COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY ON THE CALIFORNIA AIR RESOURCES BOARD'S CLIMATE CHANGE PROPOSED SCOPING PLAN

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I.

EXECUTIVE SUMMARY

Southern California Edison Company ("SCE") appreciates the opportunity to provide comments on the California Air Resources Board's ("CARB") Climate Change Proposed Scoping Plan ("Proposed Scoping Plan"). The Proposed Scoping Plan demonstrates the considerable work undertaken by CARB staff, stakeholders, other agencies, and the State as a whole, in order to begin the Assembly Bill ("AB") 32 implementation process. SCE supports sound policies to implement AB 32, and offers the following suggestions to ensure that CARB's strategy for meeting AB 32's goals fulfills the statutory mandate to achieve 1990 greenhouse gas ("GHG") emissions by 2020 equitably and at the lowest possible cost.

SCE agrees with the Proposed Scoping Plan that a cap-and-trade program must be broadly based in order to reap the most benefits in terms of cost-effective GHG reductions and expanding the market for clean technologies. SCE therefore recommends that CARB pause the initiation of a California-only program to allow for the development of a Western Climate Initiative ("WCI") regional cap-and-trade program or a federal cap-and-trade program. It is likely that a regional or national program will be adopted in the next few years and a more expansive program will increase the benefits of a market system, while avoiding the disadvantages of potentially conflicting state, regional, and federal programs. To the extent a federal or regional program does not materialize, CARB may then pursue a California-only cap-and-trade program for all regulated sectors.

CARB should focus more attention on cost containment measures. In addition to CARB's statutory obligation to reduce statewide emissions at the lowest possible cost, CARB should take into consideration California's current fiscal crisis and serious slowdown in economic activity. These problems are immense, long-lasting, and underscore the importance of achieving AB 32's GHG reduction goals in the most cost-effective manner possible. California

can neither achieve its own emission reduction goals nor lead a broader effort to effectively address global warming if the steps it takes turn out to have unacceptably high costs.

One of the few cost containment measures in the Proposed Scoping Plan is the recommendation that up to 49% of emission reduction requirements can be met by the use of offsets with no geographic restrictions. SCE strongly supports this recommendation. While CARB recognizes that offsets are an important part of an effective cap-and-trade program, SCE encourages CARB to also include offsets within the context of specific rule-based regulatory measures. Such alternative compliance mechanisms are often found in CARB rules implementing federal and California clean air law. Moreover, since the Proposed Scoping Plan proposes that the majority of GHG reductions be achieved through specific measures, and there are likely to be compliance challenges associated with these measures, SCE urges CARB to include offsets to such rules through alternative compliance mechanisms to help meet both regulatory and market program requirements at the lowest overall cost to the State economy.

AB 32 directs CARB to design GHG reduction regulations "in a manner that is equitable."[1] Equitable implementation of AB 32 requires that the economic burden borne by obligated sectors under AB 32 regulations be proportional to those sectors' GHG emissions. Currently, the Proposed Scoping Plan requires the electric sector to bear a share of the GHG reductions needed to reach the State's goals that is disproportionately larger than the electric sector's contribution to statewide emissions. Additionally, while the Proposed Scoping Plan relies on increased use of electricity substituting for fossil fuel use, there is no discussion of treating the electric sector equitably by incorporating measures to assure that the sector and its customers are financially compensated for reducing emissions from other sectors.

Equity should also apply within each sector of California's economy. Within the electric sector, CARB must ensure the burden of GHG regulation is distributed equally across all load-serving entities ("LSEs") that deliver electricity to California consumers, including investor-

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[1] AB 32, Cal. Health & Safety Code § 38562(b)(1).

owned utilities ("IOUs"), publicly-owned utilities ("POUs"), electric service providers ("ESPs"), community choice aggregators ("CCAs"), and the California Department of Water Resources.

