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New Energy Nexus EPIC 5 Concept Proposal

Additional submitted attachment is included below.

Electric Program Investment Charge 2026–2030 (EPIC 5)
Research Concept Proposal Form

The California Energy Commission (CEC) is currently soliciting research concept ideas and other input for the Electric Program Investment Charge 2026–2030 (EPIC 5) Investment Plan. For those who would like to submit an idea for consideration, please complete this form and submit it to the CEC by August 8, 2025. More information about EPIC 5 is available below.

To submit the form, please visit the e-commenting link: https://efiling.energy.ca.gov/EComment/ECommentSelectProceeding.aspx and select the Docket 25-EPIC-01. Enter your contact information and then use the "choose file" button at the bottom of the page to upload and submit the completed form. Thank you in advance for your input.

1. **Please provide the name, email, and phone number of the best person to contact should the CEC have additional questions regarding the research concept:**

Derrick Tang, Head of Programs
derrick.tang@newenergynexus.com
(510) 394-4355

2. **Please provide the name of the contact person's organization or affiliation:**

California Clean Energy Fund (operating under the brand name New Energy Nexus)

3. **Please provide a brief description of the proposed concept that you would like the CEC to consider as part of the EPIC 5 Investment Plan. What is the purpose of the concept, and what would it seek to do? Why are EPIC funds needed to support the concept?**

New Energy Nexus proposes a set of interrelated concepts to accelerate California's clean energy transition from research to commercialization, manufacturing, and equitable deployment.

Concept 1: Homegrown Battery Hubs
A shared-use, nonprofit pilot facility network for scaling battery materials processing, prototyping, and recycling through a regional approach. Homegrown Battery Hubs will:

- Enable in-state scaling of cathodes, anodes, and electrolytes, including Lithium Valley integration.
- Foster inclusive manufacturing clusters in transitioning industrial regions.

- Support job training and incubation for local high-road employment in clean energy manufacturing.

Concept 2: CalTestBed Clusters
An evolved testing and validation program focused on meeting specific grid challenges, emphasizing deployment readiness for integrated DER, electrification, and resilience technologies. CalTestBed Clusters will:

- Build on an established network of world-class testing facilities to focus on technology themes, addressing system-level DER, building decarbonization, and battery performance testing.
- Support UL certification, utility interconnection, and climate readiness validation.
- Prioritize solutions for disadvantaged and climate-vulnerable communities, including Lithium Valley.

Concept 3: CalSEED Pathways
An adaptable, community-centered innovation program focused on building an inclusive innovation pipeline and accelerating deployment for climate equity and resilience. CalSEED Pathways will:

- Build on the proven CalSEED model by providing funding and wraparound services for underrepresented entrepreneurs working on distributed energy, building decarbonization, electrification, and local microgrids.
- Focus on pathways to demonstration, commercialization, and deployment, especially in frontline communities.
- Emphasize community-rooted innovation and local partnerships.

4. **In accordance with Senate Bill 96, please describe how the proposed concept will "lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory energy goals." For example, what technical and/or market barriers or customer pain points would the proposed concept address that would lead to increased adoption of clean energy technology or innovation? Where possible, please provide specific cost and performance targets that need to be met for increased industry and consumer acceptance. For scientific analysis and tools, provide more information on what data and information gaps the proposed concept would help fill, and which specific parties or end users would benefit from the results, and for what purpose(s)?**

Barriers and Breakthroughs:

Concept	**Barrier**	**Breakthrough**
Homegrown Battery Hubs	No accessible infrastructure for	Enable processing of lithium hydroxide/carbonate and battery-grade

	scaling battery materials	cathode/anode materials; support modular pilot lines to serve multiple chemistries (e.g., LFP, LMFP, sodium-ion, zinc-based chemistries)
CalTestBed Clusters	DER startups struggle to validate and certify new technologies	Provide third-party validation for integrated DERs, energy management systems, and long-duration storage; offer UL pre-certification and interconnection prep services
CalSEED Pathways	Communities most vulnerable to climate change have less funding and access to innovative climate solutions	Source and support localized solutions for resilience (e.g., cooling technologies, community storage, electrified appliances, heat pumps); create lower cost pathways for technology deployment in areas facing extreme climate stress

Targeted Outcomes:

- Enable new clean energy technologies to reach market 2-4 years faster.
- Provide independent performance data to unlock private investment and procurement.
- Bridge early-stage R&D to late-stage deployment with community benefit and cost savings to ratepayers.

