CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES
QUARTERLY STAFF REPORT
JANUARY – APRIL 2016

EXECUTIVE SUMMARY: THE PAST QUARTER AT A GLANCE *(pages 1–2):*

Western Grid Expansion and Modernization
A key finding of our 2030 Low Carbon Grid Study was that the goal of decarbonizing the grid without triggering higher rates, local over-generation of renewables, or decreased reliability could be achieved by breaking down existing anticompetitive barriers to trade in the electricity markets of the Western U.S.; A legacy of 100 years of monopoly utility central-station power plant market Balkanization. Better integrating renewable generation zones with power consumption markets could yield a bonanza of synergies and greatly reduce the need for redundant back-up fossil fuel generation in the West.

Toward that end CEERT helped convene key stakeholders, agencies, the Governor's office, and staff of leading policymakers to discuss *key grid-expansion issues and potential resolutions*, identify gaps in knowledge and understanding, narrow differences, and pinpoint potential areas of agreement and compromise.

We are working with renewable energy companies, non-governmental organizations (NGOs), and funders on a *"Fix the Grid" campaign* that will perform analysis, education, and strategic outreach to advocates and stakeholders, and ensure that Western grid expansion enables California and the West to achieve our greenhouse-gas (GHG) reduction targets.

Discussions with the Governor's Office
CEERT has been in touch with the Governor's office on *Western grid expansion*, the California Public Utilities Commission's (CPUC's) proposed decisions on the controversial *Moorpark procurement*, the CPUC's failure to ensure *demand response procurement*, and the role of *geothermal* in low-carbon grid reliability. The Governor's office has asked CEERT for suggestions on improving the *energy agencies' performance* and using *demand-reduction strategies* to reduce system reliability risks.

Advocacy at the California Air Resources Board (CARB)
CEERT has been working with the California Air Resources Board on the development of its draft plan for *short-lived climate pollutants*, on *GHG accounting* for the regional grid expansion, and on establishment of *2030 GHG reduction targets* for the electric sector as required by Senate Bill (SB) 350.

CEERT Executive Director V. John White met with CARB Chair Mary Nichols and CARB Executive Officer Richard Corey to discuss potential *GHG-reduction benefits* of regional grid integration and how to build *transparent carbon accounting and tracking* into the expansion of the Western grid.

Low-Carbon Grid Study (LCGS)
CEERT staff has continued to conduct *briefings on LCGS results* to advocate groups and state agencies. The study has been cited for incorporation in Track II of the CPUC's *Integrated Resource Planning* proceeding and the *Renewable Energy Transmission Initiative 2.0* planning process.

CEERT's Jim Caldwell and Liz Anthony have recently written *three additional reports* related to the LCGS Phase II results: "The Value of Salton Sea Geothermal Development in California's Carbon Constrained Future," "SWIP North [Southwest Intertie Project North] Economic Benefits," and "The Value of Regional Wind Energy in California's Carbon Constrained Future."

Transmission Expansions
CEERT met with proponents of *transmission expansion projects* in Imperial County and the Central Valley and Southern California Edison's (SCE's) *West of Devers project* in eastern Riverside County. CEERT and NREL also worked on evaluating the economic and environmental benefits of the *Southwest Intertie Project North* transmission line, which would facilitate increased imports of *low-cost wind energy from Wyoming*.

Large-Scale Storage
CEERT continued to explore pathways for planning and procurement of *new bulk storage projects*, and advocated for better use of *existing large-scale storage infrastructure*, including PG&E's Helms pumped-hydro facility and the Department of Water Resources system of dams and pumping loads.

Advocacy at the California Public Utilities Commission (CPUC
CEERT strongly objected to the initial Preliminary Scoping Memo for the new combined Long Term Procurement Planning (LTPP) / Integrated Resource Planning (IRP) rulemaking not including *GHG reduction metrics* in the utilities' *least-cost best-fit* (LCBF) evaluation for renewables procurement. CEERT will actively participate in this new rulemaking to ensure increased reliance on low-carbon resources.

CEERT made outreach to our affiliates for input on *Renewable Portfolio Standard (RPS) Program changes* resulting from SB 350.

We wrote to CPUC Commissioners about our concerns and objections to 95% of the *Moorpark LCR procurement* being met with gas-fired generation, and our letter received significant attention in the press.

CEERT participated in a CPUC workshop on flexible resource adequacy, and will use the information from that workshop to help develop a *flexible capacity requirement (FCR) proposal* of our own.

In the CPUC's *demand response (DR)* proceeding, CEERT continues to take part in the meetings of Working Groups on Supply Resource DR Integration, Load-Modifying Resource (LMR) DR Valuation, LMR DR Operations, and the Demand Response Auction Mechanism.

CEERT has party status in the CPUC's ongoing *Distribution Resource Plans (DRPs)* proceeding.

The CPUC issued a crucially important Proposed Decision granting a Certificate of Public Convenience and Necessity for the *West of Devers Transmission Upgrade Project (WODUP)*. The WODUP upgrades will enable planning beyond the next RPS compliance period and provide infrastructure for deep GHG reductions.

Southern California Activities
The Walton Family Foundation asked CEERT to carry out a detailed analysis that found that replacing 3,800 MW of solar PV with 1,250 MW of geothermal would reduce production costs, overgeneration, and the need for flexible capacity, resulting in significant savings to customers and greater GHG reductions.

V. John White worked closely with the University of California at Riverside (UCR), business and community leaders, and policymakers in a successful effort to persuade CARB to choose a site near UCR for the proposed consolidation and expansion of its research laboratories and Southern California facilities.

Short-Lived Climate Pollutants (SCLPs)

CARB released a *Proposed Short-lived Climate Pollutant Reduction Strategy*, which recommends reducing 2013-level emissions of black carbon by 50% and methane and hydrofluorocarbons by 40% by 2030.

Clean Transportation Advocacy

CARB is proceeding to implement the *Low-Carbon Fuel Standard* regulatory package. The LCFS is expected to contribute approximately 20% of the state's 2020 GHG reductions mandated under AB 32.

CEERT is tracking proceedings on the utilities' proposed pilots for *electric vehicle charging station deployment*. Several CEERT affiliates are active parties in these proceedings.

CEERT continues to serve on the Advisory Committee for the Alternative and Renewable Fuel and Vehicle Technology Program. The 2016-17 Investment Plan Update has funding for *electric charging* and *hydrogen fueling infrastructure* totaling $37 million, and $23 million in funding for *medium- and heavy-duty vehicle technology demonstration, scale-up, and manufacturing*.

Western Grid Expansion and Modernization

With the passage of Senator De León's Senate Bill (SB) 350, attention has turned in 2016 to the implementation of the bill's provisions directing the California Independent System Operator (CAISO) to carry out various studies on the integration of the CAISO and PacifiCorp transmission systems: that integration's potential impacts, its costs and benefits to California customers, and its effects on greenhouse gas (GHG) emission reductions and renewable exports and imports.

CEERT has participated in a wide variety of meetings and discussions with agencies, stakeholders, and legislative staff, and has followed closely the design, inputs, and methodologies for the SB 350 studies now underway. Initial results from those studies are expected in early May, followed in June by recommendations and governance proposals to the California Public Utilities Commission (CPUC), California Energy Commission (CEC), California Air Resources Board (CARB), and the Governor. CAISO and PacifiCorp are pushing very hard for legislative enactment in 2016 of a bill to repeal the CAISO's existing governance structure, which is seen as a prerequisite for action by other states and a filing for Federal Energy Regulatory Commission (FERC) approval.

