



## 2018 ANNUAL REPORT



# CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

## **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 carry out our work through a set of focused advocacy programs. We act as participants and intervenors before all the major governmental energy, climate, and air-quality agencies.

CEERT is pressing decision-makers to institute grid practices, renewable procurement, and climate policies that enable California to meet its clean-energy and greenhouse-gas reduction goals and speed up the transition to a zero-carbon future.



Interim Board Co-Chair Jonathan Weisall and Executive Director V. John White

## FROM THE EXECUTIVE DIRECTOR

As the Trump Administration and its hostile appointees at EPA and DOE attempt to turn back the clock on clean energy and reducing our dependence on fossil fuels, California and the West Coast states and provinces are moving in the opposite direction. Renewable energy, climate targets, and coordinated planning on electricity and electric transportation are gathering strength. Despite the abandonment of federal leadership, California and the West are the most promising region of North America for achieving an 80% reduction in greenhouse gas emissions by 2050.



Spurred by California's pioneering leadership on renewables, electric transportation, and legally binding climate targets, Oregon, Washington, Nevada, New Mexico, and Nevada are all moving in similar directions, and are adopting stronger policies on both renewables and carbon pricing. The passage in 2018 of SB 100 by State Senator Kevin de León and the adoption of an executive order committing California to a net zero-carbon economy have raised the bar and put the state on a clean path to decarbonization of its economy.

CEERT has been accelerating our efforts to reduce California's dependence on natural gas for providing system reliability. We are showing utilities and regulators how we can deploy portfolios of zero-carbon resources such as battery and thermal storage, transmission upgrades, demand response, and local solar to greatly reduce our dependence on natural gas. We are also helping environmental justice advocates understand practical ways we can lower power plant emissions in disadvantaged communities, and reduce local pollution by substituting storage and demand response to maintain grid reliability.

In 2018 CEERT agreed to act as fiscal sponsor for the Building Decarbonization Coalition, a broad new 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, manufacturers, builders, real estate firms, and NGOs. The Coalition released a Roadmap for Decarbonizing California Buildings in January of 2019.

CEERT is also making crucial advances in expanding cooperation and reducing costs among utilities across the West and within California by expanding voluntary power-sharing agreements such as the CAISO Energy Imbalance Market.

Our focus is on the nuts and bolts of how we can transition to a zero-carbon grid while preserving affordability and reliability, and creating local jobs and economic development. Maintaining public support for strategic clean-energy investments will require workforce training, attention to equity, and ensuring economic benefits and jobs are widely shared across California's diverse and economically disadvantaged communities.

CEERT is proud and grateful for the opportunity to continue making important contributions to our region's steady progress toward a clean energy future.

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

V. John White  
Executive Director

## THE YEAR'S MAJOR ACCOMPLISHMENTS

### In 2018, CEERT:

- Assisted Los Angeles Department of Water and Power (LADWP) staff in reordering priorities and assessing near-term actions required to carry out a transition to clean energy much more quickly than had previously been planned, after LA Mayor Eric Garcetti announced that no new investment in gas-fired power would be made in the LA Basin. Leading up to Mayor Garcetti's landmark decision, CEERT actively participated in the LADWP 100% Clean Energy Study to design a long-term sustainable Los Angeles, and in a follow-up study to decide on short-term investments in electricity production that would lead into the 100% Clean Energy future. This work is both technically challenging and politically groundbreaking.
- Used Grid Policy Director Liz Anthony Gill's meticulous research to show that the modeling in the California Public Utilities Commission's (CPUC's) all-important Integrated Resource Planning (IRP) process understated gas-plant emissions by 6 million metric tons, and led to IRP plans that would result in minimal greenhouse-gas reductions in 2030.
- Completed an analysis by Liz Anthony Gill of the generation and emissions profiles of gas-fired power plants—especially those in disadvantaged communities—to identify which are the most-polluting and the least-needed, and which clean-energy resources can be cost-effectively substituted for each plant's output. We are using the analysis to press for the orderly retirement of gas generators and the Aliso Canyon gas storage facility.
- Consulted with renewable energy companies that have \$35 billion in contracts at risk in the PG&E bankruptcy process on ways to prevent any delay or dilution of necessary future investments in decarbonizing California's power, building, and transportation sectors.
- Proposed new counting, dispatch, and financial-settlement protocols for CPUC Resource Adequacy (RA) procurements and the California Independent System Operator (CAISO) real-time market that will enhance clean energy's cost-effectiveness and wean the state from its overreliance on gas-fired power to meet local and flexible RA needs.
- Secured funding to undertake a comprehensive new study of the State Water Project's potential to help the state achieve its climate goals by supplying substantial levels of bulk energy storage, demand response, and ancillary grid services.
- Began exploring with regional allies the possibilities of an Enhanced Day-Ahead Market for the Western states that would enable participants to realize greater operational efficiencies and cost savings while preserving local control over resource planning and procurement.
- Spearheaded discussions of methods for financing large-scale energy storage projects and allocating costs fairly through joint utility ownership or long-term contracts with the CAISO.
- Coordinated with state and national organizations to defend the 2022 – 2025 vehicle emissions and fuel economy standards against current federal efforts to roll them back.

