

# Hyperscale data centers & Emergency Services

June 9 Topic of Focus:

- ▶ Emergency services and security implications, including capacity of fire-fighting, hazmat, and other public safety services for response to natural and manmade hazards onsite.

# Meeting Information

- ▶ Moratorium Update
- ▶ Ethics Review
- ▶ Kraig Knapp, Assistant Chief of Deforest Windsor Fire & EMS
  - ▶ Overview of data center impacts on emergency services and response

# Questions to Consider for Each Topic Area

- What are the risks, consequences, and/or impacts? Are they local or regional?
- Are there mechanisms that can mitigate the above?
- What are the opportunities?
- What are the most useful tools for local govt? Are there others?
- What are the decision points, and who has jurisdiction?

# Some Questions Specifically for this Topic

1. Do batteries in large data center facilities create unique challenges? How about the numerous amount of backup diesel generators?
2. What kind of fire suppression do these facilities typically utilize? Is there a 'gold standard' as far as fire suppression goes?
3. How much of a challenge does the sheer scale of these facilities present for a typically sized fire/EMS operation?
4. What challenges can hyperscale data centers create for fire/EMS?
5. What sort of resources, trainings, and/or equipment are needed for communities to be able to handle these challenges?

# Articles Recap (Michael Brune)

- ▶ Number of hazards
  - ▶ Fuel storage for emergency power generators, Flammable chemicals used in HVAC and chip cooling, Lithium-ion-based energy storage systems
  - ▶ For this reason, need good building and fire codes
- ▶ No standard for data centers – closest is NFPA 75, Standard for the Fire Protection of Information Technology Equipment
- ▶ No building code equivalent for data centers
  - ▶ Closest is Business Occupancies, but this is not adequate
  - ▶ Group Classification matters because this triggers different requirements (ventilation, shorter exit distances, etc.)
- ▶ Could be lack of cell/radio coverage in data center
- ▶ Changes in tech happening faster than codes can keep up

# Articles Recap (Jasen Dodson)

- ▶ Fires are rare, but complex
  - ▶ Fires happen from short circuits, electric system overload, overheating, lithium-ion battery malfunction, human negligence.
  - ▶ Pre-action sprinkler system is common to fight fires, or have gaseous fire extinguishing system stored below raised floors
- ▶ Challenges/Considerations
  - ▶ Heavy security, so fire fighters need to be escorted into complex
  - ▶ Needing to find out what fire suppression tools already exist
  - ▶ Tour facility to get familiar with buildings
  - ▶ Exercise extreme caution around electrical equipment (electrocution)
  - ▶ Knowing about lithium-ion battery location as they can be explosive

# Articles Recap (Jasen Dodson)

- ▶ Five actions the security industry can pursue with their local fire service to improve incident outcomes (e.g., reduced downtime):
  1. **Pre-planning.** Ongoing pre-planning helps to identify (1) hydrant locations, (2) fire department connections (FDC) locations, (3) fire protection systems, and (4) building systems. The fire service understands there is proprietary information involved, but there are opportunities to balance pertinent safety information and the maintenance of facility security.
  2. **Critical locations such as the main entrance gate should be marked.** There should also be signage above every door—both inside and outside—and signage to identify specific hazard areas to aid first responders with navigating the site.
  3. **Hi-visibility ID vests** can assist with identifying who is the point of contact for the site. Green lights on security vehicles help to identify the location of data center staff.
  4. **Unified command.** Integration of data center staff members into the unified command aids the Incident Commander (IC) with tactical considerations and finalizing the incident action plan (IAP). The IC seeks to account for all employees and determine if any are injured. The IC also seeks to verify where the fire alarm is sounding, and what fire suppression systems, gas detection and building systems are onsite and if they have activated.
  5. **Building camera access.** Interior video feeds are critical for incident size-up. Having the ability to see if the battery modules in thermal runaway can help firefighters determine where and when to enter the building. It also allows the building engineer to provide directions for the interior crews without having to enter an immediately dangerous to life or health (IDLH) atmosphere.