CARB's economic analysis of the recommended GHG reduction measures is flawed. Although the Proposed Scoping Plan shows an optimistic net economic benefit to the State, the bulk of the studies on mandatory reductions of GHG emissions of a similar level or less than those required by AB 32 show a substantial net cost. Given the statutory requirement to achieve emission reductions at the lowest cost and the State's fiscal crisis, CARB should secure additional economic analysis to assure that it has an objective and frank analysis of the cost of GHG reductions to the State. CARB should separate the questions of whether there is an overall cost to the AB 32 implementation program and whether that cost is acceptable to the State. This will allow CARB to adopt specific approaches that keep costs to a minimum whether it concludes that the global warming threat is of such a magnitude as to justify very large expenditures of California's current capital or whether it determines the State's fiscal crisis requires caution. CARB's current economic analysis mixes these questions to justify the recommended implementation path, and therefore obscures whether the recommended approach is, in fact, the least cost approach to reducing statewide emissions. SCE recommends that the Board adopt the Proposed Scoping Plan with the condition that further economic analyses will be undertaken during 2009 and that modifications will be made to the adopted scoping plan as appropriate.

SCE is also concerned that the Proposed Scoping Plan's proposal to increase combined heat and power ("CHP") capacity by 4,000 MW will not create the expected 6.7 $MMTCO_2e$ reductions, at least not without strict operational requirements and efficiency standards being imposed and enforced on CHP producers. SCE has relevant historical data that demonstrates that CHP in most applications operates at significantly lower efficiency levels and will provide significantly fewer GHG reductions than the Proposed Scoping Plan estimates. To assure that real and quantifiable GHG reductions occur, SCE recommends that the Proposed Scoping Plan be modified to recognize differences in the types of CHP operation and ensure that the State is

only supporting the design and operation of efficient CHP systems that actually produce GHG reduction benefits and do not merely displace already efficient, low-emitting generation. This can only be accomplished through specific requirements for operation and minimum efficiency standards. Without such requirements and standards, the implementation of the Proposed Scoping Plan's CHP recommendations will not achieve the estimated emission reductions, and may actually increase GHG emissions.

Finally, CARB should fully evaluate the significant challenges to achieving a 33% renewables level in California. CARB has not adequately addressed how increasing current Renewables Portfolio Standard ("RPS") goals will address the substantial barriers to reaching 20% renewables. Nor has CARB explained why it believes 33% renewables is achievable under current conditions. CARB should conduct a robust analysis of these issues, including ways to expand RPS compliance options, before making a recommendation to substantially increase the State's current renewables targets.

In summary, SCE recommends that the following modifications be made to the Proposed Scoping Plan prior to its adoption by the Board:

- Pausing the initiation of a California-only program to allow for the development of a WCI regional cap-and-trade program or a federal cap-and-trade program.
- Allowing offsets as an alternative compliance mechanism within the context of specific rule-based regulatory measures.
- The incorporation of measures to assure that the electric sector and its customers are financially compensated for reducing emissions from other sectors.
- The equal distribution of the burden of GHG regulation across all LSEs that deliver electricity to California consumers.
- Addition of a condition that further economic analyses be undertaken during 2009 and that modifications be made to the adopted scoping plan as appropriate.
- Specific requirements for operation and minimum efficiency standards for CHP systems developed to ensure that the State is only supporting the design and operation of efficient

CHP systems that actually produce GHG reduction benefits and do not merely displace already efficient, low-emitting generation.

- A robust analysis of the barriers to meeting current RPS goals and the issues surrounding increasing renewables goals before making any recommendation on increasing current targets.

II.

SCE SUPPORTS A BROAD-BASED CAP-AND-TRADE PROGRAM

SCE supports California's participation in a broad-based, multi-sector regional or national cap-and-trade program. As discussed in the Proposed Scoping Plan, there are significant economic and GHG reduction benefits to increasing the scope from a California-only program to a more far-reaching program.[2] A more comprehensive program creates an opportunity for substantially greater GHG emissions reductions, expands the market for clean technologies, helps avoid leakage (i.e., shifting of emissions from California to other states), may reduce the possibility that local businesses will shift production outside of California, and vastly increases the potential that necessary GHG reduction can be achieved at the least cost to California citizens. AB 32 recognizes the benefits of broad-based approaches to climate change by requiring CARB to consult with other states, the federal government, and other nations "to identify the most effective strategies and methods to reduce greenhouse gases" and to "facilitate the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs."[3]

The WCI is progressing towards the development of a regional cap-and-trade program, and a federal cap-and-trade program may be adopted within the next few years. CARB's plans for a cap-and-trade program should allow time for these programs to develop before adopting a California-only program. The Proposed Scoping Plan itself acknowledged that a broader

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[2] Proposed Scoping Plan at 33.
[3] AB 32, Cal. Health & Safety Code § 38564.

program will reap more benefits – including greater GHG reductions – than a program limited to California.[4] Implementing a California-only cap-and-trade program alongside or in coordination with regional and national programs may lead to complex and potentially contradictory state, regional, and federal regulations that will seriously complicate compliance for regulated entities, substantially increase compliance costs, and potentially undermine the ability of the market to achieve the lowest cost emissions reductions.

