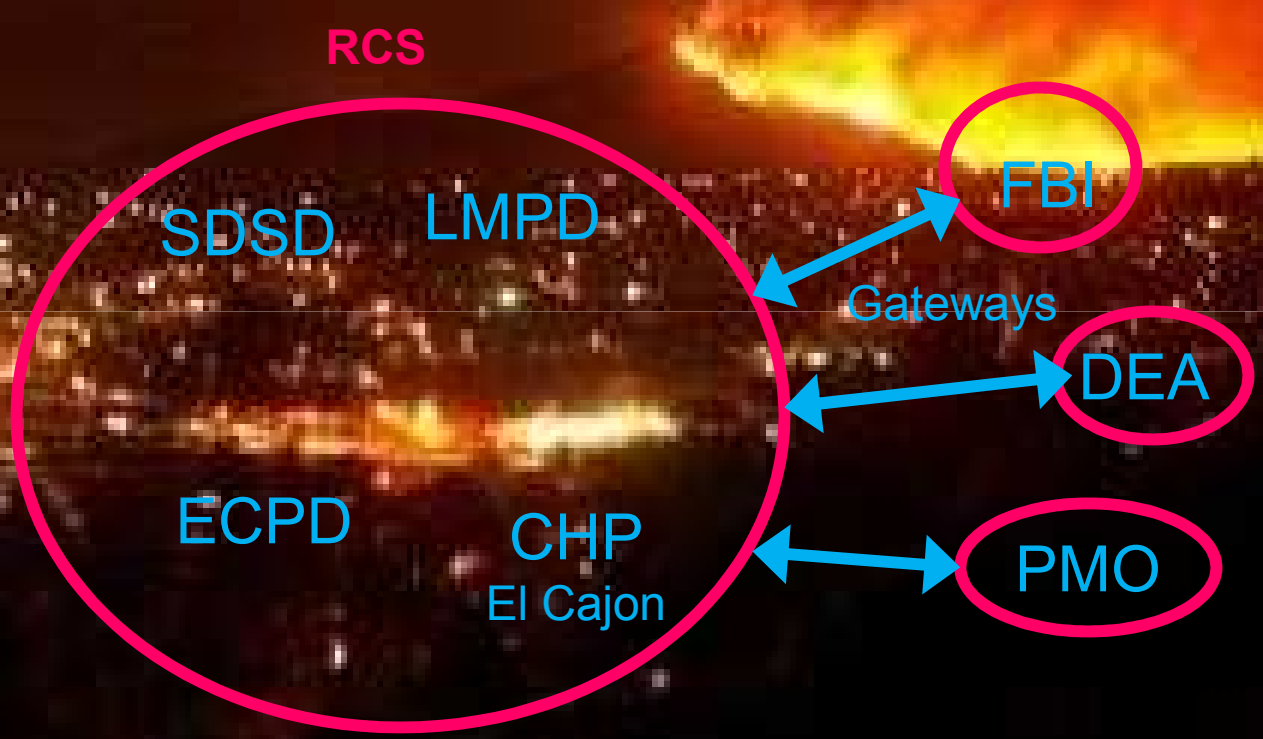
Wildfires 2007

The COMC Perspective

- Your staff must be equipped, trained and exercised on operations in hazardous environments.

