December 27, 2013

Ms. Gina McCarthy, Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Administrator McCarthy:

The California Air Resources Board (ARB or Board) extends our thanks to the U.S. Environmental Protection Agency (U.S. EPA or EPA) for meeting with us and representatives from California’s energy agencies and local air districts last month to discuss our experience reducing carbon pollution in the electric power sector. We appreciate U.S. EPA’s efforts to solicit state leadership perspectives on the most effective framework to achieve reductions under section 111(d) of the Clean Air Act (Act). We support U.S. EPA’s efforts to reduce carbon emissions from power plants with a strong standard and we applaud your willingness to explore a range of mechanisms to set and enforce compliance with the standard. We offer these comments, developed in consultation with the California Energy Commission (CEC), California Public Utility Commission (CPUC), and California Independent System Operator (CAISO), as an initial response to U.S. EPA’s questions to the states, and look forward to further conversations. We are also coordinating our efforts with California’s many air districts, which have the primary responsibility for stationary source permitting in our state. ARB and other California agencies have also provided comments in several multi-state letters, including comments coordinated by the Georgetown Climate Center. This letter builds upon those efforts by providing more detailed recommendations and additional information on California’s programs.

ARB advocates a rigorous and equitable approach that will achieve very significant reductions while using flexibilities inherent in the power grid to support cost-effective compliance with the section 111(d) standard. The standard should recognize the significant progress made by many states, including California, while supporting the additional reductions ultimately needed to achieve the 80 percent reduction in greenhouse gas (GHG) emissions below 1990 levels by 2050, which may be necessary to stabilize the climate. We are interested in helping U.S. EPA develop program
elements that would be attractive to other states and that will result in a dramatically cleaner national power sector. To reach this target, the standards will have to drive emission control policies both at individual sources and across the power grid.

In the context of our successes to date and desire to continue to use our suite of programs and policies to reduce GHGs, we are providing overarching comments on the design of the 111(d) guidelines for U.S. EPA’s consideration. These comments are based on the following core principles:

1) The standards, while acknowledging the diversity of the many states’ power fleets and energy policies, should recognize that every state can prosper with a low carbon economy, and provide tools for states to move in that direction. U.S. EPA should recognize that the best systems of emission reduction now demonstrated can be broadly applied to help move all states toward lower emitting power sectors as long as sufficient time is provided to them.

2) The standards should recognize that electricity system-level programs, such as energy efficiency measures, can cost-effectively curtail emissions from covered 111(d) sources. Emissions reductions associated with such programs accordingly must inform both the level of the standards and compliance pathways available to reach that level.

3) EPA should, to the greatest extent possible, build upon working programs in the states, supporting the continued operation and extension of these programs as tools to achieve and demonstrate compliance with the standards in substantial part. While solidifying existing progress, the standards should also provide direction and incentives for states to learn from successful programs operating outside their borders.

4) The standards should balance state policy-making autonomy with the need for accountability by providing clear tools for states to use in assessing programmatic and source level compliance using robust monitoring, verification, and reporting systems.

5) While maintaining accountability for both sources and states, the standards should be designed to maintain state control over energy programs and other system-level policies, while providing for federal oversight where necessary.

6) The standards must be carefully structured to avoid causing criteria pollutant and toxic pollutant increases in areas that cannot support such increases.
It is our desire to work with U.S. EPA staff to further explore and refine specific programmatic elements and to provide U.S. EPA with the data it needs to support the framework described in this letter.

I. Setting the Level of the Standard and Translating the Best Systems of Emission Reduction Into Enforceable State Plans

*EPA should take a systems-level approach to the standard, recognize progress already made by early-mover states, and set a mass-based emissions performance target (perhaps with a rate-based compliance option) commensurate with state demonstrated performance. Recognizing that a flexible systems-level approach can achieve large reductions, U.S. EPA should set a very stringent standard.*

*States should be permitted to use a variety of enforcement approaches to demonstrate compliance with the federal standard; a rigorous monitoring, verification, and reporting system should be included as an essential element for demonstrating compliance with this flexible, system-based approach; and program-level compliance will be facilitated by a high degree of air and energy agency coordination.*

A. EPA Must Consider System-Level Programs and Policies in Setting the Level of the Standard in Concert With Mechanisms That Directly Reduce Emissions Within the Fenceline

*The section 111(d) standards must require existing fossil plants to substantially curtail their greenhouse gas emissions, consistent with the “degree of emission limitation achievable through the application of the best system of emission reduction” (BSER).*

*Systems which can best reduce emissions from power plants do not operate exclusively within the fencelines of those plants. Rather, the integrated nature of the power grid means that policies which displace the need for fossil generation can often cut emissions from covered sources more deeply, and more cost-effectively than can engineering changes at the plants alone, though these source-level control efforts are a vital starting point. Ensuring that individual sources reduce their carbon emissions will improve the overall emissions profile of the system, support needed modernization, and in many cases reduce criteria air pollutants and toxics. U.S. EPA must require emissions reductions consistent with the full application of the best systems of emission reduction operating at both the plant and system levels.*

---

1 42 U.S.C. §§ 7411(a)(1) & (d).
Both the President’s ambitious Climate Action Plan and the Clean Air Act itself require U.S. EPA to act aggressively to limit carbon pollution. The Act is a “technology-forcing” statute, designed to drive the rapid implementation of innovative systems of emission reduction. Although this technology-forcing mandate has been applied most frequently to new sources of emissions under section 111, the same essential directive applies to existing sources under section 111(d). That provision directs U.S. EPA and the states to extend similarly rigorous “standards of performance” to existing plants in the same source categories in which the new source standards drive innovation. Section 111(d), in other words, ensures that innovation spreads to the full source category, not only new facilities. The standards must work to drive emissions cuts throughout the source category consistent with the best systems of emission reduction.

Specifically, the Clean Air Act charges U.S. EPA broadly with identifying the necessary degree of emission reduction which “reflects” that secured by “adequately demonstrated” systems, while taking nonair quality health and environmental impacts, energy requirements, and cost into account. Existing source plans may also consider the remaining useful life of regulated sources. Nothing in this directive limits U.S. EPA to analyzing only systems within the fenceline of covered sources. On the contrary—Emissions reductions at covered sources must reflect the operation of adequately demonstrated systems, but the systems themselves are not defined as co-extensive with the sources. Both “reflect” and “system” are sweeping terms that do not have fenceline limits, and the statute imposes none. They indicate that U.S. EPA is to identify and consider all systems which can reasonably be used to reduce source category level emissions, regardless of the mechanism by which such a system operates.

An examination of system-wide emissions reduction opportunities is warranted with regard to existing power plants because these plants are inherently embedded in the national power system. Power plants do not operate independently. They respond to needs across the grid, compete against each other in power markets, and are constrained by common reliability standards. These complex relationships mean that

---


4 Id. § 7411(d)(1).

5 See also, e.g. Webster’s Third New International Dictionary of the English Language Unabridged 2322 (1968) (defining “system” at the time of the creation of section 111(d) as “a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose”); Engine Manufacturers Ass’n v. South Coast Air Quality Management District, 541 U.S. 246, 252-53 (2004) (stating that where statute does not separately define term, courts presume that “the ordinary meaning of that language accurately expresses the legislative purpose.”) (quotations and citation omitted).
power plants respond to each others’ behavior, ramping up or ramping down as plants come on- and off-line, and as market needs change. As a result, emissions from these sources are particularly amenable to control by grid-level changes, such as energy efficiency programs, environmentally-focused dispatch rules and procurement policies, and renewable power supplies, which can displace dirtier generation.

