

July 13, 2012

California Energy Commission
Docket Office, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

Re: California Energy Commission Docket No. 12-IEP-1C Lead Commissioner Workshop on
Electricity Infrastructure Issues in California

To Whom It May Concern:

On June 22, 2012, the California Energy Commission (“Energy Commission”) held a Lead Commissioner Workshop on Electricity Infrastructure Issues in California (“the Workshop”). The Workshop was part of the Energy Commission’s 2012 Integrated Energy Policy Report Update (“2012 IEPR Update”) process and was attended by representatives from the California Air Resources Board (“ARB”), California Independent System Operator (“CAISO”), and California Public Utilities Commission (collectively, “the State agencies”). Southern California Edison Company (“SCE”) participated in the Workshop and appreciates the opportunity to provide these written comments.

SCE recognizes that over the next eight to ten years the southern California electricity system will encounter a number of planning challenges as generators comply with the State’s once-through cooling (“OTC”) mitigation policy. As presented and discussed at the Workshop, the region’s OTC power plants are located in unique areas of the western Los Angeles (“LA”) Basin that enhance local reliability. They also provide inertial and voltage support creating a more disturbance-resistant system and enabling the import of needed generation into the region. If all OTC plants retire, the CAISO currently estimates that the LA Basin local capacity requirement (“LCR”) area will need between 1,870 to 3,896 MW of generation at sites electrically equivalent to the existing OTC plants in 2021.¹ If generation is re-powered at more effective sites, then the amount of generation needed to meet LCR will be at the lower end of the range.

In the California Public Utilities Commission’s (“CPUC’s”) Long Term Procurement Plan (“LTPP”) proceeding, the CAISO requested that the CPUC authorize procurement of new resources to meet local capacity needs in the LA Basin by the end of 2012. The CAISO is also evaluating the amount of flexible attributes needed to integrate intermittent renewables, which can be provided by fossil fueled plants. SCE generally supports the CAISO’s request but

¹ http://www.energy.ca.gov/2012_energy_policy/documents/2012-06-22_workshop/presentations/02_Millar_CAISO_Summer_2012_Preparedness.pdf

acknowledges that the potential replacement of OTC resources with new fossil plants, presents a substantial challenge to the State and local energy and environmental agencies for a number of reasons. Among them is the need to meet the South Coast Air Quality Management District (“SCAQMD”) regulations,² which currently allow only existing fossil fueled plant owners to repower facilities by way of an exemption that allows a MW for MW use of PM-10³ emissions offsets. Other potential providers of new generation must procure PM-10 offsets, which are scarce and very expensive. Furthermore, the SCAQMD must provide emissions offsets for the facilities that it has exempted so as to comply with federal clean air requirements.

While transmission upgrades can also increase the amount of generation that can be imported into the LA Basin, the difficulty of siting and licensing given the population density of the region and the likelihood of significant public opposition limits the viability of these options in most cases.

Given the complexity of these issues and the on-going nature of the work being conducted around the State on this topic, SCE submits the following recommendations.

Continue to Drive State Agency Collaboration and Coordination

SCE strongly supports continuing coordination efforts with the State Agencies, such as this Workshop, to address the State’s infrastructure planning challenges. As the Energy Commission mentioned in its opening remarks, “multiple agencies have independent authority to act on portions of the puzzle, but not the entirety of it.” For instance, the CAISO is responsible for maintaining the reliability of the transmission system under its control, while the CPUC authorizes procurement by the State’s investor-owned utilities. Further, the ARB and the SCAQMD ensure compliance with State, Federal and local air quality rules and regulations. These and other affected agencies must work together to ensure that sufficient resources are available to maintain adequate reliability.

Consider Costs in All Decision-making

Given the substantial investments that the State’s utilities will be make in other electricity infrastructure, such as renewable generation, smart grid technologies, and aging infrastructure replacement, over the next ten years, the State agencies must take action to ensure that only the most cost-effective resources are deployed to ensure reliable but affordable electricity in southern California. Though the CAISO currently has a forecast for LCR need as presented at the Workshop, these results may change depending on other transmission investments or generation investments made at other locations in the LCR area in question. As part of a coordinated State planning effort, a wide-range of potential investment options must be considered.