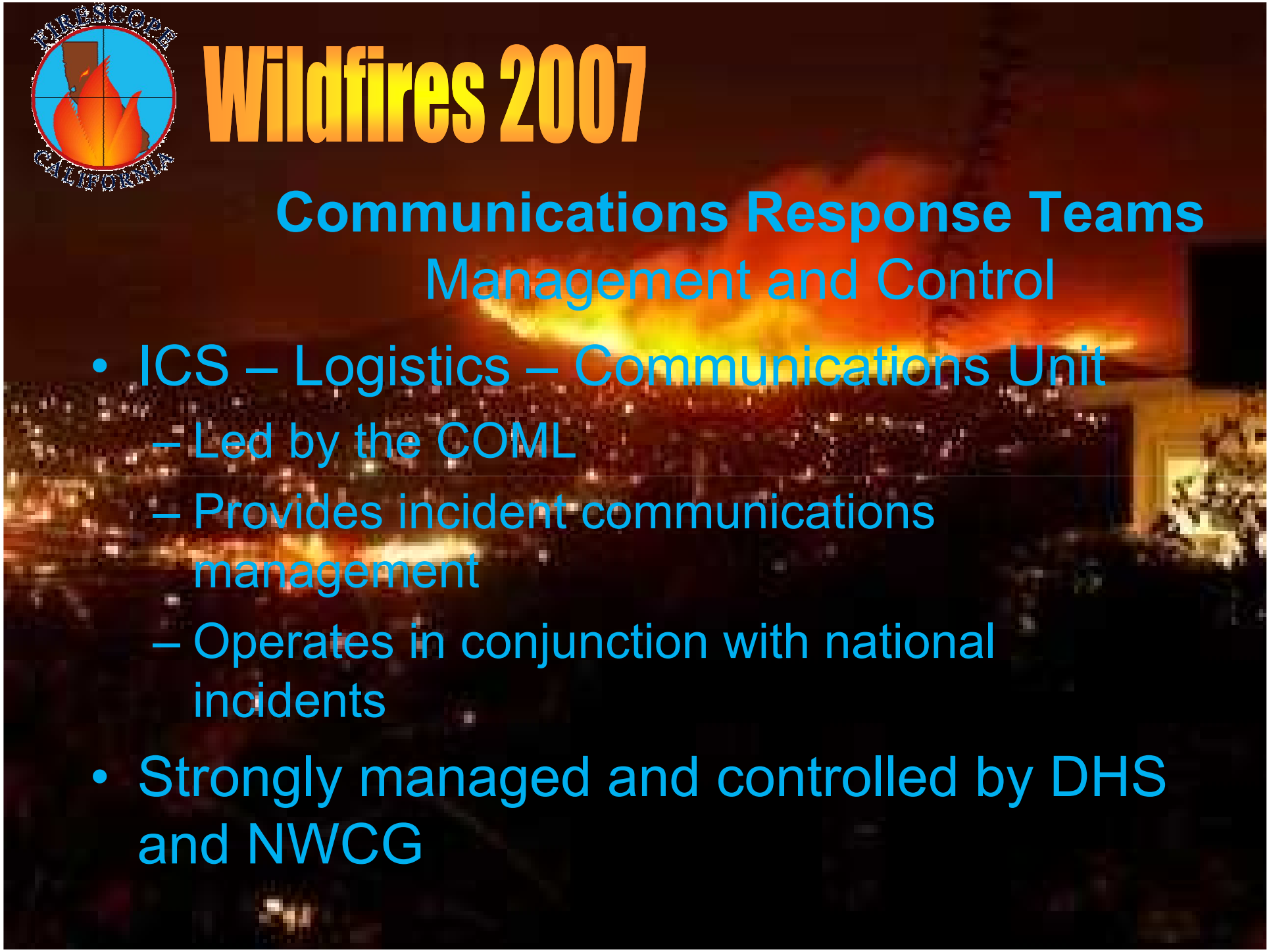
Wildfires 2007

We Do It Too Good



NIMS, DHS, ICS management and control structures have not caught up to our ability to interoperate. This has resulted in conflict.

IMT's



Wildfires 2007

Communications Response Teams

Management and Control

- ICS – Logistics – Communications Unit
  - Led by the COML
  - Provides incident communications management
  - Operates in conjunction with national incidents
- Strongly managed and controlled by DHS and NWCG

Wildfires 2007

- The purpose of CRT's is to get home based people certified to operate communications on major incidents
  - They know the local systems
  - They know the local sites
  - They know the local issues and players
  - Heck, they probably have a pre-planned system in a box somewhere!!