Despite broad conceptual support for modernizing and integrating the Western grid with the merger of the CAISO and PacifiCorp systems as the backbone, there are skeptics and opponents among key stakeholders and constituencies. These skeptics and opponents include the Sierra Club, The Utility Reform Network (TURN), the International Brotherhood of Electrical Workers (IBEW), and the municipal utilities, and together, they have significant influence over legislative leaders. Among the issues that the skeptics raise are:

- The potential for the integration to delay coal retirements and result in increased coal imports (Sierra Club);
- The loss of California political and policy influence over the regional system operator, compared to current governance by Governor's appointment and Senate confirmation of the CAISO board, and possible FERC preemption of California climate and clean energy policies (TURN);
- The watering-down or elimination of the current Renewable Portfolio Standard "bucket rules," which limit the import of out-of-state renewables that are not directly interconnected and delivered to the California grid (IBEW);
- The allocation of the costs of expanding PacifiCorp's transmission system to California customers without commensurate benefits, and inequitable allocation of grid management charges between PacifiCorp and California customers (the municipal utilities).

The combination of CAISO and PacifiCorp's accelerated push to enact California governance reform during the 2016 legislative session, and likely resistance and opposition from key constituencies and legislative leaders, raises the specter of a train wreck in August and a loss of momentum for the modernization and expansion of the Western grid. Underscoring this risk, the leadership of the Senate and Assembly have sent a very strong letter to the Governor expressing reservations about the potential unintended consequences of the CAISO-PacifiCorp integration.

To avoid a negative outcome, CEERT helped convene key stakeholders, agencies, staff of the Senate and Assembly leadership, and the Governor's office to discuss key issues and potential resolutions, identify gaps in knowledge and understanding, narrow differences, and pinpoint potential areas of agreement and compromise. These meetings began in March, and have been held every two weeks in the Governor's office, with Sue Kateley of the Assembly Utilities and Commerce Committee and Kip Lipper of Senator De León's staff chairing the discussions. Liz Anthony and V. John White have attended for CEERT.

CEERT has been working with a group of renewable industry representatives, NGO leaders, and key funders to create a coordinated education and strategic outreach campaign called "Fix the Grid" that will

carry out analysis, coordination, education, and political strategy with advocates, allies, and key stakeholders. An independent steering committee led by EDP Renewables' Roby Roberts will provide governance. The project's managing director is Don Furman, an esteemed friend and colleague who has extensive experience with the Western transmission grid.

The goal of the project is to ensure that Western grid expansion and modernization puts in place the key elements needed to enable California and the West to achieve our 2030 and 2050 GHG reduction targets. The first phase of the project will end in August, when the Legislature adjourns for the year. At that time, the steering committee and funders will review progress and gauge the extent to which the project has achieved its goals.

In addition to participating on the steering committee and providing administrative support to the project, CEERT anticipates that we may undertake supplemental modeling and analysis to help fill in the gaps in the CAISO/SB 350 studies. We are coordinating with other Western environmental advocates and the renewable industry, and following both the CAISO/PacifiCorp response to the required SB 350 studies and the stakeholder engagement processes involving the transmission access charge, resource adequacy, and GHG accounting. In addition to V. John White and Jim Caldwell, Dr. Liz Anthony, CEERT's new director of grid policy, is working closely on these Western grid expansion and modernization issues.

Discussions with the Governor's Office

CEERT has been in touch with the Governor's office on a variety of issues, including the CAISO and Western grid expansion, the CPUC's proposed decisions on the Moorpark procurement and the controversial Puente power plant in Oxnard, the CPUC's continuing failure to direct the utilities to procure demand response, renewable hydrogen and fuel cells, and the role of geothermal in low-carbon grid reliability and Salton Sea restoration. Recently, we have urged the Governor's office to direct the Joint Energy Agencies to focus more aggressively on reducing demand for natural gas and electricity as a means of reducing reliability and safety risk, highlighted by the closure of the Aliso Canyon gas storage facility in Southern California as a result of a catastrophic leak.

V. John White was quoted in a *New York Times* article about California's ambitious GHG reduction targets, commenting on the Governor's soaring rhetoric in Paris and the lack of concrete details about how the targets would be met. John also published an op-ed in the *California Current* newsletter on the CPUC's failure to rely on demand response and other preferred resources, and its decisions to increase California's reliance on conventional natural gas.

The Governor's office has responded with a request for specific suggestions for improving the performance of California's energy agencies and for using demand-reduction strategies to reduce electric and gas system reliability risks. We understand the Governor's office has directed CAISO board members to explore how California can phase out reliance on gas peakers and increase reliance on zero-carbon resources for system flexibility and reliability.

CEERT also has urged the Governor's office to engage with the legislative leadership and key stakeholders to try to build consensus on provisions that should be included in the proposal to revise the CAISO's governance and enable the establishment of a Regional System Operator.

Advocacy at the California Air Resources Board (CARB)

CEERT has been working with the California Air Resources Board this year on the development of its draft plan for short-lived climate pollutants (SLCPs), on greenhouse-gas (GHG) accounting for the Western grid expansion, and on establishment of 2030 GHG reduction targets for the electric sector as required by SB 350.

V. John White met with CARB Chair Mary Nichols in late January, and met twice with CARB Executive Officer Richard Corey, to discuss potential GHG-reduction benefits of regional grid integration and how to build transparent carbon accounting and tracking into a Western grid expansion. The current configuration of California's cap-and-trade program does not feature the level of transparency and real-time monitoring of GHG emissions that CEERT believes will be needed for a successful CAISO expansion.

Under the current design of the cap-and-trade program, electricity imports are categorized as either "specified," which means power generation with a bilateral purchase agreement between a generator and a load-serving entity (LSE), or "unspecified," which means system power, made up mostly of surplus coal and gas generation output that is dumped into the Western power pool. GHG emissions from unspecified system power are attributed based on a system average, rather than the actual output from the specific generator. It is widely believed that this mechanism has resulted in under-allocation of cap-and-trade obligations to LSEs such as Arizona Public Service that have mostly coal in their system power portfolios.

CEERT believes that transparent, real-time GHG accounting should be hard-wired into the market design of a modernized, expanded Regional System Operator, and that CARB and CAISO should work together to suggest how this goal can best be achieved. Given the concern about the grid expansion's impact on coal output and the trajectory of future coal retirements, and the need to ensure fair and binding GHG-reduction obligations, this issue is likely to be addressed in grid-expansion governance legislation.

CEERT has also been working with CARB on the upcoming AB 32 Scoping Plan for implementing a 2030 electric-sector GHG reduction target, as required by SB 350. Establishing this target as part of the Scoping Plan is a crucial step, and essential to properly guiding both the Renewable Energy Transmission Initiative 2.0 and the CPUC's Integrated Resource Planning (IRP) process mandated by SB 350.

We are concerned that some CARB staff are reluctant to establish an electric-sector GHG target because it might be in conflict with the cap-and-trade program. And we have heard that the utilities are objecting to any additional GHG reduction target beyond the 50% RPS by 2030, despite SB 350 requiring adoption of a 2030 target to drive the IRP process. Commissioner Picker has said if CARB doesn't establish a target, the CPUC will set one of its own.

