2017 EPIC ANNUAL REPORT

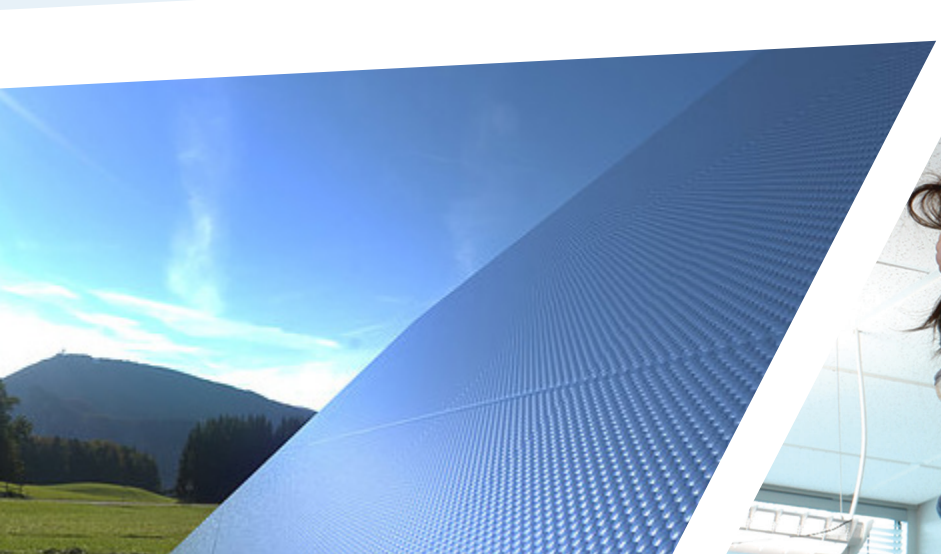
ELECTRIC PROGRAM INVESTMENT CHARGE HIGHLIGHTS

The landscape of California's electricity sector has changed dramatically in the past 10 years.

In that short time, the state has seen significant improvement in every metric used to measure progress toward transforming its electricity sector and building a clean energy economy. Despite this progress, today's energy technologies are likely to be insufficient to drive the scale of change needed to achieve California's ambitious energy policy goals and avoid the most serious impacts of climate change. Meeting the challenges ahead will require innovation to the electricity sector at unprecedented levels. The California Energy Commission, through the Electric Program Investment Charge (EPIC), provides $125 million annually to accelerate new scientific and technology solutions that will help bring a cleaner, safer, more affordable and more resilient electricity system to California's ratepayers.

BRINGING DIFFERENT PERSPECTIVES INTO R&D

Commercializing new energy technologies requires a wide range of stakeholder perspectives and expertise. The Energy Commission plays a vital role in bringing together stakeholders that can collectively enable the commercialization of new energy technologies to meet the state's energy and climate change goals. Each research project is advised by a technical advisory committee consisting of subject matter experts, end-users, equipment manufacturers, national labs, academia, technology developers, governmental agencies, local governments, and private research organizations.
In addition, in 2017, the Energy Commission conducted 20 public workshops to solicit stakeholder input on how EPIC funding opportunities can be most impactful.



ADVANCING LEGISLATIVE PRIORITIES

The California Legislature has made clean energy equity—ensuring that the benefits from our programs are equitably shared, especially by those in the most vulnerable communities—a policy priority. The Energy Commission, through EPIC, is helping to advance this priority by demonstrating new energy technology packages in disadvantaged communities to validate their performance and benefits to the community. As of 2017, roughly 32 percent of EPIC technology demonstration and deployment funds went to project sites located in disadvantaged communities. One California company, OhmConnect, received EPIC funds to further test and scale their state-of-the-art software platform to enable and incentivize residential customers, including those in disadvantaged communities, to participate in demand-response markets. For instance, if a customer consistently provides 1 kW of load reduction when called upon to do so, the customer could earn between $50 and $100 per year. Residents are attracted to this "gamification" strategy because it provides an opportunity for them to earn money by shutting off appliances when notified to do so. As a result, OhmConnect has grown participation by 1900 percent, from 15,000 customers to nearly 300,000 and participation from residential customers in disadvantaged communities increased from 7 to 17 percent. Preliminary results from this project have shown reductions during demand response event hours ranging from 8 to 35 percent.

*OhmConnect has grown participation by **1900 percent**.*

DRIVING ENERGY SAVINGS IN THE AGRICULTURAL AND INDUSTRIAL SECTOR THROUGH ADVANCEMENTS IN BIG DATA

California's agricultural and industrial sectors are critical to the state's economy. Historically, these sectors lacked scalable technology solutions to help them reduce electricity use. In 2017, the Commission, through EPIC, helped two companies conduct successful field trials of data analytics platforms specifically for the agricultural and industrial sectors. PowWow Energy Incorporated demonstrated a platform for monitoring irrigation pumps that alerts growers on how and when to save energy and water, while improving crop yields at the same time. Another company, LightApp, received EPIC funding to test its software platform in 100 manufacturing facilities throughout California. The software is identifying, on average, a 20 percent reduction in energy consumption.

EMPOWERING ACTION AT THE LOCAL LEVEL

California's local governments and communities will play a crucial role in achieving the state's energy and climate change goals. The Energy Commission, under EPIC, is helping local efforts to decarbonize energy use and increase the resiliency of communities. This includes a portfolio of microgrid projects capable of maintaining power to critical services and facilities during grid outages using clean onsite renewable energy and storage. In addition, the Commission is funding research to downscale climate modeling tools to regional levels so these tools can better inform local electricity planning decisions.

*The LightApp software project is identifying, on average, a **20 percent reduction** in industry energy consumption.*

SUPPORTING SUCCESSFUL CLEAN ENERGY ENTREPRENEURSHIP ACROSS THE STATE

In 2016, the Energy Commission launched the California Energy Innovation Ecosystem to create a statewide network of technology incubators, investors, universities, federal laboratories, non-profits, and corporate partners to foster and support clean energy entrepreneurship. As of 2017, companies receiving support and services from the Ecosystem have attracted approximately $20 million in private sector investment.

LEVERAGING FEDERAL FUNDED RESEARCH TO BENEFIT CALIFORNIA

In 2017, the Energy Commission piloted a new funding mechanism called Bringing Rapid Innovation to Green Energy (BRIDGE) to competitively award follow-on funding for the most promising technologies funded by the Energy Commission, U.S. Department of Energy, and other federal agencies including the Defense Advanced Research Projects Agency and National Aeronautics and Space Administration. To be eligible, applicants must have achieved the technical goals and targets of previous awards, have significant interest and cost share from the private sector, and a go-to-market strategy for scaling up their technology in California. BRIDGE offers a streamlined path to move the most promising state and federally-funded technologies from the lab into the marketplace.

ENSURING BEST PRACTICES IN EPIC PROGRAM ADMINISTRATION

The Energy Commission's administration of EPIC is in line with best practices for public research programs. This was recognized in 2017 as part of an independent evaluation of the EPIC Program directed by the CPUC. Furthermore, the Energy Commission administers EPIC through a fair and transparent process so that no one entity has an unfair advantage or receives preferential treatment. This, combined with the Energy Commission's outreach efforts, including online networking webinars, has led to a high rate of small businesses receiving EPIC funding. For projects that began in 2017, 44 percent of the recipients that responded to the diversity questionnaire reported being a small business or having one or more small businesses as a subcontractor. The Commission administers EPIC using less than 10 percent of the total program fund which results in 90 percent of EPIC funding going directly to projects.

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