NEW ENERGY NEXUS California

Contra Costa County:

High-Road Battery Innovation Hub

STRATEGY AND ACTION PLAN
SEPTEMBER 2026







Executive Summary

Contra Costa County has an opportunity to become California's premier location for midstream battery manufacturing by creating a shared manufacturing platform that lowers the barriers to commercialization and industrial scale-up, while demonstrating a high-road model for new advanced manufacturing. As the oil refining and heavy industrial center of the Bay Area for more than a century, Contra Costa County's economy is in transition as California decarbonizes. This transition presents an enormous opportunity to leverage Contra Costa's highly skilled workforce and industrial infrastructure to build a High-Road Battery Innovation Hub, just minutes away from the heart of the Bay Area's innovation ecosystem, where researchers and start-ups are testing new technologies and preparing their companies to scale to larger scale manufacturing.

The Hub will not simply provide industrial space, an increasingly scarce commodity in the Bay Area; it will integrate manufacturing-ready sites, shared production infrastructure, workforce development, environmental stewardship, and coordinated public services into a single platform that enables companies to move from innovation to commercial production faster, at lower cost, and with less risk.

Rather than asking individual companies to overcome permitting, infrastructure, workforce, and supply chain barriers independently, the Hub addresses these challenges proactively, through built-in partnerships with government, workforce, educational entities.

> ***This Strategy and Action Plan summarizes the work of a robust stakeholder group, the Contra Costa High-Road Battery Roundtable and outlines key strategies for Contra Costa County to build a High-Road Battery Innovation Hub.***

PILLAR	STRATEGY	PRIORITY ACTIONS
STRATEGY	Strategy 1: Develop Manufacturing-Ready Infrastructure	1.1 Identify Pre-Qualified Manufacturing Sites 1.2 Modernize Industrial Infrastructure 1.3 Develop Shared Manufacturing and Circular Infrastructure 1.4 Establish Manufacturing Concierge
MANUFACTURING ECOSYSTEM	Strategy 2: Build a Competitive Manufacturing Ecosystem	2.1 Develop a Shared Pilot Manufacturing Center 2.2 Build Innovation and Commercialization Partnerships 2.3 Expand Access to Capital 2.4 Promote the Contra Costa High-Road Battery Innovation Hub
HIGH-ROAD WORKFORCE	Strategy 3: Develop a High-Road Workforce System	3.1 Establish a High-Road Battery Manufacturing Workforce Program 3.2 Support Workforce Transition
ENVIRONMENTAL, WORKER, AND COMMUNITY HEALTH	Strategy 4: Advance Environmental, Worker, and Community Health	4.1 Establish Environmental Best Practices & Standards 4.2 Develop Model for Worker Health & Safety Build Community Partnership and Accountability

Background

What is “High-Road”?

A high-road approach involves a collective strategy to grow a sector as a race-to-the-top instead of a race-to-the-bottom. In a high-road approach, employers, workers, and communities work together to support business growth, quality jobs, strengthening worker voice and skills, protecting environmental and community health, and ensuring that public investment produces durable regional benefits.

Batteries as an Engine for Economic Development

Advanced batteries have become one of the foundational technologies of the global energy transition. While batteries first gained prominence through electric vehicles, their role has expanded significantly to include grid-scale energy storage, microgrids, industrial electrification, backup power systems, defense applications, and emerging technologies such as aviation and maritime transportation. As renewable energy deployment accelerates and electricity demand increases, battery manufacturing has become both an economic opportunity and a strategic national priority.

Globally, the lithium-ion battery market exceeded USD 150 billion in 2025 (International Energy Agency, 2026), driven by rapid growth in electric vehicles and stationary energy storage. Industry forecasts project continued expansion through 2035 as battery technologies diversify beyond lithium-ion to include solid-state, sodium-ion, and other next-generation chemistries. Energy storage is expected to become one of the fastest-growing market segments as electric grids modernize and demand for resilient power systems increases.

National Priority

In the United States, battery manufacturing has become increasingly important to economic competitiveness, national energy security, and domestic supply chain resilience. Federal investments through the Inflation Reduction Act, Bipartisan Infrastructure Law, and CHIPS and Science Act have accelerated manufacturing investment across the country. At the same time, manufacturers continue to face intense international competition, particularly from Asia, where much of today's battery manufacturing capacity is concentrated. Regions that manufacture these technologies capture supply chains, suppliers, workforce development, intellectual property, and long-term economic value.



Figure 1. Battery Value Chain

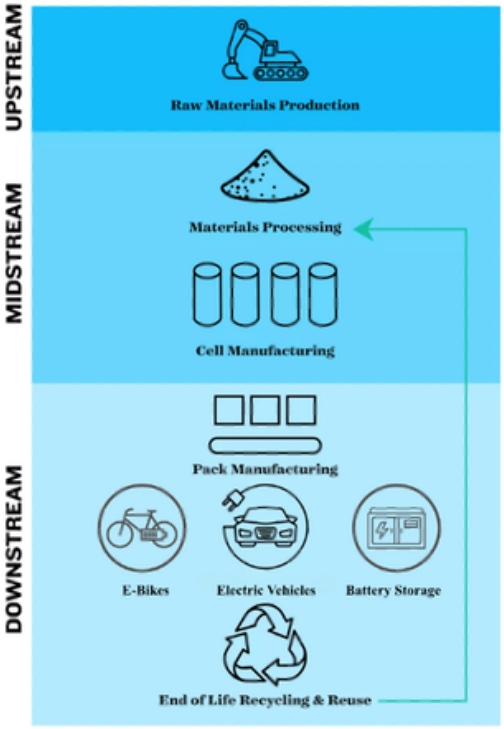
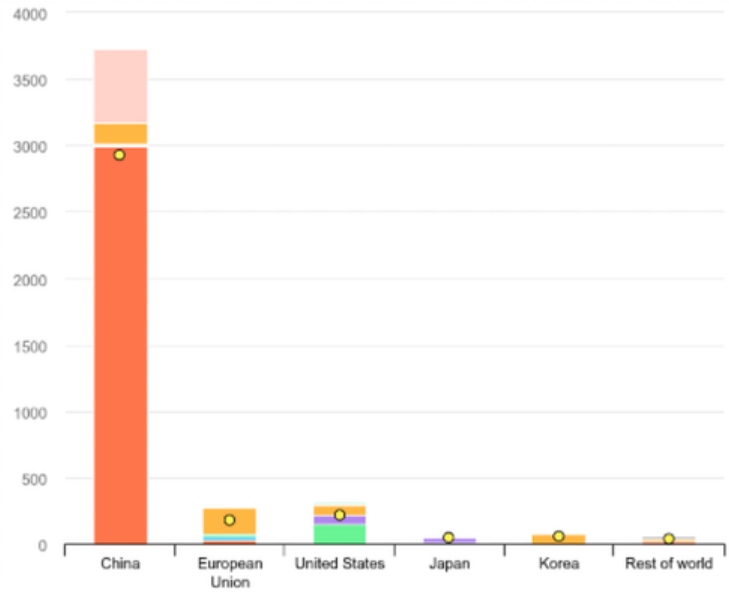


Figure 2. Installed electric lithium-ion battery cell nameplate manufacturing capacity by region and location of manufacturer's headquarters, 2025.



