



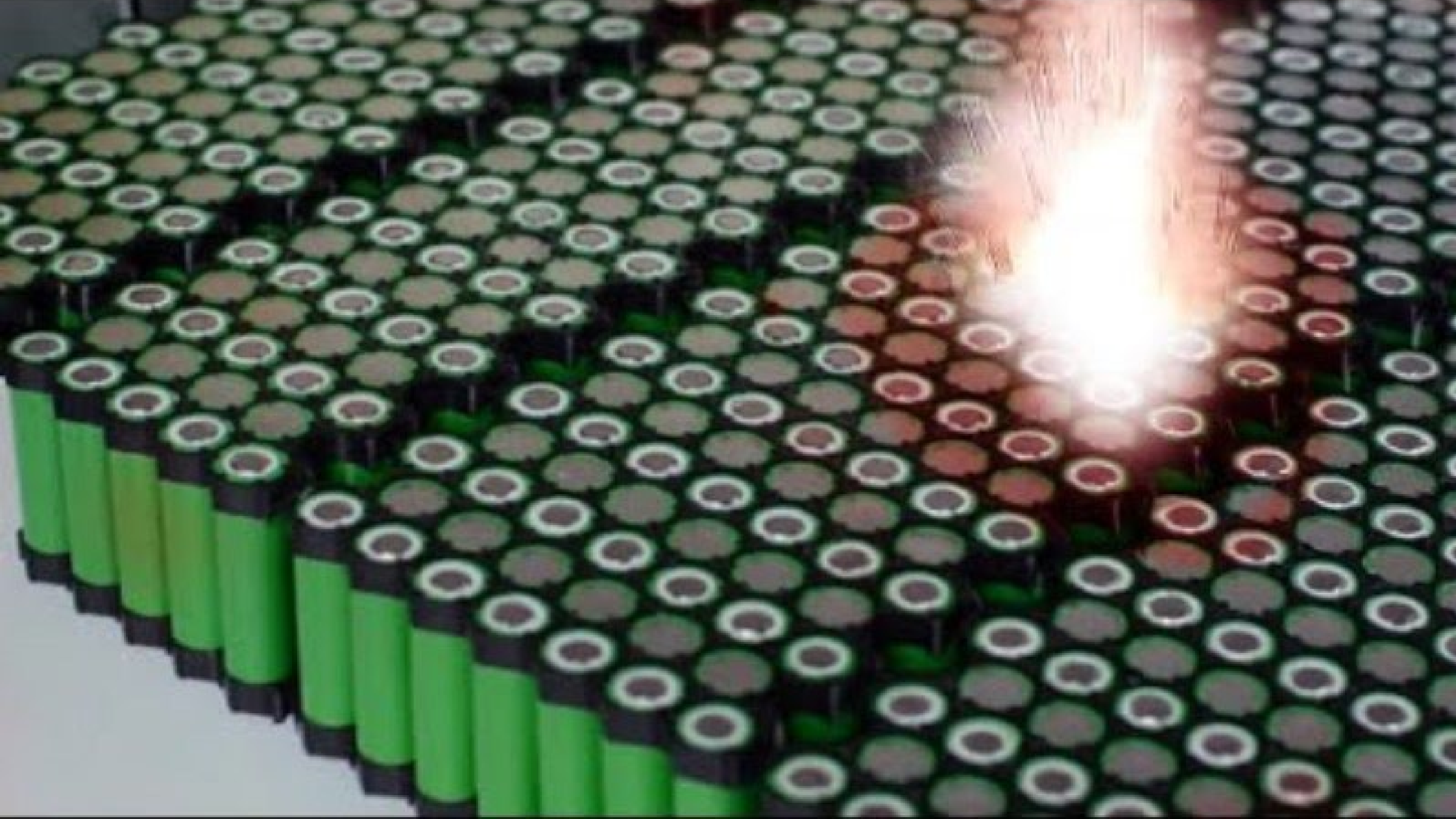
Lithium-Ion Battery Safety Concerns

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Training Specialist



Objectives

- Recognizing battery on fire vs vehicle on fire
- Hazards with EV fires
- Hazards with Lithium-Ion battery fires
 - ESS (Energy Storage Systems)
 - E-mobility devices
 - E-devices
- Stranded energy
- Researched based safety recommendations