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Board Co-Chair Laura Wisland



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## DECARBONIZING THE ELECTRIC GRID

CEERT has been playing a lead role in reforming and decarbonizing the California grid. We are working to bring about key changes in decision-makers' current rules and assumptions that have led to an overreliance on fossil-fueled power plants rather than clean-energy resources.

### In 2018, CEERT:

- Completed an analysis by CEERT Director of Grid Policy Liz Anthony Gill of the generation and emissions profiles of gas-fired power plants in California — especially those located in disadvantaged communities — to identify which of those plants are the most-polluting and the least-needed, and which clean-energy resources can be cost effectively substituted for each plant's output. We are using the analysis to press for the orderly retirement of gas generators and the Aliso Canyon gas storage facility.
- Detailed how combinations of clean-energy resources can meet the grid's Local Capacity Requirement (LCR) reliability needs as effectively as fossil-fueled generation, showcasing California Public Utilities Commission (CPUC) approval of three Requests for Proposals to procure carbon-free resources for LCR needs and allow retirement of six gas plants in four regions of the state. CEERT is the only nongovernmental organization working in all key venues on LCR and gas-reduction issues.
- Secured funding to undertake a comprehensive new study of the State Water Project's potential to help the state meet its climate goals by supplying substantial levels of bulk energy storage, demand response, and ancillary services, thereby helping balance variable solar and wind resources and preventing a substantial amount of renewables curtailment.
- Collaborated with environmental and environmental-justice organizations such as California Environmental Justice Alliance, Communities for a Better Environment, and Union of Concerned Scientists to highlight the air-quality impacts of gas-fired power plants in disadvantaged communities, and to advocate for the plants' retirement.



Director of Grid Policy Liz Anthony Gill

## PHASING OUT RELIANCE ON NATURAL GAS IN SOUTHERN CALIFORNIA

CEERT has been advising the Los Angeles Department of Water and Power, the largest municipal utility in the country, on its goals for decarbonizing the LA Basin by reducing its dependence on gas-fired power plants. We are playing a similar role at neighboring Glendale Water & Power, and are pushing for closure of the Aliso Canyon gas storage facility in the San Fernando Valley.

### In 2018, CEERT:

- Actively participated in the Los Angeles Department of Water and Power's (LADWP's) 100% Clean Energy Study to design a long-term sustainable Los Angeles, and in the Once-Through-Cooling Study to decide on short-term investment in electricity production that would lead into the 100% Clean Energy future.
- Assisted LADWP staff in reordering priorities and assessing near-term actions required to carry out the transition to clean energy much more quickly than had previously been planned, following LA Mayor Eric Garcetti's groundbreaking decision that no new investment in gas-fired power would be made in the LA Basin.
- Collaborated with allied groups to reduce by half Glendale Water & Power's dependence on its Grayson gas plant, and to persuade the Glendale City Council to issue a Request for Proposals for new transmission, battery storage, and local clean resources that should lower reliance on Grayson by a significant additional amount.
- Identified crucial flaws in the modeling for a CPUC proceeding on minimizing or eliminating use of LA County's Aliso Canyon gas storage facility, site of the worst gas leak in U.S. history. CEERT believes that a relatively modest acceleration of decarbonization policies and minor adjustments to current reliability metrics would likely allow Aliso Canyon's closure.
- Supplied testimony that led the CPUC to deny an SDG&E application to build a redundant gas transmission line that would greatly increase gas export capacity in Southern California. We argued that the line was fundamentally incompatible with the state's climate goals.



