



**CENTER FOR ENERGY EFFICIENCY
AND RENEWABLE TECHNOLOGIES**

2020 ANNUAL REPORT

ABOUT CEERT

The Center for Energy Efficiency and Renewable Technologies (CEERT) is a partnership of major environmental groups and clean-energy companies. Since our founding in 1990, we have designed and fought for policies that advance clean, renewable energy and climate solutions for California and the West.

CEERT's staff, board, consultants, and clean-energy and environmental affiliates advocate for more rapid progress toward deploying new renewable resources, upgrading the transmission system, and adopting climate policies that will enable California to meet its clean-energy and greenhouse-gas reduction goals. We act as participants and intervenors before all the major governmental energy, climate, and air-quality agencies.

For many years CEERT has been pressing the California Public Utilities Commission to take action on critical issues like clean-energy procurement and expanded transmission, but the CPUC has ignored the climate crisis and maintained a shortsighted opposition to such measures. However, the growing incidence of droughts, wildfires, and heat waves—and the electric grid's clearly inadequate capacity—have state leaders, NGOs, and the public at large insistently demanding change, to the point that even the CPUC is now taking a few significant steps to decarbonize the energy system we depend upon.



CEERT Board meeting in pandemic times

FROM THE EXECUTIVE DIRECTOR

In 2016, CEERT undertook a project inspired by our old friend S. David Freeman, on behalf of Friends of the Earth. Dave asked us to compare the costs of renewing the license for the Diablo Canyon nuclear plant and making the investments necessary to operate the plant for another 20 years, versus retiring the plant and replacing its output with a portfolio of renewables and zero-carbon resources. We based the study on work that we had done previously for the 2030 Low Carbon Grid Study with NREL, along with a detailed economic assessment of the costs of continuing to operate Diablo Canyon by our friend and colleague, Bill Marcus, an expert economic witness who worked for TURN and other small consumer groups all over North America. The study showed conclusively that it would be far cheaper to retire Diablo Canyon when its license expired in 2024-25, and replace it with a portfolio of renewables and clean-energy resources such as solar, wind, geothermal, storage, and demand response.



Rather than hold a press conference and broadcast the results of the study to the world, we decided to reach out to PG&E to get their comments. With the help of Ralph Cavanagh of NRDC, we began discussions with PG&E that ultimately led to a broad-based settlement with environmental groups, IBEW, the community of San Luis Obispo, and PG&E to retire Diablo Canyon, provide substantial retraining and retention benefits for plant employees, and significant payments to the local community to ease the loss of property tax funds. The agreement also included replacing Diablo Canyon's output with a diversified portfolio of renewables and zero-carbon resources.

Unfortunately, the CPUC decided to punt the need to replace the 2,000 megawatts (MW) of zero-carbon energy from Diablo to the newly established Integrated Resource Planning process, which involved extensive analysis of how to meet the state's 2030 Climate Change and Clean Energy targets. Initially, CPUC staff adopted a much higher greenhouse gas (GHG) power-sector target and underestimated the ability of clean-energy resources to meet capacity and energy needs. Over the past four years, CEERT has argued strongly against procurement of new gas-fired power plants, and for a large, balanced portfolio of renewable and zero-carbon resources, both to ensure Diablo Canyon's closure doesn't increase GHG emissions and to address system reliability needs without relying on fossil fuels.

Until recently, it seemed the CPUC didn't see any need or value in buying more renewables except to meet minimum RPS goals. CEERT argued instead that renewables and long-duration storage are both more reliable and cost less overall than our continued dependence on natural gas. We also argued for diversity in our expanding renewable portfolio, including firm, zero-carbon resources such as geothermal, and imported wind and solar, delivered to California over the same transmission lines that used to bring in coal power from the Southwest.

As time went by, there was growing alarm that the CPUC's delay in ordering a large procurement to replace Diablo Canyon and improve system reliability would result in greater reliance on gas and an increase in GHG emissions. Some argued for reopening the question of relicensing the Diablo Canyon plant and extending its operations to prevent an increase in air and climate pollution. Environmental justice groups pushed back hard against continued reliance on dirty gas plants in disadvantaged communities, and brought equity and fairness issues to the forefront.

But CEERT's sustained advocacy and broad-based coalition building finally paid off with the announcement in June 2021 of a final decision in the Integrated Resource Plan's mid-term reliability procurement, with the CPUC authorizing 11,500 MW of new clean energy projects, including substantial set-asides for both geothermal and long-duration storage. Even more important, the CPUC decided against procuring additional power from fossil fuels, and for taking a closer look at whether we could do without more gas-fired power plants. This landmark decision has the potential to put California back on track in meeting climate and clean energy targets, and to launch billions of dollars of new investment in renewables, along with thousands of union jobs to build these projects and the transmission upgrades needed to deliver their power to the grid. California's expanded clean energy portfolio will start coming online in 2023, and will extend over the next five or more years.