Additionally, SCE stresses the importance of fair and appropriate cost-allocation for investments made by any party on behalf of the electrical system. As discussed at the Workshop, investments in generation and transmission will likely be needed to support the stability of the

² Air emissions from power plants in the LA Basin are regulated by the SCAQMD.

³ Particulate matter with diameters of 10 micrometers or less

electricity grid in the southern California region. All customers will benefit from this investment whether served by one of the IOUs or by another load-serving entity relying on the CAISO grid. Therefore, cost-allocation mechanisms must be agreed upon prior to any investment in system resources to ensure that all benefiting customers pay their fair share of these costs.

Finally, SCE supports the development of a long term CAISO-administered forward procurement market for necessary reliability products. SCE believes it can provide the framework needed to encourage investments for in a variety of needed capacity resources, ideally those needed for LCR and renewable integration, within a broad, competitive environment. In addition to the benefits outlined in SCE's comments on the Lead Commissioner Workshop on Renewable Integration Costs, Requirements, and Technologies,⁴ a centralized, forward capacity market will encourage competition between potential solutions to the State's infrastructure concerns that minimizes costs to the State's electricity customers.

Maintain a Transparent and Open Process for Determining Infrastructure Need

Adequate stakeholder input and review are essential for ensuring that decisions regarding infrastructure investment are ultimately in the best interest of the State's electricity customers. As indicated by CAISO's presentation at the Workshop, the range of generation needed will depend greatly on the underlying resource assumptions. The assumptions used in any study resulting in investments must be realistic and properly vetted and reviewed in a public forum to avoid under- or over-investment in system infrastructure. Either circumstance will increase customer costs.

Address Issues Related to Infrastructure Expansion in the 2013 IEPR

SCE believes that the Workshop was an important first step toward solving the complex infrastructure planning challenges now facing southern California; however, several analytical efforts with implications for this topic have yet to be concluded. For instance, the CAISO is currently engaged in a process to more precisely determine the amount of flexible generation needed to support the State's renewable energy policy goals and the ARB has yet to release the conclusions of its AB 1318 report. Information from these and other efforts will be essential to determining what action the State should take to support the right infrastructure investment in southern California.

Further, infrastructure planning and expansion in California, and especially southern California, will require a careful balance between many competing interests. The complexity of the topic area requires all aspects to be fully explored. The Energy Commission and other State agencies should not attempt to solve all of the State's planning issues at once. Rather the State agencies should prioritize the issues, affect incremental improvements, and allow flexibility in procurement and investment activities to ensure cost-efficient infrastructure expansion as the electricity system evolves. Additionally, leaving suitable optionality will allow time for energy efficiency and demand response programs to develop without risking resource insufficiency. For

⁴ http://www.energy.ca.gov/2012_energy/policy/documents/2012-06-11_workshop/comments/Southern_California_Edison_Comments_2012-06-18_TN-65819.pdf

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these reasons, SCE recommends that the Energy Commission allow for the conclusion of some of the analytical efforts currently in progress and use the 2013 IEPR as the forum for driving inter-agency collaboration and coordination in determining any necessary policy changes related to this topic area.

In conclusion, SCE found the Workshop to be highly informative and a worthwhile opportunity to encourage engagement among the State agencies. SCE looks forward to working with the State agencies to find creative and cost-effective solutions to the State's infrastructure planning challenges.

As always, SCE appreciates the Energy Commission's consideration of SCE's comments. Please do not hesitate to contact me at (916) 411-2369 regarding any questions or concerns you may have.

Very truly yours,

/s/ Manuel Alvarez

Manuel Alvarez

Appendix

1) The State Water Resources Control Board's once-through cooling (OTC) regulations will require many of the existing gas-fired power plants in the Los Angeles Basin to be retired, replaced, or modernized. The California Independent System Operator and the Los Angeles Department of Water and Power analyses suggest that a portion of existing capacity should be repowered, or its electrical equivalent developed in the Western Los Angeles sub-area, to satisfy local capacity area requirements.

