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December 16, 2016

Rajinder Sahota, Branch Chief, Cap-and-Trade Program  
California Air Resources Board  
1001 I Street  
Sacramento, CA 94812

Subject: Comments on 2030 Target Scoping Plan Discussion Draft

Dear Ms. Sahota:

Calpine Corporation (“Calpine”) is writing to provide comments on the 2030 Target Scoping Plan Update Discussion Draft dated December 2, 2016 (hereinafter, “Discussion Draft”).<sup>1</sup> Calpine previously submitted comments on July 8, 2016 regarding the 2030 Target Scoping Plan Concept Paper, which Calpine incorporates here as relevant.<sup>2</sup>

### I. INTRODUCTION

Founded in San Jose, California, Calpine Corporation is America’s largest generator of electricity from natural gas and geothermal resources. Our fleet of 82 power plants in operation or under construction represents nearly 27,000 megawatts of generation capacity and has the lowest emission rates of both criteria pollutants and carbon dioxide among the fossil fleet of the 10 largest U.S. electricity generators.<sup>3</sup> Since our inception 32 years ago, Calpine has been committed to sustainability and has developed an extensive record of actively supporting state and federal initiatives to reduce air pollution and carbon emissions. This includes Calpine’s long-time support for the Cap-and-Trade Program as a means of achieving Assembly Bill (“AB”) 32’s greenhouse gas emissions reduction mandate.

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<sup>1</sup> Available at: [https://www.arb.ca.gov/cc/scopingplan/2030target\\_sp\\_dd120216.pdf](https://www.arb.ca.gov/cc/scopingplan/2030target_sp_dd120216.pdf).

<sup>2</sup> See Comments of Calpine Corporation on 2030 Target Scoping Plan Concept Paper (July 8, 2016), <https://www.arb.ca.gov/lists/com-attach/38-sp-concept-paper-ws-UTJWMQZrVHdSPQhm.pdf>.

<sup>3</sup> M.J. Bradley & Associates, Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States, at 26 (2016), <http://www.mjbradley.com/sites/default/files/Benchmarking-Air-Emissions-2016.pdf>.

In the comments below, Calpine offers its endorsement of the Draft 2030 Target Scoping Plan Scenario's ("Scoping Plan Scenario") proposal to continue implementation of the Cap-and-Trade Program post-2020 and explains why, among the alternatives considered, this scenario alone is capable of achieving the core statutory mandates of AB 32.

## II. DISCUSSION

### A. Continuation of the Cap-and-Trade Program Is the Best Strategy to Meet California's GHG Reduction Targets and Satisfy AB 32's Statutory Mandates

Calpine endorses ARB's proposal to continue implementing the Cap-and-Trade Program post-2020 as part of the Scoping Plan Scenario, noting that neither of the other two alternatives includes continuation of the Cap-and-Trade Program. Not only is the Cap-and-Trade Program the best alternative for satisfying AB 32's statutory mandates, it is the most sensible policy choice for the State's post-2020 climate program

As the lowest-cost and most flexible approach to reducing emissions, the Cap-and-Trade Program harnesses market forces to identify the most cost-effective reductions. By working in tandem with existing policies, continuation of the Cap-and-Trade Program will assure that the costs of carbon pollution are appropriately priced throughout the economy, driving the required reductions at least cost to consumers and businesses. This will be particularly important in the post-2020 period, when complementary measures alone will not achieve the target and the Cap-and-Trade Program will need to bear a heavier burden than it has thus far in driving the state to its goals. Additionally, through the allocation of allowances to energy intensive/trade exposed industries and application of the compliance obligation to imported electricity, the Cap-and-Trade Program is uniquely equipped to minimize emissions leakage and reduce costs to consumers. These are more than ancillary benefits; they satisfy core statutory directives under Section 38562 and assure the integrity of California's emission reductions in ways that the alternative proposals do not.