Low-Carbon Grid Study (LCGS)

Phase II of the Low Carbon Grid Study has been completed, all results have been posted on the website, and the books have been closed to any new expenses to be covered by the project Steering Committee. A final financial report will be issued shortly. The Technical Services Agreement with the National Renewable Energy Laboratory (NREL) remains open through September 2016, with about $2,000 left in the account to allow continued access to the NREL modeling team to answer questions as they arise and have NREL participation in briefings if necessary.

We have conducted a series of briefings on the LCGS results to various advocate groups and state agencies. Meetings in early May include a second briefing for the CPUC Energy Division and a briefing for the Public Utilities Commission of Nevada. We have not officially filed results or summaries in any California regulatory proceeding; however, as a result of the briefings to date and traffic on the website, the study itself has been specifically mentioned for incorporation in Track II of the upcoming CPUC integrated Resource Planning (IRP) proceeding and the RETI 2.0 planning process that the Natural Resources Agency is conducting.

Since the closeout of Phase II, we have conducted additional sensitivity modeling and written reports on three additional topics related to the Phase II results. These three reports use the LCGS Phase II data bases as a starting point, but have been sponsored by separate interest groups without using any incremental Steering Committee money or participation.

The first of these reports, "The Value of Salton Sea Geothermal Development in California's Carbon Constrained Future," was sponsored by the Walton Family Foundation and used to demonstrate the cost-effectiveness of a diverse portfolio including baseload geothermal to comply with a 50% RPS requirement. This report has been posted on the LCGS website.

The second report, "SWIP North Economic Benefits," was sponsored by Great Basin Transmission, LLC (LS Power), which is the developer of the Southwest Intertie Project North transmission line connecting Idaho and Nevada that was used in Phase II of the LCGS to provide a new link to deliver Wyoming wind energy to California. The report isolates the benefits of this transmission line in a future WECC scenario with significant renewable resource development. This report has also been posted on the LCGS website.

The third report, "The Value of Regional Wind Energy in California's Carbon Constrained Future," was sponsored by the American Wind Energy Association and several of its member companies to isolate and quantify the benefits of Wyoming and New Mexico wind in a 50% California RPS. This report is in final draft and will be posted on the LCGS website soon.

It is possible that other follow-on projects will be conducted between now and September, when the current Technical Services Agreement with NREL expires. At that point, the new Transmission Expansion Planning Policy Committee (TEPPC) 2026 Common Case will be released, updating the TEPPC 2024 Common Case that was the LCGS Phase II platform, and the ability to conduct this type of study using the latest version of the official Western Electricity Coordinating Council (WECC)-wide load and resource data bases will draw to a close. Further work would probably have to include a substantial investment in time and money to update the modeling platform.

Transmission Expansions

CEERT has met with several proponents of transmission expansions, including projects in Imperial and the Central Valley and Southern California Edison's (SCE's) West of Devers project in eastern Riverside County. There is continuing interest in making CAISO's long-term transmission planning process be in better alignment with 2030 GHG reduction targets and with local and regional land-use planning and economic development and sustainability goals, especially in the Central Valley and eastern Riverside and Imperial counties.

California Independent System Operator (CAISO) CEERT and NREL also worked with LS Power on evaluating the regional economic and environmental benefits of the Idaho/Nevada Southwest Intertie Project North (SWIP-N) transmission line, which would facilitate increased imports of high-capacity, low-cost wind energy from Wyoming.

Large-Scale Storage

CEERT has continued to explore pathways for planning and procurement of new bulk storage projects, including pumped hydro, compressed air, and concentrating solar power with thermal storage, but the California Public Utilities Commission (CPUC) remains focused primarily on more expensive distributed battery storage. The California Independent System Operator's (CAISO's) modeling and other low-carbon grid planning exercises continue to support procuring significant quantities of large-scale storage as a means of reducing reliance on natural gas for ancillary services and flexibility. CEERT believes that joint utility procurement of bulk storage facilities, either through joint ownership or through CAISO-tariff financing of these facilities as alternatives to more expensive transmission upgrades, may be the best way to get some projects moving forward.

CEERT has advocated with the Governor's office and the Joint Energy Agencies for better use of existing large-scale storage infrastructure, including the Department of Water Resources system of dams and

pumping loads. We have also had discussions with various parties about the potential to make use of PG&E's Helms pumped-hydro facility near Fresno in the event the Diablo Canyon nuclear plant shuts down in 2024 (or earlier), and to explore the potential for building new pumped-hydro to support expanded solar development in the Central Valley in the PG&E and Sacramento Municipal Utility District (SMUD) / Western Area Power Administration (WAPA) balancing areas.

Advocacy at the California Public Utilities Commission (CPUC)

Renewable Portfolio Standard (RPS) Program (R.15-02-020)

Despite changes to the RPS Program law resulting from SB 350 and AB 327, and despite concerns about ongoing segregation of RPS procurement, the CPUC's actions in its RPS Rulemaking (R.) 15-02-020 largely follow approaches long in place. Decision D.15-12-025 approving the investor-owned utilities' (IOUs') 2015 RPS Procurement Plans declined to set higher RPS targets in line with SB 350 and AB 327, as CEERT and others advocated, and focused only on "procurement proposals that will help meet their near-term RPS procurement," and concluding that "[s]ince the 2015 RPS Plans do not directly incorporate SB 350's requirements, *in 2016* we will address the implementation of SB 350's higher RPS targets." (Emphasis added.)

Similarly, CEERT proposed that, in this decision, the CPUC require the IOUs' least-cost best-fit (LCBF) evaluation methodologies to include GHG emission reduction considerations or metrics. Instead of deciding that issue, D.15-12-025 states that "[t]his matter will be considered in 2016 as part of the SB 350 implementation and LCBF reform."

As noted below, the initial Preliminary Scoping Memo for the new combined rulemaking R.16-02-007 on Long Term Procurement Planning (LTPP) and Integrated Resource Planning (IRP) has ignored this direction in D.15-12-025, yet supports the RPS LCBF evaluation criteria for IRP purposes. CEERT has strongly objected to this outcome without the long overdue reform of LCBF—especially the inclusion of GHG metrics—to which the CPUC committed in D.15-12-025.

On March 21, the CPUC Staff held a teleconference that CEERT attended on RPS generation and transmission portfolios. For links to the teleconference slides, the Energy Division Staff Paper on the Draft 2016 RPS Portfolios for generation and transmission planning, and the currently available RPS Calculator (Version 6.2), see: http://www.cpuc.ca.gov/RPS_Calculator/. Comments on the Staff Paper were due on March 29, with no reply comment opportunity and no indication of next steps beyond that comment period. (The RPS Calculator and the Renewable Integration Cost Adder (RICA) are reviewed in more detail below, as these issues relate to both the RPS and LTPP/IRP proceedings.)

From the slides and from comments CPUC Staff made on March 21, the Staff appears to have conceded that their information on geothermal resource costs in particular required more work and outreach to developers and areas of geothermal development (steps that Staff stated it was undertaking), and may have previously been too high. Among their conclusions on "sensitivities" was: "Geothermal costs are very location specific and uncertain—lower cost assumption might increase selection."

