

The California Energy Commission

Investing in Energy Innovation

Since 1975, the California Energy Commission has advanced innovation through its energy research, development, and demonstration (RD&D) programs by investing millions of dollars in technologies to improve California's energy systems and resources. This work advances science and technology in energy efficiency, renewable energy, advanced technologies, energy-related environmental protection, and transmission and distribution, and transportation technology.

The Energy Commission enlists businesses, utilities, energy companies, public advocacy groups, and world-class scientists at California universities and national laboratories to help achieve technology breakthroughs. These public-sector investments attract significant follow-on funding that moves California toward a clean energy future and makes electricity and natural gas less costly, more reliable, and safer.

Driving Innovation

The energy we use and the ways we use it are rapidly changing. For the electricity system in California to make the leap from an antiquated, nearly 100-year-old system to one that is cleaner and more efficient and improves service reliability, affordability, and public safety, more innovations are needed.

Energy Commission investments are key to securing private funding. The Energy Commission's public sector investments provide guidance and market signals tied to state policies, thus sharing results widely and reducing the need for innovators to "reinvent the wheel." They reduce risk to investors and accelerate the path to market for emerging technologies by addressing barriers and supporting projects through the energy innovation pipeline. States that fund clean energy research are more likely to attract venture capital than states that do not.

Leveraging Innovation

Energy Commission funded innovations have created billions of dollars in energy savings for California ratepayers, supported the creation of new businesses and thousands of jobs, and attracted more than \$1.4 billion in private and federal investment.

Through its investments, the Energy Commission is helping bring California's clean energy economy to life. It consists of zero-net-energy buildings, highly energy-efficient businesses, low-carbon generation, sustainable bioenergy systems, more distributed generation, and increased electrification of transportation, all supported by highly flexible and robust distribution and transmission infrastructure.

Focusing on Critical Research Areas

Energy Commission RD&D programs bridge the gap between the laboratory and the market. Projects focus on technologies that protect clean air and water and make energy safer and more reliable. This includes:

- » Leading building energy efficiency RD&D.
- » Promoting industrial, agricultural and water energy efficiency, and demand response RD&D.
- » Directing renewable energy and advanced clean generation RD&D, transportation RD&D, and research to better understand the environmental impacts of energy production.

- » Overseeing RD&D on transmission and distribution, smart grid, storage, and other infrastructure that integrates renewable energy and other advancements into our electricity system.
- » Removing nontechnical barriers to emerging clean energy solutions. This includes providing commercialization assistance to entrepreneurs, investing in a trained and skilled workforce, and helping overcome regulatory or permitting hurdles that can stall projects.

Transforming the Electricity System

The Energy Commission invests more than \$100 million a year for electricity system RD&D projects through the Electric Program Investment Charge (EPIC). California's three large investor-owned utilities (IOUs) and the Energy Commission use these funds for innovative projects that provide safer, lower-cost, cleaner, and more efficient and reliable electricity to IOU ratepayers.

California's investments follow a strategic innovation pipeline program that targets critical funding gaps and helps bring solutions to market by:

- » Focusing on validating new ideas and technologies.
- » Demonstrating technologies in practical applications.
- » Addressing nontechnical hurdles such as regulatory, market, and workforce barriers so that proven solutions can be deployed.

Advancing the Natural Gas System

The Energy Commission's Natural Gas RD&D program funds innovative projects to improve the state's natural gas system and technologies. These investments total more than \$20 million a year and complement electricity system improvements to reduce energy use and costs, improve reliability and safety, and reduce related environmental impacts.

Fostering Innovation: Research Planning, Implementation and Success

The Energy Commission is committed to a transparent and public process in all phases of RD&D administration, including investment plan development and approval, solicitation, and project approval and management. The Energy Commission is also committed to involving small businesses, women, minorities, and disabled veterans in its energy innovation projects.

The Energy Commission takes great pride in its RD&D programs that are nationally recognized for their achievements. In fact, Californians are enjoying the benefits of safe, clean, efficient, and reliable electricity and natural gas services due in large part to the technological advances achieved through these collaborative RD&D programs.

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