Technical Director Jim Caldwell

## EXPANDING THE USE OF RENEWABLE ENERGY

In 2018 California committed to obtaining 50% of our electricity from renewable sources by 2026, 60% from renewables by 2030, and 100% from zero-carbon sources by 2045. To reach these targets, and to electrify transportation and energy use in buildings to meet our greenhouse-gas (GHG) reduction goals, we need to greatly expand our clean-energy capacity *now*.

CEERT is leading the charge in the California Public Utilities Commission's (CPUC's) Integrated Resource Planning and Resource Adequacy proceedings to break the logjam on new renewable procurement and bring substantially more clean energy online as soon as possible.

### In 2018, CEERT:

- Challenged the CPUC's reliance on the RESOLVE modeling program for its calculations in the all-important Integrated Resource Planning (IRP) proceeding. The RESOLVE model is not well-suited for this task because it doesn't consider factors such as gas plant retirements, transmission upgrades, out-of-state wind resources, and Pacific Northwest hydropower, and does not have the granularity or flexibility necessary to identify solutions for deep decarbonization.
- Argued that the IRP should lead to GHG-free replacement power for the retiring Diablo Canyon nuclear plant, that the IRP planning process needs to link to local Resource Adequacy requirements, and that the CPUC needs to develop a strategic plan to replace gas plants with a diverse clean-energy portfolio for meeting capacity and reliability needs.
- Designed and proposed new counting, dispatch, and financial-settlement protocols for CPUC Resource Adequacy (RA) procurements and the CAISO real-time market that will enhance clean energy's cost-effectiveness and wean the state from its overreliance on gas-fired power to meet RA needs. We advised and shared technical expertise with environmental-justice groups as a key part of our campaign to restructure the RA program.
- Sent letters to CPUC Commissioners and met with Commissioner advisors to advocate strongly for an Alternate Proposed Decision (APD) that would reverse an earlier Proposed Decision by approving, rather than rejecting, 19 contracts for 125 megawatts of new clean-energy resources in Southern California. The CPUC subsequently voted to adopt the APD.



Regulatory Counsel Sara Myers



Associate Regulatory Attorney Megan Myers



## INCREASING COOPERATION AND RESOURCE-SHARING ON THE WESTERN GRID

Over the past three years, advocates and utilities have tried to achieve a formal integration of the electric grid across the Western states, but the political and logistical obstacles have proven to be too great, at least for now. Therefore, CEERT and other parties in California, Washington, Oregon, Nevada, and Arizona are studying alternative ways of significantly increasing regional cooperation and resource-sharing.

### In 2018, CEERT:

- Began exploring with regional allies the potential of a new Enhanced Day-Ahead Market (EDAM) for the Western states that would enable participants to realize greater operational efficiencies and cost savings through advance unit commitment and improved renewables integration, while preserving local control over resource planning and procurement.
- Continued our discussions with the California Independent System Operator (CAISO) and Pacific Northwest stakeholders on California exporting surplus solar generation at midday in return for Northwest hydro resources providing flexible capacity to California starting in late afternoon. Such an arrangement would significantly reduce the need to use gas-fired power to meet the grid's steep evening ramp, when the sun has set but temperatures, and air-conditioning use, remain high in Southern California.
- Collaborated with Pacific Northwest allies to push successfully for a new framework for flexible resource adequacy (RA) that better allows Northwest hydro to count for RA compensation. CEERT also took the lead in submitting comments to the CAISO Transmission Planning Process's study of increasing low-carbon electricity transfers to and from the Pacific Northwest, which would lessen reliance on the Aliso Canyon gas storage facility in the LA Basin.
- Worked to enhance grid integration within California by encouraging the state's publicly owned utilities to expand resource-sharing and cooperation with the CAISO grid. Better intrastate integration, especially between the CAISO and the Los Angeles Department of Water and Power, will be essential for meeting the state's climate and clean-energy goals.