On April 15, the CPUC took its first action in the RPS rulemaking to respond to changes in the RPS Program resulting from SB 350, with an Administrative Law Judge's (ALJ's) Ruling seeking Comments on "implementation of elements of [SB] 350 relating to procurement" under the RPS Program. (See: http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K871/159871940.PDF.) These "elements" concern potential changes in compliance periods, procurement quantity requirements, long-term contracts, utility-owned generation, and excess procurement counting. CEERT has made outreach to our affiliates for input on these potential changes.

Finally, CEERT has concerns with how the CPUC and the California Independent System Operator (CAISO) have been interpreting the RPS "content categories" (also known as "buckets") in a way that may not facilitate expansion of the CAISO. To ensure a full understanding of the current rules and possible future changes, CEERT has scheduled a meeting with CPUC Energy Division chief Ed Randolph and members of his RPS team to address these issues, and those related to a permanent Resource Adequacy flexible capacity requirements program.

The Renewable Integration Cost Adder

Background

The calculation of a permanent Renewable Integration Cost Adder (RICA) has cut across the CPUC's LTPP and RPS proceedings, and now R.16-02-007 (LTPP/IRP) as well. In decision D.14-11-042, issued in the prior RPS proceeding, the CPUC identified the RICA as "costs associated with making the system operationally flexible, which would reflect the costs of integrating intermittent renewable resources onto the grid." D.14-11-042 adopted an interim, non-California-specific value for the variable cost component of the RICA for wind and solar, based on a survey of studies of other jurisdictions as proposed by PG&E.

On March 27, 2015, an ALJ's Ruling was issued in R.13-12-010 (LTPP), by which the CPUC concluded that, "integration costs are generally considered in three categories: 1) *variable*—incremental ancillary services and flexible capacity costs for increased operating reserve, 2) *curtailment* costs due to power system inflexibility, and 3) *fixed* (new flexible capacity) expenses." This ALJ Ruling directed Southern California Edison (SCE) to perform production simulations to support a methodology (prepared by E3) for developing the variable component of a RICA for 33% and 40% RPS scenarios, with curtailment and fixed integration cost components to be addressed in later stages.

On May 29, 2015, SCE filed a report on its RICA Study for a 33% RPS, which contained an estimation of the variable component calculated as the increase in variable operation costs associated with changes in the unit commitment and dispatch of the generation fleet that are required to meet the needs of system operations with incremental solar and wind resources for a 33% RPS scenario. The study identified the variable component of RICA in the 33% RPS scenario as $3.01/MWh for solar and $2.38/MWh for wind.

On December 8, an ALJ's Ruling called for a complete report with 33% and 40% RPS analyses to be filed by March 4, with Workshops and comments to follow, and a Proposed Decision by summer 2016. On December 15, SCE filed a required Progress Report on the RICA modeling, but indicated that technical issues had arisen from the use of the model the CAISO developed following the methodology laid out in the 3/27/15 ALJ Ruling, and reviewed potential solutions to those problems. The Report concludes: "…the solutions must work in the 33% RPS, 40% RPS high solar portfolio, and 40% RPS high wind portfolio scenarios before the Modeling Parties will recommend officially accepting the changes for the final integration cost adder report."

On January 12, CEERT participated in a teleconference that discussed the RICA and the technical problems that had emerged in modeling for the 40% RPS, with proposed solutions. The technical issues included non-convergence, an unstable objective function, and non-economic penalty prices that over-impact results. "Solutions" ranged from adjusting the curtailment methodology, modifying penalty prices, adding generic flexible capacity, changing soft constraints into hard constraints, and permitting net exports from California, with this last option seeming to have greater support than the others.

Final April 4 SCE Report: Recommendations and Next Steps

Following a further extension, SCE filed its final RICA Report on April 4. Given its inability to resolve flaws in the 40% RPS Study, SCE made the following recommendations:

(1) "while the RICA modeling exercise provided many important lessons, the results developed from this study are unreliable";

(2) the CPUC should conclude the RICA Study required by the March 27 ALJ's Ruling and initiate a new RICA study in R.16-02-007 (LTPP/IRP—see below) with "appropriate modeling tools that incorporate feedback from the parties";
(3) future RICA studies should incorporate "four major lessons learned from the RICA Study" (i.e., a data base designed for the purpose of the study, a methodology designed within the confines of the model in mind, consideration of uncertainty in the modeling approach, and a better understanding of reserve requirements and their relationship with increasing renewable penetrations);
(4) future RICA studies should consider a more comprehensive approach that includes fixed and other cost components along with variable costs that factor into integrating incremental resources into the system, noting that "calculating the components through a siloed approach has proven difficult with no consistency in methodologies"; and
(5) future RICA studies *should expand the study's scope from variable renewable resources to include geothermal and biomass resources*. (SCE states that geothermal and biomass resources "may also have integration costs when calculating the RICA holistically with both fixed and variable costs.")

On April 13, CEERT participated in a webinar on the SCE April 4 Report results and recommendations. A March 9 ALJ's Ruling stated that "[p]arties will be given an opportunity to comment on SCE's report at a later date in the new proceeding (R.16-02-007)" (LTPP/IRP). As noted below, CEERT has already filed Comments in R.16-02-007 and will be attending this PHC and taking an active part in the LTPP/IRP proceeding, including on this issue.

The RPS Calculator and Long-Term Modeling Assumptions
The development and application of the RPS Calculator and other long-term modeling assumptions are further cross-cutting issues that impact both the LTPP and RPS proceedings. The RPS Calculator remains an input to the scenario planning for the CAISO's Transmission Planning Process (TPP) and the CPUC's 2016 LTPP. The CPUC staff is also considering a "50% RPS Energy Only Special Study," based on RPS Calculator Version 6.1, that will develop technical information on hypothetical energy-only scenarios that are needed to inform the RPS Calculator's representation of the transmission system and develop portfolios for CAISO consideration in a future TPP cycle.

On February 8, an ALJ's Ruling was issued seeking comment on assumptions and scenarios for use in the CAISO's 2016-17 TPP and future CPUC proceedings. These assumptions and scenarios included an "overhaul" of those used in previous years, as well as Version 6 of the RPS Calculator, and ten potential scenarios. Party Comments were filed in February. A Version 6.2 of the RPS Calculator is now available at: http://www.cpuc.ca.gov/RPS_Calculator/.

Integrated Resource Planning (IRP) / Long-Term Procurement Planning (LTPP) (R.16-02-007)
After the energy crisis and the reinstitution of IOU electric generation procurement to meet customer demand, the CPUC commenced, pursuant to statute, requirements for IOU LTPPs based on a ten-year forecast period. The current LTPP Rulemaking (R.13-12-010) addresses the period beginning in 2014.

In this and prior LTPPs, CEERT has been a strong and successful advocate for the inclusion of Loading Order "preferred resources" for both reducing the need for electric generation from gas-fired resources and for meeting any residual need that may exist. These "preferred resources" include (in order): energy efficiency, demand response, and renewable generation.

Our advocacy has supported groundbreaking decisions that have mandated amounts of preferred resources to be procured in recent Requests for Offers (RFOs) by SCE and San Diego Gas and Electric (SDG&E) to meet long-term need resulting from the retirement of once-through-cooling generation facilities and the San Onofre Nuclear Generating Station. The CPUC's decisions on these RFOs make clear that, while distributed generation (DG) appears before gas-fired generation in the Loading Order,

only DG using renewable resources counts as a preferred resource. (A.14-11-012 (SCE LCR RFO LA Basin) Decision (D.) 15-11-042.)

