BATTERY COUNCIL INTERNATIONAL

ESSENTIAL ENERGY EVERYDAY

# Overview of U.S. Policy Impacting the Battery Industry

BatteryCouncil.org

## Who is BCI?

### Leading trade association for battery industry since 1924

- Represents manufacturers, recyclers, and suppliers across North America
- Members produce 98% of U.S. lead batteries
- Members expanding into other chemistries and product portfolios




BATTERY COUNCIL INTERNATIONAL

## Serving America's rechargeable battery industry for 100 years




BCI BATTERY COUNCIL INTERNATIONAL

## Serving America's rechargeable battery industry for 100 years

BCI member companies manufacture a variety of battery chemistries

Pb Lead | Flow | Na Sodium | Ni Nickel | Li Lithium

Transportation & Power Sports | Telecom, Data Centers & Critical Systems | Industrial Logistics | Power Grid & Energy Storage



BCI BATTERY COUNCIL INTERNATIONAL

# How Did These Government Programs Come to the Fore

### Batteries identified as critical to U.S. economy

### Broader U.S. climate goals

- Reduced vehicle emissions
- Reduced industrial emissions
- Essential for energy storage, transportation, and national security

### Greater energy resiliency

- Grid stability
- Facility back-up stability

### Greater electrification

- Mobile culture
- Higher use of data driven industrial & consumer products
- Growing importance in renewable energy and electric vehicle sectors

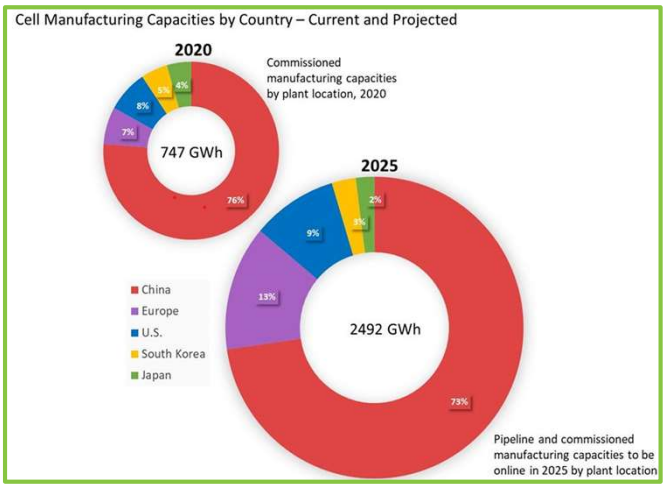
U.S. Department of Energy, "National Blueprint for Lithium Batteries 2021–2030"



# Identified National Risks

- COVID-19 pandemic highlighted supply chain weaknesses
- Over-reliance on foreign manufacturing across numerous industries
- Critical materials and technologies central to economic strength
- Need for secure, domestic supply chains
- Security risks of integrated components

### 2021 White House Projections (Li):




White House, "Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth" (2021)
U.S. Department of Defense, "Securing Defense-Critical Supply Chains" (2022)

## National Goals for Legislation and Programs

- Investing in domestic manufacturing
- Increase domestic production to meet growing energy storage demand
- Grow EV and energy storage markets
- Not "anti" any country or region, but pro-U.S. investment
- Preserving technology leadership across multiple platform(s)



## Key U.S. Legislation Impacting Battery Industry

**Infrastructure Investment and Jobs Act (2021) ("Bipartisan Infrastructure Law")**

- Focuses on infrastructure improvements
- Investments in for battery manufacturing and technology

**CHIPS and Science Act (2022)**

- Promotes semiconductor manufacturing
- Supports battery technology advancements

**Inflation Reduction Act (2022)**

- Aimed to reduce inflation economy-wide
- Additional funding and incentives for battery manufacturing and recycling

# Infrastructure Investment and Jobs Act

### Battery Material Processing and Manufacturing

- $6 billion allocated
- 42 U.S.C. § 18741

### EV Charging Infrastructure

- $7.5 billion allocated
- 42 U.S.C. § 18711

### Battery Recycling and Second-Life Applications

- $3 billion allocated
- 42 U.S.C. § 18742



# Inflation Reduction Act

### Funding Allocation

- $369 billion for clean energy and climate initiatives

### Key Provisions

- Advanced Manufacturing Production Tax Credit (26 U.S.C. § 45X)
- Clean Vehicle Credit (26 U.S.C. § 30D)
- Energy Storage Investment Tax Credit (26 U.S.C. § 48(c)(6))