Wildfires 2007

- By treating communications issues as a system there is a spectrum of support.
- Coordinated, managed response
  - Reduces the time to provide full communications support
  - Pre-designates personnel to respond
  - Allows for management of personnel certification by local agencies

Wildfires 2007

- Pre-designation of response personnel provides for training and identification of resources immediately available in the response area
  - CRT members will have intimate knowledge of resources in the area
  - CRT members will have specific knowledge of assets that need to be stationed locally and those to be cached for extended operations
  - CRT members will be the subject matter experts

Wildfires 2007

- COML (Communications Unit Leader)
  - Comms Boss on an incident
  - Manages incident Communications Systems
  - Interfaces cooperatively with local infrastructure
  - Prepares ICS 205's
  - Reports to Logistics Chief

Wildfires 2007

- INCM (Incident Communications Manager)
  - Incident Comm Center Manager
  - Supervises Incident Dispatch operations
  - Interfaces cooperatively with local agency dispatch operations
  - Reports to COML

Wildfires 2007

- COMT (Communications Technician)
  - Gerfunken mit der switchen
  - Establishes and maintains incident specific communications systems
  - Interfaces cooperatively with local communications system infrastructure
  - Reports to COML

Wildfires 2007

- INDI (Incident Dispatcher)
  - Just what it says, California only at this time
  - Performs incident dispatch operations
  - Interfaces cooperatively with local dispatch centers
  - Reports to the INCM

Wildfires 2007

- RADO (Radio Operator)
  - Bottom of the totem pole, usually no/little experience
  - Differs from INDI in experience and skill level
  - Reports to the INCM

Wildfires 2007

- Each Team will consist of 1 COML, 1 INCM, 2 COMT, 3 INCD/RADO
- Certification of CRT personnel will ensure requisite knowledge to deploy local assets
  - Local assets catalogued in CASM and OES manuals
  - State and NIFC cache assets