## 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 is working to strengthen the California Air Resources Board's (CARB's) 2030 GHG Scoping Plan, establish GHG reductions as the chief target of the CPUC's Integrated Resource Planning (IRP) process, and tighten controls on methane and other potent but short-lived climate pollutants.

### In 2018, CEERT:

- Used Grid Policy Director Liz Anthony Gill's careful research to show that the modeling in the CPUC's IRP process understated gas-plant emissions by 6 million metric tons, and led to IRP plans that, in the aggregate, would result in minimal GHG reductions in 2030. A CPUC Energy Division review confirmed that the modeling discrepancies needed investigation.
- Met with senior CARB officials to discuss how the deficiencies in the IRP modeling result in inadequate GHG emission reductions and increases in air pollution from some gas-fired power plants in disadvantaged communities. CARB staff was responsive to our input, and eager to develop independent analyses of grid operations and emissions trajectories.
- Consulted with renewable energy companies that have \$35 billion in contracts at risk in the PG&E bankruptcy process on ways to prevent any delay or dilution of necessary future investments in decarbonizing California's power, buildings, and transportation sectors.
- Worked with CalRecycle, the Dairy/Livestock Working Group, stakeholders, and agencies on achieving progress toward California's goals for slashing methane emissions 40% from 2013 levels by 2030 and reducing organic waste disposal 75% below 2014 levels by 2025.



Hurricane Sandy

## **ADVOCATING FOR TRANSMISSION, BULK STORAGE, AND DEMAND RESPONSE**

CEERT advocates at the CPUC and the CAISO for large-scale energy storage, strengthened demand response programs, and new and upgraded transmission lines—three essential means of advancing clean energy and a low-carbon grid.

### In 2018, CEERT:

- Worked with CAISO Board Chair Dave Olsen and CAISO staff on the 2018 Transmission Planning Process, which explored how transmission expansions and upgrades could reduce Local Capacity Requirements and the need to operate gas-fired plants in disadvantaged communities. We urged the CPUC to send CAISO more realistic assumptions about the need for expanded transmission to meet the state’s climate and clean-energy goals.
- Initiated discussions between the Los Angeles Department of Water and Power, Southern California Edison (SCE), and CAISO on shared ownership and operation of an expanded LADWP transmission line from California’s eastern border to the heart of the LA Basin as a cost-effective means of increasing renewable imports and strengthening system reliability.
- Spearheaded discussions of ways to finance large-scale storage projects and allocate costs fairly, either through joint utility ownership or long-term contracts with CAISO. We are working with backers of a major pumped hydro storage project in Riverside County, large compressed-air storage projects in Utah, and new pumped hydro projects in Oregon.
- Advocated with the CPUC, CAISO, and load-serving entities for policies that recognize the crucial potential of demand response (DR) and its attributes that require that it be treated differently from gas-fired power. We argued for decentralizing dispatch at the distribution level to take better advantage of DR, and highlighted how DR has operated successfully where it has been deployed.



Pacific DC Intertie transmission line

## ACCELERATING CLEAN TRANSPORTATION

Because vehicles account for about 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 to low-carbon fuels and to support viable markets for zero-emission electric and fuel-cell vehicles.

### In 2018, CEERT:

- Continued to coordinate with state and national organizations to defend the 2022 – 2025 vehicle emissions and fuel economy standards against current federal efforts to roll them back. Detailed analyses from CARB, the Obama administration EPA, and the International Council on Clean Transportation has strongly demonstrated that the original standards are technically and economically viable.
- Supported new CARB regulations that extended the Low-Carbon Fuel Standard program to 2030 and doubled its carbon-intensity reduction target for transportation fuels.
- Advocated for new revisions, since adopted, in the Low-Carbon Fuel Standard program that will allow renewable power generated off-site to be used for electric vehicle (EV) charging and hydrogen production by electrolysis, and will recognize the benefits of shifting EV charging and electrolyzer loads to times when excess renewable electricity might otherwise be curtailed.
- Continued to serve on the Advisory Committee for the Alternative and Renewable Fuel and Vehicle Technology Program. The Program's draft 2019 – 2020 Investment Plan proposes \$32.7 million for electric vehicle charging and \$20 million for hydrogen fueling stations, supplemented by \$17.5 million for advanced freight and fleet technologies and \$20 million for alternative fuel production and supply.