The effects of these grid-level programs must be included in U.S. EPA’s considerations because the BSER inquiry is designed to identify “demonstrated” systems which can produce “achievable” emissions reductions, and these demonstrated policies greatly increase the achievability of large reductions.\textsuperscript{6} U.S. EPA must capture all source-level reductions available in its standard-setting as well—and some of these reductions may be substantial—but U.S. EPA may not artificially terminate its standard-setting analysis at the fenceline. \textit{Beginning at the fenceline, U.S. EPA should evaluate all emissions reductions opportunities.\textsuperscript{7}} California air districts, which have the primary responsibility for addressing stationary source emissions are well positioned to assist U.S. EPA in that inquiry. But, grid-level strategies are also plainly “adequately demonstrated,” and show that a large “degree of emission limitation” is “achievable” if they are applied to reduce emissions from existing sources.\textsuperscript{8}

This “achievability” consideration is ultimately central to the statute’s purpose because it links the grid-level policies and programs which states have demonstrated with the “degree of emission reduction,” which existing sources must ultimately achieve as a reflection of the operation of those systems of emission reduction. In essence, greater reductions are “achievable” if a greater range of policies are available to support them. Sources can curtail their emissions more sharply, over shorter time periods, if the grid can more fully compensate for reduced capacity factors at high-carbon generators. Because grid-level programs reduce the cost of reductions while shortening the time needed to achieve large reductions, U.S. EPA can, and must, conclude on its review of these programs that large reductions can be required of the population of existing sources.

The statute further enables this approach by directing that the state plan development process under section 111(d) “shall” be procedurally “similar to that provided by [section

\textsuperscript{6} See 42 U.S.C. § 7411(a)(1).

\textsuperscript{7} U.S. EPA should investigate the degree of reductions possible from a full suite of source-level engineering and fuel-switching programs, including plant upgrades like turbine blade replacements, and co-firing or modifying facilities to use lower-carbon fuel, as well as considering standards which may facilitate the retirement or repowering of the oldest, most inefficient plants which have reached the end of their remaining useful life. Such measures at these older plants will likely be more achievable if other system-level policies facilitate these changes by reducing demand for these plants.

\textsuperscript{8} See 42 U.S.C. § 7411(d)(1).
110 of the Act," under which states develop State Implementation Plans (SIP) to attain compliance with the national ambient air quality standards (NAAQS) for criteria pollutants. The SIP process has long afforded states a great deal of flexibility to seek required pollution reductions from a wide array of programs. Similar flexibilities are important when addressing existing sources under section 111 because some portion of the emission reductions available from these sources may often be most achievable and cost-effectively secured through system-level efforts.

EPA has repeatedly confirmed that grid-level programs fall within the Clean Air Act, most recently in an expansive "Roadmap for Incorporating Energy Efficiency/Renewable Energy [(EE/RE)] Policies and Programs into State and Tribal Implementation Plans" under section 110 of the Act. Section 111(d)'s direct cross-reference to section 110, and the acknowledged efficacy of these programs at controlling air pollutants, including the pollutants which section 111(d) is designed to address, indicates the appropriateness of including these measures in the BSER determination. In the Roadmap, U.S. EPA itself concludes that "EE/RE policies and programs offer the potential to achieve emission reductions at a cost that can be lower than traditional control measures," and, critically, may therefore "be a cost-effective strategy that state... agencies can use ... to help attain and maintain compliance with NAAQS, as well as achieving other regulatory or non-regulatory objectives such as ... limiting greenhouse gases." We agree.

States' successes in reducing emissions help to indicate the performance level U.S. EPA must require. Our own experience, and that of many other states, confirms that a very large degree of reduction is possible with policies which reduce the need for fossil power, as well as requiring maximum pollution controls at plants themselves. California's comprehensive approach to GHG reduction has secured very cost-effective carbon pollution reductions through energy efficiency programs, renewable power and storage procurement processes, and economy wide Cap-and-Trade Programs, among other efforts. While we understand that each state will need to find a plan that works for...
its particular circumstances, our experiences underline that successful programs will certainly find substantial emissions reductions from taking a grid-level approach. Our collective experiences show that it is achievable to reduce fossil plant emissions deeply and rapidly; the statute requires that U.S. EPA work with the states to achieve this degree of emission reduction.

We emphasize that the broad analysis required by the statute leads to a policy quite different from that urged by some commentators, who have called for U.S. EPA to require reductions commensurate only with what limited site-level improvements can achieve, perhaps while allowing extremely flexible system-level compliance options to achieve those reductions. The Clean Air Act's ambitious mandates do not permit U.S. EPA to allow for maximum flexibility to attain only a minimal target. We agree that states have substantial discretion as to the contents of their plans, subject to U.S. EPA's oversight, and expect that states will explore a variety of compliance approaches. But, this compliance flexibility for states and regulated sources is distinct from the initial broad analysis required of U.S. EPA as it sets the emission guideline which state plans are required to achieve. Indeed, to guarantee enforceable emissions reductions, such flexibility is best paired with a rigorous standard.

B. Methods for Setting the Standard

EPA must determine the degree of emission reduction which state section 111(d) plans must achieve. To do so, U.S. EPA will have to determine the achievability of emissions reductions from the collection of covered sources in each state. Existing state programs will be an important guide as U.S. EPA conducts this analysis.

The 111(d) regulations translate the broad statutory mandate into a series of analytic steps under which U.S. EPA first identifies adequately demonstrated systems of emissions reduction, then develops "[i]nformation on the degree of emission reduction which is achievable with each system, together with information on the costs and environmental effects of applying each system to designated facilities," along with the time required, and finally identifies the degree of emission reduction possible with the application of the best of these of these systems. One way to view these requirements is that U.S. EPA is functionally filling in the data points needed to draw an abatement curve showing the amount of reductions possible for a given cost over a given period as different systems of reduction are brought to bear, and then selecting a required "degree of emission reduction" off that curve.

As U.S. EPA works to identify the full range of emission reduction systems, it would both need to identify plant-level engineering changes (likely grouped into strategies

14 See generally 40 C.F.R. § 60.22(b).
applicable to categories of similar plants) or fuel shifts that could reduce emissions, and also to consider which grid-level approaches to source emissions reduction are sufficiently demonstrated and available as to be used to set the BSER-based emission limitation for all states.

State policy successes demonstrate that certain “low-hanging fruit” system-level reductions are likely to be broadly available. For instance, though not all states may immediately be able to reach the energy-efficiency savings rates of the best-performing states, all states can certainly develop programs that capture a substantial portion of these savings. Similarly, though not all states may be able to immediately implement wide-ranging renewable portfolio standards, all states can certainly integrate some degree of zero emissions generation into their grids. Recognizing that varying conditions may argue for a somewhat conservative approach to emissions reduction forecasting from demonstrated system-level programs, U.S. EPA could work to identify the emissions profiles of these “good enough” programs—the reductions which should be achievable in many conditions—and associated cost profiles. In essence, U.S. EPA would develop information on a range of emission reduction options and associated costs per ton of reduction, layering upward from the facility level while using relatively conservative estimation protocols for grid-level policies and programs.