The Cap-and-Trade Program is also well suited to fulfilling the ultimate objective of AB 32 of "encouraging other states, the federal government, and other countries to act," recognizing that "[n]ational and international actions are necessary to fully address the issue of global warming." Health and Safety § 38501(d). *See also* Health and Safety Code § 38564 (requiring ARB to consult with other states to identify effective strategies and "to facilitate the development of *integrated and cost-effective* regional, national, and international greenhouse gas reduction programs." (emphasis added)). Through current and proposed linkages with the jurisdictions of Québec and Ontario and by forming part of the factual predicate for the "best system of emission reduction" underlying the federal Clean Power Plan, the Cap-and-Trade Program is fulfilling these core climate diplomacy goals explicit in AB 32. Neither of the alternatives can do so.

Given the changing political landscape at the federal level, the Cap-and-Trade Program's ability to foster partnerships with other jurisdictions may become imperative to fulfilling the ultimate purpose of mitigating the worst harms associated with climate change. Linkage with other jurisdictions also provides the opportunity for uniform carbon pricing, an outcome that could not practically be attained under either of the alternatives. For these reasons, the Cap-and-Trade

Program should continue as the centerpiece of California's climate program and the backstop that assures attainment of the 2030 target.

B. Continuation of the Cap-and-Trade Program Satisfies AB 197's Mandate to Prioritize Measures Resulting in Direct Reductions from Stationary, Mobile and Other Sources

As addressed in greater detail in Calpine's prior comments,<sup>4</sup> no material changes to the Cap-and-Trade Program are warranted or necessary in response to AB 197. The Cap-and-Trade Program will necessarily reduce emissions from the categories of sources identified by AB 197. As the cap continues to decline and, provided a quantitative usage limit for offsets is maintained, direct emission reductions from such sources are mathematically certain to occur. All that is needed to ensure direct emission reductions is the continued decline of the cap, a feature inherent to the Program and the effect of which will become significantly more pronounced going forward. Calpine would encourage ARB, in the next draft of the Scoping Plan, to highlight this feature of the Program and the mathematical fact that direct reductions at sources will occur post-2020.

The Discussion Draft nevertheless includes among "Known Commitments" for the electricity sector the following: "Per AB 197, prioritize direct reductions at large stationary sources, including power-generating facilities." Discussion Draft at 40. AB 197 provides that ARB prioritize measures resulting in direct emission reductions at large stationary sources, mobile sources and other sources (Health and Safety Code § 38562.5); it does not place reductions in any one of those three categories of sources in priority over any other. ARB elsewhere recognizes that the electrification of transportation and fuel switching in the residential, commercial and industrial sectors are necessary to achieve the 2030 target and will result in increases in demand for electricity. *See* Discussion Draft at 40, 42. Such increased demand could result in a coincident increase in GHG emissions from in-state electrical generation facilities. Continuation of the Cap-and-Trade Program is the appropriate tool to foster cross-sectoral shifts in emissions from the transportation, residential, commercial and industrial sectors to the electricity sector, as it will allow market forces to identify the most cost-effective means of achieving reductions and satisfy the directive provided by AB 197 to prioritize measures resulting in direct reductions from large stationary sources, mobile sources and other sources.

The Discussion Draft also includes a proposal to "[e]valuate and implement prescriptive regulations to reduce GHG, criteria, and toxic air contaminant emissions in a cost-effective manner, focusing on the largest GHG emission sources, including power plants." *Id.* at 47. Such prescriptive regulations would represent a poor policy choice due to the global nature of GHG emissions, the interstate nature of the electricity grid and the fact that California's existing fleet of gas-fired power plants is already highly efficient and opportunities for cost-effective emission reductions are limited.

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<sup>4</sup> *See* Comments of Calpine Corporation on October 21, 2016 Cap-and-Trade Program Workshop (Nov. 4, 2016), <https://www.arb.ca.gov/lists/com-attach/55-ct-amendments-ws-AGNUM1wxVXYFagBu.pdf>.

There currently is no demonstrated technology to reduce emissions from gas-fired power plants. However, even if such technology were to become available, requiring its installation only on in-state generators, and not on out-of-state fossil generators (over which ARB has no authority), could pose serious competitive disadvantages for the in-state gas fleet. Moreover, due to the interstate nature of the power markets, such a requirement would ultimately achieve no reductions, but could, in fact, result in a system-wide increase in emissions.

