

*Employer Insights for the Next-Gen
Industry in California*

How to Unlock Battery Manufacturing Growth

EMPLOYER ASSESSMENT BRIEF
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Manufacturers are looking for places where they can move with speed, certainty, and confidence. Regions that reduce risk, not just cost, will be best positioned to attract the next generation of energy manufacturing.

Executive Summary

New Energy Nexus (NEX) California is a part of a global clean energy funding and acceleration organization, New Energy Nexus. NEX California runs CalSEED and CalTestBed along with other programs designed to create a just and inclusive clean energy ecosystem in the Golden State. Between August 2025 and April 2026, NEX California and our partners at the UC Berkeley Labor Center conducted interviews with employers from key segments of the battery ecosystem to understand current market dynamics and outline practical pathways to manufacturing batteries locally at scale.

“A competitive battery manufacturing industry starts with a competitive battery materials supply chain. To manufacture batteries in California, we need to prioritize building the upstream foundations—critical mineral processing, precursor production, refining, recycling, and manufacturing infrastructure purpose-built for scaling innovative battery and clean energy manufacturing.”

— Saad Youssefi, Founder, Manara Materials

While California is a global leader in battery innovation, research, and talent development, it has yet to become competitive in their large-scale manufacturing. This gap matters because professional-grade batteries enable electrification of various transportation modes, grid reliability, and industrial electrification; in short, they are essential for the clean energy transition. The battery industry also offers valuable jobs and long-term economic development potential for California communities, as this market grows substantially in the coming years. This brief presents research into needs identified by battery industry employers in order to manufacture at scale in California.



Background

The Bay Area High-Road Manufacturing Initiative (BAHRMI) has a vision to build a modern regional manufacturing ecosystem focused on quality jobs, worker voice, strong community partnerships, and economic benefits for all. It takes into account these facts and trends:

- Manufacturing supply chains around the world are becoming regionalized and strategic;
- Domestic production of battery materials ensures economic competitiveness and national security;
- The Bay Area is a global hub for battery research and development (R&D), materials science, and early-stage innovation.

To explore battery manufacturers' siting decisions and the factors that shape them, New Energy Nexus and the UC Berkeley Labor Center conducted one-on-one interviews with employers and facilitated roundtable discussions with industry stakeholders. We identified both the drivers of and the barriers to scaling manufacturing, as well as the conditions under which companies would actively invest and grow locally.

Our findings represent one key input that will help inform the overall strategy, guide infrastructure planning, and support workforce development, all of which are needed to create an advanced battery manufacturing hub in the San Francisco Bay Area. In particular, Contra Costa County is the focus of this effort, in alignment with the Green Empowerment Zone established by the California State Legislature in order to accelerate the growth of new clean energy manufacturing industries that can diversify the local economy, which is in transition as multiple oil refineries have closed or downsized. This will also support the County in its mission to attract investments in clean energy and revitalize the region's industrial corridors.



Findings: Battery Manufacturing Challenges

Employers report that manufacturing siting decisions depend on speed, certainty, and cost. These factors make California seem high-risk for large-scale manufacturing investment, albeit strong in talent and innovation. The state doesn't capture the full economic value of its innovation in this field. Below are the main challenges battery manufacturers face here.

1. Infrastructure constraints

Power supply constraints

Access to sufficient, reliable power is vital for battery manufacturing, yet California has a limited supply of modern industrial sites that are appropriately zoned, powered, and configured for advanced manufacturing. Bringing additional power to existing industrial sites experiences multi-year utility delays, which is longer than most manufacturers are able to wait.

Lack of scaling infrastructure

Elsewhere, pilot lines, demonstration facilities, and shared manufacturing environments allow companies to test their lab-scale battery innovation before they invest in full commercial production. Without that intermediate layer in California, companies often relocate to other regions earlier than they otherwise might. To close this gap, California has invested in Electrochemistry Foundry in Hayward, a nonprofit organization developing the state's first shared-use pilot line to help startups scale battery technologies from prototype to commercial manufacturing. However, this investment primarily supports the midstream portion of the battery value chain, including cell components, manufacturing, and assembly. Significant infrastructure gaps remain in the upstream supply chain, particularly for raw material processing, refining, and precursor production, limiting opportunities to build a fully integrated domestic manufacturing ecosystem.

Key Findings

The main challenge for battery manufacturers:

Structural barriers that hold back companies willing to invest, build, and scale production locally

The main opportunity for Californian counties:

To become hubs for sourcing advanced materials, manufacturing at pilot-scale, and setting up circular supply chains—areas where linking innovation, infrastructure, and skilled labor provides a distinct advantage

The main prerequisites for attracting battery manufacturers:

Strategic investments in:

- pre-permitted industrial campuses with heavy power
- shared infrastructure
- industry-ready workforce pipelines
- offtake agreements/government procurement
- and coordinated policy support

Supply chain gaps

Neither California nor the U.S. currently has sufficient domestic capacity for critical materials and materials processing. As a result, manufacturers obtain critical minerals through a mix of foreign imports, rapidly expanding domestic mining/processing, and domestic closed-loop recycling. Manufacturers would prefer local to external suppliers, but for now they have to account for and bear the risks of unpredictable pricing, tariffs, and logistics.

