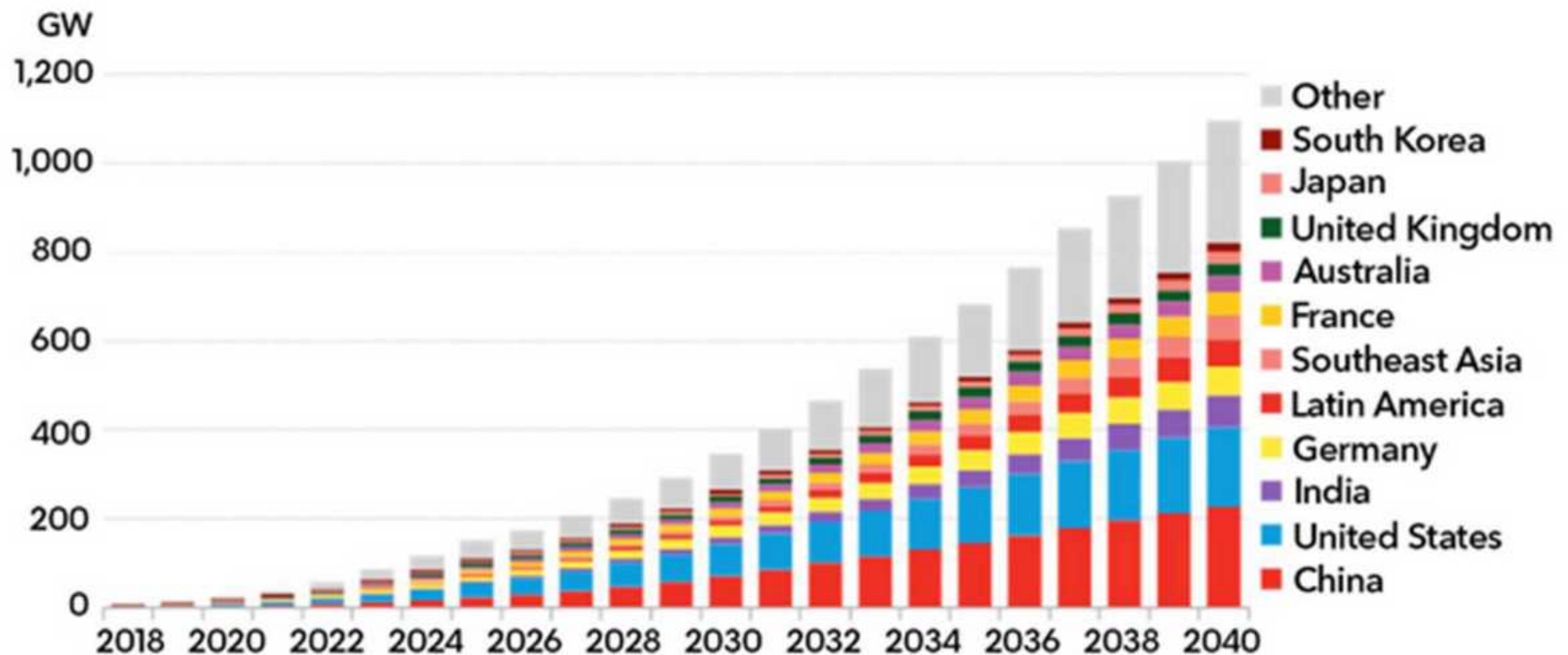


# Great Growth (And Some Risk)

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**

**... is ...**



**Oct. 2007, Matsushita Battery Industrial Co. Osaka, Japan**



**... not ideal:**



**March, 2008 LG Chem Plant Near Seoul, South Korea**

# Dreamliner





# Nightmare Liner (2013)





**Galaxy Note 7 (2016)**



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**2016: “Hoverboard” batteries catching fire**



# Not Just Consumer Products







APS  
AZ  
2019

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'

● LIVE ON BLOOMBERG

[Watch Live TV >](#)

[Listen to Live Radio >](#)



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### ARIZONA CORPORATION COMMISSION MEMBER QUESTIONS RISKS OF APS LITHIUM BATTERY SITES

ABC 15 NEWS - PHOENIX AUGUST 7, 2019



# 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**



**PennState**



CalCharge



# **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”*

<https://www.esamtac.com>

[LMCCenergy@gmail.com](mailto:LMCCenergy@gmail.com)

Bernie Kotlier

**ESAMTAC**