The State Water Resources Control Board (SWRCB) OTC policy, effective in October 2011, created a subcommittee, the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS), to help implement the policy. This subcommittee consists of representatives from the Energy Commission, CPUC, CAISO, Coastal Commission, State Lands Commission, and CARB.

The SACCWIS's responsibility is to develop a compliance plan to prevent disruption of the State's electrical power supply as the OTC policy is implemented. The SACCWIS does this through regular meetings in which power generators' OTC policy Implementation Plans are reviewed, with heavy input from the CAISO, CPUC, and Energy Commission (referred to as the Inter-agency Working Group), and determinations are made as to whether the Implementation Schedule outlined in the OTC policy can be met or compliance due dates need to be extended to ensure grid reliability. In considering whether to amend the compliance dates for generating facilities affected by the OTC policy, the SWRCB is required to afford significant weight to the recommendations of the SACCWIS and specifically, those recommendations of the CAISO. The current assessments by the local Balancing Authorities (CAISO & LADWP) recommend addition of resources in the LA Basin to meet local capacity requirements. As members of SACCWIS, these organizations have access to confidential information from generator implementation plans and are in the best position to make such a determination. SCE generally agrees with CAISO's assessment results.

1a) Are there other options that should be examined in future analyses?

Distributed renewable resources, energy efficiency and demand response, and transmission are often suggested as alternatives to repowering or replacing a portion of existing OTC generation. While these options should continue to be evaluated in future analysis, there are issues that remain unresolved for each at this time.

- Distributed renewable resources may in certain situations be able to reduce the peak load in a local area and potentially reduce the need for LCR resources, but they may not provide either the flexibility or the dispatchability needed of local capacity resources. The CAISO has recommended in its testimony before the CPUC in the current LTPP cycle that the Commission approve the procurement of flexible capacity to meet local capacity needs.

- Energy efficiency and demand response may also contribute to lowering the need for new generation in the LA Basin. Any opportunity for additional cost effective energy efficiency and demand response should be evaluated on an ongoing basis as part of future work.
- Transmission projects also provide alternatives to repowered or new construction of generation; however, major transmission upgrades are very difficult to execute in the LA Basin due to the region's population density, which creates permitting challenges, and likely local community objections to the construction of new transmission lines.

1b) The 2011 Integrated Energy Policy Report concluded that California needed contingency plans to deal with either extended outages of the existing nuclear power plants, or an inability to extend their operating licenses. What are the implications of this concern for the current California ISO assessments?

CAISO will need to incorporate contingencies in their future assessments.

2) The San Onofre Nuclear Generating Station is in fact experiencing an extended outage at this time, so energy agencies and the California ISO have developed a summer of 2012 action plan which the California ISO presented at the workshop.

2a) Is there anything else that could or should be done for this summer?

SCE along with the CAISO deployed an integrated, comprehensive summer readiness plan, which included accelerating construction of the Del Amo-Ellis 230kV loop-in, returning Huntington Beach 3 and 4 to service, and implementing additional demand response programs. This plan addresses all feasible options.

2b) Are there any suggestions concerning the California ISO presentations on their plans for a nuclear generation backup study this year?

SCE would like to work with CAISO, SDG&E and other agencies as needed to support the effort.

2c) Are there any suggestions for improvements in the Rocky Mountain Institute (RMI) study?

The RMI report does not demonstrate that achieving 50% renewable generation in southern California by 2030 is either operationally feasible or financially prudent. As RMI stated at the Workshop, intra-hour integration needs were not addressed in the study. Instead, operability was assumed and integration costs were modeled as a simple cost adder. In addition to intra-hour variability, The RMI study should include an analysis on the impact to customer rates in which the study's underlying cost assumptions are sufficiently vetted by industry stakeholders. Without addressing the issues above, the solution presented is likely to be neither feasible nor sustainable due to the costs associated with achieving this target.