CARB should set a timeline that would provide the time for a regional or national program to be implemented. If a regional or national system that meets California's AB 32 goals is developed in the next few years, California should use such a system to meet its AB 32 obligations to reduce GHG, thus avoiding the unnecessary complications and expense of coordinating potentially conflicting programs. If a regional or national system does not materialize, CARB may then revisit the development of a California-only cap-and-trade program covering all major emitting sectors.

This proposal is consistent with AB 32. Any proposed regulations for a California-only cap-and-trade program may act as a back-stop if no acceptable regional or federal system is implemented. Moreover, AB 32 provides that "[a]fter January 1, 2011, the state board may revise regulations adopted pursuant to this section and adopt additional regulations to further the provisions of this division."[5] Under this section, CARB can delay the adoption of a California-only cap-and-trade program. Further, while CARB may determine that some specific measures to reduce California GHG emissions should be adopted and enforced regardless of the path chosen at the regional and national levels, the State may find it more effective and less costly to merge its program with broader-based regional or national programs.

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[4] Proposed Scoping Plan at 33.
[5] AB 32, Cal. Health & Safety Code §38562(g).

III.

SCE SUPPORTS THE USE OF OFFSETS WITH NO GEOGRAPHIC RESTRICTIONS

SCE supports the Proposed Scoping Plan's recommendation that up to 49% of emission reduction requirements can be met by the use of offsets with no geographic restrictions.[6] SCE also agrees with CARB that offsets should be subject to rules ensuring that they are real, permanent, verifiable, quantifiable, enforceable, and additional, as required by AB 32.[7] An offset policy is a crucial element of California's plan to reduce GHG, particularly because offsets provide the only potential for price relief in the Proposed Scoping Plan.

In addition to allowing offsets to meet cap-and-trade program requirements, SCE strongly urges CARB to provide for the use of offsets in connection with specific rule measures for three reasons. First, under the Proposed Scoping Plan, most of the required GHG reductions will be achieved through specific measures. It therefore makes sense to provide for alternative compliance mechanisms in such rules (as CARB does frequently in "conventional" rulemaking) to achieve least cost results.

Second, the many specific rules that must be enacted will inevitably present significant compliance challenges to regulated entities. It may not be feasible for a regulated entity to meet the terms of a rule within the allowed time frame. Providing an alternative compliance mechanism allowing the application of offsets offers an effective means for the regulated community to meet compliance obligations while keeping the State on track to meet its emission reduction goals.

Third, if offsets are validated by the State and used in the context of a cap-and-trade program, there is no reason why they should not be applied in the case of specific rules. If there is concern that sufficient action will not be taken to comply with adopted rules, quantity and criteria tests can be enacted by CARB to assure that alternative compliance mechanisms will be

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6 Proposed Scoping Plan at 37.
7 *Id.* at 36.

applied only in appropriate circumstances. Similar approaches have proved successful in the context of CARB rules aimed at conventional clean air act pollutants. The Proposed Scoping Plan identifies a number of measures with flexible market compliance features.[8] SCE urges CARB to include offsets as a flexible market compliance measure to help reduce the costs of these and other recommended measures. For example, offsets should be applicable when control technology or process changes are not available, when permits to effect the desired change cannot be obtained, or when compliance with specific rules would be unreasonably costly.

Finally, while SCE supports CARB's recommendation to allow obligated entities to use offsets without geographic restrictions to meet a percentage of their emission reduction requirements, limiting the quantity of offsets allowed to 49% is unnecessary and unwise. It is unnecessary because the regulatory criteria to establish a valid offset will be difficult to meet and will establish a de facto quantity limit. It is unwise because a quantity limit discourages bold, positive moves that could accelerate the reduction of GHG at a beneficial cost. CARB should eliminate the quantity limit on the use of offsets, or at a minimum, raise the limit.

IV.