Wildfires 2007

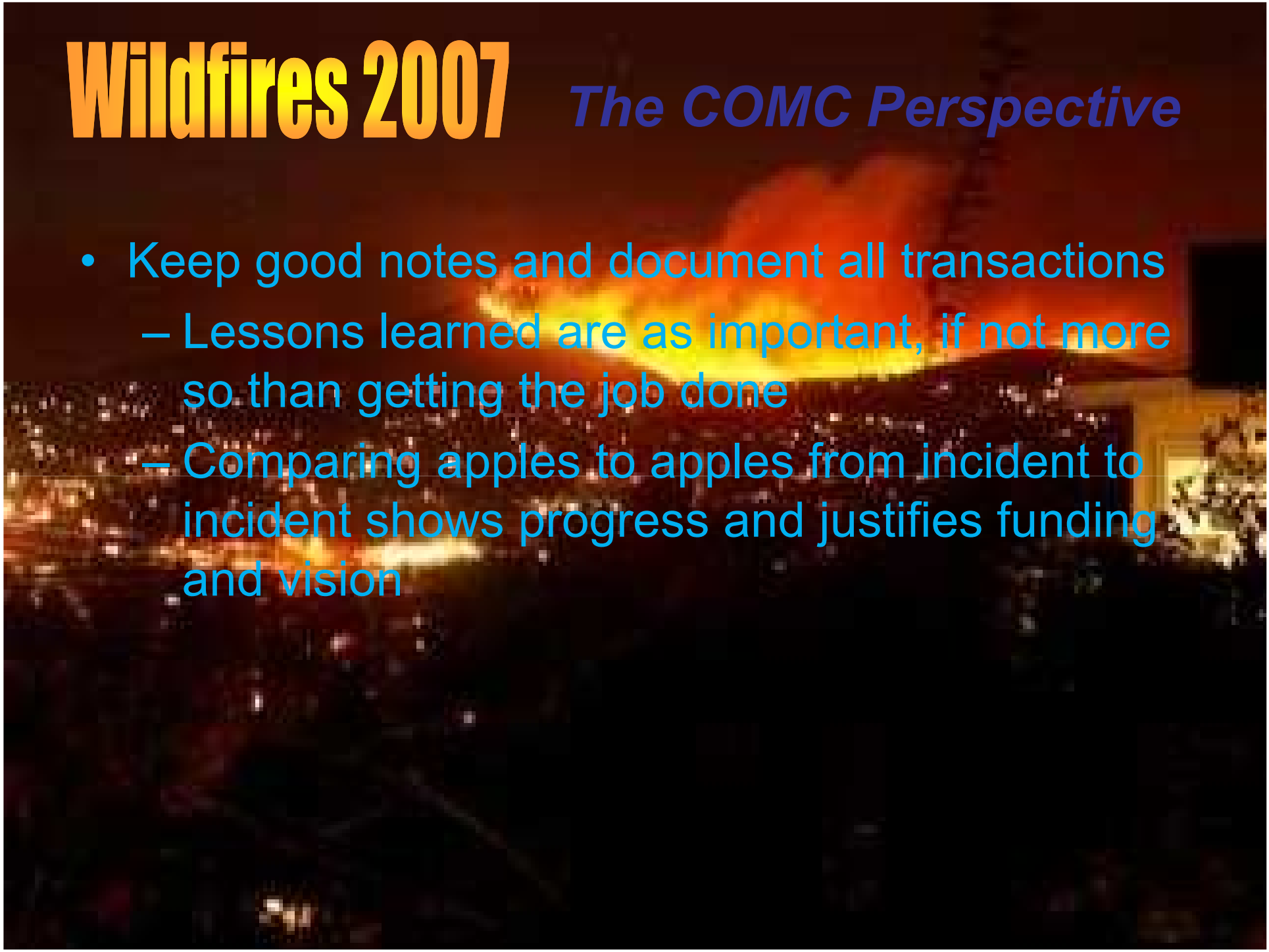
- Where do you get certification?
- COML, COMT, INCM, INDI, RADO
  - National Wildfire Coordination Group (NWCG) www.nwcg.gov
- All Risk COML Type III
  - SAFECOM Program, Office of Emergency Communications (OEC), Department of Homeland Security (DHS). www.safecomprogram.gov

Wildfires 2007

- The CRT will identify a standard equipment package to be deployed with the team
  - Mobile Communications Center
    - Type IV units on immediate response
    - Type II and III units on delayed response
  - Portable Radio Cache
    - Local, State, Regional capabilities
    - May be contained on the Mobile Communications Center
  - System Recovery/Enhancement equipment
    - Portable repeaters, mobile IntelliRepeater (trunked), Satellite downlink, combination of infrastructure equipment
    - May be stored on the Mobile Communications Center