# Clean Vehicle Credit

**Tax Credit for New Qualified Plug-in EVs**

- Up to $7,500 tax credit available

**Domestic Battery Component Manufacturing**

- 100% of qualifying components must be manufactured in North America after 2029

**Domestic/Free Trade Nations Critical Mineral Content**

- 60% after 2025

**Impact on Domestic Battery Production**

- Increases demand for domestically-produced batteries



# 48C - Energy Storage Investment Tax Credit

**30% tax credit for standalone energy storage projects**

**Includes various storage technologies**

- Battery storage
- Pumped hydro storage
- Compressed air storage
- Thermal storage

**Drives growth in stationary energy storage market**

## IRA Section 45X - Manufacturing Production Tax Credit

- **Minimum performance of battery cells:**
  - Batteries: > 100 Wh/L, and >12 Wh
  - Battery Modules: > 7 kWh
- **Incentives to leverage existing manufacturing capacity**
  - Tax credits available from 2024-2032
  - Rewards higher-capacity battery production
  - Incentivizes production shift to of higher energy-density technologies
  - Provides capital for more rapid investment in production capacity
- **All Chemistries Eligible**



## BIL Battery Materials Processing / Manufacturing & Recycling Grants

**$4.8 Billion Federal Grants**

**$16 Billion total investment**

**39 Infrastructure Projects**

# Battery/EV Infrastructure Projects Announced

**$177 Billion Private Industry Investment Announced**

- $2.6+ Billion in federal assistance (EV)
- $3.8+ Billion in grants announced (Energy)

**Increased demand for U.S.-made batteries and materials**

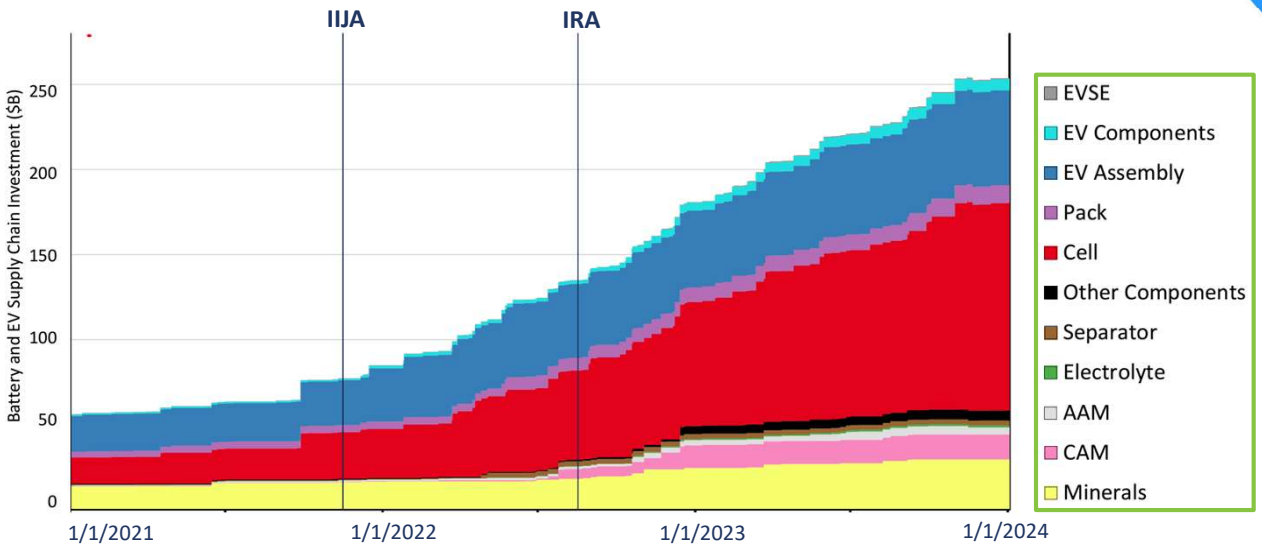
- Higher consumer preference for domestically produced items

Source: www.invest.gov, Investing in America (08/16/2024)

15

BATTERY COUNCIL INTERNATIONAL

# U.S. Battery Investment to date: 1,200 GWh by 2030




Source: Argonne National Laboratory, Quantification of Commercially Planned Battery Component Supply in North America through 2035, March 2024, Figure 3