EPA could then apply several different methods to translate this information into BSER emissions levels for each state. For instance, published research suggests requiring states to maximize reductions at a given marginal abatement cost of carbon may produce substantial reductions by leveraging all available control strategies below that cost.\(^{15}\) Other proposals, based on setting final targets or emissions rates, are similarly ultimately based on determining the maximum degree of reduction possible at reasonable cost (though they translate that analysis through a different process).\(^{16}\) The common thread these approaches share, consistent with the 111(d) regulations, is that they identify a range of emissions reductions and costs, and then set emission reduction requirements by requiring states to achieve reductions consistent with the best system of emission reduction, developed by considering the effects of the full application of all cost-effective programs.

One possibility would be to use energy system modeling to determine for each state the maximum degree of emission reduction possible with the application of all cost-effective systems of emission reduction, which U.S. EPA has identified, thereby setting the BSER


\(^{16}\) See, e.g., Natural Resources Defense Council, Closing the Power Plant Pollution Loophole (2013).
level for the existing sources in that state. U.S. EPA would first determine a carbon reduction cost it deemed reasonable, in light of the statute’s urgent pollution reduction purpose, and determine the degree of reductions possible from existing sources if a state employs all emissions reduction systems with a cost equal to, or below, the cost threshold. By populating the model with the full range of demonstrated emission reduction systems, including grid-level programs, U.S. EPA would likely determine that substantial reductions are possible in many states. The states would then submit 111(d) plans for U.S. EPA approval which were designed to meet these reduction levels, with the particular policy design of each plan left to each state, within the statute’s constraints.

This approach has the advantage of equitably requiring similar levels of emission reduction effort and marginal cost in all states, while focusing program implementation initially on states with more cost-effective reduction opportunities.

Focusing on an end goal of remaining emissions (whether generated through the process we suggest or another), rather than a reduction from a particular baseline, affords states the most flexibility, recognizes historical actions to improve energy efficiency and reduce GHG emissions from the electricity sector, and, as we discuss below, may remove the need to federalize some state programs because the emissions goal itself can be made federally enforceable. If a baseline approach is, nonetheless, used, the baseline should be set as near to the present as possible to gain real reductions.

In implementing this, or any section 111(d) requirement, U.S. EPA could set either a mass-based or a rate-based “degree of emission reduction” but U.S. EPA should ensure that states can demonstrate compliance based on either metric. We prefer mass-based targets because they have the significant advantage of automatically accounting for reductions in the total mass of covered emissions as a result of displacing covered sources with energy efficiency or renewables. However, several groups have proposed ways of accounting for such strategies in a rate-based framework and these approaches may be workable. U.S. EPA, should, in any event, provide clear conversion protocols if it selects either a mass-based or rate-based metric.

---

17 We expect that compliance with any BSER level would be assessed with some degree of averaging in order to account in part for variation in emissions which unexpected changes in the power system (such as low hydroelectric years or unexpected plant closures) may cause in emissions levels in any given period.

18 We note, in this regard, that the courts have repeatedly held that Congress has already determined that substantial costs are worth bearing in order to secure the great benefits of air pollution control. See, e.g., Portland Cement Ass’n v. Train, 513 F.2d 506, 508 (D.C. Cir. 1978) (reasonable to impose substantial costs unless there is a “gross disproportion” between costs and benefits).
We note that in light of the substantial analytic task before it, we would support U.S. EPA using the upcoming proposal to offer its initial conclusions as to costs of reduction and the resulting state targets, and using the comment period as a chance to engage states and other stakeholders to enhance the data available to the agency in the final standard setting and plan-writing process moving forward.

C. Implementation Timing

EPA must determine a time frame in which states would apply these reduction measures; the time frame will also affect implementation costs, and, hence required reductions. Over a longer time frame, more reductions are possible; shorter time frames will likely raise the cost of deeper cuts.

One approach to setting the compliance schedule for the standard that recognizes the different states’ starting points would link the time-scale with the magnitude of reductions required to meet the standard. The area classifications used for setting attainment deadlines for meeting the ambient air quality standards provides an analogy for U.S. EPA’s consideration in setting the schedule. For example, U.S. EPA could use state carbon emission baselines and final standard targets to classify states as moderate, serious, severe, and extreme, in accordance with the magnitude of reductions needed. Factoring in cost, the amount of time needed to achieve the level of reductions could be estimated, with states designated as the equivalent of severe and extreme having more time to reach their carbon standard than states designated as serious or moderate.

Compliance timeframes will vary depending on the level of reductions needed to meet a state’s end goal. Long-term goals will help guide states in doing the long-term planning for investment needed for sustainable and continuing emission reductions from the power sector. However, if the compliance year is too distant from the starting point, then a credible policy regime for ongoing emission reductions is compromised. U.S. EPA should include regular evaluations of state progress in meeting a state’s long-term goal.19 An enforceable midterm target (or regular intervals) at which a state’s program is evaluated should be established to ensure it remains on a trajectory consistent with meeting the end goal performance standard. If the state is not on track, then the section 111(d) plan should be revised to include additional emission reduction measures or to otherwise strengthen the plan. The regular eight-year review cycle for the section 111 program provides a natural point to set mid-term targets and supply program evaluations. At that time, recognizing ongoing progress in emission control

---

19 We note that the 111(d) regulations provide for progress reports and increments of progress. See, e.g., 40 C.F.R. § 60.25.
systems that the program will, in part, have driven, U.S. EPA must evaluate whether to further tighten targets or otherwise improve the program.

**D. Enforceability and the Content of State Plans**

Section 111(d) and its enforcing regulations create two distinct sets of accountability obligations—on the states to develop and enforce state plans, and on facilities regulated by those plans. Ultimately, both sets of obligations work to ensure that "standards of performance [apply] to any existing source" of the regulated air pollutants.20

Sources must immediately take action to reduce emissions from processes in their direct control; thus, there should be no enforceability difficulty in requiring sources to achieve reductions consistent with various heat-rate and fuel-based improvements. California air districts, which are already implementing greenhouse gas best available control technology permitting under other provisions of the Clean Air Act, have demonstrated that many of these methods can produce substantial reductions; U.S. EPA should require reductions consistent with their full use. Some substantial degree of additional reductions will be more readily achieved if states also implement grid-level policies to reduce demand on covered sources, allowing them to more readily curtail their emissions and operations. To enable these reductions, U.S. EPA should explore a range of approaches to enforceability that will encourage both states and covered sources to implement the full range of reductions.

We expect that many states will want to use allowance systems to guarantee enforceability. These systems automatically link source-based reductions with system-level programs by setting system-wide limits while requiring facilities to take responsibility for their emissions. In such a system, facilities are required to hold sufficient allowances to cover their emissions; available allowances are keyed to the total level of reduction required by covered sources. In that context, a requirement that sources hold sufficient allowances to cover all emissions can serve as an enforceable requirement to guarantee sources meet their emission budget, provided that sources cannot or will not acquire more sufficient allowances to exceed the budget. System-level programs reduce allowance prices and other compliance costs and support a lower total number of allowances by reducing demand for fossil power sources. Both California and the Regional Greenhouse Gas Initiative states have implemented such systems and other states may find them to be an economically efficient way of allocating compliance responsibilities among sources. We urge U.S. EPA to give states a clear path to seek approval of such programs.