Source 1 Collin McKerracher et al., Electric Vehicle Outlook 2025, BloombergNEF, https://about.bnef.com/insights/clean-transport/electric-vehicle-outlook/#key-numbers

California's Opportunity

California is recognized as a leader in cutting-edge energy innovation.
The state is home to:

- World-class universities and national laboratories
- A globally recognized startup ecosystem
- Leading electric vehicle manufacturers
- Significant venture capital investment
- Strong environmental and clean energy policies

California's Economic Blueprint[1] identifies batteries and clean energy manufacturing as strategic industries capable of driving future economic growth. The Bay Area, in particular, possesses unique assets for commercialization, including UC Berkeley, Stanford University, Lawrence Berkeley National Laboratory, and one of the world's strongest innovation ecosystems.

Yet despite these advantages, many technologies developed in California ultimately reach commercial production elsewhere, resulting in the loss of manufacturing jobs, supplier networks, and long-term economic benefits.

California's Strategic Sectors



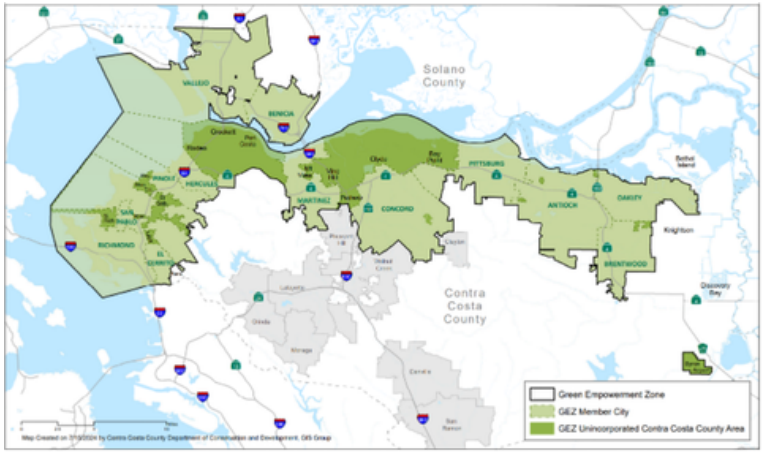
Why Contra Costa County?

Contra Costa County is uniquely positioned to become a hub for clean energy manufacturing. The region combines:

- More than a century of industrial development
- An experienced industrial workforce with transferable skills
- Proximity to ports, highways, research institutions, and suppliers
- Strong regional and state support through the Green Empowerment Zone (GEZ)[2]

Rather than replacing the region's industrial legacy, the Hub builds upon it by supporting the transition toward advanced manufacturing while preserving high-quality industrial employment. This aligns with the Green Empowerment Zone's vision, which seeks to reduce barriers to clean energy manufacturing while ensuring local economic and workforce benefits and environmental sustainability.

Figure 3. Green Empowerment Zone as approved on April 19, 2024

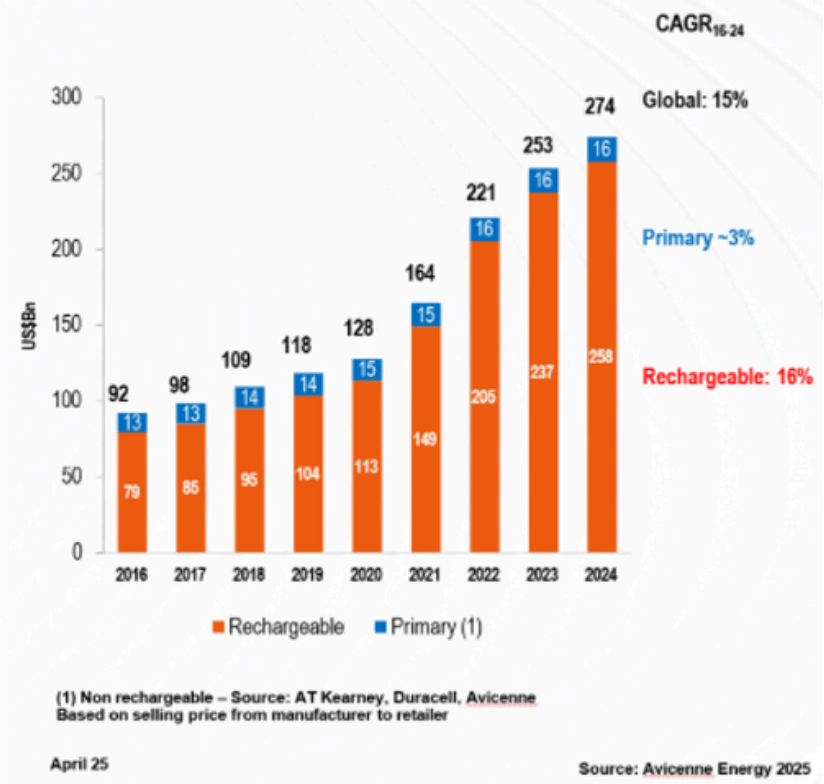


Market Demand

Batteries have become foundational infrastructure for transportation, electricity systems, industrial operations, data centers, defense, and consumer technologies. The global lithium-ion battery market exceeded $150 billion in 2025, growing more than 20% from the prior year. This growth reflects the expanding strategic role of batteries—not only in electric vehicles, but also in grid flexibility, backup power, microgrids, and digital infrastructure.

Electric vehicles remain the largest source of battery demand. Global electric-car sales surpassed 20 million in 2025, while EV battery deployment reached approximately 1.2 terawatt-hours, almost 30% higher than in 2024 and more than seven times the level recorded in 2020. EVs represented more than 70% of global battery deployment in 2025 (International Energy Agency, 2026).