Car vs Battery Fires

Knowing the difference





Hazards With Lithium-Ion Battery Fires

- Explosion hazard
 - Confined space
- Jet fires
 - 870+ psi
 - 930+ degrees Fahrenheit
- Shrapnel
 - Travel 50-75'
- Products of Thermal Runaway (Combustion)
 - Toxic, Flammable, and corrosive gases

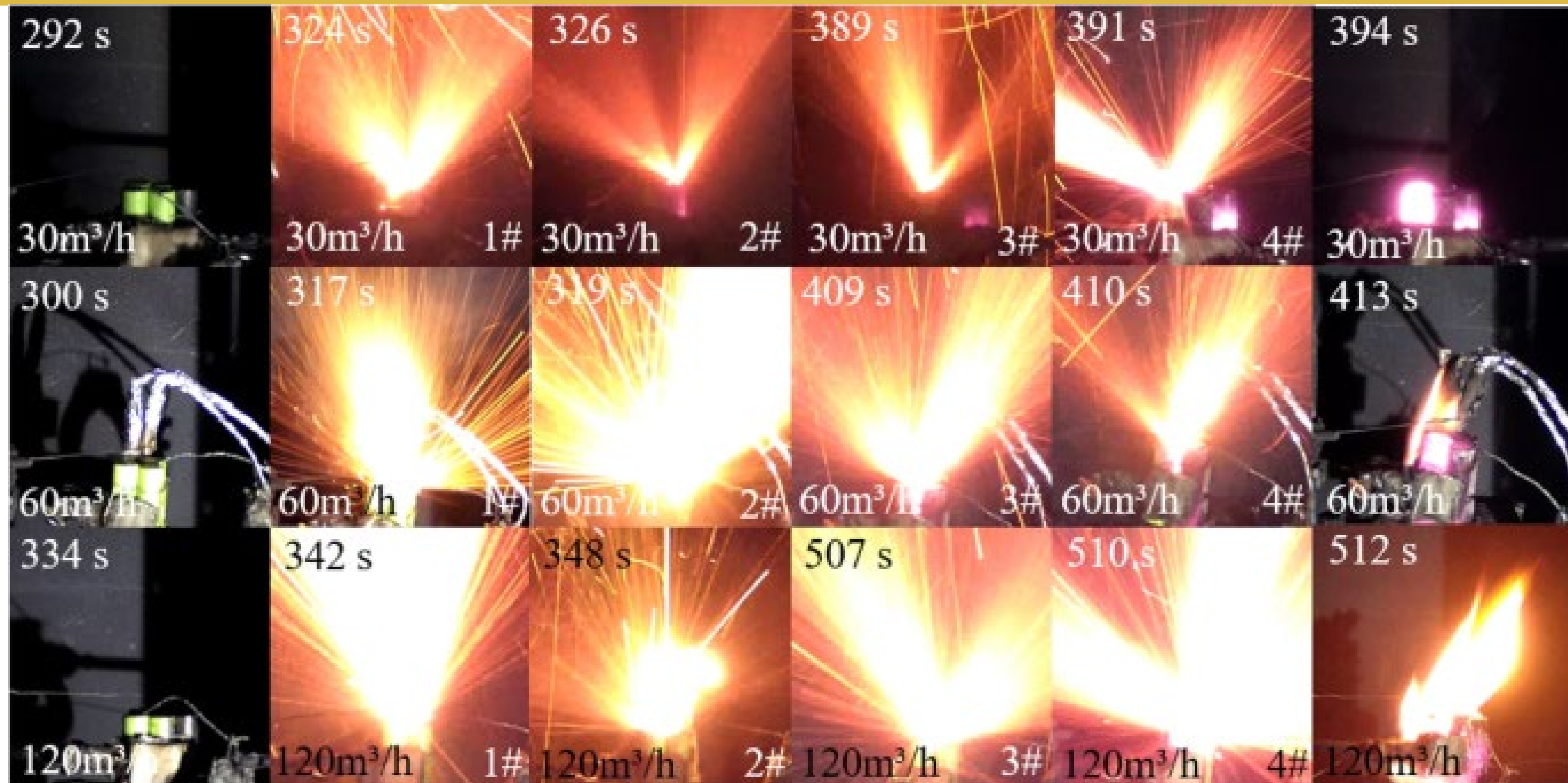


Confined Space Concerns





Jet Fire