---

20 See 42 U.S.C. § 7411(d)(1). See also 40 C.F.R. §§ 60.24(b)(3) ("Emission standards shall apply to all designated facilities within the state").
Not all states may implement such systems. For these states it will be important to find ways to ensure that reductions from both source- and grid-level emissions reduction systems are federally enforceable. Section 111(d) ultimately requires that all covered sources reduce their emissions consistent with a state’s plan, which is to be developed using procedures similar to the section 110 criteria pollutant planning process. Section 111(d) thus has something of a hybrid nature. It fuses section 111’s general source-level focus with section 110’s flexible state planning approach. The state planning requirement, which is designed to be similar to section 110 criteria pollutant plans, suggests that states and U.S. EPA have some discretion to utilize different approaches for guaranteeing enforceability, as they do in the section 110 context. This discretion will be important because not all system-level reduction opportunities are under the direct control of individual sources, but all reductions must be enforceable.

The appropriate enforceability program design may vary with the circumstances of each individual state. We suggest that U.S. EPA explore structures under sources that may be held directly accountable (for instance, in Title V permits), at least for the degree of emission reduction attainable from source-level actions under their direct control (via efficiency measures, fuel-switching, and so on), while states are held responsible for a second tranche of emission reductions attributable to grid-level policies, which also reduce source emissions. EPA should ensure that regulated sources have strong incentives to support the success of grid-level programs, perhaps by directing that plans require additional source reductions if state programs do not fully deliver reductions for which the state is responsible. We further suggest that the federally-enforceable requirement for this grid-level portion of the plan be the state’s emissions target, rather than any particular state programs, in order to avoid unnecessarily federalizing state energy programs. We expect states would propose such hybrid approaches to U.S. EPA in their implementation plans, but suggest that U.S. EPA explicitly invite such innovative approaches in its proposal.

EPA has taken a similar approach in the section 110 context while approving some of California’s ozone state implementation plans. Under those plans, the state commits to an emissions target, with the state’s overall emission reduction requirement serving as the primary federally enforceable requirement, leaving the state to develop programs to meet that federal requirement with programs that ultimately reduce source emissions but without federal enforceability for the individual programs. This structure could

---

21 We are aware there may be modeling approaches of sufficient rigor as to translate the effects of these programs directly into source-level requirements, and look forward to also exploring those approaches with U.S. EPA as the 111(d) process continues.

22 See, e.g., 77 Fed. Reg. 12,652 (Mar. 1, 2012) (approving San Joaquin Valley ozone State Implementation Plan which set enforceable emission reductions to reduce ozone pollution, including an obligation to implement or design all emission reduction programs necessary to achieve these reductions).
have the advantage of setting federally-enforceable reductions while leaving room for states to develop a range of innovative programs which might not themselves have to be federally enforceable. If state programs failed to achieve these additional reductions, the section 111(d) plans could automatically require program redesigns or additional source-level limits.

As U.S. EPA has suggested in its Roadmap, states which incorporate existing energy efficiency or renewable energy programs into their baseline load growth and emissions projections need not make those programs separately federally enforceable. Instead, such programs merely set the business as usual emissions trajectory because they would be in force with or without a section 111(d) plan. See, e.g., 40 C.F.R. §§ 60.25(b)(1) (providing for monitoring of regulated sources); 60.26 (requiring states to demonstrate legal authority to enforce emissions standards against regulated facilities). Although U.S. EPA will certainly need to verify these projections carefully, such an approach could provide further flexibility to states wishing to rely on grid-level programs to help meet emissions targets.

Other solutions are available. U.S. EPA and the states will need to explore a range of options which ensure reductions from covered sources while leaving states room to develop innovative emission reduction approaches without adding an undue layer of federal enforcement to state energy program efforts.

We strongly believe that nothing in the Act requires sources now participating in California’s AB 32 Cap-and-Trade system to face redundant compliance requirements under the section 111(d) program. California’s own program limits source emissions sharply and helps guarantee declining power sector emissions. We intend to work with U.S. EPA to demonstrate that sources participating in our allowance programs will also satisfy section 111(d) requirements and to take any necessary measures to ensure that all federal enforceability issues have been addressed.

II. The California Experience

California has successfully driven large reductions in its carbon emissions through a variety of source- and system-level approaches which should inform U.S. EPA’s evaluation of possible emissions nationally.

California has made remarkable progress in developing and implementing new policies and strategies to reduce GHG emissions within the State’s electricity sector. Consistent
with the State’s loading order, CEC, CPUC, and ARB have adopted a suite of programs and regulations that are substantially reducing electricity-sector GHG emissions. California’s comprehensive approach to GHG reduction has combined energy efficiency programs, renewable power and storage procurement processes, and economy wide Cap-and-Trade Programs, among other efforts. While we understand that each state will need to find a plan that works for its particular circumstances, our experiences underline that successful programs will find substantial emissions reductions from taking a grid-level approach. Section 111(d) and its implementing regulations require U.S. EPA to account for these successful state experiences.

Presently, about 40 percent of the California’s total GHG emissions are associated with the electricity sector and efforts to reduce electricity-related emissions are a key component of our efforts under the AB 32 Scoping Plan. The Scoping Plan was built on the principle that a balanced mix of strategies is the best way to cut emissions and grow the economy in a clean and sustainable direction. California is on track to meet the goals of AB 32 (1990 levels by 2020, or 431 MMTCO\textsubscript{2}e\textsuperscript{24} from all sectors) and has implemented a comprehensive suite of measures across sectors that are moving the State toward a lower carbon future utilizing cleaner and more efficient energy, cleaner transportation, and a comprehensive Cap-and-Trade Program. The Cap-and-Trade Program will play a key role in ensuring that California remains on track to meet its 2020 reduction target and will play an important role in achieving cost-effective reductions beyond 2020. U.S. EPA should recognize California’s program portfolio as an effective system to obtain reductions from existing electrical generating units as it evaluates BSER.

Our estimates show that the result of our many efforts has caused utility sector emissions to decline. Emissions from in-state and imported power fell by 16 percent (16 million metric tons) from 2005 to the 2010-12 averaging period. Emissions from both portions of the sector will continue to fall as a result of California’s programs. By 2025, we expect to cut our electricity sector emissions to below 80 million metric tons CO\textsubscript{2}e, a roughly 25 percent reduction from 2005 levels in that sector alone. California’s carbon emissions rates (both of fossil generation alone and for all power used in the state) have also fallen, from 1,245 lbCO\textsubscript{2}e/MWh for fossil generation and 875 lbCO\textsubscript{2}e/MWh for all power in 2005 to 1,090 lbCO\textsubscript{2}e/MWh and 775 lbCO\textsubscript{2}e/MWh in

\textsuperscript{23} The “loading order” is California’s preferred sequence for meeting electricity demands: energy efficiency and demand response first; renewable resources second; and efficient natural gas-fired power plants third.

\textsuperscript{24} ARB is proposing to update the 2020 goal via the Scoping Plan Update, weighting the 1990 emissions with 100-year GWP\textsubscript{s} from the IPCC’s Fourth Assessment Report. The new target would be 431 MMTCO\textsubscript{2}e, approximately a one percent increase from the 427 MMTCO\textsubscript{2}e target adopted by the Board in 2007.
2012, and are expected to decline to approximately 830 lbCO$_2$/MWh and 580 lbCO$_2$/MWh by 2025.