There is a lot more work to do to build out a clean, modernized grid, but we are on our way, on the path Dave Freeman and Bill Marcus laid out five years ago. We honor their vision, and wish they were here to share the moment.

A handwritten signature in black ink, appearing to read 'V. John White'.

V. John White
Executive Director

THE YEAR'S MAJOR ACCOMPLISHMENTS

In 2020, CEERT:

- Saw our many years of frustrated advocacy finally begin to pay off when the California Public Utilities Commission (CPUC) authorized an 11,500 megawatt (MW) clean-resources procurement, including 1,000 MW of both geothermal and long-duration storage.
- Urged the CPUC and California Independent System Operator (CAISO) to authorize large procurements of hybrid clean resources, notably solar-plus-storage, that will be crucial in meeting the state's energy challenges. Hybrids totaling some 60,000 MW make up most of the utility-scale resources now waiting in the CAISO interconnection queue, yet the CPUC's current Resource Adequacy rules are hindering them from moving to actual construction.
- Learned of a significant backlog in constructing transmission upgrades that had been approved by CAISO but delayed by CPUC inaction. We initiated talks with CAISO, renewable developers, utilities, and others to get these stalled upgrades under construction and online.
- Campaigned to relieve the CPUC of its central role in transmission planning and replace it with a joint agency process based at the California Energy Commission (CEC). CAISO, CEC, and CPUC officials are now working together in the SB 100 interagency working group.
- Argued in the CPUC gas reliability proceeding that staff recommendations to expand the gas system should be soundly rejected, and the CPUC should authorize the substitution of clean, more dependable alternatives to gas for generating power and maintaining reliability.
- Highlighted how the economic impact of the August heatwave's rolling blackouts and capacity shortfalls was trivial compared to the price spikes and costs of inefficient gas plants and pipelines, which approached \$1 billion in increased electric rates over the summer.
- Strongly supported microgrid commercialization as superior to diesel or gas power for community resilience during wildfires and power shutoffs. We detailed the benefits microgrids bring to the grid, despite the barriers the CPUC's Resource Adequacy rules put in their way.
- Worked to get backing for long-duration storage (LDS) projects from environmental-justice groups and organized labor, and advocated for the CEC to include a portfolio of LDS projects in its plans for implementing SB 100's 100% clean-energy goal.
- Continued our efforts to realize the State Water Project's potential to supply substantial levels of pumped-hydro energy storage and demand response to the CAISO grid.
- Worked with other members of the Advanced Clean Cars II Coalition to ensure the state is on track to meet its goal of 100% zero-emission vehicle sales by 2035.
- Protested the CPUC adopting a power sector greenhouse-gas reduction target of 46 million metric tons (MMT) by 2030, and strongly advocated for a 30 MMT target, which is the level that's required to achieve the state's decarbonization goals.

SPEEDING UP THE SHIFT TO CLEAN ENERGY

California is committed by statute to obtaining 50% of our electricity from renewable sources by 2026 and 100% from zero-carbon sources by 2045. A short timetable for a monumental job. If we hope to reach these targets, we need to bring an enormous amount of clean energy online much, much faster than we are, and both phase out fossil generation *and* electrify transportation and energy use in buildings in order to meet our greenhouse-gas (GHG) reduction goals.

The California Public Utilities Commission (CPUC) has long been the main barrier to new clean procurement, claiming we didn't need more renewables for years to come—but did require more gas-fired power for grid reliability. CEERT is helping lead the fight in the CPUC's Integrated Resource Planning (IRP) and Resource Adequacy (RA) proceedings to advance more renewable procurement and enable clean resources to compete fairly with gas generation.

In 2020, CEERT:

- Saw our years of advocacy begin to pay off in mid-2021 when the CPUC ordered an 11,500 MW clean-resources procurement, including geothermal and long-duration storage.
- Urged the CPUC and California Independent System Operator (CAISO) to authorize large-scale procurements of hybrid clean resources, notably solar-plus-storage, that will be crucial in meeting the state's energy challenges. Hybrids totaling some 60,000 MW make up most of the utility-scale resources now waiting in the state interconnection queue, yet the CPUC's current RA rules are hindering them from moving to actual construction.
- Served on the Advisory Committee to the "LA 100 Report," a study the National Renewable Energy Laboratory just completed, concluding that 100% zero-carbon energy in Los Angeles is both technically feasible and economically attractive. A Strategic Resource Plan now being prepared charts a path to achieve 100% decarbonization in the LA Basin by 2035.
- Was a prime mover in organizing the Alliance for a Clean Economy, a coalition of clean-energy companies and public-interest groups that urged Governor Newsom and other policymakers to expedite shovel-ready renewable, storage, and transmission projects to spark the state's economic recovery from COVID-19 while helping reach our climate goals.