Shrapnel



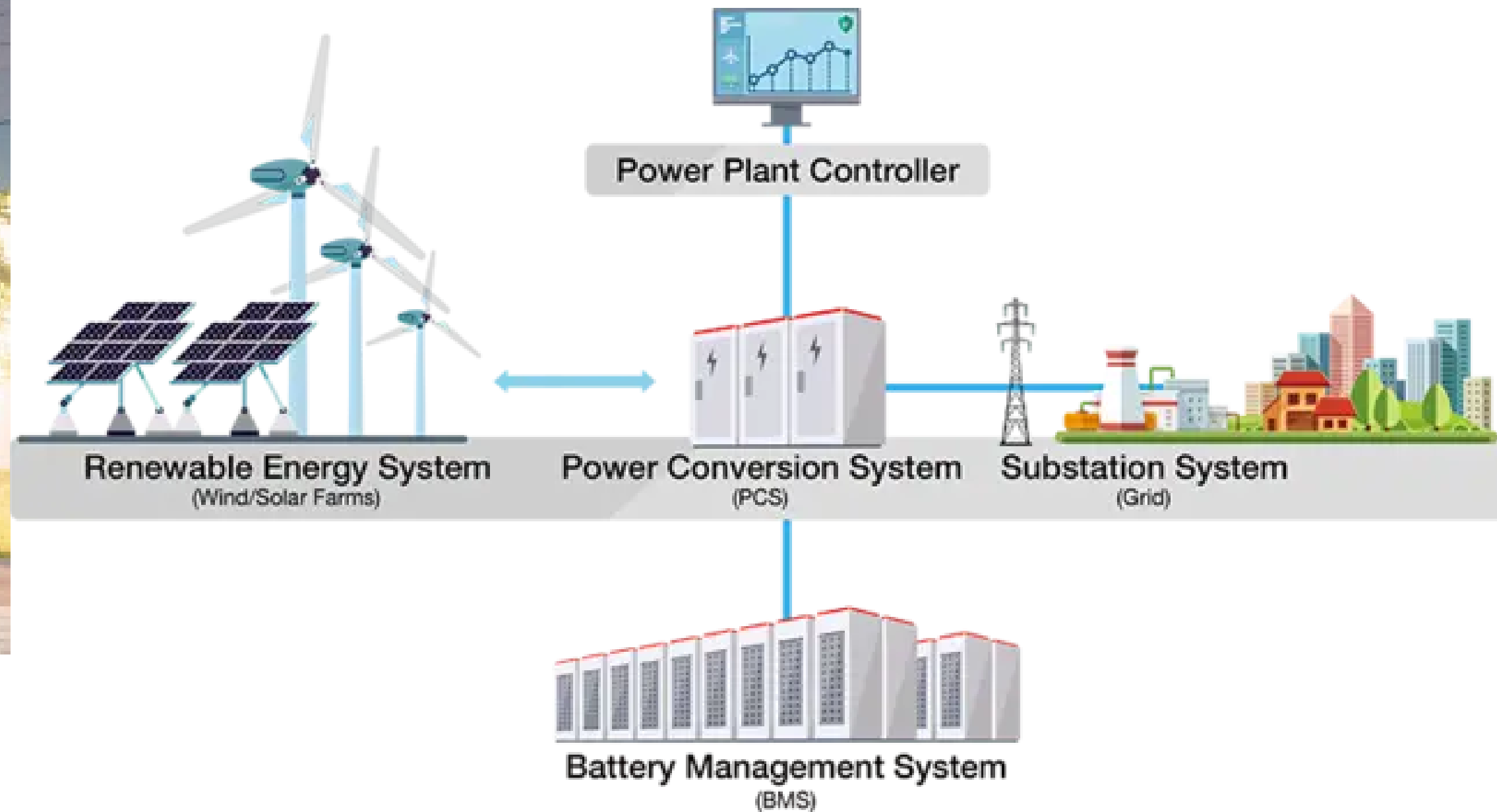


Toxic, Flammable, and Corrosive Gases



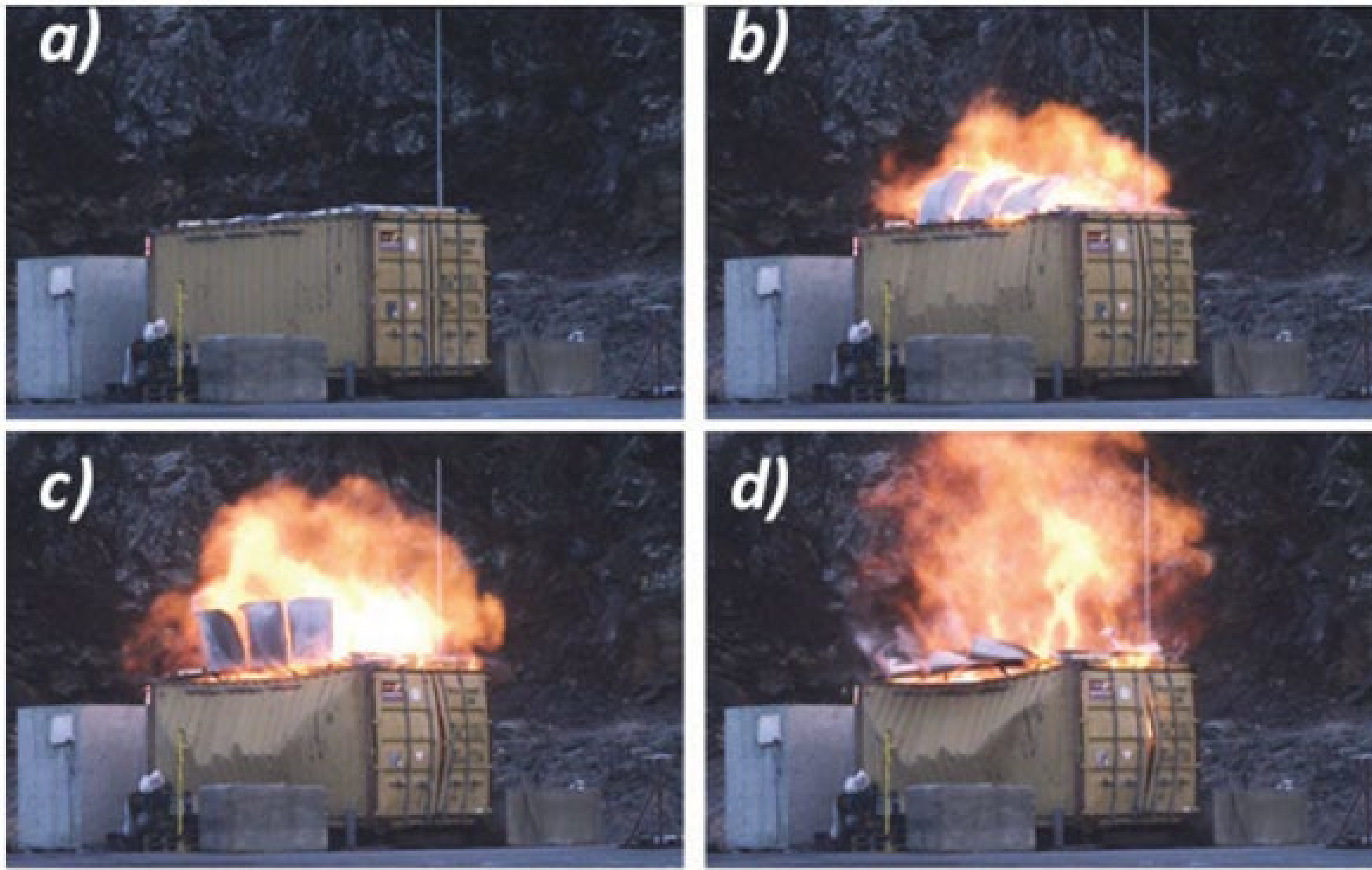


Hazards With Battery Energy Storage Systems (BESS)





Hazards With Battery Energy Storage Systems (BESS)





Hazards With Battery Energy Storage Systems (BESS)



Credit: McKenzie Fire and Rescue



Hazards With E-Mobility Devices





Hazards With E-Mobility Devices



Intentional
E-Scooter
Overcharge:
Closed Bedroom

Overcharge Time:
01:43:33



Bedroom 1 Low

Bedroom 1 Unframed

Bedroom 1 High

This experiment was designed to intentionally drive a lithium-ion battery into failure to examine the potential hazards of storing and charging e-mobility devices, which have been known to catch on fire and cause explosions.