The future of LTPPs has been affected by the enactment of SB 350. This sweeping bill covers a broad spectrum of state agencies and statutory additions and amendments, all with the goal of setting and implementing a new set of objectives in clean energy, clean air, and pollution reduction for 2030 and beyond. Those objectives include, by 2030, increasing electricity procurement from renewable resources from 33% to 50% and doubling energy efficiency savings. Following the passage of SB 350 in the fall, CEERT provided our affiliates with an analysis of its provisions, including those directly impacting the RPS Program and those affecting the CAISO's governance, electrification in transportation, and integrated resource planning.

Among the CPUC's responsibilities under SB 350 is the implementation of new PU Code Sections 454.51 and 454.52 (IRP). Section 454.51 requires the CPUC to take multiple steps to identify a "diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy in a cost-effective manner" with reliance on "zero carbon-emitting resources to the maximum extent reasonable," and to direct the IOUs to include, as part of their LTPPs, a strategy for procuring "best fit and least cost resources" to satisfy the portfolio needs that the CPUC identifies, with cost allocation and CCA requirements also specified.

Section 454.52 requires the CPUC, commencing in 2017, to adopt a process for each load-serving entity to file an integrated resource plan (IRP), with scheduled updates, to meet the GHG emission reduction targets set by CARB and 50% renewable resource procurement by 2030. The authorized all-source procurement can take into account geographic service area differences, as well as technologies that might not otherwise compete favorably with other resources but do reduce GHG emissions and meet other goals.

On February 11, the CPUC issued a Rulemaking (R.16-02-007) *not only* to continue the LTPP process, *but also* to implement these IRP sections. Disappointingly, the Preliminary Scoping Memo included in R.16-02-007 failed to appropriately or effectively implement these sections, ignoring key IRP provisions and the Legislature's intent in enacting those provisions. Further, R.16-02-007 appears to carry on the CPUC's reliance on "siloing" issues into various proceedings without any clear strategy for planning for success in meeting SB 350's goals.

CEERT has already received party status for R.16-02-007 and will actively participate, especially to ensure the increased reliance on renewable generation and low-carbon resources that SB 350 mandates. As a first step, on March 21 we filed Comments on the Preliminary Scoping Memo, identifying shortcomings and recommending changes consistent with SB 350.

Those Comments also pointed to the CPUC's commitment in D.15-12-025 to finally address in *this* rulemaking GHG emissions metrics in its LCBF evaluation for renewables procurement. Not only does the Preliminary Scoping Memo fail to account for the CPUC's decision in D.15-12-025 to reform the LCBF in its implementation of SB 350, but it further errs by *supporting* the current LCBF used "in the RPS context" (which fails to include a GHG metric) as the resource valuation and selection methodology for purposes of the IRPs.

CEERT has strongly urged that this failing be recognized and corrected in the final R.16-02-007 Scoping Memo. Further rulings on RICA may also be transitioned to R.16-02-007, a circumstance that we believe should be explicitly confirmed, with timing and direction specified.

The 2012 Long-Term Procurement Planning (LTPP) Preferred Resources Procurements

The CPUC's 2012 LTPP rulemaking concluded with two key decisions authorizing local capacity requirement (LCR) procurement for SCE and SDG&E in D.13-02-015 (Track 1, SCE) and D.14-03-004 (Track 4, SCE and SDG&E), which identified a portion of this procurement to come from preferred resources and not simply gas-fired generation. SCE and SDG&E filed three applications seeking approval of procurement contracts signed pursuant to those authorizations: (1) A.14-07-009 (SDG&E (Carlsbad Power Purchase Tolling Agreement (PPTA))); (2) A.14-11-012 (SCE LCR Request for Offers (RFO), Western LA Basin); and (3) A.14-11-016 (SCE LCR RFO, Moorpark). All three of these applications have now resulted in decisions, but remain steeped in controversy.

A.14-07-009 (SDG&E (Carlsbad)): On May 21 the CPUC issued D.15-05-051 adopting an Alternate Proposed Decision, approving a modified PPTA with the gas-fired Carlsbad project as compliance with the LTPP decisions, and stressing the importance of meeting reliability needs. Multiple parties challenged the decision in applications for rehearing on the basis that D.15-05-051 did not comply with CPUC rules because it added considerations not within the scope of the proceeding and authorized procurement that did not comply with the authorizing decisions and was not supported by the evidence. These applications for rehearing were denied in November, but the parties continued with timely Petitions for Writ of Review of D.15-05-051 (and D.15-11-025) in the First District of the California Court of Appeal.

In its Response, the CPUC held that its conclusions about the timing of SDG&E's LCR need are within the scope of the proceeding and consistent with Track 4, that it was justified in declining to adjust the Track 4 LCR amounts, that the reasonableness of the terms and conditions of the Carlsbad PPTA is supported by substantial evidence, that the 500 MW condition is within the scope of the proceeding, that parties had adequate notice and opportunity to be heard, and that the Carlsbad PPTA approval is consistent with the Loading Order. It appears that as it now stands, the record will be provided to the Court to review. The Court of Appeals has not yet issued a decision on this issue.

A.14-11-012 (SCE LCR RFO (Western LA Basin)): This application also arose from the CPUC's LTPP Track 1 and Track 4 authorizing decisions that mandated a specific amount of the LA Basin LCRs be met by preferred resources. A.14-11-012 reflects that SCE fell short of that mandate, and met much of its preferred resources obligation with storage. On November 19, the CPUC issued D.15-11-041 on LA Basin. Though SCE fell significantly short on its preferred resources procurement, the CPUC nevertheless found that SCE had "substantially" complied with the authorizing decisions and no further RFO was required, despite the fact that little or no demand response was procured and 75% of the overall procurement was from gas-fired generation.

Between December 21 and December 24, four applications for rehearing of D.15-11-041 were filed challenging both the legal and evidentiary record support for the outcome the CPUC reached in that decision. No CPUC decision has been issued on those applications for rehearing.

A.14-11-016 (SCE LCR RFO (Moorpark)): A.14-11-016 (Moorpark) is a smaller authorized procurement specific to the Big Creek/Ventura local reliability area and resulted from the Track 1 decision only, which mandated that SCE use all efforts to meet its LCR need first with preferred resources. SCE's application seeks approval to meet 95% of the authorized procurement with gas-fired generation (GFG), represented by a GFG plant in Oxnard. At the CPUC's December meetings, a large number of Oxnard residents and others came to speak against approval of A.14-11-016.

On January 11, the CPUC issued a Proposed Decision (PD) and an Alternate Proposed Decision (APD) (Florio), both of which did not approve (without prejudice) the larger gas-fired Puente Project (262 MW), based on the need for additional information on "fundamental issues, such as safety, reliability, and environmental justice," that the CPUC determined could emerge from the CEC's pending environmental review of the project. The application remains open for reconsideration once the specified information is

provided, and the Puente Project therefore may still be approved. The APD did approve the smaller Ellwood GFG project (54 MW), even though the PD did not approve that project, finding that its considerations raised due process concerns since it was not within the scope of this procurement.

