Fire Department Considerations

Energy Storage Systems
Response Considerations

Sandia National Lab
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NYSEDRA \CON ED Fire Testing

Preliminary data
- Toxic/Corrosive gases liberated
- Flammable cocktail (explosion)
- Deep Seated Fire
- Re-ignition Concerns
- Delayed ignition
- Stored/Stranded Energy after burn
Fire Operations

- Lithium Ion (Fire Showing\Not Showing)
  - Water Copious
    - Electrical Leakage (?)
    - Arcing (Not Enough Water)
    - NO ADDITIVES (conductive\insufficient cooling)
  - Clean Agents (FM200, NOVEC 1230)
    - Incipient Fire only (no cooling)
  - Dry Chem/Purple K
    - Lead Acid
    - NOT LI ION
Ventilation

– Ventilation may be needed
  • Build up of Flammable Vapors

– Dedicated system
  • Controlled by I\C
  • Adverse Affects

– Dampers
  • Protection of the building
Fire Operation Continued

- Thermal Imaging Camera (TIC)
  - May not pick up deep seated heat
- Stored\Stranded Energy (still present)
- Battery Monitoring System (BMS)
- Shut Down
  - Fire > Yes
  - Non Fire > Maybe
    - UPS \Critical Infrastructure
- Safety Data Sheets (SDS)
- Haz Mat response
- White Hat Program (Con Ed)
Post Fire

- Limit Overhaul\responder interaction
- Stored\Stranded Energy
- Re-ignition\Incomplete (Li ION)
- Delayed ignition (LI ION)
- Need a responsible party
  – “White Hat” program
  – Manufacturers looking into this
  – Telephone number (reach back )
PV + Storage

- Integrated solution:
  - PV panels on the roof
  - Outdoor-certified storage system

Storage Appliance + Renewable Power
12 MW Lithium Ion
Thank You
Paul Rogers
Rich Schlueck
FDNY\Haz Mat