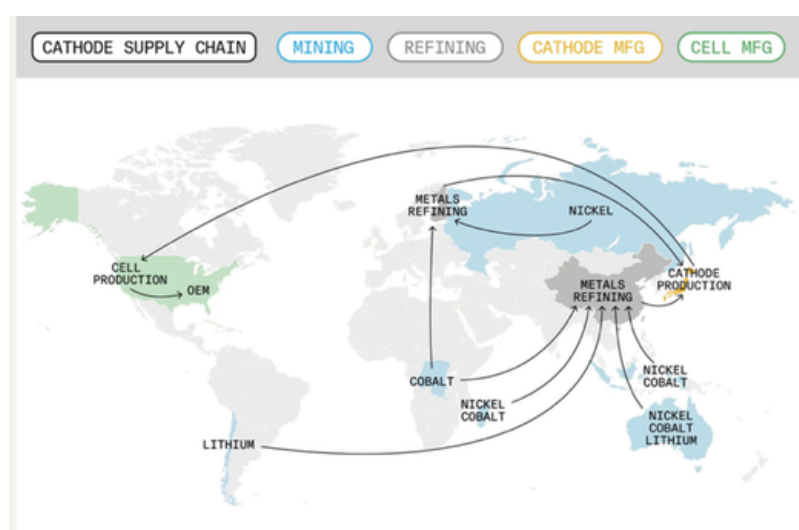


Figure 1. Critical minerals and battery materials supply chain. Source: Redwood Materials

2. Permitting constraints

Companies relay that getting permits in California is a complex, uncertain, and fragmented struggle along the entire project development process. It takes a long time to get approvals for facilities for chemical processing or for waste-derived materials. That drawn-out uncertainty makes underwriting projects risky and delays investment decisions.

Companies compare regions mostly on how quickly their project concepts can start operating—not on how much they will save in that transition. Speed and certainty outweigh comparatively small cost differences. When regions compete for manufacturers, permitting speed makes all the difference.

Core Siting Needs

Reliable, scalable power

- Small-scale facility ~2MW
- Medium-scale facility >4MW
- Reliable interconnection and ability for expansion

Predictable & Coordinated Permitting

- Predictable timelines and requirements for permits
- Coordinated pathways across permitting, utilities, and safety regulators

Manufacturing-ready sites

- Infrastructure-ready
- Proximity to major transportation corridors and ports
- Waste treatment, storage, and disposal
- Pre-permitted and pre-zoned sites

Skilled Workforce

- Industry-aligned training pathways
- Coordinated workforce pipelines

Co-location with suppliers + Customers

- Access to feedstocks, suppliers, and industrial ecosystems
- Strong market demand

3. Cost constraints

High operating costs

In their siting decisions, companies also assess the high costs of labor, energy, real estate, and labor against the advantages they may bring. For example, employers value a region's skilled workforce, but higher labor costs show up on a balance sheet, while the advantages of more skilled labor do not.

4. Incentives gaps

While often not the key determining factor in their siting decisions, coordinated incentive programs from other regions of the U.S. strongly influence major employer siting decisions.

Employers related that other regions, like the Midwest and Southeast, are actively vying for battery manufacturing investments. Typical employer attraction programs combine financial incentives, tax credits, workforce funding, and site readiness into one comprehensive package. These strategically streamlined upfront terms provide a warm welcome while also conferring certainty and speed.

While California has a variety of incentive programs available, and in many cases has strong advantages in innovation, talent, and infrastructure, California lacks the coordinated attraction program that other regions have, resulting in losing California companies to other states and failing to compete for major opportunities.

5. Workforce development

While workforce development is often cited as a key component of manufacturing competitiveness, employers generally ranked it below permitting, power availability, infrastructure readiness, and overall project economics. Employers viewed workforce challenges as more solvable through training and partnerships, whereas permitting, utility interconnection, and site readiness were seen as more significant barriers to growth.

Workforce discussions were also framed more as a cost competitiveness issue than a labor availability issue. Employers described the workforce as highly capable but emphasized that manufacturing decisions ultimately depend on whether products can be produced and sold competitively once labor costs are factored in. Several noted they would accept higher operating costs if it meant faster project timelines and greater certainty.



Opportunities

We identified seven measures that the region could apply to take a more strategic approach to its industrial development. These steps could reduce uncertainty, lower the costs, and speed up timelines for manufacturers.