2d) In the time that has elapsed since the Energy Commission’s 2011 IEPR workshop on nuclear power, are there updates on the implications of the Japanese tragedy, or additional seismic studies, or any other developments that the Energy Commission should consider in the 2012 IEPR Update?

SCE’s seismic research projects are on-going. Results of these projects will be used to update SCE’s February 2011 “Evaluation of California Energy Commission AB 1632 Report Recommendations.”

The Nuclear Regulatory Commission (NRC) is evaluating the implications of the Japanese tragedy and will issue regulations and requirements based on their evaluations (for example, the NRC has required licensees to provide further information to support the evaluation of the NRC staff recommendations for their review of the accident at the Fukushima Dai-ichi nuclear facility in March 12, 2012 50.54 (f) letter). SCE will continue to comply with all regulations as they are issued by the NRC.

3) In light of recent and forthcoming air quality management plans from the South Coast Air Quality Management District and state implementation plans from the California Air Resources Board, along with the possibility that substantial electrification will be required to achieve ambient air quality standards, is it necessary that state agencies, the California ISO, and local utilities adapt existing resource and transmission planning and procurement processes to provide the electricity supplies needed to meet end-user requirements? To satisfy North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability standards?

Compliance with the NERC and WECC reliability standards should be the primary consideration when developing and implementing the State’s environmental policy. SCE’s primary mission is to safely provide reliable and affordable electricity to our customers.

SCE and other state planning agencies should adapt existing resource and transmission planning processes by increasing collaboration and coordination. For instance, SCE and state planning agencies could work with local jurisdictions through a long-term joint corridor planning process that would allow land to be set aside for future infrastructure projects at a shared cost. In the more densely-populated areas of the South Coast Air Basin, acquiring land for rights-of-way is constantly a great challenge in certain areas. Generally, this is due to a lack of availability, incompatible uses, and public opposition. Over time, land acquisition is likely to become increasingly difficult. If land is set aside early with the agreement of the local jurisdictions, incompatible uses are less likely to be planned for in adjacent areas, hopefully reducing public opposition.

4) Assuming that transportation and industrial process electrification are the key mechanisms to reduce criteria pollutant and greenhouse gas emissions, what are the planning challenges in forecasting incremental electrical energy needs, changes in hourly load shapes, and compatible sources of supply beyond those already “in the pipeline” through existing policies? How could these challenges be mitigated or overcome?

Based on current patterns, most charging is occurring at night and at home. As a result, SCE does not expect light-duty PEVs to be a significant driver of new transmission and generation needs through 2020. Regarding impacts on the distribution system, SCE is closely working with automakers and other stakeholders to understand and address this. For example, when notified of the PEV's location, SCE will investigate the associated distribution circuit's capability of handling additional load.

One of the challenges to planning for increased transportation electrification is the immaturity of the PEV market. As a result SCE is working with stakeholders to constantly refine its forecasts on numbers of vehicles, load shapes, and other factors. For example, fast charging or expanded public charging would potentially change the load shape of the PEV market. Current forecasts do not indicate that the existing system and planning processes are insufficient to meet incremental changes in electric load resulting from the adoption of electric transportation and industrial process loads. Current vehicle forecasts and load management plans anticipate only a small on-peak impact during summer months in the near future (e.g. 2020). Recent efforts forecast a range of 900 to 5,500 GWh of incremental PEV load by 2020 (1% to 6% of total 2020 system load).

Electrification of goods and people movement adds approximately 1,300 GWhs by 2020. SCE does not have an estimate for industrial process electrification. The major challenges to forecasting these impacts are data availability and quality.