CARB SHOULD IMPLEMENT AB 32 IN AN EQUITABLE MANNER

Addressing the challenge of climate change will require a comprehensive effort to reduce GHG emissions across the California economy. Reducing emissions to reach AB 32's goals will impose significant costs on the regulated sectors, while the benefits of mitigating the risk of global warming will be shared by all. Since the benefits will be shared by all, it is important that CARB's regulations achieve equity in the distribution of costs, as the Legislature directed by mandating that CARB "[d]esign the regulations, including distribution of emissions allowances where appropriate, *in a manner that is equitable*."[9]

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[8] *Id.* at 22.

[9] AB 32, Cal. Health & Safety Code § 38562(b)(1) (emphasis added).

SCE is committed to the AB 32 goal of achieving emission reductions in the most cost-effective manner possible and supports attaining available cost-effective GHG reductions that may be found within the electric sector. However, achieving these lower cost reductions must not conflict with CARB's statutory obligation to achieve emission reductions in an equitable manner. CARB should implement regulatory solutions that allow for the equitable spread of the economic burden of regulation across the regulated sectors. This should include holding the electric sector harmless for its increased costs as a result of electrification that will reduce California's overall GHG emissions while at the same time increasing the electric sector's burden of GHG reduction.

The same principle of equity should apply within sectors. In the electric sector, CARB must ensure that the burden of GHG regulation is distributed equally across all LSEs that deliver electricity to serve California's electric needs.

A. The Electric Sector Should be Held Harmless From Increases of Electricity Usage Due to Electrification

SCE believes that electrification is an essential solution to reducing GHG emissions. CARB should more fully address the emission and cost consequences of fuel switching in its adopted scoping plan. Both transportation-related GHG emissions and overall statewide emissions will decrease with electrification of the transportation sector. This means, however, that the electric sector will require more generation resources to meet the increased electricity demand, resulting in higher costs and potentially additional emissions in the electric sector. CARB should develop rules which will recognize these consequences from fuel switching and develop a mechanism which will, at a minimum, make the electric sector whole for the increased costs. Ideally, CARB's rules should create compensation incentives to both sectors to encourage and expand electrification and to ensure equitable distribution of the economic burden associated with fuel switching costs.

B. Equity Across Sectors

AB 32 provides that CARB "shall take into account the relative contribution of each source or source category to statewide greenhouse gas emissions" in developing its scoping plan.[10] Different sectors of the economy have different opportunities for cost-effective GHG mitigation, and efficient reductions are not necessarily distributed according to emissions output. The recommended GHG reduction measures in the Proposed Scoping Plan assign the electric sector responsibility for a disproportionately large share of the reductions needed to achieve the mandated 2020 emissions level. While the electric sector is projected to contribute about 23% of the State's 2020 business-as-usual ("BAU") emissions, the Proposed Scoping Plan recommends that the electric sector account for over 28% of California's total 2020 emissions reductions, as well as a large share of the emission reductions to be attained through a cap-and-trade program. Conversely, regulations directed towards the industrial sector, which is responsible for approximately 17% of 2020 BAU emissions, involve less than 0.2% of the regulated emission reductions.

Even if the electric sector has more cost-effective emissions reductions opportunities than other sectors, the electric sector should not be forced to bear a disproportionately large share of the total economic burden or bear the economic burden of reducing emissions which it does not emit. Instead, to maintain equity, the economic burden of reducing emissions should be distributed in proportion to a sector's share of emissions.

The cap-and-trade system provides the means to facilitate equity while simultaneously ensuring that the lowest-cost reductions happen first. Taking the equity issue into account as part of the allocation of allowances, CARB could allow some sectors to receive a larger proportion of allowances as compensation for their greater efforts in achieving the State's goals. Prior to allocating allowances to individual entities, a sector-level distribution should be determined based on each sector's economic burden compared to its contribution to GHG emissions.

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[10] *Id.* § 38561(e).

Sectors whose share of the economic burden exceeds their share of projected BAU emissions should be allocated additional allowances as compensation, thus ensuring that the economic burden of AB 32 regulation is distributed equitably across all sectors.

Achieving an equitable distribution of the costs of GHG emissions reductions will also ensure that the appropriate carbon price signals are sent through each sector. This will become critically important as plug-in hybrid electric vehicles become mass-produced and consumers have a real choice between electricity and petroleum as fuel. If petroleum fuels are, in effect, given an economic discount in terms of the cost of GHG reductions by shifting their burden to the electric sector, the price of petroleum fuels will be lower and the price of electricity will be higher than it would be without such a discount, making the desirable and broader use of electrification less economically attractive.