CLEARING THE WAY FOR NECESSARY TRANSMISSION EXPANSION

Transmission expansions are essential to securing grid interconnection and deliverability for all the clean resources we need to be bringing online to reach our climate goals. However, the CPUC has severely limited the study of such expansions when it forwards its future generation assumptions to the CAISO for the annual Transmission Planning Process, ignoring GHG-reduction needs and avoiding portfolios that would result in any major new transmission costs.

CEERT has been actively campaigning to ease the CPUC out of its central role in transmission planning, and replace it with an interagency process like the recently established SB 100 interagency working group and the CAISO's new 20-year transmission planning effort.

In 2020, CEERT:

- Learned of a significant backlog in constructing transmission upgrades that had been approved by CAISO but delayed by CPUC inaction. CEERT has been talking with CAISO, renewable developers, utilities, and the CPUC to get these stalled upgrades under construction and online. Many renewable projects need identified transmission to obtain financing.
- Held discussions with CAISO, the Los Angeles Department of Power and Water (LADWP), Southern California Edison (SCE), and the Transmission Agency of Northern California on the need to coordinate transmission planning between publicly-owned and investor-owned utilities, especially LADWP and SCE. Better integration between these two systems would represent a major step toward meeting the state's climate and energy goals.
- Continued working with allies on a new Enhanced Day-Ahead Market (EDAM) for the Western states, which will account for up to 95% of regional energy market transactions and result in improved transmission planning, renewables trading, efficiencies, and cost savings across the West.



PHASING OUT CALIFORNIA'S DEPENDENCE ON NATURAL GAS

If California is to meet its GHG-reduction goals and environmental-justice obligations, it must phase out the use of natural gas, its chief remaining fossil power source. In the coming years the gas burn is bound to diminish, in significant part because of the mandated growth of renewables and transportation and building electrification—but the CPUC's gas proceeding has completely ignored these factors, and we fear they are laying the groundwork for building more gas generation and storage.

As CEERT is arguing in that proceeding, we instead need to be planning for a 50% reduction in the size of the gas system by 2030. To that end, CEERT is strenuously opposing any plans to invest in new gas-fired power plants, or expand the capacity of existing gas plants, or grant yet more life extensions for the state's old, obsolete once-through-cooling coastal gas plants.

In 2020, CEERT:

- Highlighted how the economic impact of the August heatwave's rolling blackouts and capacity shortfalls was trivial compared to the price spikes and costs of inefficient gas plants and pipelines, which approached \$1 billion in increased electric rates over the summer.
- Began work on a white paper on gas's price volatility, total system cost, and the hedge funds and other institutional investors than own individual gas plants.
- Strongly supported microgrid commercialization as superior to diesel or gas power for community resilience during wildfires and public safety power shutoffs. We detailed the benefits microgrids bring to the grid, despite the barriers the current RA structure puts in their way.
- Continued our vigorous advocacy in the rulemaking on minimizing or eliminating the use of the Aliso Canyon gas storage facility. The outcome will hinge on a feasibility assessment of alternatives that may allow Aliso Canyon's closure.
- Remained the sole NGO actively working on gas-reduction issues in all key venues and proceedings, while continuing to collaborate on these issues with California Environmental Justice Alliance, Communities for a Better Environment, Asian Pacific Environmental Network, Sierra Club, and Union of Concerned Scientists.



Moss Landing coastal gas-fired power plant

SUPPORTING LONG-DURATION STORAGE, DEMAND RESPONSE, AND HYDROPOWER

CEERT advocates at the CPUC and the CAISO for long-duration energy storage, strengthened demand response programs, and the use of hydropower to displace gas in key functions, such as keeping the lights on during grid capacity shortfalls and shutoffs, and meeting the evening ramp on the electricity system once the sun sets and solar bows out for the night.

