Lithium-ion Energy Storage Systems

**Identification**
- Self-ignition
- Flares
- Smoke production = HazMat
- Explosion hazard
- Electrocution hazard
- Difficult or impossible to extinguish (water becomes corrosive)
- Decomposition/Fire debris = toxic corrosive

**Recon**
- Determine hot/warm/cold operational zones
- Call in on-site expert
- Use installations emergency buttons
- Don’t use standard measuring equipment
- Use Infra-red camera
- Evacuate smoke contact area (hot zone)
- 500 gal/min needed (2000l/m)

**Actions of attack**
- Use monitors or ventilation to weir the toxic cloud upwards
- Avoid contact with smoke and extinguishing water.
- Use chemical boots
- Use full PPE in hot zone
- Only stop extinguishing in consultation with on-site expert

**Cold Zone**
- Decon-area

**Warm Zone**
- 50 meters upwind

**Hot Zone**
- Full Fire fighting PPE (Chemical boots)

**Action Checklist**
in case of Toxic smoke
- Execute Haz-Mat procedure
- Evacuate downwind area
- Close doors/windows/ventilation
- Optimise effect monitors/fans/UMV firefighting equipment
- Set and communicate right PPE
- Execute decontamination-plan (personnel and equipment)
- Collect/control extinguishing water (be alert for waterflow to other zones)
- Alert Water-Authorities
- Personnel relief (prolonged incident)