C. Equity Within the Electric Sector

In the electric sector, CARB must also ensure that the burden of GHG regulation is distributed equally among the electric LSEs. Historically, IOUs have had higher performance standards than other LSEs, including POUs, both in terms of energy efficiency and the procurement of renewable energy. To ensure equitable distribution of the costs of GHG regulation, new regulations must apply equitable performance standards to all LSEs.

POUs have not been subject to the same energy efficiency goals as IOUs. Although the POUs account for about 25% of the electricity provided in California, they achieve only 5% of the total utility energy efficiency savings.[11] Energy efficiency goals for all LSEs should equitable. New energy efficiency goals should also recognize the energy efficiency programs previously and currently implemented by IOUs and that IOUs are already required to do everything within their control to meet the California Public Utilities Commission ("CPUC") goals for reliable, achievable, and cost-effective energy efficiency. Energy efficiency goals

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[11] Proposed Scoping Plan Appendices at C-112.

ordered by the CPUC will make the IOUs responsible for 81% (26,000 GWh) of the 32,000 GWh energy demand reduction target of the Proposed Scoping Plan.[12]

Similarly, CARB needs to ensure that the Proposed Scoping Plan's recommendations for renewable procurement are applied equally to all market participants. IOUs have established requirements of meeting a 20% RPS which is overseen by the CPUC, while POUs are encouraged but not required to meet the same RPS. Some POUs have declared their intent to meet such goals, but they are not subject to State enforcement like the IOUs. Any statewide renewables goal must apply equally to all of California's LSEs, including the POUs and the California Department of Water Resources. This entails an equitable application of definitions of renewable resources, procurement goals, reporting obligations, flexible compliance options, and enforcement authority to comply with the goals. If the GHG reduction measures adopted by CARB are to achieve their targeted emissions reductions, they must be enforced equally for all California LSEs.

V.

CARB'S ECONOMIC ANALYSIS OF THE RECOMMENDED MEASURES IS FLAWED AND SHOULD BE CORRECTED

SCE believes that a comprehensive independent modeling assessment on the Proposed Scoping Plan's recommended measures is needed to ensure that the mix of recommended measures achieve AB 32 requirements at the lowest possible cost. As the Proposed Scoping Plan acknowledges, AB 32 makes cost-effectiveness an important requirement to be considered in the design and implementation of GHG reduction strategies.[13] Thus, AB 32 gives CARB the important responsibility to accurately assess the costs of various proposed emission reduction measures and identify the least-cost approach to achieving AB 32 goals.

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[12] D.08-07-047 at 23-24.
[13] Proposed Scoping Plan at 84.

The Proposed Scoping Plan assumes that GHG reduction will be a net economic benefit to the State. However, multiple analyses of a variety of proposed GHG reduction programs performed by many independent observers show that costs to society are inevitable and typically on the order of 1 to 1.5% of economic product, a very substantial cost. Studies also show that direct regulatory measures, which are heavily relied upon in the Proposed Scoping Plan, are more costly than market-based approaches. SCE recommends that the Board adopt the Proposed Scoping Plan with an important condition: further economic analyses must be undertaken during 2009 and program modifications will be made to the adopted scoping plan based on the results of these economic analyses.

In the Proposed Scoping Plan, CARB's economic analyses show net benefits to California's economy in 2020.[14] These benefits include: increased economic production of $33 billion; increased overall gross state product of $7 billion; increased overall personal income by $16 billion; increased per capita income of $200; and an increase of over 100,000 jobs.[15] These conclusions are contradicted by other studies as discussed below and deserve further review.

For example, an Electric Power Research Institute ("EPRI") report in June of 2007 titled "Program on Technology Innovation: Economic Analysis of California Climate Initiatives: An Integrated Approach" showed real economic costs to the State under all scenarios analyzed.[16] Depending on the implementation scenario, cumulative real costs to the State's economy could range from -0.2% to -1.2% ($100 to $511 billion discounted net present value from 2010 through 2050). The EPRI study also concluded that a comprehensive cap-and-trade program could cost 30% less than undertaking command-and-control options in meeting the State's goal of achieving 1990 GHG levels by 2020.

