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Lessons Written in Fire

After the Flames: Managing Risk, Cost, and Trust in BESS Incidents

Victoria Hutchison, ESRG
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NOTICE OF RIGHTS

This BESS Fire presentation is being provided to inform first responders and other concerned parties of the hazards of a BESS fire, considerations made from previous BESS incidents and industry established practices for emergency response. The information within this presentation is not to be taken out of context or misconstrued to convey that BESS systems are dangerous to the public. Established industry standards and practices have proven BESS systems are managed safely in our everyday life, including utility scale BESS, EV's down to our cell phones.

ENERGY SAFETY RESPONSE GROUP

ESRG's team of battery engineers, fire fighters, and public safety experts, from New York City to Arizona, use knowledge gained from our extensive experience to help our clients build and deploy safer energy storage systems, support safer energy infrastructure around the globe, and respond to alternative energy emergency events in support of local first responders

ESRG is the industry leader in ESS safety, supporting:

- Product development and testing,
- Permitting and stakeholder engagement,
- hazard and engineering assessment,
- operational safety,
- training
- end of life management

ESRG's experience includes:

- >360 combined years of fire service leadership
- 22 incidents managed/responded to across North America
- >300 medium and large-scale fire tests since 2016
- Hundreds of BESS projects supported during permitting around North America

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Today, BESS incidents don't just test safety systems
— they test public trust.

…because safety is no longer judged only by outcomes, but also by confidence and control.


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A BESS fire is the tip of the Iceberg
What the public sees?
BESS Fire
Presence + Coordination of SME & HSP
Cost
Post-incident Cleanup and Delays
Regulations
Public Perception + Resistance
What actually drives impact?
Everything else (below)
Public reaction is now one of the largest drivers of impact

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Incidents are Ecosystems

Timeline of Challenges: Lithium-Ion De-Risking Trajectory

Incidents are complex ecosystems with numerous li-ion touchpoints — each requiring a proactive safety plan.
Once the fire is out, complexity increases—not decreases.

PHASE 1
Event

PHASE 2
Response

PHASE 3

Transition

De-hazarding

Investigation

Decommission

+

Once the fire is out, complexity increases—
not decreases.

Stakeholders | Public Perception | Political Response | Costs

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Representative Real-World Consequences

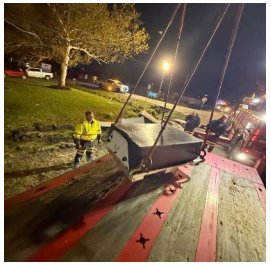
McMicken (AZ)

- No response planning
- No coordination
- Explosion injured 4 firefighters
- Months-long decommissioning effort

CA Incidents (Otay Mesa/Moss Landing)

- Fires lasted days
- Buildings were structurally compromised
- Extended cleanup timelines (Otay: 2+yrs)
- At that point, you're not managing an incident, but a **long-term industrial recovery project.**

Transportation Incident



- No SME
- No monitoring
- System sat for months in unknown condition
- This extends from physical hazards to financial, legal and reputational exposure