Hazards With E-devices



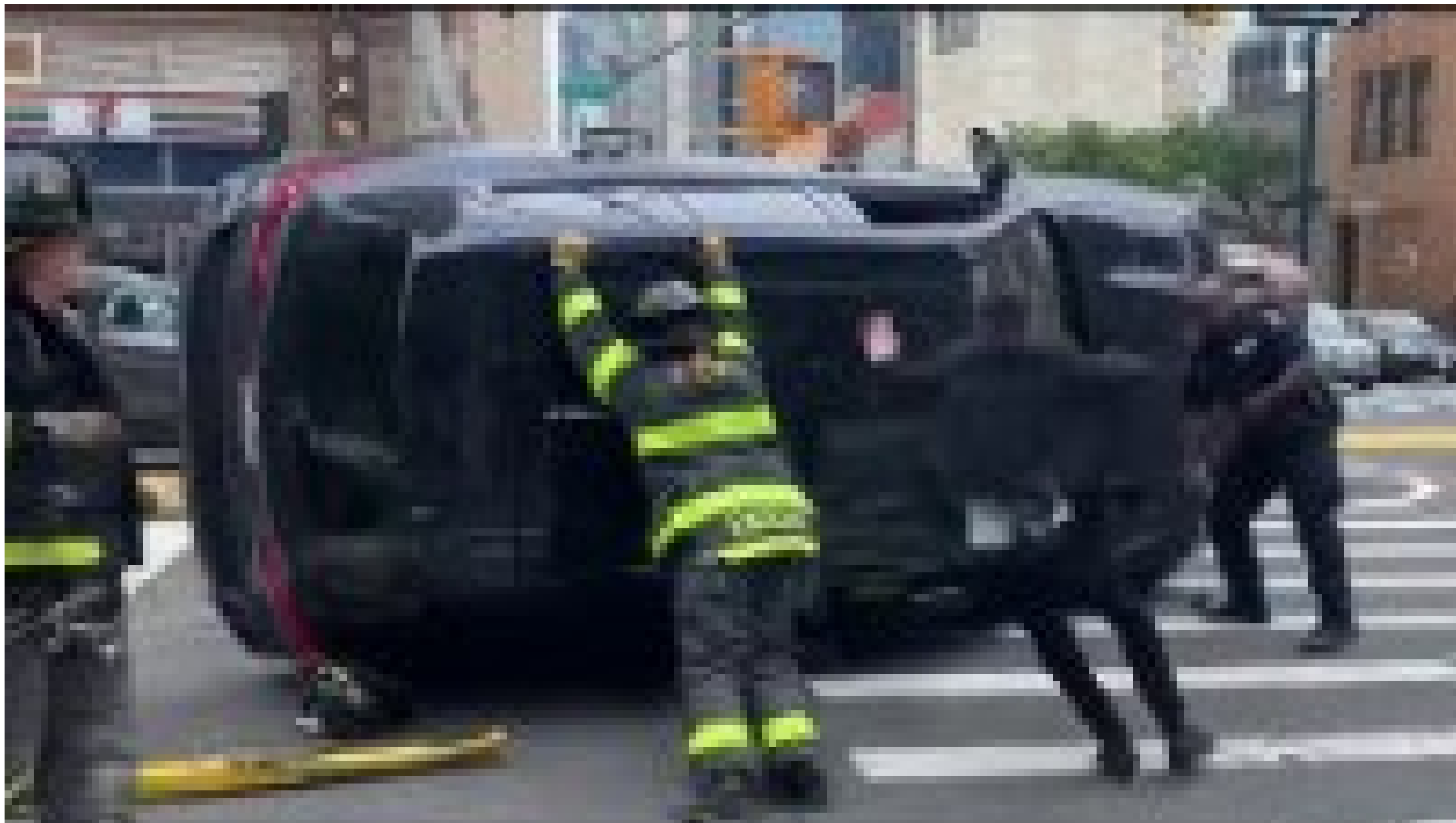


Stranded (Electrical) Energy





Stranded (Mechanical) Energy





Researched Based Safety Recommendations

- PPE
- Hazard zones
- Fire control
- Stranded energy
 - Electrical
 - Mechanical
- DDR