The majority of GHG emission reductions for the California electricity sector are being driven by four key programs: (1) supply-side emission reductions; (2) energy efficiency programs, including utility-level programs and building and appliance energy efficiency standards; (3) renewables programs, including the 33 percent Renewable Portfolio Standard (RPS) and the Million Solar Roofs/California Solar Initiative program; and (4) the Cap-and-Trade Regulation. The electricity sector is expected to achieve 25 MMT of greenhouse gas reductions by 2020, with almost half of the reductions from energy efficiency programs. Below we provide a description of these programs and the emission reductions achieved to date, and also describe the mechanism of verification for each program.

Beyond the 40 percent of GHG emissions from the electricity sector emissions, the largest category of emissions is from the transportation sector. To support the reduction of these emissions, California Governor Edmund G. Brown Jr. issued an executive order setting a goal of 1.5 million zero-emission vehicles on California roads by 2025. CPUC, ARB, CEC, and other state agencies are coordinating actions under the direction of the Governor's Zero Emission Vehicle Action Plan to eliminate regulatory barriers that impede consumer adoption of these vehicles.27 While this effort will result in an increase in California's electricity consumption, it will also result in large GHG emissions reductions. Although overall statewide GHG emissions will be reduced in the long run from vehicle electrification, there is the potential to shift additional emissions to the power sector if that sector is not also carefully controlled. As a result, carbon reductions from electrical generating units are important to the State to ensure that growing electricity demand from zero-emission vehicles does not offset carbon emission reductions secured by that program in the transportation sector, further demonstrating why a strong standard is needed.

A. Supply-Side Energy Efficiency Improvement Opportunities

In California, power generation is largely from natural gas, and due to air quality considerations is generally very efficient. To further enhance efficiency, ARB approved a regulation in 2010 that requires the largest industrial facilities in California to conduct a

25 This program encompasses three components: (1) the California Solar Initiative (CSI) that the CPUC administers within IOU service areas; (2) the New Solar Homes Partnership (NSHP) that the CEC administers within IOU service areas; and (3) various POU programs that are self-administered. All three components received funding from the State to provide subsidies for solar PV under SB 1.


27 http://opr.ca.gov/docs/Governor%27s_Office_ZEV_Action_Plan_%2802-13%29.pdf
one-time energy efficiency assessment of sources of GHGs to determine potential emission reduction opportunities, including those for criteria pollutants and toxic air contaminants. The industrial facilities subject to the regulation include all facilities with 2009 GHG emissions of 0.5 MMTCO₂e or greater, as well as cement plants and transportation fuel refineries that emitted at least 0.25 MMTCO₂e. Combined cycle electricity generating facilities built after 1995 are exempt. Fourteen electrical generation facilities were required to provide information under the regulation, which includes cost data. The reporting generating facilities include natural gas-fired boilers and turbines, as well as a small number of coal-fired boilers. Three coal-fired boiler facilities are included in the report, with a total generating capacity of 212 MW. Only one of the three facilities is still operating with coal as a fuel. The efficiency improvement methods identified fall into the following categories: change in operation of equipment, change in maintenance practices, change in management systems, process control, same but more efficient technologies, and investment in new technologies. A report summarizing the data collected for the electrical generation sector is expected to be publicly available in early 2014.

B. Energy Efficiency Programs

A variety of utility demand-side energy programs, along with appliance, building, and electronic energy efficiency programs support California's top priority to reduce the need for new energy resources to meet increasing demand. CPUC has developed an innovative series of utility-run efficiency programs which require investor-owned utilities to take advantage of all cost-effective energy efficiency; publicly owned utilities (POU) are also implementing efficiency programs. CEC continues to provide a leadership role in developing and adopting new appliance and building efficiency standards. Building efficiency standards were updated this year and now require 25 percent more efficiency from residential construction and 30 percent more efficiency from non-residential construction than the prior standards. CEC also adopted aggressive energy efficiency standards for televisions in 2009, and first-in-the-nation energy efficiency standards for battery chargers in 2012.

California's experience demonstrates that demand-side energy efficiency is a particularly successful emission reduction system.

---

28 Computed from *California Energy Demand, 2012–2022 Final Forecast*, June 2012, Form 2.2 on Committed Energy Impacts.
Utility Programs
California requires its investor-owned utilities to first meet any resource needs “through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible.” CPUC ensures that these companies meet this goal by working with CEC to “identify all potentially achievable cost-effective electricity efficiency savings” and then translating these potential savings into “efficiency targets,” which the investor-owned utilities must achieve in their resource procurement plans. CPUC policy rules regarding energy efficiency programs for the investor-owned utilities have strict cost-effectiveness requirements, which specify that their energy efficiency portfolios as a whole must have higher benefits than costs. We invite U.S. EPA to review program details, including verification strategies, as set forth in the CPUC’s Energy Efficiency Policy Manual.

California investor-owned utility programs regulated by the CPUC save about 3,000 GWh per year, enough savings to power about 600,000 households. The programs are estimated to have cut CO₂ emissions by 3.8 million tons during 2010-11, the equivalent of removing over 700,000 cars from California’s roads. Compared to the cost of other climate policies, energy efficiency provides substantial emissions reductions and should be an essential element of the BSER CO₂ reduction target required by U.S. EPA of all state plan designs. Though not all states may immediately be able to reach the energy-efficiency savings rates of the best-performing states, all states can certainly develop programs that capture a substantial portion of these savings.

CPUC and CEC have pursued utility-driven efficiency programs of this sort for decades and the target-setting mechanism itself has now been in place for almost a decade, with great success. While California has picked much of the “low hanging fruit” with respect to energy efficiency measures, it is significant to note that we are still finding cost effective energy efficiency programs after 20 years of implementation. A recent energy efficiency potential study, for instance, has identified tens of thousands of GWh in potential savings available over the next decade, indicating that efficiency continues to be a durable resource for reductions. Data from 2010-2012 also shows investor owned utility average benefits exceed costs in California by approximately 1.5 to 2.5 times for efficiency programs, based on metrics that assess total benefits and costs for all customers versus for the utility only, respectively; similar ratios for other states may be even more favorable. In addition, the current metrics do not include the potential

31 Id. § 454.55.
beneficial environmental aspects of these programs in the benefit-cost tests. CPUC continues to move forward, developing ambitious next generation targets for covered utilities.

Publicly-owned utilities are also taking substantial energy efficiency measures. These entities vary a great deal in size, which impacts the range of energy efficiency programs that are offered. At the larger end of the spectrum are the Los Angeles Department of Water and Power (LADWP), Sacramento Municipal Utility District (SMUD), and Imperial Irrigation District. On the other end are dozens of POUs serving much smaller communities, including but not limited to the cities of Needles, Gridley, and Biggs. LADWP and SMUD together represent over half of the total retail electricity sales from public power (55.7 percent). As large as LADWP and SMUD are compared to other POUs, combined they are roughly one-fifth the size of the two largest investor-owned utilities (IOU), Pacific Gas & Electric, and Southern California Edison.

Public power commitments to energy efficiency programs are extensive and comprehensive. Residential programs focus on energy audits, Energy Star® appliance rebates and replacements, lighting improvements, attic insulation, as well as incentives to install highly-efficient heating, ventilation and air conditioning (HVAC). Commercial and industrial programs target lighting, HVAC, and manufacturing/food processing equipment. POUs also partner with schools and public institutions to educate residents and implement a variety of beneficial programs. POUs across the state are currently evaluating and developing more advanced programs in the areas of commercial/industrial demand response, thermal energy storage, on-bill financing, customer behavior change, and “whole building” retrofits.