On February 12, a further Alternate Proposed Decision by Commissioner Peterman was issued that *approves* the Puente Project with no further delay, but defers the Ellwood project to a further decision in the application. On February 18, an All-Party Meeting that most Commissioners attended was held on the PD and APDs. Despite the significant arguments against the Peterman APD at the conclusion of the All-Party, Commissioner Florio suggested that he might now support the Peterman APD's outcome. While not a party to A.14-11-016, CEERT saw strong grounds to oppose the CPUC approving another GFG facility, especially where well-founded objections had been lodged about the absence of need, the Puente Project's adverse environmental and community impacts, the procurement neglecting preferred resources, and the aggravating factor of the Aliso Canyon Storage Facility leakage.

On March 2, CEERT wrote to the Commissioners voicing our concerns and objections, with that letter then timely filed on March 7 as a required Notice of Ex Parte Communication. The letter received significant attention in the press and was the subject of a follow-up e-mail request from the ALJ Division for more information on the record supporting CEERT's objections. We provided this information on March 8, with a timely Notice of Ex Parte Communication filed on March 10.

Resource Adequacy (RA) (R.14-10-010)

The issues of valuation and "counting" by resource type to meet the local, and potentially long-term, RA obligations of California's load-serving entities remain a focus for CEERT. Our goal is to ensure the fair and proper consideration of the attributes and value that Loading Order preferred resources (e.g., renewable generation) provide to meet RA obligations.

In the current RA Rulemaking (R.) 14-10-010, the CPUC has undertaken two tracks, with Track 1 to yield a decision in June 2016 on local RA obligations and refinement to that program for the 2017 RA year, and Track 2 to focus on CPUC adoption of a "durable" flexible capacity requirement (FCR) program, with a decision to be issued later in 2016. (See: Scoping Ruling issued on December 23, 2015 at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M156/K745/156745018.PDF.)

CEERT plans to develop an FCR proposal of our own. We participated in the April 5 Track 2 Workshop on flexible RA, and will use information presented at that workshop to inform our FCR proposal. In addition, we have a meeting scheduled with CPUC Energy Division Director Ed Randolph and members of his RPS and RA teams to address RPS content category rules and a permanent RA FCR program.

CEERT participated in a January 6 Workshop on the results of a Flexibility Metrics and Standards Project conducted by the 21st Century Energy Systems Research and Development Program, a collaboration between the IOUs and Lawrence Berkeley National Laboratory. The project is relevant to both the LTPP and RA proceedings because it "develops tools for assessment of how much capacity and flexibility achieves adequate system reliability while meeting policy goals at least cost" and "uses the same system-reliability planning and production cost model being considered in the RA proceeding." We believe that, while much is left to do, the initial work is important and could give beneficial input to these proceedings.

Joint Reliability Plan (JRP) (R.14-12-001)

On December 22, Commissioner Peterman issued a PD closing the OIR for the JRP. Remaining issues will be addressed in the LTPP and RA proceedings. We will no longer report on the JRP unless the CPUC decides to reopen the rulemaking.

Demand Response

CEERT continues to advocate vigorously before the CPUC and other energy agencies to strengthen existing DR programs while pressing for changes in DR procurement, and to urge the CAISO's Board of Governors and senior management to be more accommodating of DR aggregators by reducing barriers to increased use of this pivotal resource.

Since the issuance of D.14-12-024 in the CPUC's DR proceeding in December of 2014, CEERT has monitored the meetings of DR Working Groups on Supply Resource DR Integration, Load-Modifying Resource (LMR) DR Valuation, LMR DR Operations, and the Demand Response Auction Mechanism (DRAM), including DRAM subgroups.

On February 1, PG&E, SCE, and SDG&E served their proposals for each IOU's 2017 DR bridge funding for the 2017 transition year. The proposals discussed in part integration of DR resources into the CAISO wholesale market. On February 19, the CPUC held a workshop on cost-effectiveness issues.

On March 16, ALJ Hymes issued a Ruling Requesting Utility Response to Questions Regarding 2017 DR Program Proposals. The Ruling asked all three IOUs to discuss two concerns with the integration of large aggregations of residential and small-business customers into the CAISO energy market: 1) The 10-in-10 baseline underestimating the actual load drop of the participant having a negative impact on final settlement, and 2) the need for CAISO to employ a statistical sampling methodology for such aggregations.

On March 23, Commissioner Florio issued a Ruling on activities in response to the natural gas leak at the Aliso Canyon Storage facility. The Ruling directed SCE to take immediate steps to enhance its DR efforts in light of the Aliso Canyon leak, especially in the geographic areas most impacted by the anticipated natural gas shortage. New funding authority may be warranted to enable incremental DR capabilities in these areas. The Ruling directed SCE to propose new funding or changes to program rules that may be useful for ensuring reliability. Subsequently, ALJ Hymes issued a Ruling ordering SCE to serve its first monthly report on emergency activities in response to the Aliso Canyon leak within 10 days following a yet-to-be-issued decision on SCE's Aliso Canyon Response Proposal.

On April 1, the Lawrence Berkeley National Laboratory (LBNL) issued Phase 1 of the DR Potential Study. (See: http://www.cpuc.ca.gov/General.aspx?id=10622.) On April 13, the CPUC held a workshop in which LBNL presented its initial findings in the DR Potential Study.

In a very favorable development for DR interests, the U.S. Supreme Court issued a ruling on January 25 upholding FERC Order 745, which provides rules for DR participation in wholesale markets.

CEERT believes it is essential to continue our advocacy in support of DR as a key clean-energy resource, and we will remain active in the CPUC's DR proceeding and become further involved where possible.

Other CPUC Rulemakings and Governance Actions:
CEERT has had a limited budget to actively participate in other CPUC proceedings focused on distributed energy resources (DERs), integration of DERs, energy efficiency, etc. Nevertheless, we are currently a party to or are tracking the following proceedings to take the opportunity (when appropriate and our budget permits) to advance these resources.

Distribution Resource Plans (DRPs) (R.14-08-013)
On September 23 CEERT was granted party status at a Prehearing Conference for this proceeding.

On January 28, the CPUC issued a Scoping Memo that divided the DRP proceeding into three tracks to run concurrently: Track 1 on methodological issues (quasi-legislative), Track 2 on demonstration and pilot projects (rate-setting), and Track 3 on policy issues (quasi-legislative). Track 1 includes develop-

ment of an integration capacity analysis (ICA) and locational net benefits analysis (LNBA). Track 2 will look at Demonstration Projects C, D, and E designated in the February 6, 2015 Guidance Ruling. Track 3 includes definition of the distribution services that can be provided by distributed energy resources (DERs), to the extent these are not already addressed in Track 1's LNBA methodology. The current ALJs in this proceeding are ALJs Allen and Mason.

On February 1, the CPUC held a workshop on the LNBA Methodology and Demonstration Project B, at which CPUC Staff expressed concerns about the presentations the IOUs made and the fact that these presentations contained information different from that in the IOUs' DRPs. Staff noted that the CPUC was expecting a method or model from the IOUs to value DERs at the local level, and that this was a huge missing component from what the IOUs presented. The IOUs subsequently created a workshop report, and on February 18, ALJ Kelly issued a Ruling Inviting Comments on ICA methodologies, ICA workshop report, LNBA methodology, LNBA workshop, and Demonstration Projects A and B.

