

DOCKETED

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CEC R&D and EPIC Overview

Kevin Uy

California Energy Commission

IEPR Wave and Tidal Workshop

August 8, 2024

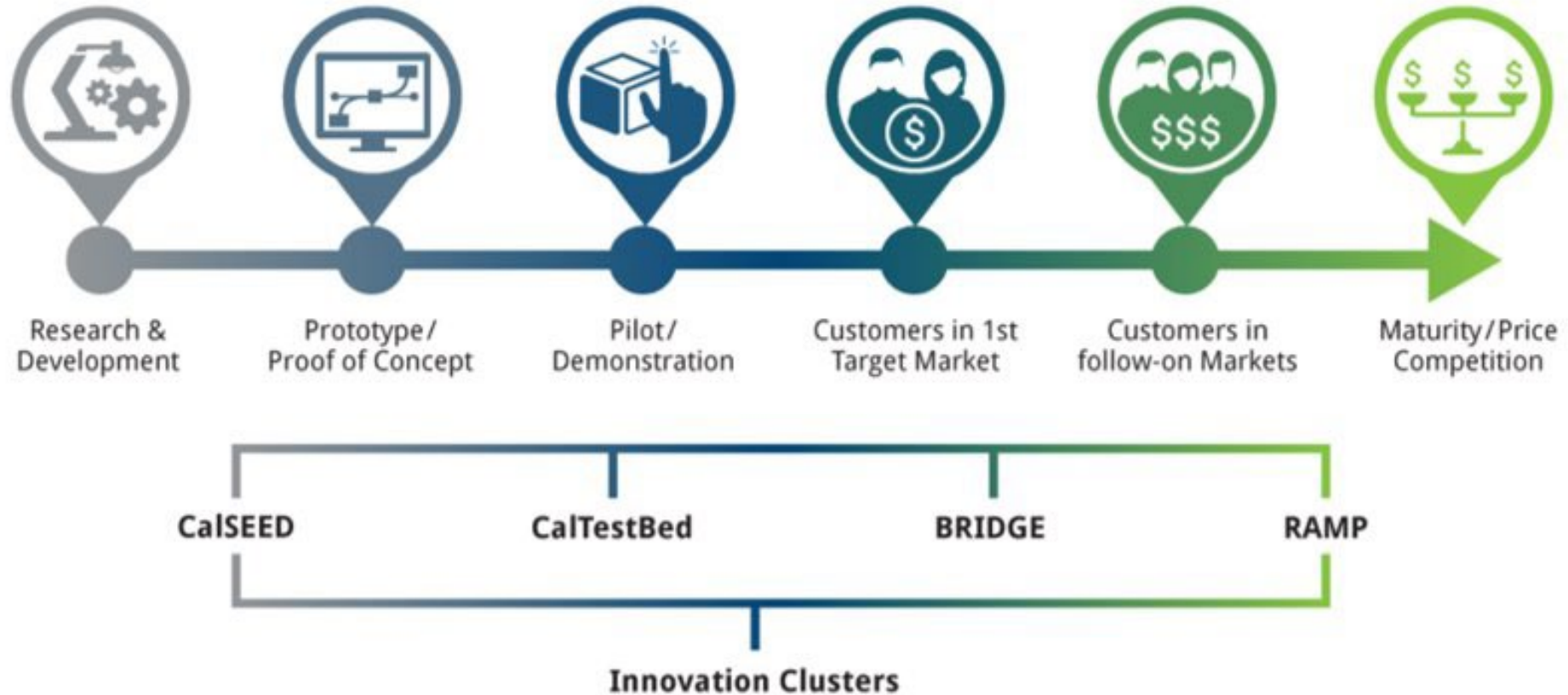


CEC R&D Programs

- **Electric Program Investment Charge (EPIC) (~\$150M/year)**
 - Gas R&D (\$24M/year)
 - Food Production Incentive Program (\$65M extension)
 - Long-Duration Energy Storage (\$273M)
 - Clean Hydrogen (\$40M)
 - Carbon Removal Innovation Support Program (\$20M)
 - Industrial Grid Support and Decarbonization (\$40M)
 - Community Energy Resilience Investment Program (~\$26M)
- } **New programs**



Targeted Support through EPIC



Targeted funding initiatives enable the path to commercialization for innovative technologies.



EPIC by the Numbers

70+

TECHNOLOGIES
COMMERCIALIZED

\$1.1B

EPIC FUNDS INVESTED

\$10.5B

PRIVATE INVESTMENT AFTER
RECEIVING EPIC SUPPORT

70%+

OF EPIC DEMONSTRATION
AND DEPLOYMENT FUNDING
IN UNDER-RESOURCED
COMMUNITIES

474

PROJECTS

1300

SUBSEQUENT DEPLOYMENTS
FROM SAMPLE OF 48 EPIC-
FUNDED DEMOS

21%

AVERAGE EMPLOYMENT
GROWTH AFTER
RECEIVING EPIC SUPPORT



EPIC 4 Overview

- **5-year** investment in **R&D** through 2025
- Nearly **\$150M** annually and **\$750M** total
- 6 strategic objectives spanning the grid, buildings, industry, transportation





EPIC 4 Strategic Objectives

- Accelerate Advancements in **Renewable Generation** Technologies*
- Create a More Nimble Grid to Maintain **Reliability** as California Transitions to 100 Percent Clean Energy
- Increase the Value Proposition of **Distributed Energy Resources** to Customers and the Grid
- Improve the Customer Value Proposition of End-use **Efficiency and Electrification** Technologies
- Enable Successful Clean Energy **Entrepreneurship** Across California
- Inform California's Transition to an **Equitable**, Zero-Carbon Energy System that is **Climate Resilient** and Meets **Environmental Goals**

* No wave and tidal energy investments planned or upcoming

EPIC 4 Investment Plan: <https://www.energy.ca.gov/publications/2021/electric-program-investment-charge-proposed-2021-2025-investment-plan-epic-4>



EPIC Offshore Wind Highlights





Planned EPIC Investments

Potential research areas include:

1. Optimizing Designs for Cost and Operational Efficiency
2. Cost-Effective Installation and Operations and Maintenance Developments
3. Grid Integration Innovations and Port Infrastructure Readiness Strategies
4. Environmental Impact Assessment and Minimization

~\$21M

FOR 7 PROJECTS
(2023-2027)

~\$20M

EPIC FUNDING FOR OFFSHORE WIND
AND SOLAR THROUGH 2025



Recent Investments

Environmental Monitoring Technologies ([\\$8.9M](#))

Project Duration: Fall 2023-Spring 2027



- Sensing technologies to monitor seabird interactions



- Fiber optic sensors and advanced vector hydrophones to monitor marine mammals



- Sensing technologies and remotely operated vehicles to detect collisions and entanglement hazards



Recent Investments

Advancing Mooring Lines and/or Anchors ([\\$11.9M](#))

Project Duration: Fall 2023-Spring 2027



- 3D-printed concrete suction and torpedo anchor designs.
- Helical piles and exterior skirt anchoring system.
- Shared mooring and anchoring system design.
- Taut-synthetic mooring line system development for Humboldt WEA.



Co-funding opportunities

- National Offshore Wind R&D Consortium developing a grant solicitation to address national and multi-state priorities for Floating OSW
- Up to \$5M co-funding with state and federal agencies

\$5M PLANNED



Thank you!



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