State of the Market:
Advanced Manufacturing - Batteries

As we move into 2025, here's a look at the state of the United States battery manufacturing market—including for electric vehicles (EVs), original equipment manufacturers (OEMs), long-duration energy storage (LDES), energy storage systems (ESSs), and lithium ion batteries.

US Market Hotspots

East Coast and West Coast: Research & Development (R&D) heavy

Appalachia and the Midwest: Manufacturing



Trends

- Mass EV **production delayed** from 2030 to 2035
- US industry about 5 years behind the European Union and 10 years behind China; **working to catch up**
- OEMs pushing to **increase recycled materials portfolio**
- **Battery-oriented ecosystem** (with considerations for sustainability from conception to disposal) necessary to reach EV growth goals
- Renewed focus on **fire-retardant chemistry**
  - Experimenting with anode and cathode materials while maintaining battery efficiencies
- **Chemistry advancements** continue to develop for **increased battery storage and output**
  - Current standard is lithium ion phosphate (LFP) batteries
    - Future drivers foresee a switch to lithium ion (Li-ion) and other forthcoming solutions
  - Chemistry becoming **more sustainable**, creating a closed loop in manufacturing

Policy

- Election outcomes did little to change the **strong battery manufacturing growth push**
  - Slower growth predicted from a Republican presidency, but growth will continue nonetheless
  - **Reduction in EV subsidy funding** predicted
  - **Import tariffs** may stunt battery industry initially and cause companies to focus more on sourcing as many materials for the process as possible
    - Vertical supply chain creation
    - Strengthening of national battery production infrastructures overall
- Industry in holding pattern until policy implementation in 2025
- Currently, the Department of Energy has a **$215 billion yearly renewable investments budget**
  - $130 billion of this funding is dedicated to **battery investment**, given out through the:
    - Inflation Reduction Act (IRA)
    - Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act
  - Funding and personnel cuts at the DOE may impact subsidies and grant payouts

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Key Players and Networks

Familiarize yourself with some of the key players in the industry.

- **Fire Suppression Solutions:** Extinguishers for battery fire protection
- **American Battery Solutions (ABS):** Recycling processes and machinery
- **Canadian Standards Association (CSA) Group:** Certifications, inspections, and testing - mainly for batteries and standard setting for organizations
- **Soteria Battery Innovation Group (BIG):** Battery safety training, working with local fire departments and manufacturers
- The big three consulting companies (**McKinsey & Company**, **Boston Consulting Group (BCG)**, and **Bain & Company)**, who advise on the automotive industry, ESSs, and data storage/technology energy concerns
- Automotive companies
- Battery tech startups
- Existing industrial/commercial battery manufacturers
- ESS manufacturers
- Battery recyclers
- **Triumvirate Environmental**

Triumvirate Environmental:
Your Advanced Battery Manufacturing Partner

Triumvirate Environmental is the premiere battery and advanced manufacturing partner. Our suite of environmental, health, and safety (EHS) services enable us to help organizations in the battery industry get ahead of the competition. This includes through:

- **Close relationships** with key players in both the mature and open (Nascent) markets
  - In mature markets, we boast a high gross profit in closed loop relationships
- **Training support**, especially in assisting your teams in understanding safety. We ask:
  - What safety options are out there?
  - What is the best way to handle lithium fires?
  - How can batteries be made less volatile?
- Thorough **understanding of new processes** (including by attaining the first US battery cathode precursor (pCAM) facility)
- **Waste disposal** options for batteries at the end of their life and manufacturing waste materials
- **Risk assessments**, to help ensure your teams are safe and risk is minimized

Our consultants and onsite support teams are ready to help you reach your goals. Are you ready to take safety and compliance to the next level while staying ahead of the curve?

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