In 2020, CEERT:

- Worked to get backing for long-duration storage (LDS) projects from environmental-justice groups and organized labor, and advocated for the CEC to include a portfolio of LDS projects in its biennial Integrated Energy Policy Report and its plans for implementing SB 100's 100% clean-energy goal.
- Continued to spark discussions of ways to finance LDS projects and allocate costs fairly, either through joint utility ownership or long-term contracts with CAISO.
- Recommended that the CPUC Energy Division publish a report on the MW of demand response (DR) available for CAISO dispatch, the MWh actually dispatched, and the number of participating customers and their payments. We urged the CPUC to examine why DR is falling so short of its technical and economic promise for California, and to rethink its own hostility to third-party DR providers.
- Continued our efforts to realize the State Water Project's potential to supply substantial levels of pumped-hydro energy storage, demand response, and ancillary services to the CAISO grid. We have kept the issue in front of the leaders of the Natural Resources Agency, and have helped organize ongoing talks with CAISO, the Department of Water Resources, and the State Water Contractors that have resulted in significant progress.



Pumped-hydro energy storage project's upper and lower reservoirs

ADVANCING CALIFORNIA'S CLIMATE POLICIES

California's pioneering climate goals require slashing greenhouse gases 40% below 1990 levels by 2030 and achieving statewide carbon neutrality by 2045.

CEERT's Climate Program aims to strengthen the California Air Resources Board's (CARB's) 2021 GHG Scoping Plan for 2030, to lower the current planning target for GHG emissions, and to establish GHG reductions as the chief concern of the CPUC's Integrated Resource Planning (IRP) process.

In 2020, CEERT:

- Strongly protested the CPUC's IRP proceeding moving to adopt a power sector GHG reduction target of 46 million metric tons (MMT) by 2030. We and many other parties believe that target is much too high, is based on faulty modeling and assumptions, and does not comply with the state's climate-change mandates. The CPUC wound up revising its decision to also allow planning for a 38 MMT target—and it now intends to make that 38 MMT target its base case for resource planning.
- Advocated that CARB's 2021 GHG Scoping Plan approve a lower electric-sector GHG reduction target of 30 MMT, given the load growth expected for electrification of buildings and transportation. The target should be based on new modeling assumptions that are more reflective of actual current emissions on the grid, considering California's persistent reliance on old, inefficient gas-fired plants due to reliability concerns and inadequate tracking of backup diesel generators' emissions. We believe the 30 MMT target is what we require to achieve the state's decarbonization goals.
- Advocated for California's GHG-reduction planning to become more of a collaborative, interagency exercise, and for building an independent, transparent modeling and planning process at the CEC that can examine how best to achieve the dramatic GHG reductions needed in the next few years.



ACCELERATING CLEAN TRANSPORTATION

Because vehicles account for some 40% of greenhouse-gas emissions in California, the state is placing a high priority on decarbonizing the transportation sector to meet its climate goals. CEERT's Clean Transportation Program works to speed up the transition and to support viable markets for zero-emission electric and renewable-hydrogen vehicles.

We and our allied groups are particularly focusing on trucks, since they make up just 7% of the state's vehicles but are the largest source of vehicular air pollution.

In 2020, CEERT:

- Advocated that CARB adopt strong post-2025 vehicle emissions standards and zero-emission vehicle (ZEV) standards. With other members of the ACC II (Advanced Clean Cars) Coalition, we are encouraging CARB to maximize benefits for residents of disadvantaged communities and ensure the state is on track to meet its goal of 100% ZEV sales by 2035.
- Helped lead a Low-NO_x (nitrous oxides) Coalition of environmental justice, public health, and environmental organizations and ZET manufacturers that advocated for stringent NO_x standards for heavy-duty on-road trucks. To accomplish this, CARB subsequently adopted a set of regulations significantly shaped by CEERT's and the Coalition's input.
- With our allies, worked with CARB on the Advanced Clean Fleet Regulation, which would require 50% of the state's public and private truck fleet purchases to be zero-emission by 2024 and 100% from 2027 onward. We believe the new rule needs to add a mandate to prevent the early retirement of older high-polluting trucks.
- Collaborated with our partner groups to urge CARB to require ride-hailing companies such as Uber and Lyft to use ZEVs for 90% of the miles their drivers travel and to reach net-zero GHGs overall by 2030. CEERT's lobbying affiliate, Clean Power Campaign, played a key role in the passage of legislation directing CARB to reduce emissions and accelerate electrification of ride-hailing companies.



Hydrogen fuel-cell buses

WESTERN GRID GROUP

Western Grid Group (WGG) is a fiscally sponsored project of CEERT that works on regional issues throughout the Western Interconnection to build a low carbon future by increasing renewable energy deployments, reducing fossil energy use, and supporting policies and rules that promote more distributed energy and flexible demand resource technologies.