Wildfires 2007

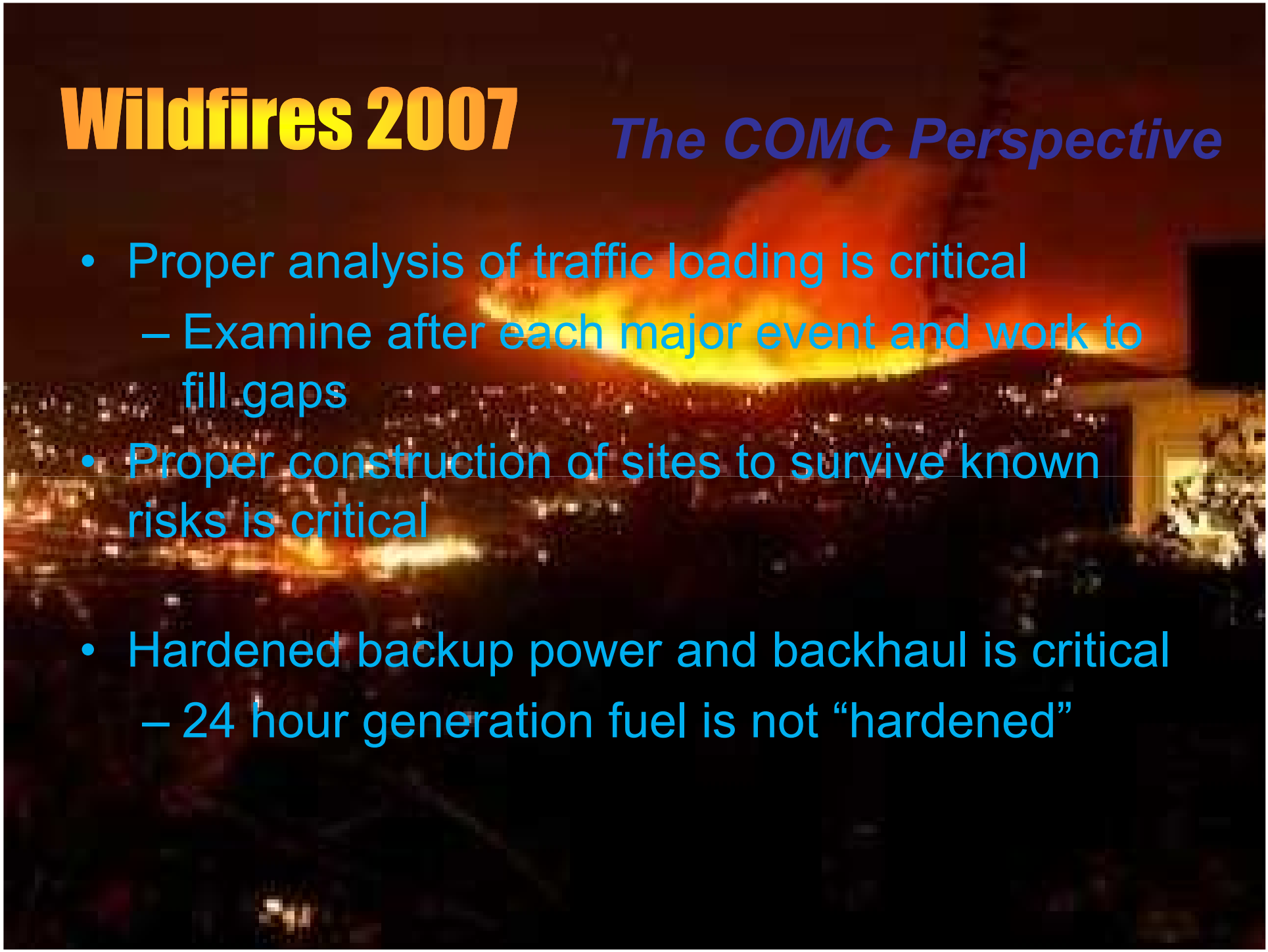
- CRT's will provide a full spectrum response
  - Incident Systems planning and design COML/COMT
  - Technical setup and maintenance COMT
  - Operations; dispatch, message center CRT's respond with equipment and manpower for 72 hours INCM/INDI
  - Type 4 Comm Vehicles for immediate response
  - Type 2 and 3 Stand-by Comm units