Replacement Batteries

- Identifying original vs potentially counterfeit batteries

Tools & Home Improvement › Power & Hand Tools › Power Tool Parts & Accessories › Battery Packs & Chargers › Battery Packs



Roll over image to zoom in



DEWALT 20V MAX 6 Ah Lithium Ion Battery 2-Pack (DCB206-2)

[Visit the DEWALT Store](#)

4.7 ★★★★★ 9,007 ratings

1K+ bought in past month

\$167³⁸

[FREE Returns](#)

Get \$50 off instantly: Pay \$117.38 upon approval for Amazon Visa.

Style: **Battery**

Bundles with this item



Battery + Charger
\$276.38



w/ Charging Station /
Dual Charger
\$284.00

Number of Batteries: 2 AA batteries required. (included)



Replacement Batteries

- Identifying original vs potentially counterfeit batteries

Tools & Home Improvement › Power & Hand Tools › Power Tool Parts & Accessories › Battery Packs & Chargers › Battery Packs



Roll over image to zoom in



2-Pack 8000mAh Replacement for Dewalt 20V MAX Battery – Compatible with DCB200/206/207/201 Cordless Tools, Long-Lasting Power

Brand: ovevevovel

3.4 ★★★★★ 32 ratings | [Search this page](#)

-11% \$49⁷³

List Price: \$55.99 ⓘ

FREE Returns ▼

Get \$50 off instantly: Pay \$0.00 ~~\$49.73~~ upon approval for Amazon Visa. No annual fee.

Style: 2-Pack

Brand ovevevovel

Recommended Uses For Product Power Tool

Reusability Rechargeable

Model Name Ove12

Manufacturer ovevevovel



Replacement Batteries

- Identifying original vs potentially counterfeit batteries

Electronics › Camera & Photo › Accessories › Flash Accessories › Battery Packs



Roll over image to zoom in



Streamlight 88133 SL-B48 Rechargeable Battery Pack for The ProTac HL 6, 2-Pack

[Visit the Streamlight Store](#)

5.0 ★★★★★ 20 ratings

50+ bought in past month

-18% \$50⁹⁵

List Price: \$62.11 ⓘ

FREE Returns ▼

Get \$50 off instantly: Pay \$0.95 ~~\$50.95~~ upon approval for Amazon Visa. No annual fee.

Number of Batteries 2 Product Specific batteries required. (included)

Brand Streamlight

Battery Cell Composition Lithium

Recommended Uses For Product Tactical, Home Protection, Security and Safety, Law Enforcement

Unit Count 1.0 Count



Replacement Batteries

- Identifying original vs potentially counterfeit batteries

Health & Household › Household Supplies › Household Batteries › 3.7V



Roll over image to zoom in



3.7V 2600mAh USB Rechargeable Lithium Ion Batteries 2 Pack for Streamlight Flashlight, Headlamps, Bike Lights, Bluetooth Speaker Etc

[Visit the TEMIBATT Store](#)

4.8 ★★★★★ 6 ratings | [Search this page](#)

50+ bought in past month

-20% \$15¹⁹

List Price: \$18.99 ⓘ

Get Fast, Free Shipping with [Amazon Prime](#)

[FREE Returns](#) ▼

Exclusive Prime price

[Get \\$50 off instantly: Pay \\$0.00 \\$15.19 upon approval for Amazon Visa. No annual fee.](#)

Size: **2 PACK**

Style: **18J**

Number of Batteries 2 Lithium Ion batteries required. (included)

Brand TEMIBATT

**Battery Cell
Composition** Lithium Ion



Home/Workplace Safety

- Charge to 100%
- Remove charger once charged
- Charge on hard flat surface
- Never charge on bed or under pillow
- Protect from heat



Thank you!

Contact info