16

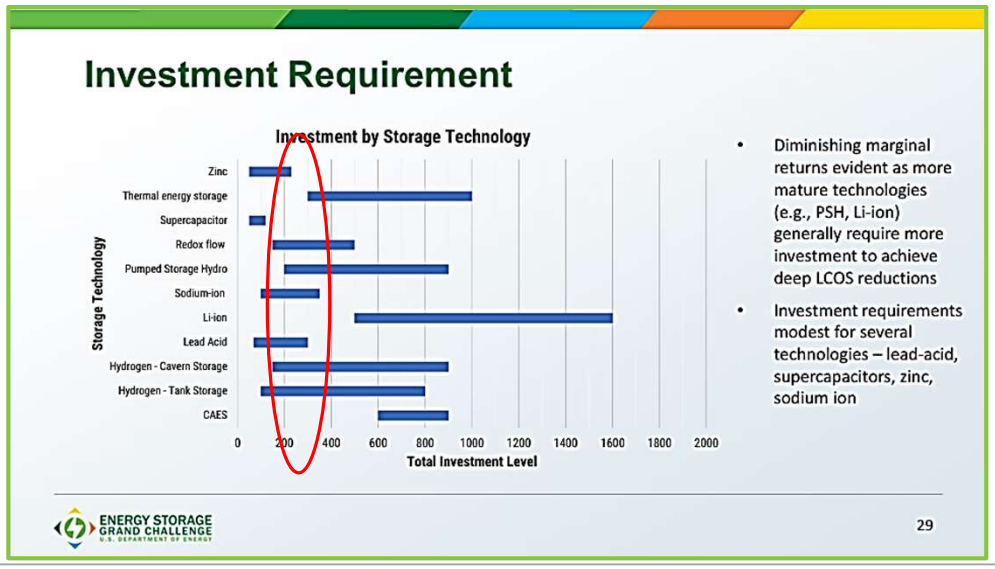
BATTERY COUNCIL INTERNATIONAL

# U.S. Department of Energy: Energy Storage Grand Challenge

- **Grid Storage Focus**
  - **Mission:** To be a global leader in energy storage innovation, manufacturing, and utilization.
  - **Vision:** Energy storage technologies enable a U.S. and global energy system that is resilient, flexible, affordable, and secure.
  - **Goal:** To develop and domestically manufacture energy storage technologies that can meet all marketplace demands by 2030.
- **Funding**
  - Research and Development (Private, Academic, and National Labs)
  - Manufacturing Capacity
  - Deployment



# Estimated R&D investment required to approach $0.05/kWh LDES



# Incumbent BCI Players Receiving Grants – A Non-Exclusive List

**East Penn** – lead battery R&D

**Clarios** - lithium battery R&D, lithium battery recycling

**Enersys** - lithium battery gigafactory

**Stryten** – vanadium flow manufacturing; lithium 6T battery prototype

**ENTEK** - lithium separator manufacturing

**Microporous** - lithium separator manufacturing

**Doe Run** - critical mineral production

**MANY OTHERS** – in progress and/or confidential

**BCI** - Consortium for Lead Battery Leadership in LDES (*with CBI*)

- $5M for lead battery research at Nat'l Labs
- ABC, C&D/Trojan, Clarios, East Penn, Enersys, Crown, Gridtential, Stryten

**CleanTech Strategies** (*with BCI*)

- $5M for flow battery research at Nat'l Labs
- BCI's Flow Battery Industry Group: CTS, Stryten, CMBlu, Invinity, BioZen Batteries, ENTEK, Ramboll, Polypore

**Industry-wide 45X Tax Credits**

- Public and private companies alike benefiting from additional capital for re-investment



# Consortium for Lead Battery Leadership in LDES

Our team includes partners from national labs, industry groups, and 8 US Battery Manufacturers

Pacific Northwest National Lab

Argonne National Lab

Oak Ridge National Lab

## Consortium for Lead Battery Leadership in LDES
### Three-year research agenda

- **Task Area 1**
  - Testing lead batteries under model LDES load profiles at Pacific Northwest National Laboratory, Grid Storage Launchpad
- **Task Area 2**
  - Atomic-scale analysis at Argonne National Laboratory (ANL) of lead battery components after utilization in the Grid Storage testing
- **Task Area 3**
  - Fundamental research into lead crystal structures and their underpinnings at Oak Ridge National Laboratory
- **Task Area 4**
  - Use case definition and modeling to drive understanding of how lead batteries can best serve long duration energy storage goals



## Conclusion

- U.S. battery incentives part of broader economic strategy
  - Aim to secure supply chains and boost domestic manufacturing
  - Reduce reliance on extended and vulnerable supply chains
- Other regions can still benefit through U.S. investment.
  - Ensure trade-based continued economic strength and global competitiveness

***Key Takeaway:*** *Significant potential for U.S.–international private collaboration in battery technology and manufacturing.*


bci 2025
CONVENTION + POWER MART EXPO
BCI 2025 Convention
+ Power Mart Expo
May 4-7, 2025 San Antonio, TX
Registration opens October 2024