Wildfires 2007

The COMC Perspective

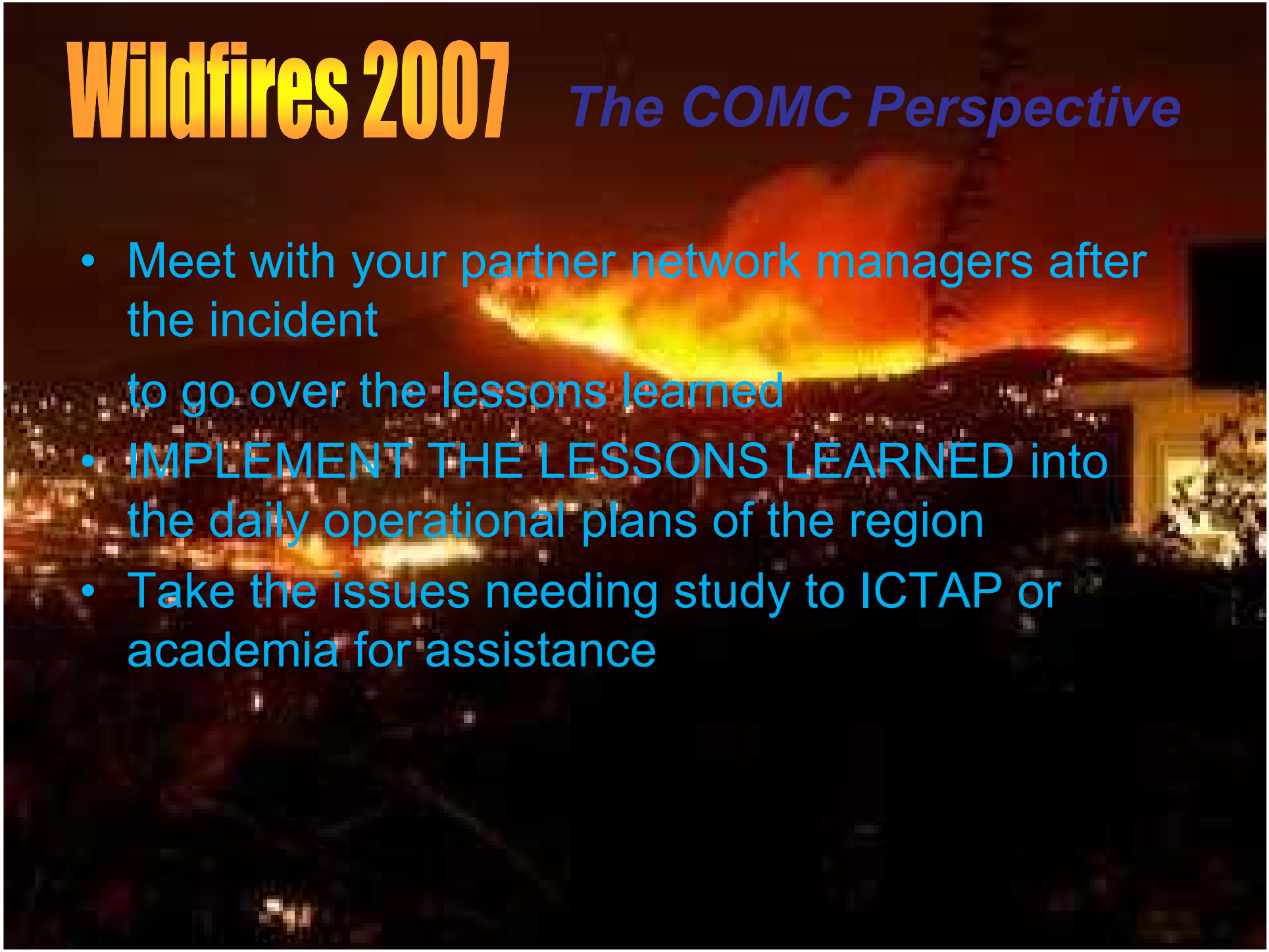
- Keep good notes and document all transactions
  - Lessons learned are as important, if not more so than getting the job done
  - Comparing apples to apples from incident to incident shows progress and justifies funding and vision



Wildfires 2007

The COMC Perspective

- Proper analysis of traffic loading is critical
  - Examine after each major event and work to fill gaps
- Proper construction of sites to survive known risks is critical
- Hardened backup power and backhaul is critical
  - 24 hour generation fuel is not “hardened”



Wildfires 2007

The COMC Perspective

- Meet with your partner network managers after the incident

  to go over the lessons learned
- IMPLEMENT THE LESSONS LEARNED into the daily operational plans of the region
- Take the issues needing study to ICTAP or academia for assistance

Wildfires 2007
The COMC Perspective
• REWARD THE CREW
•Reward the Crew
•Reward the Crew
•Reward the Crew

Wildfires 2007

The COMC Perspective

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