Figure 4. Global Battery Market Value 2016-2024, US$ Bn

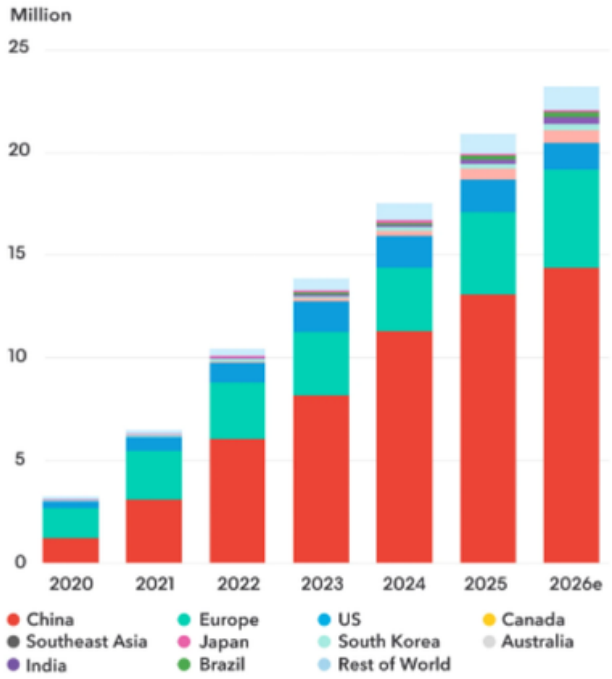




The growth opportunity, however, extends well beyond passenger vehicles. Battery demand is increasing across:

- Grid-scale and distributed energy storage
- Data centers and artificial intelligence infrastructure
- Commercial trucks, buses, ports, ferries, and maritime applications
- Industrial equipment and material handling systems
- Telecommunications and uninterruptible power supplies
- Defense, aviation, and medical devices

Figure 5. Global Passenger EV Sales by Market



Source 2. BloombergNEF, MarkLines, Jato Dynamics

Table 1. Market opportunity at a glance.

GLOBAL TRENDS	CALIFORNIA OPPORTUNITY	CONTRA COSTA ADVANTAGE
$150B+ GLOBAL BATTERY MARKET	World-leading R&D ecosystem	Industrial legacy and skilled workforce
GROWING DEMAND FOR EVS, GRID STORAGE & DATA CENTERS	Largest battery storage market in the U.S.	Northern Waterfront Economic Development Initiative, Green Empowerment Zone
FEDERAL INVESTMENT IN DOMESTIC MANUFACTURING	Strong startup and venture capital ecosystem	Manufacturing-ready industrial land
SUPPLY CHAIN RESHORING	State policy support	Ports, utilities, and national labs
GROWTH IN RECYCLING AND BATTERY MATERIALS	Increasing demand for grid storage	Opportunity to become California's commercialization hub for midstream battery materials

The battery market is expanding, but manufacturing capacity remains highly concentrated. China produced nearly three-quarters of the world's electric cars in 2025 (International Energy Agency, 2026) and continues to hold a dominant position across battery cells, components, and materials processing. This concentration creates strategic risks for the United States, including exposure to:

- Trade disruptions and tariffs
- Critical-mineral price volatility
- Limited domestic processing capacity
- Long transportation routes
- Dependence on overseas components and manufacturing equipment
- Competition for intellectual property and technical expertise

The opportunity is not simply to produce more battery cells, but to strengthen the entire battery manufacturing ecosystem. Although recent federal investments have successfully expanded cell manufacturing and downstream assembly, critical upstream and midstream segments, including materials processing, precursor production, battery components, testing, and recycling, remain underdeveloped.

Building these supply chains will require sustained investment and long-term market certainty. Manufacturers and investors must have confidence that demand and public policy will persist long enough to justify capital-intensive investments, creating an important role for government through durable incentives, procurement, infrastructure investment, and other long-term market commitments. Addressing these gaps presents an opportunity to build a more resilient domestic supply chain while capturing greater economic value.

The Need for Action

While demand for batteries continues to grow, manufacturers consistently report that California's innovation advantages are offset by barriers that increase the cost and uncertainty of manufacturing. Employer interviews (New Energy Nexus, 2026) conducted as part of this initiative identified several recurring challenges:

- Manufacturing-ready industrial sites are difficult to find.
- Power interconnection timelines are long and uncertain.
- Permitting is fragmented across multiple agencies.
- Pilot-scale manufacturing infrastructure is limited.
- Domestic supply chain infrastructure remains incomplete.
- Workforce systems are not fully aligned with employer needs.

> **These challenges increase commercialization risk and encourage manufacturers to locate production elsewhere despite maintaining research and development activities within California.**

From Insight to Action

Recognizing that these challenges cannot be solved by any single organization, New Energy Nexus (NEX) and the UC Berkeley Labor Center convened the Contra Costa High-Road Battery Roundtable, a collaborative stakeholder engagement process designed to develop a shared strategy for advanced battery manufacturing. Over the course of 8 months, the Roundtable brought together manufacturers, labor organizations, community groups, environmental advocates, workforce organizations, educators, economic development practitioners, and government agencies to build a common understanding of opportunities and challenges and to co-design solutions for a high-road manufacturing ecosystem.

The process was intentionally structured to move from knowledge to implementation through a series of facilitated discussions and collaborative design sessions. Organizations were not asked to endorse a specific proposal, but to provide feedback to NEX and the Labor Center, which has been incorporated throughout this Action Plan.

Figure 6. Contra Costa High-Road Battery Roundtable Process





The Opportunity

Battery manufacturers face a fragmented industrial ecosystem. These challenges increase the time, cost, and risk of manufacturing, causing companies to commercialize technologies elsewhere despite wanting to remain in California.

The Contra Costa High-Road Battery Innovation Hub is designed to address these market failures through a coordinated manufacturing platform that provides shared infrastructure, coordinated services, workforce partnerships, and regional collaboration.

Key Business Problems

Business Problem	Description	Opportunity
Manufacturing projects take too long to launch.	Manufacturers struggle to identify industrial properties with sufficient power, compatible zoning, environmental approvals, hazardous materials infrastructure, and utility capacity. As a result, projects often experience years of delay before construction begins or employers move to other regions of the country that have sites that are already ready to go and may also be more economical.	Create manufacturing-ready sites supported by coordinated permitting and utility planning.
The commercialization gap remains too expensive.	Companies must often invest tens of millions of dollars before proving their manufacturing process at commercial scale. Limited access to pilot production facilities increases investment risk and slows technology commercialization.	Develop shared pilot manufacturing infrastructure that enables companies to validate manufacturing processes before constructing dedicated production facilities.