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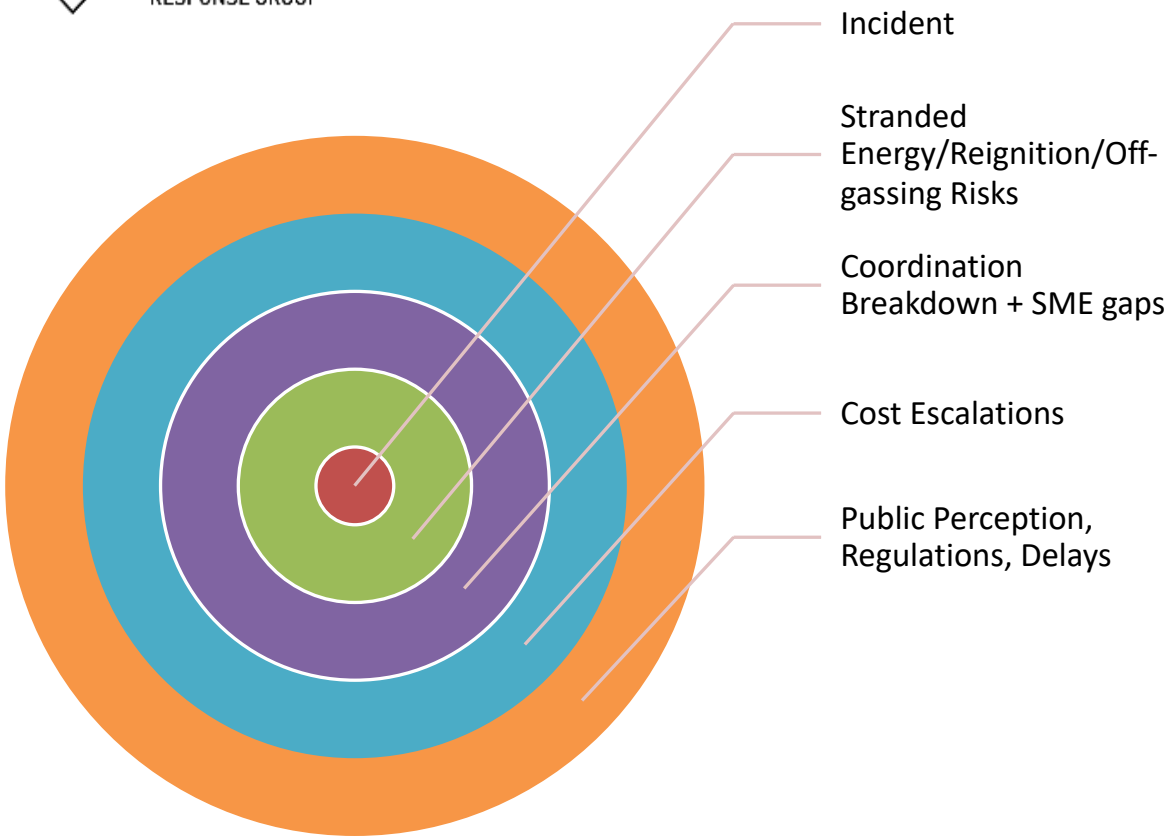
Ripple Effects: After a Fire



Stranded Energy & Re-ignition Risks

Coordination Breakdown + SME

Cost Escalations

Public Perception

- Fires are perceived as uncontrollable, re-ignition-prone, and toxic
  - *"If firefighters can't put it out, it shouldn't be near us"*
  - *Re-ignition and evacuations signal loss of control*
- Visible uncertainty erodes confidence faster than technical data can restore it
- Repeated incidents reinforce the belief that the technology is still experimental
  - Repetition matters more than cause
- Even "successful containment" events can permanently damage trust
  - *Technical success ≠ public confidence*

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The Real Lesson

The difference between a controlled incident and a multi-year, multi-million-dollar failure…is everything that happens before and after the flames.

✅ Fire incidents alone are not the only or even primary risk—***mismanagement is***

✅ Lifecycle planning is not optional—it's the ***control mechanism***

✅ Coordination after the fire determines ***cost, timeline, and outcome***

You don't RISE to the level of the event

You *FALL* to the level of your preparation.

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The Solution

BESS Emergency Response should be treated as a *Lifecycle Discipline…*

01

PREPARE

Build readiness before an incident occurs

- Develop site-specific Emergency Response Plans (ERPs)
- Align with local fire departments and first responders, building understanding of capabilities and train to system specifics
- Develop Decommissioning, Disposal, and Stranded Energy Management Plan

02

MAINTAIN

Sustain preparedness as systems and requirements evolve

- Update response plans and procedures in line with best practice and statutory requirements
- Conduct inspections and safety reviews
- Provide refresher briefings for local responders
- Maintain cost estimates for remediation

03

RESPOND

Deliver immediate technical and operational support during an incident

- Immediate activation: 24/7 SME activation and coordination with incident command and rapid, on-site response of fully equipped hazard support team integrating with unified command
- Post incident management: Site stabilization and control, fire watch and monitoring, forensic support, and full spectrum decommissioning and disposal

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EXAMPLE INCIDENTS – Escondido, CA + Warwick, NY

Operational Synopsis

*Reflects post-McMicken shift toward defensive response and life safety - "**Successful Failures**"*

- Lives protected → **Yes**
- Propagation prevented → **Largely yes**
- Modern response guidance applied → **Yes**
- **Public trust improved** → **No**

Contained Fire, Amplified Concern

- No mass casualty or responder injuries
- Fire spread successfully limited
- Occurred amid active regional BESS opposition
- Visible smoke, school closures heightened alarm

Operational success, but did not translate to public confidence

Successful Containment, Fragile Public Trust

- No reported injuries
- No reported evacuation
- Fire remained confined
- Monitoring showed no dangerous public exposure

Technically a "successful failure" – but still had negative social and political implications.