In 2019-2020, Western Interconnection states worked with some urgency to enact legislation and policies that would bring about significant carbon-free and carbon-neutral progress in the electric and other sectors, with substantial goals set for 2030 and 2050. WGG understood that achieving those goals would rely on state and regional collaboration on electricity markets, resource adequacy, a utility financial transition away from fossil resources, and rulemakings and policy adoption required to achieve statutory mandates.

WGG's 2020 Highlights:

- WGG recognized early that an essential precursor to a West-wide Regional Transmission Organization would be the formation of an Enhanced Day-Ahead Market (EDAM). Throughout 2020, WGG Director Doug Howe continued his role as a CAISO EIM Governance Review Committee member, furthering the development of EDAM.
- Through regular meetings, WGG coordinated with the Western Interstate Energy Board and the Committee on Regional Electric Power Cooperation in broadening understanding of the benefits of market regionalization in the West.
- With leadership from Northwest Energy Coalition, WGG helped sponsor a Western Clean Energy Advocates Resource Adequacy (RA) Working Group, which has educated advocates, regulators, and decision-makers about the challenges of maintaining reliability with increasing amounts of weather-dependent renewables on the grid. As a result, Western leadership is working toward models for *regional* RA, and the changes necessary to achieve it.
- WGG worked with coalition partner Rocky Mountain Institute and its new initiative Pearl Street Station Finance Lab to develop financial analysis tools and education platforms that advocates, regulatory commissioners, and institutional investors need to improve incentives for utilities to transition away from coal and fossil generation.
- WGG informed and participated in utility Integrated Resource Planning (IRP) processes as well as regulatory and planning dockets involving enactment and implementation of many of the Western States' clean energy statutes, which required attainment of carbon-neutral and carbon-free electricity production and delivery. Directors worked throughout the Western region, with deep participation in Arizona, Colorado, New Mexico, and Washington.



THE BUILDING DECARBONIZATION COALITION

CEERT is the fiscal sponsor for the Building Decarbonization Coalition, a broad alliance that is working to decarbonize California’s homes and workplaces, largely by substituting electricity for fossil fuels in space heating, water heating, cooking, dishwashing, and clothes drying. Coalition members include utilities, community-choice electricity providers, city governments, builders, real estate, manufacturers, and NGOs.

In 2020/2021:

- The Coalition, in partnership with the Sierra Club, Natural Resources Defense Council and others, has been supporting adoption of electrification building codes by state and local governments. Through coordination, best-practice development and regulatory advice, the Coalition has helped 46 local governments adopt reach codes and supported the California Energy Commission in proposing a strong electric-preferred code for the 2022 update to Title 24 Part 6 (California’s Building Energy Code).
- The Coalition rolled out the nation’s largest building decarbonization consumer campaign: “The Switch is on!” The campaign was selected to be the consumer education component for California’s building electrification market transformation program, the Technology and Equipment for Clean Heating (TECH).
- The Coalition facilitated a stakeholder process and developed the “Flipside Report,” a succinct framework laying out the role of electrification in the Gas Transition Proceeding (R.20-01-007).
- The Coalition published a white paper on Tariffed On-Bill (TOB) Financing to make residential electrification available to low- and middle-income residents, is supporting a TOB pilot through the TECH program, and is supporting a proposal for a TOB financing program through the Clean Energy Financing Proceeding (R.20-08-022).
- The Coalition helped incorporate building electrification practices into the state’s affordable housing programs.
- The Coalition is actively convening stakeholders and developing consensus positions for the CPUC’s Building Decarbonization Proceeding (R.19-010-011).



**BUILDING
DECARBONIZATION
COALITION**

CEERT 2020 FINANCIAL STATEMENTS

CEERT Program and Administrative Expenses

CEERT Core Program Expenses

Clean Energy Procurement	\$332,418	
Resource Adequacy and Gas Reduction	132,967	
Climate Advocacy	199,450	
CPUC Regulatory Intervention	<u>67,523</u>	
<i>Subtotal, Program Expenses</i>	<i>\$732,358</i>	
Direct Program Expenses	\$732,358	75.0%
Administration and Overhead	<u>243,246</u>	<u>25.0%</u>
Total CEERT Core Organizational Expenses	\$975,604	100.0%

CEERT Sponsored Projects

Western Grid Group	\$183,544	
Building Decarbonization Coalition	<u>1,371,001</u>	
<i>Subtotal, Sponsored Project Expenses</i>	<i>\$1,554,545</i>	
Total Program Expenses	\$2,530,149	

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