Key Business Problems cont.

Business Problem	Description	Opportunity
The manufacturing ecosystem is fragmented.	Manufacturers rely on suppliers, recycling facilities, testing laboratories, and specialized processors located across the country or internationally. This increases logistics costs, introduces supply chain risk, and weakens regional competitiveness.	Develop a regional manufacturing ecosystem that co-locates suppliers, manufacturers, workforce partners, and supporting services.
Workforce systems are disconnected from industry needs.	Although Contra Costa has a highly skilled industrial workforce, employers and workers lack coordinated pathways into emerging energy manufacturing occupations. Training programs, hiring systems, and employer demand remain insufficiently aligned.	Develop a workforce ecosystem that creates clear pathways into high-quality manufacturing careers.

Hypothesis

If **Contra Costa delivers a shared manufacturing platform that lowers the time, cost, and risk of manufacturing through turnkey sites, shared infrastructure, high-road workforce partnerships, predictable permitting, competitive power, and coordinated public support, then more battery manufacturers will choose to locate, scale, and invest in the region, strengthening domestic supply chains and creating high-quality jobs.**



Contra Costa High-Road Battery Innovation Hub

VISION

The Contra Costa High-Road Battery Innovation Hub will establish Contra Costa County as California's leading center for midstream battery manufacturing by accelerating the commercialization of next-generation battery technologies and strengthening California's domestic battery supply chain.

Building on the region's industrial assets, skilled workforce, transportation infrastructure, and proximity to world-leading research institutions, the Hub will create an environment where companies can innovate, validate, manufacture, and scale within a connected ecosystem. By reducing the time, cost, and risk of manufacturing, the Hub will attract private investment, create high-quality jobs, support worker transitions, and position Contra Costa as a nationally competitive destination for battery manufacturing.

Rather than competing directly for large-scale battery cell manufacturing, the Hub will focus on midstream segments of the battery value chain where California has significant innovation strengths and domestic manufacturing capacity remains limited. Potential areas include critical materials processing, battery materials and components, pilot and small to medium-scale manufacturing. The specific segments pursued by the Hub will be determined in partnership with affected communities following a comprehensive assessment of their potential environmental, public health, worker-safety, and cumulative impacts. This targeted approach will enable Contra Costa to fill critical gaps in the U.S. battery ecosystem while prioritizing activities that are appropriate for the region and complement downstream battery production.

Additionally, the Hub explicitly pursues a high-road vision for economic development, where firms locate in the region based on access to the region's innovation ecosystem, skilled workers and strong market and policy environment for clean energy manufacturing, with a focus on quality over just cost. This high-road vision includes protecting job quality and worker voice, protecting community health and the environment, and ensuring public investments produce durable regional benefits.



THE HUB CONCEPT

The Contra Costa High-Road Battery Innovation Hub operates as a shared manufacturing platform that provides manufacturers with the infrastructure, services, and partnerships needed to move efficiently from technology development to commercial-scale production.

Rather than requiring each company to independently acquire industrial property, navigate permitting, secure utilities, build pilot facilities, recruit workers, and establish supplier relationships, the Hub provides these capabilities through a coordinated regional platform that combines six integrated components described below.

Hub at a Glance

Manufacturers Need	The Hub Provides	Result
Manufacturing-ready sites	Pre-permitted, high-power industrial sites	Faster project delivery
Pilot-scale production	Shared pilot manufacturing facility and specialized equipment	Lower commercialization risk
Workforce Development	Career pathways, credentials, job quality standards, intermediary	Faster hiring, stronger talent pipelines with good job guarantees
Education and Training Partners	Community College, university, trade schools, labor organizations	Industry-aligned training programs and a pipeline of skilled workers
Coordinated permitting	Manufacturing Concierge and streamlined agency coordination	Reduced uncertainty and administrative burden
Supply chain partners	Co-located suppliers, researchers, and manufacturers	Lower costs and increased collaboration
Environmental & Worker Safety	Shared environmental infrastructure, best practices, and technical assistance.	Safer, cleaner, and more efficient manufacturing

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Example Rendering of Innovation Campus



VALUE PROPOSITION

The Contra Costa High-Road Battery Innovation Hub creates a landing pad for battery innovators of next-generation batteries to move from R&D to commercial production faster by combining manufacturing-ready infrastructure, shared production assets, and coordinated workforce development. As companies collaborate and scale, the Hub becomes the industry's living repository of manufacturing knowledge and expertise, creating a competitive advantage that compounds over time.

Strategic Action Plan

The recommendations in this Action Plan are organized into four strategic pillars:

1. **Infrastructure**
2. **Manufacturing Ecosystem**
3. **High-Road Workforce**
4. **Environmental and Worker Health**

Developed through employer interviews, technical analyses, stakeholder roundtables, and the Solutions Lab, these strategies are designed to address the barriers that manufacturers cannot solve independently. Together, they provide a roadmap for reducing commercialization risk, creating high-quality jobs, and accelerating the growth of a competitive battery manufacturing ecosystem.



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INFRASTRUCTURE

Strategy 1: Develop Manufacturing-Ready Infrastructure

GOAL

Reduce the time, cost, and uncertainty associated with establishing battery manufacturing facilities by providing manufacturers with manufacturing-ready sites, shared infrastructure, and coordinated public services.

WHY

Employer interviews consistently identified power availability, permitting uncertainty, and a lack of manufacturing-ready sites as the most significant barriers to locating and expanding production in California.