Key Beneficiaries:

- Frontline communities, tribal nations, labor-transition regions
- Public agencies and utilities seeking trusted clean tech solutions
- Entrepreneurs and startups
- California ratepayers benefiting from affordable, resilient, and equitable deployment of technologies

5. **Please describe the anticipated outcomes if this research concept is successful, either fully or partially. For example, to what extent would the research reduce technology or ratepayer costs and/or increase performance to improve the overall value proposition of the technology? What is the potential of the innovation at scale? How will the innovation lead to ratepayer benefits in alignment with EPIC's guiding principles to improve safety,[i] reliability,[ii] affordability,[iii] environmental sustainability,[iv] and equity?[v]**

Concept	Outcomes	Ratepayer Benefits
Homegrown Battery Hubs	50+ companies supported 300+ high-road jobs 30,000+ cells/year produced	Lower storage and EV costs, local supply chain resilience,

		community economic development
CalTestBed Clusters	70+ companies validated $500M+ in follow-on investment	Safer, cheaper, faster-to-deploy DERs; grid modernization and reliability
CalSEED Pathways	100+ entrepreneurs supported 50% underrepresented founders 70% in frontline communities	Community-designed clean energy solutions, improved affordability and resilience in frontline communities

6. **Describe what quantitative or qualitative metrics or indicators would be used to evaluate the impacts of the proposed research concept.**

Equity and Economic Development in Disadvantaged Communities (DACs)

- Cost savings and payback periods in underserved populations
- New jobs created
- Workforce training completions and placements
- New partnership opportunities created
- Projects located in DACs
- Companies located in DACs
- Company demographics, including executive leadership
- How the project expands access to clean energy
- How the project supports local economic development
- Air quality co-benefits
- Community partner feedback

Reduced Costs

- Energy and cost savings for ratepayers
- Least cost GHG mitigation
- Least cost RPS compliance
- Reduced exposure to energy commodity prices
- Avoided transmission and distribution costs

Grid Reliability

- Reduced probability of hazardous events
- Reduced frequency and cost of interruptions
- Reduced unserved demand
- Reduced system harmonics

EV and EVSE Benefits

- Battery cell throughput or materials processed
- Charging station expansion
- Facilitation of VGI

- Faster charging
- EV performance

Catalytic Investment

- Number of companies supported and TRL advancement
- Time to pilot, demonstration, or commercial contract
- Private capital leveraged per $1 EPIC investment
- Utility and investor trust in third-party data
- Case studies of ratepayer and community benefit

7. **Please provide references to any information provided in the form that supports the research concept's merits. This can include references to cost targets, technical potential, market barriers, equity benefits, etc.**

- CalTestBed article: $22M public investment → $438M private capital https://www.newenergynexus.com/blog/how-22m-in-clean-energy-testing-turned-into-438m-in-investment/
- CalTestBed 2024 impact report:; 300+ jobs; 2.1 TRL average advancement https://www.caltestbed.com/content/media/CalTestBed-at-a-Glance-2024-1.pdf
- CalSEED and CalTestBed impact: 190+ startups supported; 46% underrepresented founders; 40% in low-income communities https://calseed.fund/impact/
- Powering Prosperity report: 100k projected jobs in battery and EV manufacturing through an inclusive lithium supply chain https://www.newenergynexus.com/powering-prosperity-california/
- California Lithium Valley Commission Report: Need for in-state processing, equitable community benefit, and workforce transition pathways https://www.energy.ca.gov/data-reports/california-power-generation-and-power-sources/geothermal-energy/lithium-valley
- DOE Battery Supply Chain Reports: National vulnerability in upstream battery manufacturing; need for U.S.-based scaling https://www.energy.gov/mesc/articles/department-energy-publishes-findings-supply-chains-energy-sector-industrial-base-and
- SB 100, AB 844, and California Jobs First: Clear legislative alignment for workforce and industrial decarbonization investments.

8. **The EPIC 5 Investment Plan must support at least one of five Strategic Goals:[i]**
    a. **Transportation Electrification**
    b. **Distributed Energy Resource Integration**
    c. **Building Decarbonization**
    d. **Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas**
    e. **Climate Adaptation**

Please describe in as much detail as possible how your proposed concept would support these goals.

Strategic Goal	Aligned Concepts
a. Transportation Electrification	Homegrown Battery Hubs (ZEV cell production, cathode/anode processing); CalTestBed Clusters (EVSE and V2G validation); CalSEED Pathways (affordable EVSE, battery reuse)
b. Distributed Energy Resource Integration	CalTestBed Clusters (multi-modal DER systems, grid services); CalSEED Pathways (community-designed DER solutions)
c. Building Decarbonization	CalSEED Pathways (smart HVAC, electrification, and affordability-focused innovation); CalTestBed Clusters (building systems validation and integration testing)
d. 100% Net-Zero Emissions	Homegrown Battery Hubs and CalTestBed Clusters reduce time, emissions, and cost to deploy net-zero-enabling technologies; CalSEED Pathways fosters next-gen, low-carbon technologies from and for underserved regions
e. Climate Adaptation	CalSEED Pathways (localized resilience innovation including cooling, backup systems); CalTestBed Clusters (resilient DER validation under grid stress); Homegrown Battery Hubs (battery reliability for microgrids and emergency preparedness)