Given the large scope of the DRP Roadmap, CEERT believes we will have numerous opportunities to comment and participate in this proceeding. We also believe that optimal development of the DRPs will be a crucial step toward successful and increased procurement of renewables.

Integration of Distributed Energy Resources (IDER) (R.14-10-003)
On September 22, 2015, the CPUC issued D.15-09-022, which adopted an expanded scope, a definition, and a goal for the integration of DERs. The scope of the proceeding has been expanded to consider a framework based on the entire energy product and delivery system from the customer side to the utility side. There have been continual working-group meetings in this proceeding.

On February 26, Assigned Commissioner Florio and ALJ Hymes issued a Ruling and Amended Scoping Memo that broadened the issues to be addressed in Phase 1 to include: 1) a determination of how the DERs will be procured that are needed to fill the required characteristics and values identified in the DRP proceeding, 2) a focus on the IDER in a holistic way, and 3) a consideration of the adoption of localized incentives and the methodology used in determining those incentives.

On March 28, the CPUC held a workshop on procurement lessons learned. The goals were to provide parties with overviews of various prior solicitation experiences, discuss lessons learned from those experiences, and bring into focus general requirements for the CPUC's competitive solicitation framework.

On April 4, Assigned Commission Florio issued a Ruling introducing a Draft Regulatory Incentives Proposal for discussion and comment. This Ruling sets forth a proposed pilot that will test incentives in parallel with the DRP Demonstration pilots.

Energy Efficiency (EE) (R13-11-005)
Phase 2 of this proceeding addresses "Rolling Portfolio" review processes, guidance on changes for 2016 portfolios, and updates of various metrics to keep portfolios on course through 2016 and beyond.

On February 1 a Prehearing Conference was held, and on April 8 the CPUC issued a Proposed Decision granting Marin Clean Energy's petition to modify D.14-10-046 in order to increase its annual electric EE budget to reflect an expanded customer base.

Energy Storage (R.15-03-011)
On March 26, 2015, the CPUC issued an OIR to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13-10-040, D.14-10-045) and Related Action Plan of the California Energy Storage Roadmap. CEERT is a party to this proceeding, which was divided into two tracks. Track 1 considered only those issues that must be expeditiously resolved prior to

commencement of the IOUs' 2016 energy storage procurement solicitations and the required Tier 2 Advice Letter compliance filings of Electric Service Providers and Community Choice Aggregators. Track 2 will consider additional issues for the further development and refinement of the Program.

On January 29, the CPUC issued D.16-01-032 on Track 1 issues, which in part approved the IOUs' request for additional flexibility of energy storage targets between grid domains and allowed the IOUs to satisfy some of their transmission and distribution domain targets through customer-connected projects, up to a ceiling of 200% of the existing customer domain targets.

On April 5, the IOUs gave presentations on their 2016 energy storage procurement plans. A May 2 – 3 workshop will address two issues that pertain both to this rulemaking and CAISO's Energy Storage and DER (ESDER) initiative: (1) station power, and (2) multiple-use applications and associated use cases.

West of Devers Transmission Upgrade Project (A.13-10-020)

On October 25, 2013, Southern California Edison (SCE) filed an Application for a Certificate of Public Convenience and Necessity for the West of Devers Upgrade Project (WODUP) and for an Interim Decision approving the proposed transaction between SCE and Morongo Transmission LLC. On August 24, 2015, Assigned Commissioner Randolph issued a Scoping Memo that outlined a number of key issues, including what the maximum prudent and reasonable cost of the project would be, what significant adverse environmental impacts the project would have, and what mitigation measures or project alternatives might lessen those environmental impacts.

In testimony, the Office of Ratepayer Advocates (ORA) opposed WODUP, contending existing transmission capacity, including the West of Devers Interim Upgrades, is sufficient to support the state's renewable energy goals. However, Palen Solar Holdings believes ORA's recommendations—which could halt a transmission project that has been the basis for statewide transmission planning and relied upon by utilities, renewable developers, and project financing entities over an extended period of time—will significantly discourage renewable project development in California. CAISO also opposed ORA's position, and SCE advocated for the CPUC to approve the proposed transaction as being in the public interest.

On April 11, ALJ Yacknin issued a Proposed Decision granting a CPCN for WODUP, configured with the Tower Relocation and Iowa Street 66 kV Undergrounding Alternatives and subject to the mitigation measures identified in the Mitigation, Compliance and Reporting Plan. The PD certifies the Environmental Impact Report and finds that the project benefits of fulfilling generators' interconnection requests, facilitating deliverability for renewable energy resources, and facilitating achievement of California's new 50% RPS outweigh the project's unavoidable adverse environmental impacts on air quality, noise, and visual and cultural resources. *This PD is of crucial importance, as the WODUP upgrades will enable planning beyond the next RPS compliance period and provide infrastructure for deep GHG reductions.*

Time-Of-Use (TOU) Rates (R.15-12-012)

On December 28, the CPUC issued an OIR for a framework for designing, implementing, and modifying time periods for use in future TOU rates. On February 2, ALJ McKinney issued a Ruling to set a procedural schedule, including a Prehearing Conference for February 26. At that PHC, the ALJ confirmed there would be coordination with other proceedings and this would be a workshop-intensive proceeding.

On March 17, ALJ McKinney issued a Ruling Notifying Parties of Schedule Changes and Required Supplemental Information Filings. This Ruling also eliminates the requirement for parties to file comments on the CAISO January 22 TOU periods analysis. The IOUs are directed to serve and file filings and describe existing time-differentiated rates that should be considered. A second Prehearing Conference was held on April 12, and a workshop on TOU period analysis was held on May 5.

Reliability Reporting (R.14-12-014)
The CPUC issued an Order Instituting Rulemaking (OIR) at the end of 2014 to implement PU Code §2774.1, which establishes new rules for utilities' reporting of reliability statistics, as well as requirements for mitigating reliability problems revealed by that new reporting. On January 14, the CPUC issued D.16-01-008, which updates the annual electric reliability reporting requirements for California electric utilities and amends them to define the utility district or division level as the local area from which electric outage information is collected. D.16-01-008 also clarifies limited issues related to electric reliability reporting and describes the data that utilities must provide to the CPUC in an annual Electric Reliability Report. D.16-01-008 closed this proceeding.

Water-Energy Nexus (R.13-12-011)
On December 19, 2013, the CPUC issued an OIR on Policies to Promote a Partnership Framework between Energy Investor Owned Utilities and the Water Sector to Promote Water-Energy Nexus Programs. On December 2, 2015, Assigned Commissioner Sandoval issued a Ruling seeking proposals for a pilot opt-in Energy Matinee Pricing Tariff for commercial, industrial and agricultural customers to promote the use of renewable energy and low-water-use energy generation when it is most abundant on the grid.

The IOUs submitted their energy matinee pricing tariffs on February 4, and on February 10, ALJ Edmister issued a Ruling Regarding Comments on (1) Changes to Water-Energy Avoided Cost Tools and (2) Advanced Meter Infrastructure Proposals. On February 24, the CPUC held a workshop to discuss the energy and water utilities' pilot proposals detailing "energy matinee pricing opt-in time of use tariffs." On March 21, Commissioner Sandoval issued a Ruling Setting Schedule for Next Steps in Matinee Rate Proposals and Inviting Comments.