Action	Description	Quick Wins	Long-Term Actions	Proposed Partners	Success Metrics
1.1 Identify Pre-Qualified Manufacturing Sites	• Identify pre-qualified industrial sites that meet employer requirements for power, zoning, transportation access, and environmental readiness. • Standardize site information so companies can evaluate opportunities quickly and reduce development timelines. • Conduct facility-specific review that incorporates environmental and cumulative impacts, public participation, and all applicable health, safety, land-use, fire, and emergency-response requirements.	Complete site inventory and mapping of power-ready properties; prioritize opportunity sites; work with Community Advisory Group to prioritize sites.	Pre-permit sites, complete environmental reviews, and market a portfolio of manufacturing-ready locations.	Contra Costa County, Cities, PG&E, Industrial Brokers, Property Owners, Developers	Number of manufacturing-ready sites; MW of available power; reduction in project development time
1.2 Modernize Industrial Infrastructure	• Develop strategy for incentivizing landlords to modernize industrial sites and make them manufacturing ready. • Coordinate public/private investments that improve power capacity, water, and utility infrastructure needed to support advanced manufacturing growth.	Evaluate incentive models; public/private funding opportunities; complete infrastructure gap assessment.	Launch incentive program; implement priority infrastructure improvements.	Property Owners, Developers, Industrial Brokers, PG&E, Rail, Ports, Local Governments	Infrastructure investments completed; utility readiness; site occupancy
1.3 Develop Shared Manufacturing and Circular Infrastructure	Develop strategy for shared infrastructure that reduces capital costs for manufacturers, including hazardous waste infrastructure, wastewater treatment, water recycling systems, recycling and recovery of scrap materials, and remanufacturing for a circular system.	Complete feasibility study; identify circular economy partners.	Construct and operate shared infrastructure; develop battery recycling and materials recovery ecosystem.	DOE, CEC, EDA, CalRecycle, Recyclers, Developers, Manufacturers,	Number of companies using shared assets; utilization rate; materials recovered; circular economy projects
1.4 Establish a Manufacturing Concierge	Establish a single point of contact assisting manufacturers to coordinate site selection, permitting, utilities, incentives, workforce programs, and regulatory guidance, making it easier for manufacturers to navigate public processes.	Develop concierge program, permitting guide, and agency coordination protocols.	Expand concierge services into a permanent business support function.	Contra Costa County, GEZ, GO-Biz, PG&E, Economic Development Organizations	Customer satisfaction; permitting timelines; projects supported

MANUFACTURING ECOSYSTEM

Strategy 2: Build a Competitive Manufacturing Ecosystem

GOAL

Create a connected manufacturing ecosystem that enables companies to move from innovation to commercial production while strengthening domestic supply chains.

WHY

Manufacturers need more than industrial space, they need suppliers, pilot manufacturing capacity, commercialization support, and business partnerships that reduce the cost and risk of scaling production.

Action	Description	Quick Wins	Long-Term Actions	Proposed Partners	Success Metrics
2.1 Develop a Shared Pilot Manufacturing Center	Establish a shared pilot production facility for midstream battery materials where companies can validate manufacturing processes, generate commercial-scale production data, and de-risk investment before building or moving into dedicated facilities.	Complete feasibility analysis; identify lead org; develop business model, governance structure, and equipment plan.	Construct and operate a shared pilot manufacturing center.	DOE, CEC, LBNL, ECF, UC System, Manufacturers	Companies served; technologies commercialized; pilot projects completed
2.2 Build Innovation and Commercialization Partnerships	Build formal partnerships between manufacturers, research institutions, startups, investors, and public agencies to accelerate technology commercialization and collaborative problem-solving.	Launch innovation network and regular industry convenings.	Develop collaborative research, testing, and commercialization programs.	UC Berkeley, Stanford, LBNL, ECF, NEX, Industry	Collaborative projects; research partnerships; technology transfers
2.3 Expand Access to Capital	• Develop a high-road financing model to incentivize manufacturers to locate in Contra Costa. • Connect manufacturers with grants, tax incentives, venture capital, manufacturing finance, and other funding resources needed to scale production, with high-road workforce and community requirements.	Publish funding guide and identify funding opportunities.	Establish a high-road finance model for locating in Contra Costa County.	DOE, EDA, CEC, GEZ, Investors	Capital secured; projects financed
2.4 Promote the Contra Costa High-Road Battery Innovation Hub	Market Contra Costa as a nationally competitive destination for upstream and midstream battery manufacturing by highlighting available sites, workforce assets, and shared infrastructure.	Develop branding, website, and investment materials.	Conduct business attraction campaigns and national outreach.	East Bay EDA, GO-Biz, NEX, GEZ	Companies recruited; investment announcements

HIGH-ROAD WORKFORCE

Strategy 3: Develop a High-Road Workforce System

GOAL

Develop a workforce ecosystem that prepares workers for quality careers while ensuring manufacturers have access to the skilled talent needed to grow.

WHY

Contra Costa has a strong industrial workforce, but employers identified the need for better career pathways, industry-recognized training, and workforce transition programs aligned with manufacturing needs. Labor partners identified a need for consistent high-road workforce standards across the industry to ensure job quality

Action	Description	Quick Wins	Long-Term Actions	Proposed Partners	Success Metrics
3.1 Establish a High-Road Battery Manufacturing Workforce Program	• Complete a feasibility analysis for a battery workforce program, confirming need from employers and sufficient hiring for program establishment • Develop career pathways that include apprenticeships, internships, on-the-job training, and promotional opportunities. • Develop industry-recognized credentials and job quality standards. • Partner with organizations working with disinvested communities to explore pathways into battery industry. • Establish a dedicated workforce intermediary to support recruitment and hiring and serve as a connector between manufacturers, education and training providers, workforce agencies, labor organizations, and job seekers	Complete feasibility analysis; map occupations, skills, and curriculum need; develop job quality standards, identify lead organization(s); secure funding	Launch career pathways and stackable credentials; develop partnerships and launch intermediary.	Community Colleges, Workforce Development Boards, Labor, Employers	Workers trained; Completion rates; Job placement; Certifications earned; average time to hire; job quality for positions
3.2 Support Workforce Transition	Develop targeted transition pathways for refinery and other industrial workers by identifying transferable skills and providing bridge training into advanced manufacturing careers.	Conduct transferable skills assessment.	Implement transition programs and employer partnerships.	Workforce Boards, Labor, Employers	Workers transitioned; retention rates; job quality for positions

ENVIRONMENTAL, WORKER, & COMMUNITY HEALTH

Strategy 4: Advance Environmental, Worker, & Community Health

GOAL

Establish the High-Road Battery Innovation Hub as a model for responsible clean energy manufacturing that protects environmental and worker health, incorporates community participation into decision-making, and creates high-quality employment.

WHY

Contra Costa has deep experience with complex industrial activity and also bears the public health and environmental impacts of those legacy industries. The Hub has an opportunity and an obligation to establish a higher standard for the next generation of manufacturing by integrating environmental protection, worker health and safety, job quality, and meaningful community participation into how facilities are sited, developed, incentivized, and operated.