- 1 Pre-Permitted Manufacturing Sites** Manufacturing-ready sites (“advanced industrial campuses”) with pre-negotiated permits, a specialized local government concierge that serves as a single point of contact from site selection through project approval and facility operation, and “plug-and-play” infrastructure, could trim timelines, reduce risk and minimize uncertainty.
- 2 Shared Infrastructure for Manufacturing, Recycling, and Scale-Up** Facilities with shared infrastructure—including waste, water, hazardous materials processing, and feedstock aggregation—alongside shared pilot-scale and rental manufacturing capacity could significantly reduce costs and risk for emerging manufacturers. Co-locating these systems would reduce liabilities associated with transporting hazardous materials and provide startups and early-stage companies with access to “pay-as-you-go” production environments to test assumptions, validate technologies, demonstrate manufacturability, and accelerate commercialization before investing in full-scale facilities.
- 3 Targeted Incentives and Cost Structures** Instead of broad subsidies, employers prefer upfront incentives, lower electricity rates, local workforce development stimulus measures, recycling tax credits or implementing a mandate like the European Union’s Extended Producer Responsibility (EPR)¹ which requires battery makers to manage collection and recycling of materials. This forces a closed-loop circular economy rather than subsidizing it.
- 4 Leverage Government Procurement and Offtake Agreements** Technology itself is often not the challenge but rather securing sufficient demand to justify investing in manufacturing. California is one of the world’s largest markets for clean energy products, including advanced batteries. Government procurement can help address this challenge by creating a reliable, long-term market for domestically manufactured products. Through direct purchasing programs, preferred purchasing requirements, or long-term contracts, government entities can provide manufacturers with greater revenue certainty, reducing investment risk and making it easier to raise capital for new facilities.

¹ <https://eur-lex.europa.eu/eli/reg/2023/1542/oj>

5 Workforce Development Ecosystem Battery manufacturing offers entry-level, middle-skill, technical, and advanced engineering roles spanning production, automation, materials processing, systems integration, and facility operations. Employers highlighted the importance of coordinated workforce pathways through community colleges, apprenticeships, and on-the-job learning to build the technical skills required for advanced manufacturing. Many observed that workers from adjacent industries have transferable skills and can successfully transition into these roles when provided with the right training.

Working with labor unions was generally viewed differently depending on company size and stage of growth. Early-stage and growth-stage companies often expressed hesitation about traditional labor-management structures due to their small workforce sizes and rapidly changing operating environments. However, employers were receptive to working with unions and labor organizations as training and workforce development partners.

6 Strategic Positioning: Innovation + Early Manufacturing A key insight is that the Bay Area is best positioned to build off of its strength in advanced battery research and development to focus on early-stage prototyping and commercialization (i.e. small to mid-size manufacturing) tapping the front end of the battery value chain, rather than focusing on large-scale manufacturing as the only objective.

7 Community and Environmental Stewardship Manufacturing will only be successful in California if communities are engaged in the process and strong environmental standards for air, water, waste, and safety are maintained. Engaging and educating communities through town halls or advisory groups would help balance environmental protection and safety standards with innovation and industrial activity.

“California is already a global leader in battery innovation. The opportunity now is to make it a global manufacturing hub as well. That will require a skilled, industry-ready workforce, turnkey and power-ready sites, predictable permitting, competitive electricity rates, and durable state and federal support. BAHMRI is helping build that ecosystem so companies can scale here with speed and confidence, creating high-quality jobs while producing the batteries needed for a more resilient grid, lower energy costs, and less pollution.”

— Peter Frischmann, CEO, Sepion Technologies

Methodology

Within our qualitative research, jointly conducted by New Energy Nexus and UC Berkeley Labor Center, we analyzed thirteen one-on-one interviews with employers from key segments of the battery ecosystem. We chose companies that:

- work across the battery value chain
- have existing operations or research ties in California
- are potentially fit for co-location within Contra Costa's industrial ecosystem
- are at commercialization stage and have near-term facility needs

Our interviews followed a standardized form. We explored siting criteria, permitting challenges, workforce requirements, supply-chain dependencies, and perspectives on locating manufacturing in California. This allowed us to distill key industry needs. Responses have been aggregated and anonymized to preserve confidentiality.

We also facilitated and analyzed discussions from both the Clean Energy Business Roundtable and the Contra Costa High-Road Battery Roundtable. These discussions gather stakeholders from the industry, workforce, public sector, and the local community. This allowed us to validate our findings, identify shared challenges, and define potential solutions through cross-sector dialogue.

Together, all these inputs reflect the current market dynamics and outline practical pathways to manufacturing batteries locally at scale.

Contact us:



Areana Flores

Program Director, New Energy Nexus California

areana.flores@newenergynexus.com



Acknowledgements

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