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[14] Proposed Scoping Plan Appendices at G-ii.

[15] *Id.*

[16] PROGRAM ON TECHNOLOGY INNOVATION: ECONOMIC ANALYSIS OF CALIFORNIA CLIMATE INITIATIVES: AN INTEGRATED APPROACH (Electric Power Research Institute ed., 2007), Volume 1, at v, *available at* http://www.ab32ig.com/documents/EPRIFinalReport2007.pdf.

In 2008, the Congressional Budget Office ("CBO") issued a study entitled "Policy Options for Reducing CO_2 Emissions."[17] This study concluded that a cap-and-trade program would be significantly superior to a command-and-control approach that mandated specific emissions limits and/or control technologies on individual sources.[18]

Similarly, a 2007 report from Robert Stavins concluded that improved analyses are necessary to better inform policy makers.[19] As the report notes, "in designing policy, policymakers should recognize and account for the substantial uncertainty that characterizes emission reduction costs. Even if debates about the accuracy of particular analyses were to be resolved, many other critical and unresolvable sources of cost uncertainty would remain."[20]

Moreover, an assessment of United States cap-and-trade proposals by the MIT Joint Program on the Science and Policy of Global Change concluded that there would be carbon prices of up to $100/metric ton CO_2e by 2030, which would result in welfare costs of up to 1.5% percent by 2030.[21] Even the original Stern Review on the Economics of Climate Change, commissioned by the British government in 2006, estimated that there would be a cost to stabilize GHG emissions at about 1% of GDP by 2050.[22] Sir Nicholas Stern, the author of the report, recently indicated that the cost to get below 500 ppm of CO_2e would now cost around 2% of global GDP.[23]

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17 A CBO STUDY: POLICY OPTIONS FOR REDUCING CO_2 EMISSIONS (Congressional Budget Office ed., 2008), *available at* http://cbo.gov/ftpdocs/89xx/doc8934/02-12-Carbon.pdf.

18 *Id.* at IX.

19 ROBERT STAVINS ET AL., TOO GOOD TO BE TRUE? AN EXAMINATION OF THREE ECONOMIC ASSESSMENTS OF CALIFORNIA CLIMATE CHANGE POLICY (AEI-Brookings Joint Center for Regulatory Studies, Resources for the Future, NBER, KSG Faculty Research Working Paper Series RWP07-016, 2007) at 33, *available at* http://www.rff.org/documents/RFF-DP-07-12.pdf.

20 *Id*. at 39.

21 SERGEY PALTSEV ET AL., ASSESSMENT OF U.S. CAP-AND-TRADE PROPOSALS (MIT Joint Program on the Science and Policy of Global Change ed., 2007) at Fig.3, 16. The welfare measure includes not only changes in aggregate market consumption but also effects on leisure time. *Id.* at 17.

22 NICHOLAS STERN, STERN REVIEW ON THE ECONOMICS OF CLIMATE CHANGE, Executive Summary at xiii, *available at* http://www.hm-treasury.gov.uk/d/Executive_Summary.pdf.

23 Juliette Jowit and Patrick Wintour, *Cost of Tackling Global Climate Change Has Doubled, Warns Stern*, THE GUARDIAN, June 26, 2008, at 2, *available at* http://www.guardian.co.uk/environment/2008/jun/26/climatechange.scienceofclimatechange.

SCE believes that CARB should revisit the earlier work done by EPRI/CRA with the multi-state computable general equilibrium model MRN-NEEM (Multi-Region National and North American Electricity and Environment Models) and incorporate its results in its deliberations. These linked models made it possible to understand the economy-wide impacts of specific climate policies, while examining the specific impacts on the electric sector in detail.

The outcome of the MRN-NEEM model is more in line with economic modeling of cap-and-trade programs, which consistently demonstrate that performance standards and other programs outside of a pure cap-and-trade program are not as economically efficient, unless addressing a specific market failure such as building construction and leasing. It also demonstrates that assumptions made by policy makers about the existence and scope of market failures can have significant implications on policy costs. By dismissing these outputs, and not using them to assess the outcomes of the other models, CARB is missing a critical opportunity to get a broader picture of the impacts of non-market-based policies and to assure that the measures the Board ultimately enacts comply with its statutory obligation to adopt a least cost implementation approach.