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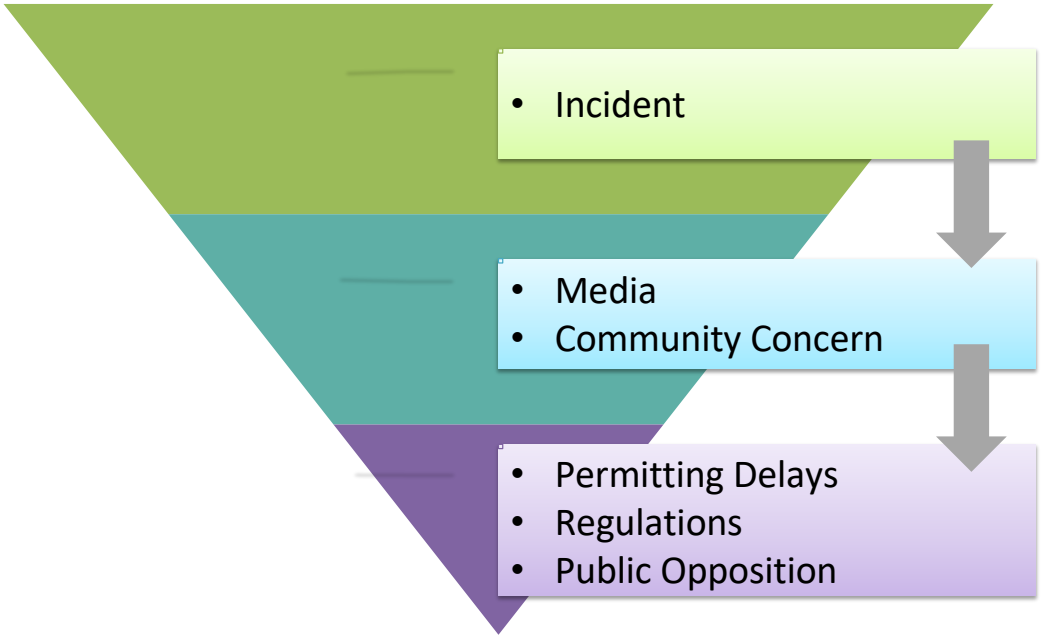
Public Perception & Industry Impact

When incidents are mismanaged:

- Sites can sit idle for months/years
- Cleanup can drag on visibly
- Messaging is inconsistent
- And stakeholders appear uncoordinated

In that vacuum, perception becomes reality:

- ✗ Loss of public trust
- ✗ Project opposition rises
- ✗ Permitting becomes harder
- ✗ Drives stricter regulation
- ✗ Industry carries reputational cost



A single poorly managed incident doesn't just affect one project—
it can reshape how the technology is viewed at a regional or national level.

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- We have made **monumental strides in technical design** —
  improving failure controls, response guidance, and firefighter safety.

- But the primary gap today is no longer **technical.**
  It is full lifecycle coordination — before, during, and *after* the fire.

- A technically contained incident — a so-called "***successful failure***" —
  can still become a *public trust and safety credibility crisis*.

- When coordination breaks down, **uncertainty** fills the gap.
  And uncertainty — more than flames — drives fear, opposition, delay, and cost.

- **The most expensive lesson we've learned isn't about how fires start.**
  It's about what happens when we're unprepared for *everything that comes after*.

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Thank you!

Get in Touch:

Email: info@energyresponsegroup.com

Web: https://www.energyresponsegroup.com

LinkedIn: www.linkedin.com/company/energy-storage-response-group/

ENERGY SAFETY RESPONSE GROUP LLC

Phone: +1 740 981 7683

Email: info@energyresponsegroup.com

www.energyresponsegroup.com

Victoria Hutchison

Chief Operating Officer, ESRG

Email: Victoria.hutchison@energyresponsegroup.com