The above programs have resulted in a realization of the following partial list of benefits:

- Public power programs reduced peak demand by more than 82.5 MW. Since 2006, POUs have reduced peak demand by over 563 MW.

- The net annual kilowatt-hours savings totaled over 439,700 MWh. Since 2006, POUs achieved nearly 2.89 million MWh in savings through energy efficiency programs.

- Applying the Total Resource Cost (TRC) societal test, the principal measure used in the industry to determine whether programs are cost-effective, the aggregated TRCs for public power equals 2.66 in FY11/12, meaning public

---

power energy efficiency programs produce over two-and-a-half dollars in societal benefits for every dollar spent.

**Appliance Standards**
Building on its past appliance standards, CEC is currently in the pre-rulemaking phase to consider additional appliance types for coverage by Title 20 appliance standards. Appliances being considered include consumer electronics, lighting, water appliances, and several additional appliance types. Future California Title 20 updates and corollary collaborative work with the U.S. Department of Energy on appliance standards should focus both on realizing cost-effective energy savings and on incorporation of features that can assist in grid resilience and responsiveness.

**Proposition 39**
Funding from the California Clean Energy Jobs Act (Proposition 39), approved by California voters in November 2012 and subsequently refined through Senate Bill 73 (Skinner, Chapter 29, Statutes of 2013), will provide a significant source of new revenue (an estimated $2.75 billion over five years) to support energy efficiency and clean energy projects in California’s public schools (K–12) and community colleges.

**Local Governments**
At the local government level, several communities have created property-assessed clean energy financing districts (PACE programs) that allow residential and commercial property owners to finance renewable on-site generation and energy efficiency improvements through voluntary property tax assessments.

**State Buildings**
Governor Brown took specific action in 2012 to improve the energy efficiency of state owned buildings through Executive Order B-18-12, which directs State agencies to reduce their grid-based energy purchases by at least 20 percent by 2018. This Executive Order also directs State agencies to reduce the GHG emissions associated with the operating functions of their buildings by 10 percent by 2015, and 20 percent by 2020.\(^\text{34}\)

**Existing Buildings**
Assembly Bill 758 (Skinner, Chapter 470, Statutes of 2009), requires CEC to develop and implement a comprehensive energy efficiency program for all of California’s existing buildings. CEC is currently drafting an Action Plan for 758, which will propose solutions for energy efficiency issues in California’s existing buildings.

Zero Net Energy (ZNE)

In 2008, CPUC set forth ZNE goals in its long-term Energy Efficiency Strategic Plan and implementation roadmap for several Big Bold Energy Efficiency Strategies. CPUC's Big Bold Energy Efficiency Strategies, later updated in 2011, state that all new residential buildings shall be ZNE by 2020, new commercial buildings shall be ZNE by 2030, and half of existing commercial buildings shall be retrofitted to ZNE by 2030. It is expected that the major contributors to achieving this goal are building and appliance standards regulations. This effort is complemented by utility energy efficiency programs that motivate change in consumer behavior in areas outside of regulatory reach.

CEC has made progress toward achieving the state's ZNE goals for new residential and new commercial buildings through periodically increasing stringency of the building and appliance standards, and broadening their reach. Working with CPUC, CEC is currently developing a definition for ZNE Code compliant buildings that it will publish in the 2013 Integrated Energy Policy Report. ARB is in the process of updating the Scoping Plan, California's plan for reducing greenhouse gas emissions, and is committed to building upon the recent policies and goals adopted by CPUC and CEC and supporting the development of a statewide program requiring all new residential and commercial construction to operate with zero net energy use.

C. Renewable Energy Programs

Established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107 and expanded in 2011 under Senate Bill 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires all California retail electric providers to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. The State has also established a separate but related renewable energy policy to complement the 33 percent RPS. As part of his Clean Energy Jobs Plan, Governor Brown set an aggressive target of adding 8,000 MW of centralized, large-scale renewable facilities and 12,000 MW of distributed renewable generation by 2020. Of the 12,000 MW distributed renewable generation goal, 4,000 MW has already come online.

California has made substantial progress in developing new renewable generating resources to support the RPS and the Governor's goals. Approximately 2,000 MW of new renewable capacity came online in 2012,35–1,600 MW of which is wind generation; another 2,000 MW of renewable generation is scheduled to come online before the end of 2013. California is now the nation's second largest producer of wind power.36

California leads the nation in solar photovoltaic capacity. In 2012, California became the first state to install more than 1,000 MW of new solar capacity in a single year, from a combination of utility-scale projects and customer installations. The State’s Million Solar Roofs/California Solar Initiative program enacted in 2006 (Senate Bill 1, Murray, Chapter 132) is driving much of this effort. The incentive-based program set a target for 3,000 MW of self-generative solar, including solar water heating, by 2017. To date, over 1,400 MW of self-generating solar capacity has been installed under the incentives provided by this program.

D. Cap-and-Trade Program

On January 1, 2012, ARB launched the second-largest greenhouse gas Cap-and-Trade Program in the world. The Cap-and-Trade Regulation ensures progress toward the emissions target included in AB 32 and provides businesses flexibility to reduce emissions at the lowest possible cost. The Cap-and-Trade Regulation establishes a hard and declining cap on approximately 85 percent of total statewide GHG emissions. Under the Cap-and-Trade Regulation, ARB issues allowances equal to the total amount of allowable emissions and distributes them to regulated entities. One allowance equals one metric ton of GHGs. Each regulated entity must hold allowances equal to its emissions.

The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. As the cap declines, aggregate emissions are reduced. Under the Cap-and-Trade Regulation, a portion of the allowances required for compliance are auctioned by the State. The State’s portion of the proceeds from these auctions is to be used to fund projects to reduce GHG emissions. The Cap-and-Trade Regulation provides assurance that California’s 2020 target will be met because the regulation sets a firm limit on 85 percent of California’s GHG emissions.

Because the Cap-and-Trade Program applies only to California entities, ARB designed the regulation to minimize emissions leakage by requiring first jurisdictional deliverers of electricity to hold a compliance obligation—that is, the first entity to put electricity onto the California grid is responsible for these emissions—whether they are a power plant or an importer.


ARB has implemented mechanisms to keep allowance prices within an acceptable range by allowing a limited amount of future allowances to be used for compliance should prices get too high. The continuation of the Cap-and-Trade Program post-2020 will enhance the effectiveness of the new cost containment mechanism proposal.

On January 1, 2014, California is scheduled to link its program with the Canadian Province of Québec. California and Québec have worked together to harmonize their regulations and coordinate on a joint auction platform and tracking system.

The Cap-and-Trade Program limits the future emissions of GHGs by establishing an overall limit on emissions from most of the California economy—the “capped sectors.” Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the low carbon fuel standard, and the 33 percent Renewables Portfolio Standard. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. Reductions in the remainder of the economy—the “uncapped sector”—are being accomplished through specific measures, such as those for high-GWP gases and fugitive emissions from industrial sources.

E. Program Monitoring, Verification, and Reporting

If states opt to incorporate system-level plans into their section 111(d) compliance strategies, the robustness of monitoring and reporting components for these programs become critical to ensure reductions are realized. We outline some of the evaluation programs used in California, which may help inform U.S. EPA’s evaluation of proposed state approaches.