The costs borne by in-state generators to control their emissions would be included in their bids into the power markets, which would very likely cause them to be underbid by out-of-state units that were not subject to such controls. This could challenge the financial viability of the State's gas fleet, posing potential reliability concerns if units needed for local reliability should be forced to shutdown. Ultimately, any reduction occurring due to non-operation of the in-state unit would be erased by an increase in emissions from out-of-state fossil generators. Moreover, to the extent the power was imported from unspecified sources with higher emissions rates than the default emission factor currently used for accounting for electricity imports (i.e., out-of-state coal units), a real increase in emissions would occur, but not be accounted for. Thus, prescriptive regulations on in-state generators would run counter to AB 32's legislative directives to minimize emissions leakage and account for emissions from all electricity consumed within the State. *See* Health and Safety Code §§ 38562(b)(8), 38530(b)(2).

As ARB is aware, the in-state electric generating fleet comprises only a tiny fraction of the statewide inventory of criteria pollutant emissions and toxic air contaminants, amounting to less than 2 percent (%) of statewide emissions of nitrogen oxides (NO<sub>x</sub>) and fine particulate matter (PM<sub>2.5</sub>).<sup>5</sup> This fraction is only projected to get even smaller by 2020<sup>6</sup> (during the period relevant for purposes of Scoping Plan development). While in-state generation comprises a slightly larger share of the statewide GHG inventory (12%), its GHG emissions are dwarfed by emissions from the industrial and transportation sectors, which are two and three times greater, respectively.<sup>7</sup> Imposing "prescriptive regulations" on in-state power plants as a means of reducing criteria pollutant and toxic air contaminant emissions would therefore be an extremely ineffective strategy and would risk avoiding the significant reductions in emissions of GHGs, criteria pollutants and toxic air contaminants that could be obtained through electrification of transportation and other higher-emitting sectors.

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<sup>5</sup> *See* [https://www.arb.ca.gov/app/emsmv/2013/emssumcat\\_query.php?F\\_YR=2012&F\\_DIV=-4&F\\_SEASON=A&SP=2013&F\\_AREA=CA](https://www.arb.ca.gov/app/emsmv/2013/emssumcat_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=2013&F_AREA=CA) (2012 emissions, including both electric utilities and cogeneration).

<sup>6</sup> *See* Senate Bill 350 Study: The Impacts of a Regional ISO-Operated Power Market on California, Vol. 9: Environmental Study, at 109-110 (July 2016), <https://www.caiso.com/Documents/SB350Study-Volume9EnvironmentalStudy.pdf> (showing projected 2020 current practice emissions from the California natural gas fleet as 1.0% of the statewide total for SO<sub>2</sub>; 1.0% for NO<sub>x</sub>; and 1.9% for PM<sub>2.5</sub>).

<sup>7</sup> *See* Discussion Draft at 20, Figure 1.3 (2014 emissions).

In sum, the proposal to evaluate prescriptive regulations for in-state generators does not represent a sensible or reasonable policy in light of (i) the acute possibilities of leakage present within the electricity sector; (ii) the anticipated increase in demand for electricity resulting from electrification of other higher-emitting sectors; and (iii) the fact that in-state generation comprises only a tiny fraction of statewide criteria pollutant and toxic emissions. Calpine therefore urges ARB not to include prescriptive regulations for in-state generation as part of the Scoping Plan.

C. Alternative 1 Is Unsound and Runs Counter to Statutory Requirements

Alternative 1 calls for implementation of a series of policies, to the exclusion of any mechanism that places a price on carbon. Such an approach, whereby the State enumerates specific policies, cannot satisfy AB 32's mandate that the identified measures achieve the maximum technologically feasible and cost-effective measures (Health and Safety Code §§ 38560, 38561(a), (b), 38562(a)), as it fails to allow market forces to identify the most cost-effective reduction and instead relies upon policy makers to make those judgments in advance based on imperfect information. As recognized by Staff, Alternative 1 would also fail to meet many of the core statutory requirements and policy objectives ARB aims to satisfy, including minimizing emission leakage, supporting development of GHG reduction programs in other jurisdictions, providing compliance flexibility, and realizing revenue to fund further reductions.