Public Records Access (R.14-11-001)
On February 2, the CPUC held a workshop on a confidential reporting matrix, seeking consensus on identifying specific records, classes of information, and data that should be readily disclosable to the public because they are not privileged, confidential, or needing to be withheld from disclosure. Because of its potential significance for document access at the CPUC, CEERT is tracking this proceeding.

Southern California Activities
The Walton Family Foundation asked CEERT to build on the work of the 2030 Low-Carbon Grid Study by carrying out a more detailed analysis of the economic, environmental, and system-reliability costs and benefits of expanded geothermal procurement in the Salton Sea region of Imperial County.

Based on their independent analysis of future sustainability challenges to the Colorado River, the Delta, and the watershed, the Walton Foundation has concluded that successful restoration of the Salton Sea is of strategic importance as a means of better using current and future water deliveries from the Colorado—and that expanded development of Salton Sea geothermal is a crucial element of any restoration strategy.

Walton contracted with CEERT to carry out a more detailed analysis of geothermal development, using the National Renewable Energy Laboratory (NREL) 2030 Low-Carbon Grid Study platform, that compared continued procurement of large-scale solar PV projects to a substitution of 10 TWh of Salton Sea geothermal. Our study found that at such high levels of renewable penetration, the replacement of 3,800 MW of solar PV with 1,250 MW of geothermal would reduce production costs, overgeneration, and the need for flexible capacity, resulting in significant savings to customers and greater reductions in greenhouse-gas (GHG) emissions.

Jim Caldwell presented the results, which vividly illustrate the importance of "portfolio effects" and of giving much greater weight to "best fit" over low initial cost. Walton Foundation's consultants used the

report prepared from our study's results to brief the Governor's office, the California Energy Commission, and the state Resources Agency.

V. John White met with Los Angeles Department of Water and Power (LADWP) General Manager Marcie Edwards and Board of Commissioners Chair Mel Levine to discuss the potential for LADWP to invest in Salton Sea geothermal. Both expressed interest and cautious support, but Edwards stressed the need to ensure that the City of Los Angeles would have no future liability for Salton Sea restoration costs.

V. John White worked closely with the University of California at Riverside (UCR), business and community leaders, and State Senators De León and Roth in a successful effort to persuade the California Air Resources Board to choose a site near UCR for the proposed consolidation and expansion of CARB's research laboratories and Southern California facilities. This decision will ensure greater mutual support between UCR and CARB in expanding scientific and engineering research on air pollution, health effects, and advanced clean energy and transportation technologies.

Short-Lived Climate Pollutants (SLCPs)

After evaluating written input and oral testimony on an earlier draft, CARB released its *Proposed Short-lived Climate Pollutant Reduction Strategy* on April 11.

The *Proposed Reduction Strategy* recommends reducing 2013-level emissions of (non-forest) black carbon by 50% and methane and hydrofluorocarbons by 40% by 2030. Meeting these targets will help achieve the Governor's goal of cutting all GHG emissions in California by 40% below 1990 levels by 2030 while also helping to meet federal air quality standards for 2031 and beyond.

CARB staff plan to release the final *Strategy* in the fall, and will continue pursuing new cost-effective measures as technology and research on SLCP emission sources and potential mitigation measures advance. All regulatory measures resulting from the *Strategy* will undergo a public rulemaking process that includes workshops and economic and environmental evaluations.

Clean Transportation Advocacy

Low-Carbon Fuel Standard (LCFS)

While still facing a lawsuit filed by Poet LLC in October, CARB is proceeding to implement the LCFS as adopted by the Board in September. Staff have been updating pathway application processing and LCFS reporting requirements, and will be developing new reporting methods with improved metrics and graphics to make the LCFS program performance more transparent. CARB is also planning to implement mandatory third-party fuel pathway monitoring and verification within the program.

CARB has also completed the update of the model (CA-GREET 2.0) it uses to estimate the carbon intensity of fuels seeking to participate in the LCFS program. All such fuels will need to be either certified or recertified by January 1, 2017.

Electrifying Transportation

Alternative-Fueled Vehicles (R13-11-007)

CEERT continues to track R.13-11-007, and A.14-04-014 (SDG&E's Vehicle-to-Grid Integration Pilot), A.14-10-014 (SCE's Charge Ready Pilot), and A.15-02-009 (PG&E's Electric Vehicle Infrastructure and Education Program). Several CEERT affiliates are active parties in these proceedings.

A.14-04-014

On January 28 the CPUC approved decision D.1601045 on SDG&E's Electric Vehicle-Grid Integration (VGI) Pilot Program to install and own 3,500 electric vehicle charging stations at 350 workplace locations and multi-unit dwellings. The decision rejected a $65 million proposal and a joint-party proposed settle-

ment, and instead authorized a four-year pilot that includes $45 million in charging infrastructure, plus limited, reasonable operations and maintenance expenses to be considered in future general rate cases.

The CPUC's decision also approves SDG&E's proposal to implement a VGI rate that is dynamically priced to reflect locational constraints, time of day, and availability of renewable energy. D.1601045 requires 10% of charging stations to be located in disadvantaged communities with that infrastructure fully funded from the pilot program, and exempts low-income customers from having to fund the pilot.

A.14-10-014

On January 14 the CPUC approved D.1601023 on Phase 1 of SCE's Charge Ready and Market Education Programs, modifying a settlement agreement among parties. SCE is authorized to spend $22 million on a pilot program to incentivize the deployment of approximately 1,500 electric vehicle charging stations, and to conduct education and outreach supporting electric transportation. SCE will place charging stations where drivers typically park for extended durations (workplaces, multiunit dwellings, public parks, shopping malls and fleet facilities). Single-family residences are ineligible.

Ratepayer funds will cover the cost of all paneling, conduits, and wiring, up to the charging station itself. The owner/operator of the station will be responsible for all related operating costs, including maintenance and electricity usage. SCE will provide rebates to the station site owners that will cover 25% of the base cost for nonresidential market segments, 50% percent of the base cost for multiunit dwellings, and 100% of the base cost for any charging stations in disadvantaged communities.

SCE is required to validate the cost estimates and program incentives, identify and address field deployment issues, refine its market education strategies, and convene an Advisory Board to provide guidance on optimal ways to implement the pilot. SCE is further required to file a report on Phase 1 data and recommend any necessary changes for Phase 2, after at least 1,000 charging stations have been installed within 12 – 24 months of initial program implementation.

A.15-02-009

At the request of PG&E and several parties, the CPUC agreed to postpone evidentiary hearings until late March in order to allow the parties to come to a settlement. On March 21 PG&E and a subset of the parties submitted a proposed joint settlement agreement that would allow PG&E to own and install 7,500 electric vehicle chargers (including 100 DC fast chargers) targeted at multi-unit dwellings and workplaces, at a cost of $160 million over three years. (The CPUC's September 4 ruling effectively asked that the pilot be limited to roughly 2,500 chargers over 24 months.) The proposed settlement agreement requires PG&E to establish an Advisory Board to provide input on the procurement of EV charging equipment and services.

Alternative and Renewable Fuel and Vehicle Technology Program

The 2016-17 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program was released as a Lead Commissioner's report on March 29 and unanimously approved by the California Energy Commission during its April 13 Business meeting. The investment plan has funding for electric charging and hydrogen fueling infrastructure totaling $37 million, and $23 million in funding for medium- and heavy-duty vehicle technology demonstration, scale-up, and manufacturing.