## WESTERN GRID GROUP

Western Grid Group is a fiscally sponsored project of CEERT. WGG works to build a low-carbon electric system throughout the Western Interconnection by increasing renewable energy, reducing fossil energy, and supporting nonpolluting technologies.

### In 2018:

- WGG continued to play an instrumental role in expanding Energy Imbalance Market (EIM) membership by facilitating Public Service Company of New Mexico's decision to join the EIM in 2021. We did so through education and becoming a trusted advisor to the New Mexico Public Regulatory Commission and Attorney General staff. WGG also provided thought leadership on an interim step toward full Regional Transmission Operator formation. In collaboration with Western Clean Energy Advocate (WCEA) partners, we created an "EIM on steroids" concept, which later informed the early constructs of the Enhanced Day Ahead Market (EDAM).
- Through biweekly phone conferences and monthly WCEA calls, WGG provided thought leadership on market, governance, and general regionalization issues that led to filings and testimony by our staff members and other WCEA advocates. WGG calls include Natural Resources Defense Council (NRDC), Western Resource Advocates, Regulatory Assistance Project, and Energy Foundation consultants Doug Larson and Rebecca Wagner. WGG initiated or participated in 11 significant regulatory filings in 2018.
- In coordination with the Western Interstate Energy Board (WIRAB), WGG led the development of a high-visibility memorandum to the Federal Energy Regulatory Commission (FERC), North American Electric Reliability Corporation, Western Electricity Coordinating Council, WIRAB, CAISO, Peak Reliability, Southwest Power Pool, and all Western State Commission Chairs about the need for continued focus on Reliability Excellence in the face of a fractured Reliability Coordinator function in the West. The messages of the memorandum were reflected in remarks delivered by FERC Commissioner Cheryl LaFleur at the October 2018 Committee on Regional Electric Power Cooperation meeting in Mesa, Arizona.
- WGG expanded our utility financial transition work beyond the initial Colorado pilot and early Western states (PacifiCorp's service territory and NM) to Midwestern (MN, MO, IO, OH) and Southeast (NC, SC) states. We also expanded partnerships with advocates (Sierra Club and NRDC in particular), wrote initial project lessons into America's Power Plan publications, and worked on transition for financial analytics capabilities to the Rocky Mountain Institute.



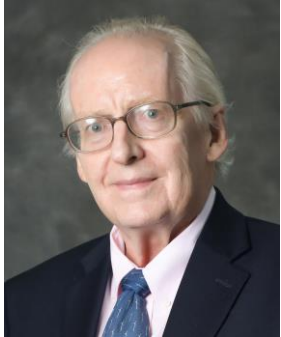
## CEERT's 16<sup>TH</sup> ANNUAL CLEAN POWER CHAMPIONS CEREMONY

At our Clean Power Champions Awards Ceremony on August 8, 2018, CEERT honored four outstanding leaders for their work to advance clean energy.



### **ASSEMBLYMEMBER EDUARDO GARCIA**

Assemblymember Garcia has played a lead role in the passage of landmark climate legislation that established California's Greenhouse Gas Reduction targets and extended the state's Cap and Trade program to 2030, while emphasizing investments in disadvantaged communities most affected by air pollution. He is a passionate advocate for a balanced renewable portfolio, and is fighting for development of geothermal resources in the Salton Sea region of the Imperial Valley.



### **DR. JAMES WALKER**

Jim has been a clean energy leader for more than 40 years, and served as the first executive director of the California Energy Commission, a CEC Commissioner, and Board Chair of the American Wind Energy Association. He was co-founder of Princeton Development Corporation, which pioneered wind and efficiency projects all over the world. Jim was the founder and driving force behind the American Wind Wildlife Institute, which has worked to minimize the wind industry's impacts on wildlife populations.



