Great Growth (And Some Risk)

Global cumulative energy storage installations

Source: BloombergNEF

Energy Storage & Microgrid Training & Certification
Public Perception of Energy Storage ...

2006: Massive global recall of lithium-ion laptop batteries made by Sony Corp. totaled more than 7 million units.
Oct. 2007, Matsushita Battery Industrial Co. Osaka, Japan
... not ideal:

March, 2008 LG Chem Plant Near Seoul, South Korea
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Dreamliner
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Nightmare Liner (2013)
Galaxy Note 7 (2016)
2016: “Hoverboard” batteries catching fire
Not Just Consumer Products
Hyperdrive

Explosions Threatening Lithium-Ion's Edge in a Battery Race

By Brian Eckhouse and Mark Chediak
April 23, 2019, 3:58 PM PDT Updated on April 24, 2019, 7:24 AM PDT

- Battery exploded at plant in Arizona; two others were shut
- Arizona utility regulator calls for ‘thorough investigation’
Energy Storage and Microgrid Training and Certification

ARIZONA CORPORATION COMMISSION MEMBER QUESTIONS RISKS OF APS LITHIUM BATTERY SITES

ABC 15 NEWS - PHOENIX  AUGUST 7, 2019

CONCERNS OVER BATTERIES STORED BY APS
Government & Industry Safety Concerns

Battery energy storage systems (BESS) are a serious safety risk if not correctly installed, potentially leading to:

- Electric shock
- Fires
- Arc Flash
- Flash burns
- Explosions
- Exposure to hazardous chemicals

Key: “if not correctly installed”
How Do We Avoid the Liability, Risk, and Negative Public Relations?

Install & Maintain Energy Storage Systems Safely
In response to safety concerns, ESAMTAC development led by Penn State, incorporates **national industry standards**
ESAMTAC - Energy Storage and Microgrid Training and Certification

- Non-profit industry effort
- National Science Foundation – Advanced Technician Training (NSF-ATE) program funding
- Neutral, non-affiliated
- Collaborative, industry-wide process is foundation for
  - High quality, effective training
  - Safety, Safety, Safety
  - Optimum system performance
  - Certification recognized by industry, utilities, government agencies – public and private
“Proper training protects people, enhances the public view of our industry while lowering risk and reducing liability”

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ESAMTAC