SCE urges CARB to integrate the existing or new modeling work of EPRI/CRA in the near future to provide an objective assessment of the programs under consideration. CARB should be fully informed as it considers policy choices in finalizing its scoping plan. Excluding the results of one of the most sophisticated economic models available today because it is designed to function optimally by computing cost and benefits rather than inputting assumptions of costs and benefits deprives the State of the use of a powerful tool that can provide valuable insight into the economic implications of difficult policy choices.

VI.

CARB SHOULD SUPPORT ONLY EFFICIENT CHP THAT RESULTS IN GHG EMISSION REDUCTIONS

While SCE agrees that CHP can be an important part of the State's energy mix, there is a misconception in the Proposed Scoping Plan that all CHP is efficient and will be operated in a

manner that reduces overall GHG. This assumption is not only misleading, but creates an impression that all CHP systems are created equal and will therefore provide equal benefits. Just as with all generators of electricity, there are many variables that contribute to successful operation. For CHP, these include designing and operating a system that efficiency serves the thermal loads.

The Proposed Scoping Plan does not recognize that hundreds of megawatts of inefficient and costly CHP systems remain in operation in California today. While it may be true that efficiencies can be gained by having two outputs (electricity and heat) with a single fuel input, overall efficiency depends upon how efficiently the system burns the fuel as well as how efficiently it recovers the waste heat. If there is limited or no use for the waste heat, there is simply a combustion turbine or reciprocating engine producing electricity, while the produced heat is wasted. In SCE's twenty-five years of experience with integrating and purchasing output from over one hundred CHP systems, only a small percentage of projects operate efficiently or have an appropriate or adequate thermal use for the steam.

SCE has carefully reviewed "Measure E2 Combined Heat and Power Distributed Electrical Generation" in the Measure Documentation Supplement, and is concerned that without assurances of efficiency standards or strict operational requirements, the estimated 6.7 $MMTCO_2e$ reductions (attributed to the deployment of 4,000 MW of new CHP) will not be realized. Two important variables contribute to any GHG reductions: system operating efficiency and the technology CHP is intended to offset. As illustrated in Table VI-1 below, a more realistic approach should be considered regarding the technology that CHP is intended to displace. CARB's proposed installation of 4,000 MW of electrical generation appears to indicate (although not clearly) that CHP operations will displace electrical generation operating at the current Emission Performance Standard ("EPS") of 1,100 lbs CO_2e per MWh.[24] The current,

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[24] Senate Bill 1368 provides that "No load-serving entity or local publicly owned electric utility may enter into a long-term financial commitment unless any baseload generation supplied under the long-term financial commitment complies with the greenhouse gases emission performance standard established by the commission, pursuant to subdivision (d), for a load-serving entity, or by the Energy Commission, pursuant to

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EPS, if applied to a natural gas-fired resource, implies a heat rate of 9,367 btu/kWh. The CARB calculations appear to indicate that any new CHP will replace or displace a technology with this high of a heat rate. This is simply not a realistic assumption moving forward. A displaced heat rate today would be based on the displacement of a new combined-cycle facility (the new natural gas-fired generation of choice today) designed to operate at a heat rate of 7,200 btu/kWh or under.[25]

Table VI-1

Million Metric Tonnes of Reduction

CHP Efficiency	CARB implied heat rate: Displaced heat rate of 9,367 btu/kWh[1]	Actual CCGT heat rate: Displaced heat rate of 7,200 btu/kWh[2]
90%	9.4	6.1
80%	8.7	5.3
70%	7.7	4.3
60%	6.4	3.1

[1]Implied heat rate from CARB's calculations based on the current EPS of 1,100 lbs CO_2e per MWh and displaced 80% efficient boiler
[2]Replacement thermal from 85% efficient industrial boiler, and electricity from an efficient combined cycle gas turbine

Even assuming today's 7,200 btu/kWh displaced heat rate, the forecasted GHG reduction benefits of the new CHP are greatly reduced unless strict design and efficiency requirements are adopted and enforced. Without established efficiency standards or assurance of efficient operations the expected savings are speculative and could fall within any range, as indicated above.

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subdivision (e), for a local publicly owned electric utility." Cal. Pub. Util. Code § 8341(a). In D.07-01-039, the CPUC adopted an EPS of 1,100 lbs CO_2e per MWh. D.07-01-039 at 8.