### **BONNIE HOLMES-GEN**

Bonnie has been one of California's leading advocates for air quality, clean energy, and climate action. In her nearly two decades with the American Lung Association in California, she worked to integrate transit, reduced vehicle use, and land-use plans, and helped enact landmark bills such as the California Clean Air Act, the Pavley vehicle greenhouse gas emission standards, the Global Warming Solutions Act, the Renewable Portfolio Standard, and the Short-Lived Climate Pollutants Reduction Strategy.



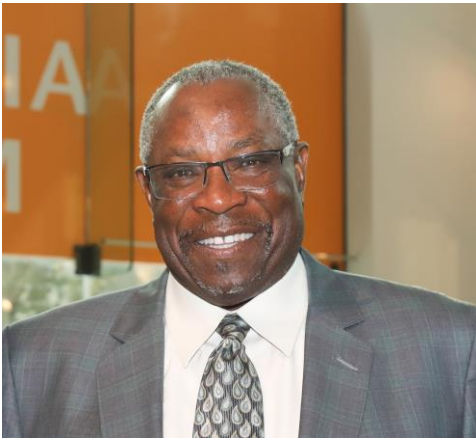
### **JAMES CALDWELL, JR.**

During Jim's more than 50 years in the energy industry, he has served as President of Arco Solar, Transmission Policy Director of the American Wind Energy Association, and Assistant General Manager for Environmental Policy at the Los Angeles Department of Water and Power. More recently, he spearheaded production of the influential 2030 Low-Carbon Grid Study and led the team that persuaded the CEC to issue an unprecedented rejection of a new gas-fired power plant in favor of a mix of clean energy resources.

## AT CEERT'S 16<sup>TH</sup> ANNUAL CLEAN POWER CHAMPIONS CEREMONY



Attendees listen to Anthony Rendon, Speaker of the California State Assembly



Dusty Baker, Principal, Baker Energy Team



Anthony Rendon and Clean Power Champion Eduardo Garcia



Clean Power Champions Jim Walker, Jim Caldwell, and Bonnie Holmes-Gen



Executive Director V. John White

## CEERT 2018 FINANCIAL STATEMENTS

### CEERT Program Expenses

Core Renewable Energy Advocacy	\$621,333	37.0%
CPUC Regulatory Intervention	50,743	3.0%
Grid Decarbonization	68,613	4.1%
Climate Policies	83,807	5.0%
<b>Subtotal, Program Expenses</b>	<b>\$824,496</b>	<b>49.1%</b>

### CEERT Sponsored Projects

Western Grid Group	\$449,972	26.8%
Latino Environmental Advancement Project	25,957	1.6%
Fix the Grid Campaign	170,414	10.2%
Building Decarbonization Coalition	206,710	12.3%
<b>Subtotal, Sponsored Project Expenses</b>	<b>\$853,053</b>	<b>50.9%</b>

**Total Program Expenses** **\$1,677,549** **100.0%**

### CEERT Program and Administrative Expenses

Direct Program Expenses	\$1,677,549	84.7%
Administration and Overhead	303,206	15.3%
<b>Total Organizational Expenses</b>	<b>\$1,980,755</b>	<b>100.0%</b>



Kimber West, Controller



## **BOARD OF DIRECTORS**

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**Carl Zichella**  
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Front row: Jim Caldwell, Jan McFarland, V. John White, Lauren Navarro, Nate Sandvig, Jonathan Weisgall  
Back row: Mona Tierney-Lloyd, Bill Magavern, Steve Schiller, Carl Zichella, Tom Starrs, Arthur Haubenstock, Jim Walker

## **AFFILIATES**

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**American Wind Energy Association**

**American Lung Association in California**

**Avangrid Renewables**

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**Pattern Energy**

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**Renewable Northwest**

**Sacramento Municipal Utility District**

**Sonoma Clean Power**

**SunPower Corporation**

**Union of Concerned Scientists**

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Regulatory Counsel

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**Megan Myers**  
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Megan Myers, Liz Anthony Gill, Sara Steck Myers, Jim Caldwell, V. John White, Peter Stern, Kimber West

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