Moreover, ARB acknowledges that "some of the specific policies and measures modeled for this scenario may have technology, cost, or legal authority barriers that may prevent implementation from occurring." Discussion Draft at 92. Thus, unlike under the Scoping Plan Scenario, "[t]here is no policy or measure in Alternative 1 to ensure that the 2030 GHG target is achieved." *Id.* at 94. This drawback is particularly acute given the possibility that the suite of measures needed to meet the 2030 GHG reduction target under Alternative 1 will underperform, especially without a dedicated revenue source to fund them (e.g., accelerated retirement of residential natural gas furnaces).

Because it fails to provide assurance that emissions will in fact be reduced by the amount required to achieve the State's 2030 goal and because it would not reflect the maximum technologically feasible and cost-effective set of measures needed to achieve that target, Alternative 1 is an inappropriate policy choice and cannot satisfy the mandates imposed by AB 32, Executive Order B-30-15 and SB 32.

D. A Carbon Tax Lacks Cap-and-Trade's Core Benefits and Would Forego Opportunities for Linked Carbon Markets and Uniform Carbon Pricing

While Calpine does not oppose a carbon tax as a potential means of reducing emissions, the State should maintain the Cap-and-Trade Program rather than replace it with a carbon tax for several reasons. As noted by Staff, there are numerous drawbacks and uncertainties presented by a carbon tax vis-à-vis continuation of the Cap-and-Trade Program. Discussion Draft at 97. In particular, there is no demonstrated means of incorporating an economy-wide cap as part of a tax, and thus Alternative 2 would not provide certainty that California will achieve its 2030 target under SB 32. As the example of British Columbia represents (*see id.*), it is possible that

per capita emissions could continue to increase and the state could fail to miss its target notwithstanding implementation of the tax. While in theory a tax might be structured such that, if and when emissions failed to achieve certain interim targets, the tax would increase by an amount determined to be necessary to stay on track, that still would provide no guarantee that consumer behavior and potentially inelastic demand would respond, such that the required reductions would, in fact, occur. In contrast to the Cap-and-Trade Program's inherent ability to automatically adjust carbon pricing by the amount needed to achieve the reduction target, a tax would therefore require constant regulatory or legislative intervention to approach the same efficiencies, without the certainty that the target would be achieved.

Replacing Cap-and-Trade with a carbon tax would also inhibit ARB's ability to spur GHG reductions in jurisdictions beyond California, as linkage opportunities would be limited, if not entirely foregone, and the climate diplomacy effectuated through the Cap-and-Trade Program would be lost. Given the changing political dynamics at the federal level, it is possible that other states will increasingly decide that they want to take meaningful action to address climate change and will look to the Western Climate Initiative ("WCI") as a functioning, established program to achieve their goals. For example, Oregon is currently exploring the possibilities of linking with the WCI market.<sup>8</sup>

Linked carbon markets provide opportunities for uniform carbon pricing and concomitant reductions in leakage risk that are not present with a tax. While tax policies of subnational jurisdictions could, in theory, be aligned to assure uniform carbon pricing, the practical and legislative challenges of aligning tax policies make uniform pricing seem highly improbable. As a consequence, abandoning the Cap-and-Trade Program in favor of a carbon tax would risk California's leadership in "facilitat[ing] the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs." Health and Safety Code § 38564.

For these reasons, Calpine reiterates its support for continuation of the Cap-and-Trade Program as the backstop needed to assure attainment of the State's ambitious 2030 target.

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<sup>8</sup> See Oregon Department of Environmental Quality, "Draft: Considerations for Designing a Cap-and-Trade Program in Oregon," Nov. 21, 2016; *available at*: <http://www.deq.state.or.us/aq/climate/docs/ghgMarketD.pdf>.

Rajinder Sahota, Branch Chief, Climate Change Program

December 16, 2016

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Thank you for the opportunity to submit these comments. Please contact us if you have any questions at 916-491-3366 or 925-557-2238.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kassandra Gough".

Kassandra Gough  
Director, External Affairs  
Calpine Corporation

A handwritten signature in black ink, appearing to read "Barbara McBride".

Barbara McBride  
Director, Environmental Services  
Calpine Corporation

cc: Hon. Mary Nichols, Chair  
Richard Corey, Executive Officer  
Edie Chang, Deputy Executive Officer  
Michael Gibbs, Assistant Executive Officer  
Jason Gray, Manager, Cap-and-Trade Market and Monitoring  
Craig Segall, Staff Counsel