[25] The calculations assume all electric and heat deliveries were on the property of the generating facility. No system electrical losses were included.

By the year 2020, the displaced heat rate will actually be significantly lower (and thus more efficient), resulting in even smaller or nonexistent GHG reductions from additional CHP. Furthermore, the Proposed Scoping Plan recommends significant amounts of new renewables (40,000 GWh going from 20% to 33%) and energy efficiency (over 32,000 GWh). On many occasions, very low-emitting, non-gas-fired generation will be displaced with new CHP. This will result in an actual displaced heat rate well below the 7,200 btu/kWh level presented.

For all these reasons, the Proposed Scoping Plan should be modified to recognize the differences in the types of CHP operation and ensure that the State is only supporting the design and operation of efficient CHP systems that actually produce GHG reduction benefits and do not displace already efficient, low-emitting generation. This can only be accomplished through specific requirements for operation and minimum efficiency standards.

VII.

CARB SHOULD CONSIDER THE SIGNIFICANT CHALLENGES TO ACHIEVING INCREASED RENEWABLES GOALS

The Proposed Scoping Plan continues its recommendation of a 33% renewables level for California. SCE reiterates its previously stated concern that CARB has not yet fully assessed the significant challenges to increasing renewables energy goals. To date, CARB has not yet provided robust analysis of how increasing current RPS goals will address those issues that currently affect California's ability to achieve its 20% RPS (e.g., transmission constraints and grid reliability and integration issues). These issues and others are among those the CPUC itself has identified as considerable challenges to meeting even the current 20% RPS. In light of these concerns and CARB's inability to provide a robust analysis of why it believes an increased RPS goal is achievable under current conditions, SCE cannot support an increased RPS goal unless measures are taken to address current constraints on California's RPS program.

Specifically, in order for California to meet any increased renewable level, RPS market options must be expanded. Such expansion will increase the types of products which SCE and others can use to meet the State's goals. Among the options SCE believes must be allowed are

unbundled and tradable renewable energy credits ("RECs"). Further, current RPS delivery requirements must be amended to allow delivery anywhere in the Western Electricity Coordinating Council ("WECC"), or possibly beyond. Additionally, exactly the same RPS rules must be applicable with equal force to all California LSEs (IOUs, POUs, ESPs, and CCAs). Currently, different RPS rules and requirements apply to IOUs and other types of entities. This creates an uneven playing field for different buyers of renewable energy. The effect of such uneven requirements may burden IOU customers who currently have fewer options for RPS compliance than other LSEs.[26]

One method for achieving parity between IOUs and other entities is the introduction of an Alternative Compliance Payment ("ACP") mechanism. ACPs are payments made on a cents per kWh basis for any shortfalls in meeting annual RPS goals due to insufficient supply and/or uncompetitive offers. They are currently used in nine states. ACPs are recoverable in rates when insufficient renewable supply is available or prices are uncompetitive. The ACP level or "price" is set by statute or determined by a regulatory body. Because that "price" is what buyers can pay in order to meet RPS goals, the "price" set for the ACP represents the maximum premium a state determines it is willing to have its LSEs pay directly for renewable energy attributes.

SCE envisions ACPs being used as a last resort for RPS compliance. The ACP price would be set by a combination of the CPUC and the California Energy Commission ("CEC") and the proceeds would be collected into an account which could help funds new renewable development in California (e.g., renewable projects for State buildings and the purchase of REC strips from new California renewable projects, determined by solicitation). While the priority for renewable procurement should be California renewables first, followed by RECs, in times of

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[26] The effect of different requirements are exacerbated for IOUs due to rate caps such as AB 1X, which limit an IOU's ability to equitably distribute all increased costs of renewables (and other services) to all residential customers. In light of such limits, SCE cannot support any increased RPS program whose burden will only be passed onto IOU bundled-service customers.

insufficient supply or lack of competition, ACPs would serve as a last resort and cost containment mechanism which would shield customers from having to purchase renewables at any cost in order to meet RPS goals.

VIII.

CONCLUSION

SCE appreciates the considerable work done by CARB in developing the Proposed Scoping Plan. SCE looks forward to working with the CARB, CPUC, CEC, WCI, and other stakeholders on the implementation of AB 32 and the consideration of SCE's concerns as discussed above.

Respectfully submitted,

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