CPUC has built robust evaluation into all of its renewable energy, demand response and energy efficiency programs. The critical components are different depending on the type of program.

For Energy Efficiency Programs, CPUC has employed a variety of incentives and penalties over the years to ensure compliance, refining its approach on a regular basis to improve program functionality. In recent years, CPUC has focused on “deep” retrofits, financing, and codes and standards. Utilities are rewarded on a wide range of metrics to ensure utilities focus on long-lived programs, including total program savings, effective program administration, and advocacy for improved standards. Measurement and evaluation is the key to this effort, and CPUC employs a staff of technical experts who work with outside consultants to measure program effectiveness and constantly
improve understanding of energy savings through efficiency. To this end, CPUC has created a database of all energy efficiency measures that tracks the energy consumption and savings of each measure. The database is constantly refined and updated as new empirical data becomes available about each measure. Information on evaluation, measurement, and verification for energy efficiency programs can be found here: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/

For the RPS, CEC and CPUC work collaboratively to implement the program. The original RPS legislation assigned CEC with the responsibilities of certifying renewable facilities as eligible for the RPS, and designing and implementing a tracking and verification system to ensure that renewable energy output is counted only once for the purpose of the RPS and for verifying retail product claims in California or other states. Senate Bill X1-2 increased CEC’s role with respect to POUs. As a result, CEC adopted regulations specifying procedures for enforcement of the RPS for POUs, and certifies and verifies eligible renewable energy resources procured by POUs and monitors their compliance with the RPS. CEC continues to certify and verify RPS procurements by retail sellers. CEC refers POU non-compliance issues to ARB, which may impose penalties. CPUC’s responsibilities over IOUs, electric service providers, and community choice aggregators include determining annual procurement targets and enforcing compliance; reviewing and approving each IOU’s renewable energy procurement plan; reviewing IOU contracts for RPS-eligible energy; and establishing the standard terms and conditions used by IOUs in their contracts for eligible renewable energy. CPUC issues program progress reports on a quarterly basis, and it makes an annual compliance report to the Legislature, which is required under State law. Utilities that do not meet their RPS goals are subject to a fine of $0.05 per kWh, up to $25 million per year. Those reports can be found here: http://www.cpuc.ca.gov/PUC/energy/Renewables/

For the California Solar Initiative, CPUC relies on robust measurement and evaluation to ensure that the program is on track to meet its goals. The program performs regular evaluations in a variety of performance metrics, including 1) Process evaluations, which evaluate how well the utilities are administering the program; 2) Impact evaluations, which measure capacity of systems installed, performance of systems, degradation, and other metrics; 3) Cost-effectiveness evaluations, which measure the benefits of the program compared with the costs; 4) Market transformation reports, which assess how well the program has transformed the market for distributed solar PV systems; 5) Distributed Generation Impact Reports, which assess the technical impact of distributed solar PV systems on the functioning of the electric grid; and 6) External financial audits, which seek to ensure that the program administrators are properly tracking and reporting program expenses.
For the Cap-and-Trade Regulation administered by ARB, requirements to surrender allowances ensure emission reductions and provide compliance certainty using a state-level program that points to source-level controls. A requirement that sources surrender allowances on an annual basis can serve as an enforceable requirement to guarantee sources are on track to meet their emission budget, provided that sources cannot or will not acquire more sufficient allowances to exceed the budget. California's program limits source emissions, and helps guarantee declining power sector emissions. The current program has partial requirements at annual intervals, which includes a demonstration that the source is on a glide path to full compliance at the end of each compliance period. This flexibility is important to the design of the program and gives subject entities options to fulfill their obligations.

California's Cap-and-Trade system is supported by extensive enforcement, monitoring, and verification systems. These include a comprehensive GHG reporting rule, which requires a wide array of sources to report their greenhouse gases annually, subject to rigorous independent verification requirements. These reporting requirements ensure that sources fully comply with the Cap-and-Trade Regulation itself, which covers the vast bulk of greenhouse gas sources in the California economy (including the electric power sector, both electric power importers and exporters and individual generators). Both the reporting and Cap-and-Trade rules impose civil and criminal liability for violators, and ARB has developed an extensive enforcement program. In the electric power sector context, ARB also works closely with other energy regulators, including CPUC, CEC, CAISO, Federal Energy Regulatory Commission, and the Commodity Futures Trading Commission to detect and correct noncompliance. With this support, the Cap-and-Trade Program guarantees consistent, substantial, quantifiable, and enforceable reductions from all covered sources, including power plants.

F. Intrastate Agency Program Coordination

Section 111(d) planning for the energy sector requires careful collaboration between energy and environmental agencies. Under the Clean Air Act, state governors are free to designate the agencies responsible for compliance with the Act, and section 111(d) may well provide a case for directing multiple agencies to work together on the planning process, whether as formal designees for federal compliance purposes or simply as a matter of effective state coordination.

California provides a good example of the positive results of such collaborative efforts. For a number of years, California regulators have been working to transition from the

---

40 See, e.g., id. §§ 95101 (applicability), 95130-95133 (verification).
41 See generally Cal. Code Regs. Title 17, §§ 95800 et seq.
“silo,” single-purpose approach to regulations and make a concerted effort to collaborate not only across multi-media environmental programs but also across various overlapping jurisdictions under the topics of air and energy. California’s push to meet a substantial portion of air quality and climate change goals in heavily polluted regions through electrification and alternative energy projects has necessitated close collaboration between the State’s air and energy agencies, which includes all levels of management and staff. Presently, many issue-focused groups exist to handle the multiple levels of coordination and subject areas that cross air and energy programs.

One of the key groups that may be used as a model for other states to follow is convened by the Governor’s Office. The Energy Principals report and advise on the highest policy-level and most sensitive energy issues. The Principals group includes the State’s leadership at ARB, CEC, CPUC, CAISO, and the State Water Board. These meetings provide an opportunity to discuss energy issues, set State priorities, resolve conflicts, and plan for the future. This group has addressed climate change planning, the retirement of the San Onofre Nuclear Generating Station, and the retirement of once-through cooling power plants to mitigate impacts to aquatic organisms, among other issues. Program success requires the cooperation of all involved agencies, and as a result of these concerted efforts, California air and energy agencies are coordinating more effectively than ever before and improving mutual understanding of each organization’s concerns.

California also coordinates state and regional air pollution control programs. ARB has an oversight role, with direct regulatory responsibilities in some areas (including California’s climate programs), but California’s air districts are on the front lines of many emission control efforts, especially with regard to stationary sources. California’s air agencies work closely together, and with the state’s energy regulators to reduce emissions while protecting ratepayers.

III. Cross-State Issues

The interstate nature of the power grid raises complex questions. We look forward to working with U.S. EPA and our partner states to resolve these questions. Our initial efforts are focusing on tools that encourage states to collaborate and to account properly for reductions driven by these efforts.

EPA should include incentives for inter-state and regional collaboration.