Action	Description	Quick Wins	Long-Term Actions	Proposed Partners	Success Metrics
4.1 Establish Environmental Best Practices & Standards	Develop regional guidance that promotes best available control technologies, circular manufacturing that minimizes lifecycle impacts, environmental monitoring, and continuous improvement across Hub tenants.	Publish environmental guidance and best practices; develop environmental justice siting criteria alongside Community Advisory Group	Launch clean manufacturing certification program; incorporate standards into Hub agreements and public funding; establish transparent reporting and independent monitoring; develop accountability mechanisms	Bay Area Air District, Manufacturers, Environmental Health Department, environmental health researchers and non-profits, environmental justice groups	No. of certifications; compliance performance; environmental performance indicators
4.2 Develop Model for Worker Health & Safety	Develop an occupational health and safety best practices framework for battery manufacturing that includes shared training, emergency response planning, safety leadership development, worker voice, and cross-company learning to establish a culture of continuous improvement.	Develop standardized safety and emergency response best practices	Incorporate clean energy manufacturing best practices into Contra Costa's industrial safety system; implement worker participation, safety monitoring, and continuous improvement system	OSHA, Labor, Fire Departments, Manufacturers, EHS partners, Contra Costa County, Workforce Development Board	OSHA recordable incident rate; workers trained
4.3 Build Community Partnership and Accountability	· Engage communities early and often in the development of the battery manufacturing hub through transparent communication, public reporting, facility tours, and community benefit commitments. · Establish a Community Advisory Group, providing stipends for community representatives to participate in Hub planning, governance, implementation, and performance oversight.	Identify community representatives; develop charter, stipend structure, and decision-making roles; launch advisory group; launch engagement plan	Develop visitor center, public dashboard, and ongoing engagement program; incorporate community recommendations into Hub governance; establish ongoing public reporting and feedback processes	Community organizations, environmental justice groups, Local Governments	Community participation/retention; recommendations acted upon; facility tours; community benefit commitments

Implementation Roadmap

The strategies and actions presented in this Action Plan are intended to be implemented over multiple years through coordinated public and private investment. The Implementation Roadmap identifies the major phases of work, key milestones, and priority activities needed to establish the Contra Costa High-Road Battery Innovation Hub. It is designed to guide decision-makers in sequencing investments, coordinating implementation across partners, and tracking measurable outcomes as the Hub evolves from planning to full-scale operation.

Phase	Focus	Timeline
Phase 1: RESEARCH	Identify employers for manufacturing sites and pilot production facility, hiring needs for regional workforce program	3-6 months
Phase 2: PLAN	Utility and infrastructure assessment, site identification, funding strategy	6-12 months
Phase 3: BUILD	Infrastructure and environmental planning, permitting, workforce partnerships, recruit initial manufacturers	12–48 months
Phase 4: DEPLOY	Manufacturing-ready sites, pilot production facility and campus development, workforce program	24–60 months
Phase 5: SCALE	Expand hub, attract additional manufacturers and suppliers, evaluate outcomes	60+ months

Strategic Decision Support Tools

The Contra Costa High-Road Battery Innovation Hub Action Plan is grounded in data-driven analysis and stakeholder engagement. Rather than relying solely on best practices or theoretical models, the recommendations presented in this report are informed by a series of strategic decision-support tools developed throughout the planning process. These analyses were designed to identify market opportunities, validate employer needs, assess regional assets and constraints, and evaluate potential implementation strategies.

These analyses are preliminary planning tools and are not intended to substitute for project- or facility-specific environmental review. Any future development associated with the Hub would remain subject to all applicable regulatory requirements, including environmental review under the California Environmental Quality Act (CEQA), as applicable. Future environmental review would evaluate the specific project and its potential impacts and provide opportunities for public participation consistent with applicable law.

Tool	Purpose	How it informed the Action Plan
Employer Assessment	Understand manufacturer needs	Infrastructure, workforce, permitting
Site Assessment	Identify manufacturing-ready sites	Infrastructure Strategy
Battery Value Chain Analysis	Determine competitive opportunities	Manufacturing Ecosystem Strategy
Environmental Assessment	Evaluate environmental impacts	Environmental & Worker Excellence Strategy
Solutions Lab	Co-design recommendations	All four strategies

TOOL 1

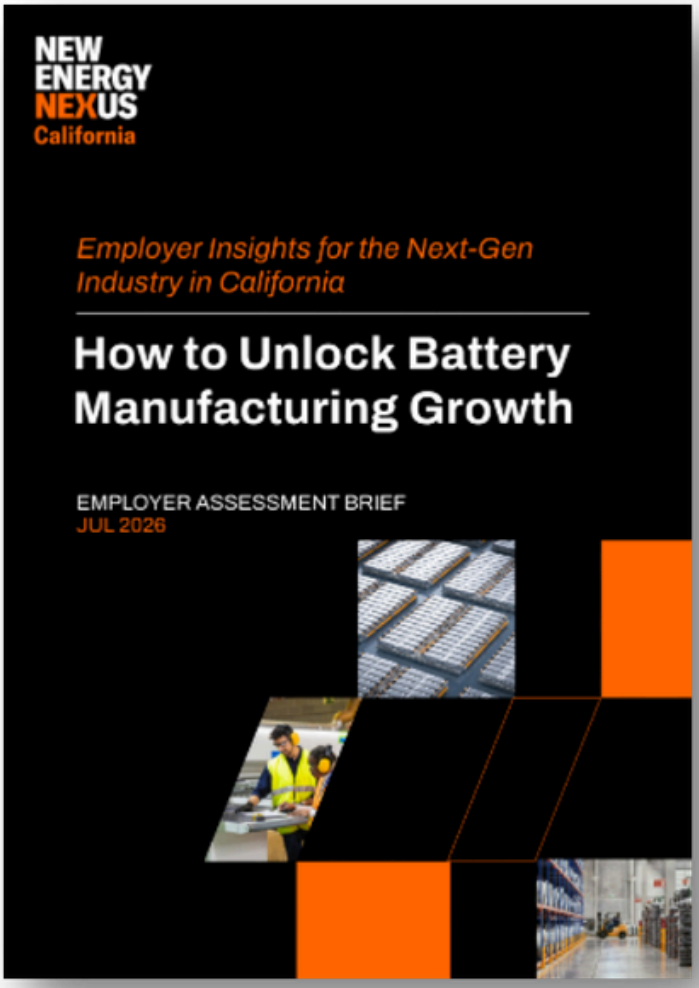
Employer Assessment Brief (New Energy Nexus)

Purpose: Identify the factors that influence where advanced energy manufacturers choose to locate and scale production, understand the barriers limiting manufacturing growth in California, and identify opportunities where regional investments can reduce commercialization risk.

Key Findings:

- Manufacturers prioritize manufacturing-ready sites, power availability, permitting certainty, and shared infrastructure over financial incentives alone.
- The commercialization gap between research and full-scale production remains one of the greatest barriers to investment.
- Workforce availability is important but is secondary to infrastructure and regulatory certainty in siting decisions.
- Manufacturers expressed strong interest in shared manufacturing infrastructure and coordinated public support services.