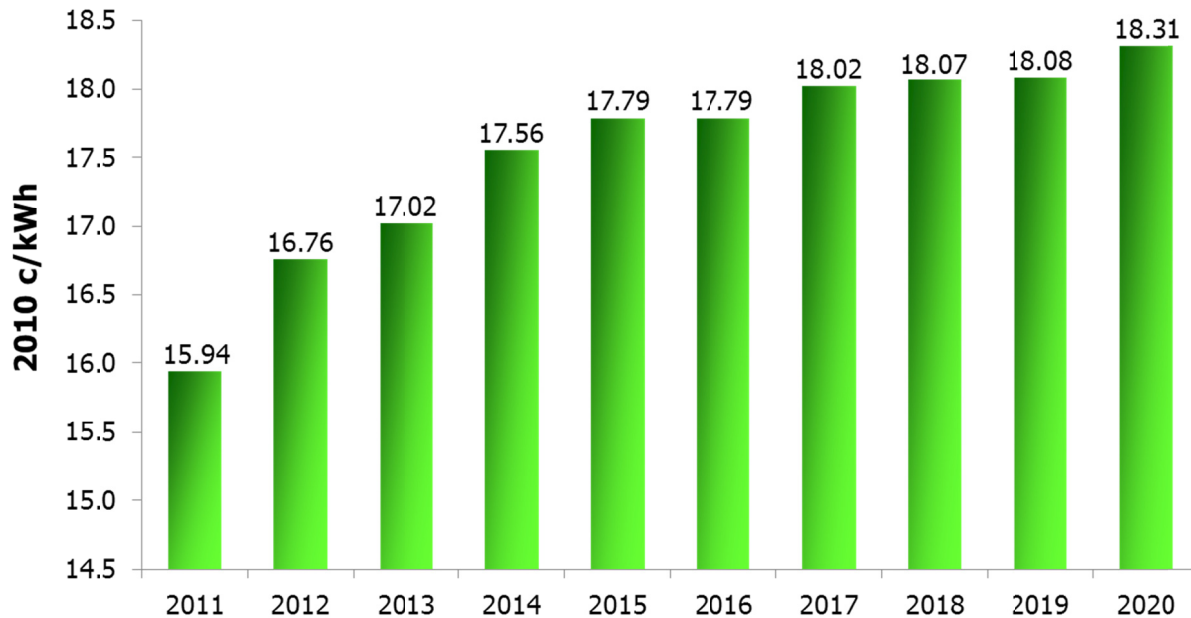
Looking to 2030, all parties would benefit from working together to understand the impacts of future regulatory proposals on transportation and industrial process electrification and have a common set of load shapes, assumptions and other data.

Utilities and other private sector stakeholders together with transportation, energy and air quality agencies should closely monitor the advancement of these electric technologies and their impact on the infrastructure requirements of the electricity grid.

5) What are the implications of the ongoing transformations of the power and transportation infrastructure in the Los Angeles Basin?

The transformation of the power infrastructure by increasing the amount of renewable generation used to serve load has and will continue to increase customer rates. Results from the 2010 Long-Term Procurement Plan forecast total system wide revenue requirements for the State's three Investor-Owned Utilities to be 28% higher in 2020 than they were in 2011. This forecast includes increases in RPS resource costs as compared to conventional generation, capital transmission projects to bring remote renewable resources to load centers, and increased ancillary services for integrating intermittent resources. With reliability as the primary consideration, environmental policies must be balanced with customer affordability.

System wide increase in real terms by 15% between 2011 and 2020



Source: LTPP Track 1 Testimony

5a) What are the likely complementary and/or conflicting aspects of these policies? How do we best achieve the complementary aspects? What are the challenges we need to address?

Consideration of GHG goals separately for the electric sector and the transportation sector is a major source of conflicting policies. The electric sector is attempting to save GHG emissions through the increased use of renewable energy and energy efficiency and the transportation sector is attempting to save GHG emissions through the increased use of alternative fuels including electrification. Greater electrification in the transportation sector produces a burden on the electric sector by requiring additional purchases of renewable energy to accommodate for the overall increase in sales and additional procurement of fossil fueled generation to integrate the renewables and serve the added load. As a result, this policy will “water down” the energy efficiency achievements and transfer more of the GHG compliance burden from the transportation sector to the electricity sector. This policy conflict could be eliminated by removing sector GHG emissions targets and focusing on California as a whole. Conflicts in policies would be resolved and the progress to meet the target would be directly measured.