Because the U.S. electricity system crosses state lines, U.S. EPA guidelines should encourage regional cooperation. Connecting the markets for buying and selling electricity beyond state boundaries can increase local utilities’ flexibility and reliability.
and provide consumer savings by enabling use of a wide variety of energy sources. Integrating our electricity markets expands user access to renewable energy sources. Recognizing and encouraging regional collaboration to reduce greenhouse gas emissions from the power plants that provide electricity to interstate markets is a possibility in a flexible, system-based approach. U.S. EPA should provide incentives to encourage states to work together in developing their section 111(d) plans to ensure that electricity imports and exports are properly accounted for, and opportunities to reduce emissions based on the efforts of partner states are recognized.

The Pacific Coast Action Plan on Climate and Energy, signed by the leaders of British Columbia, California, Oregon, and Washington, could be used as a model for states that have import/export implications. The Action Plan represents a commitment to a comprehensive and far-reaching strategic alignment to combat climate change and promote clean energy by harmonizing GHG reduction targets, expanding use of zero-emission vehicles, adopting low carbon fuel standards, leading the way to zero-net energy buildings, and supporting strong federal policy on GHG emissions, among other goals. Through the Action Plan, the leaders agreed that all four jurisdictions will account for the costs of carbon pollution and, where appropriate and feasible, link programs to create consistency and predictability across the region.

EPA’s guidelines should address treatment of imported and exported electricity by allowing states that implement demand-side programs to take credit for those programs.

We look forward to working with U.S. EPA to ensure that energy crossing state lines is properly accounted for. California State law requires it to take responsibility for carbon emissions from the electricity it uses regardless of the point of origin and accounts for emissions from both in-state generation and imported electricity. U.S. EPA should consider adopting a similar approach. Each state could be responsible for emissions associated with both in-state and imported power and would receive credit for reducing emissions through demand-side programs from both in-state and imported power.

In the Cap-and-Trade Regulation, California implements this approach by requiring first deliverers of electricity to hold a compliance obligation. For imported electricity, the electricity importer is the first deliverer. The electricity importer is identified in two ways: (1) as the Purchasing-Selling Entity on the for the North American Electric Reliability Corporation (NERC) E-Tag when electricity is delivered between balancing authority areas, and (2) as the facility operator or scheduling coordinator when electricity does not cross balancing authorities. The criteria that led ARB to use this regulatory approach and identification of the first deliverer was that the first deliverer must be identifiable, ARB must rely on verifiable data, ARB must have jurisdiction over the first
deliverer, and the approach must be able to be duplicated and integrated with a linked program in a regional or comprehensive GHG program. The regulation and resulting compliance obligation must facilitate an appropriate and timely price signal, minimize unintended market signals that would inhibit or interfere with market structure or operation, treat all first deliverers equally, whether they are in-state generators or electricity importers.

Use of the first deliverer meets the necessary criteria because the electricity importer is clearly identified as the facility operator or scheduling coordinator or identified through the NERC E-tag, and it uses reliable data through the Mandatory Reporting Regulation, U.S. EPA, and the U.S. Energy Information Administration. This also treats in-state and out-of-state deliverers equally. The resulting carbon price is applied based on the actual emissions in State and out-of-state for specified sources or default emissions factor for unspecified sources. California’s first-deliverer approach to treatment of electricity imports and exports is a model U.S. EPA could use as a national model.

Future Collaboration

California imports a significant proportion of its energy. In the future, the State may also export significant amounts of energy from renewable power sources at certain periods. These links tie us closely to our neighboring states and to the many states of the Western Energy Coordinating Council region. Due to the interconnectedness of the power grid, emission reductions occurring in one state may be the direct result of grid-level programs implemented in a neighboring state. In order to ensure that the state funding the program reducing emissions receives credit for the emission reductions resulting from them, importing states should be able to collaborate with exporting states to develop joint plans recognizing these relationships. This type of approach will necessitate states working closely together via both their air and energy agencies. We look forward to exploring carbon reduction opportunities throughout the regional grid with all these potential partners. The section 111(d) standards will help to support that cooperative effort.

IV. Relationship with the 111(b) Standard

While U.S. EPA is considering the 111(d) proposal, the agency is also currently setting performance standards for new sources of carbon pollution in the power sector under section 111(b) of the Clean Air Act. We will provide comments, if any, on the 111(b) standard at an appropriate time. For now, we emphasize that U.S. EPA should not view its technology analysis in the 111(b) context as constraining the emissions reductions it can secure from existing sources under the system-based approach, which the statute
invites for existing sources under 111(d). It is entirely possible that the 111(d) standard could have a stronger limit than the 111(b) standard for new sources due to the systems-based approach we have advocated.

V. Conclusions

We are committed to work closely with U.S. EPA to ensure that the section 111(d) power plant standards achieve significant national reductions, and to ensure that the actions that California facilities have taken and will be taking under AB 32 will be recognized and credited toward their 111(d) obligations.

We look forward to incorporating section 111(d) compliance into our efforts. California is coordinating its energy policy more effectively than ever before and our climate goals have steered us to look at the electricity system in an integrated fashion. As such, we advocate for a flexible, system-wide approach built on being more efficient and more innovative to motivate cost-effective and meaningful carbon reductions from the electric power sector.

Ultimately, air agencies will need to translate federal regulatory text into section 111(d) state plans within 12 months of U.S. EPA’s finalization of the guidelines. We suggest that U.S. EPA share draft preamble and regulatory text with state and local air agencies prior to publication of the June 2014 proposal so potential issues and solutions can be developed prior to publication. We also suggest that U.S. EPA use the June 2014 proposal to solicit information from states needed to help finalize the guidelines by June 2015, to help states get a running start on developing state plans by June 2016.

We look forward to continued partnership and progress reducing GHG emissions as U.S. EPA formulates the 111(d) guidelines. Upon request we will provide additional details regarding the concepts and programs outlined herein. If you have any questions, please contact Mr. Richard W. Corey, Executive Officer, at (916) 445-4383.

Sincerely,

Mary D. Nichols
Chairman

cc: See next page.
cc: Mr. Stephen Berberich  
Chief Executive Officer  
California Independent System Operator  
250 Outcropping Way  
Folsom, California 95630

Mr. Jared Blumenfeld  
Regional Administrator  
Region 9  
U.S. Environmental Protection Agency  
75 Hawthorne Street  
San Francisco, California 94105

Mr. Jack Broadbent  
Air Pollution Control Officer  
Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, California 94109

Mr. Larry Greene  
Air Pollution Control Officer  
Sacramento Metropolitan Air Quality Management District  
777 12th Street, 3rd Floor  
Sacramento, California 95814

Ms. Barbara Lee  
Air Pollution Control Officer  
Northern Sonoma County Air District  
150 Matheson Street  
Healdsburg, California 95448

Ms. Janet McCabe  
Acting Assistant Administrator  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Continued next page.
cc: (continued)

Mr. Robert Oglesby
California Energy Commission
1516 Ninth Street, MS-29
Sacramento, California 95814-5512

Mr. Michael Peevey, President
California Public Utility Commission
505 Van Ness Avenue
San Francisco, California 94102

Mr. Dennis Peters
California Independent System Operator
250 Outcropping Way
Folsom, California 95630

Mr. Brian Turner
Deputy Executive Director
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

Dr. Barry Wallerstein
Air Pollution Control Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Mr. Dave Warner
Deputy Air Pollution Control Officer
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, California 93726

Continued next page.
cc:  (continued)

Mr. Robert Weisenmiller, Chair
California Energy Commission
1516 Ninth Street, MS-29
Sacramento, California 95814-5512

Richard W. Corey
Executive Officer