Strategic Implications: The findings informed the Infrastructure, Manufacturing Ecosystem, and Workforce strategies by identifying the investments that would have the greatest impact on reducing cost, risk, and time-to-market.



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TOOL 2

Heavy Power Manufacturing Sites Analysis (UC Berkeley Labor Center)

Purpose: Evaluate currently available (for lease) industrial sites with heavy power in the Bay Area and Green Empowerment Zone (green outline), to assess the potential for the region to house clean energy manufacturers.

Key Findings:

- While Contra Costa County has significant industrial acreage, the county has a minimal number of heavy power industrial sites available for leasing
- As a result, industrial brokers are largely not directing clean energy manufacturers to the region
- Development or redevelopment of new heavy power sites is a foundational need to enable Contra Costa and the GEZ's clean energy manufacturing strategic priority

Strategic Implications: The assessment informed the Infrastructure Strategy by identifying opportunities to develop a network of manufacturing-ready sites and prioritize infrastructure investments.

Figure 7. Available manufacturing sites and power capacity as of March 2026



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TOOL 3

Battery Value Chain Analysis (New Energy Nexus)

Purpose: Evaluate the battery value chain to identify where Contra Costa has the greatest opportunity to compete, understand the infrastructure requirements, potential costs, and workforce opportunities of each manufacturing segment.

Key Findings:

- Manufacturing segments vary considerably in facility size, power requirements, capital intensity, workforce needs, and environmental considerations.
- Significant market opportunities exist in the upstream and midstream battery supply chain.
- California has strong research and innovation capabilities but limited manufacturing capacity in several critical segments.
- Shared infrastructure can support multiple stages of the value chain while reducing costs for manufacturers.

Strategic Implications: The analysis informed the Manufacturing Ecosystem Strategy by identifying target industries, shared infrastructure needs, and opportunities to strengthen regional supply chains.

Battery Value Chain	Example Facility	Description	Power Needs	Cost Estimate	Hazardous Materials	Air Pollution	Industrial Wastewater	Working Conditions	Example Working Conditions	Workforce	Jobs Created
Oil and Gas Refining (baseline)		Heating and chemically treating crude oil to separate it into useful products like gasoline, diesel, and jet fuel	Small-Mid Size: 10-200 MW Large-Scale: 200-600+ MW	Small-Mid Size: USD 100M-8B Large-Scale: USD 10B-25B+				Industrial, high-temperature environments with large equipment and potential exposure to chemicals, strong processing safety systems.		Process operators, chemical/mechanical engineers, maintenance crews, control room staff, safety and environmental specialists.	Small-Mid Size: 500-1000 Large Scale: 1,000+
Raw Materials (not applicable for Contra Costa)		Mining - extracting rock Refining - breaking rock to extract minerals	Small-Mid Size: 5-20 MW Large-Scale: 50-100 MW	Small-Mid Size: USD 50M-300M Large-Scale: USD 500M-2B+ +20-50% more if NOT infrastructure ready				Mostly outdoors with pits/underground workings; indoor processing and workshop areas are ventilated industrial spaces.		Equipment operators, technicians, laborers, and engineers (mining, geological, environmental) plus safety specialists.	Small-Mid Size: 200-1000 Large Scale: 1,000+
Materials Processing		Minerals are cleaned, refined, and turned into usable forms.	Small-Mid Size: 10-50 MW Large-Scale: 100-300 MW	Small-Mid Size: USD 100M-500M Large-Scale: USD 500M-1B+ +25-60% more if NOT infrastructure ready				High heat, heavy equipment environment with strong ventilation to control dust, fumes, and chemicals.		Chemical technicians, plant operators, maintenance crews, engineers and safety specialists.	Small-Mid Size: 150-500 Large Scale: 500+
Cell Component		Processed materials turned into building blocks of battery (i.e. cathode, anode, separators, electrolytes)	Small-Mid Size: 5-30 MW Large-Scale: 50-150 MW	Small-Mid Size: USD 50M-200M Large-Scale: USD 200M-600M +20-50% more if NOT infrastructure ready				Cleaner, controlled environments with dust and solvent management and some dry-room/clean-room-like areas.		Technicians for coating/forming, QC staff and chemical/materials engineers.	Small-Mid Size: 200-800 Large Scale: 800+
Cell Manufacturing		All components are put together to create individual battery cell	Small-Mid Size: 10-40 MW Large-Scale: 200-500+ MW	Small-Mid Size: USD 80M-150M Large-Scale: USD 1B-5B+ +30-70% more if NOT infrastructure ready				Highly controlled "dry rooms" or cleanroom-like environments with conveyors and industrial robots.		Skilled technicians for automated equipment, cleanroom workers, process engineers and QA teams.	Small-Mid Size: 1,000-3,000 Large Scale: 3000+
System Assembly		Battery cells are grouped together into larger packs that goes into things like electric cars or energy storage system	Small-Mid Size: 2-10 MW Large-Scale: 20-80 MW	Small-Mid Size: USD 20M-100M Large-Scale: USD 100M-300M+ +10-30% more if NOT infrastructure ready				Clean, climate-controlled, and organized; packaging and industrial robots.		Assembly line workers, electricians, technicians and engineers integrating cells into full systems.	Small-Mid Size: 300-1,500 Large Scale: 1,500+
Recycling		At the end of a battery's life, it's taken apart so valuable materials can be recovered and reused	Small-Mid Size: 5-20 MW Large-Scale: 30-100 MW	Small-Mid Size: USD 50M-150M Large-Scale: USD 150M-500M+ +20-50% more if NOT infrastructure ready				Use ventilation, filtration, and sealed systems to safely handle used batteries, control dust, and manage any gases/materials.		Industrial workers dismantling batteries, machine operators, chemical technicians and environmental health/safety experts.	Small-Mid Size: 100-400 Large Scale: 400+

NEW ENERGY NEXUS California

TOOL 4

Environmental & Public Health Risks – Clean Energy Manufacturing (PSE Healthy Energy)

Purpose: Evaluate the environmental and public health impacts of battery manufacturing and select other clean energy manufacturing technologies

Key Findings:

- Battery manufacturing has a very low risk of air pollution and water pollution
- The primary risk is around hazardous material waste, where there is medium to high risk depending on the type of battery
- Risks can be minimized through strong engineering controls and operational best practices, including best practices for occupational health and safety
- In comparison to legacy heavy industry in Contra Costa, such as chemical manufacturing and oil and gas, most forms of Clean Energy Manufacturing, including battery manufacturing, pose significantly less risk to the community, and with proper regulatory oversight, can support the community's vision for a transition to cleaner new industries

Strategic Implications: The assessment informed the Environmental & Worker Health Strategy by identifying that hazardous material management is the primary environmental risk that needs to be managed with battery manufacturing, and that this risk can be effectively minimized through facility design, best practices and proactive environmental stewardship into the Hub's design.

Category	Sub-Category	Air Pollution Risk (Confidence)	Water Pollution Risk (Confidence)	Hazardous Waste Risks (Confidence)
Batteries	Solid State Battery	Very Low (B)	Very Low (B)	High (B)
	Non-Vanadium Flow Battery	Very Low (C)	Very Low (C)	Medium (B)
	Thermal batteries	Very Low (C)	Very Low (C)	Medium (B)
	Module assembly	Very Low (A)	Very Low (A)	Very Low (C)
	Cathode material	Low (C)	Very Low (C)	Low (B)
Electric Grid Components	Electronics Manufacturing Services	Low (B)	Low (B)	Medium (B)
	Power Electronic Module Assembly	Low (B)	Low (B)	Medium (B)
	High Voltage Distribution Grid Transformers	Medium (B)	Low (B)	High (B)
	High Voltage Transmission Grid Transformers	High (B)	Medium (B)	High (B)
	Medium Voltage Switchgear	Low (B)	Low (B)	Low (B)
	High Voltage Switchgear	Low (C)	Low (C)	Low (C)
Heat Pumps	Commercial and Residential Water Heaters	Low (C)	Low (B)	Medium (C)
Electrolyzers	Catalyst, Stack, and Module Assembly	Very Low (C)	Very Low (C)	Medium (B)
EV Chargers	Direct Current Fast Charger, Final Assembly	Very Low (C)	Very Low (C)	Very Low (C)
Zero Emissions Vehicles	Light to Medium Duty Vehicles, Final Assembly	Very Low (C)	Very Low (C)	Medium (C)
	Drone Manufacturing, Final Assembly	Very Low (C)	Very Low (C)	Very Low (C)
	Electric Ferry Manufacturing, Final Assembly	Very Low (C)	Very Low (C)	Very Low (C)
	Electric Powertrain Manufacturing	Very Low (C)	Very Low (C)	Very Low (C)
Offshore Wind	Floating Offshore Wind Platform	Medium (C)	Very Low (C)	Very Low (C)
	High Voltage Direct Current Subsea Cable	Very Low (C)	Very Low (C)	Very Low (C)

TOOL 5

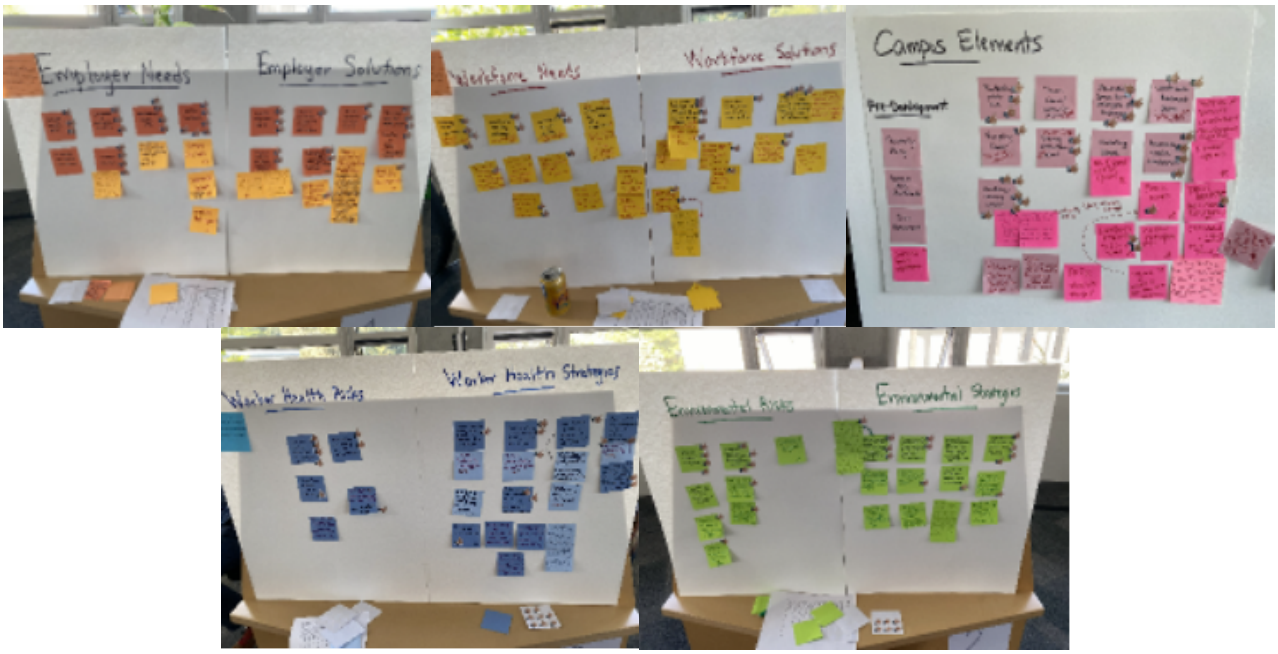
Solutions Lab

Purpose: Bring together manufacturers, workforce organizations, labor, public agencies, environmental justice and community representatives, and economic development partners to co-design solutions that address the barriers identified throughout the planning process.

Key Findings:

- Strong consensus emerged around developing a regional manufacturing ecosystem that integrates infrastructure, workforce, innovation, and community engagement.
- Shared pilot manufacturing infrastructure emerged as a high-priority investment.
- Manufacturers emphasized the importance of coordinated permitting, workforce partnerships, and manufacturing-ready sites.
- Participants identified the county's environmental stewardship, hazardous materials experience and worker expertise with chemical safety as competitive advantages rather than just compliance obligations.

Strategic Implications: The Solutions Lab validated the proposed implementation strategies and informed the design of the Contra Costa High-Road Battery Innovation Hub, including its governance, infrastructure priorities, workforce initiatives, and shared services.



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Appendix

Employer Assessment Brief
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Battery Value Chain Analysis
https://www.newenergynexus.com/wp-content/uploads/2026/09/Battery-Value-Chain-50-x-30-in-1.png

PSE Environmental Risk Analysis for the GEZ.
https://www.psehealthyenergy.org/work/environmental-and-public-health-risks-from-clean-energy-manufacturing/

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