

Arizona Asthma Coalition • Arizona Community Action Association • Arizona Interfaith Power and Light • Arizona Public Health Association • Chispa Arizona • Grand Canyon Trust • People Power Now • Physicians for Social Responsibility Arizona • Sierra Club – Grand Canyon Chapter • Sonoran Institute • SunHarvest Solar • Western Resource Advocates

January 5, 2016

Eric Massey, Air Quality Division Director
Arizona Department of Environmental Quality
1110 W Washington Street
Phoenix, Arizona 85007

RE: Environmental Stakeholders' Comments to ADEQ Regarding the Federal Clean Power Plan

Dear Mr. Massey:

The undersigned environmental, public health, and social justice organizations commend the Arizona Department of Environmental Quality (ADEQ) for its leadership in committing to address the threats posed by climate disruption, and to submit a timely plan for compliance with the Clean Power Plan (CPP). We also commend ADEQ for the fact that Arizona, due to the forward-thinking planning and leadership in public participation, has emerged as a leader in Clean Power Plan planning.

The following comments are designed to assist ADEQ in understanding our priorities as ADEQ prepares comments on the federal plan for January 21st, 2016. We appreciate your consideration of these comments, and look forward to continued engagement with ADEQ during both the planning process and implementation of Arizona's compliance strategy. The key points that we would like ADEQ to consider are the following:

- 1. The Clean Power Plan benefits the nation and Arizona – implementation of the Clean Power Plan will result in reduced climate disruption and improved public health and air quality.**
- 2. The State Plan should reduce carbon emissions expeditiously and maximize Clean Energy Alternatives, including renewables and energy efficiency.**
- 3. Effective planning depends on early and robust environmental justice outreach and analysis**
- 4. The marketplace should enable trading, while protecting against potential co-pollutant hot spots.**
- 5. Adopting the New Source Complement as part of a mass-based plan provides more certain environmental benefits.**
- 6. Early submittal and long-term planning provide benefits for numerous entities**

1. The Clean Power Plan Benefits the Nation and Arizona

A. *Future changes in Arizona's climate will be driven by the amount of greenhouse gases emitted to the atmosphere.*

Like much of the Southwest, Arizona's climate is changing in ways that can be attributed, at least in part, to human-caused emissions of greenhouse gases.¹ The 2000-2009 period registered annual temperatures warmer than any decade of the 20th century.² Since 2010, temperatures have continued to rise.³ Multiple regional climate models show that the Southwest will likely experience some of the greatest climate change into the mid and late 21st century compared to other regions of the United States.⁴ Surface temperatures across the Southwest are projected to continue to increase 0.6 to 2 °C (1 to 4 °F) by 2021-2050, 0.6 to 3 °C (1 to 6°F) by 2041-2070, and 1 to 5 °C (2 to 9 °F) by 2070-2099 (ranges depend on specific climate models.)⁵ Inland areas of the Southwest, including the Colorado Plateau, will likely experience the upper end of these ranges with summer temperatures projected to increase by 2.5 °C (4.5 °F) by 2050 and 4.0 °C (7.4 °F) by 2090. Winter temperatures are projected to increase 2.5 °C (4.5 °F) by 2050 and 3.0 °C (5.4 °F) by 2090.⁶ Winter cold snaps are projected to become less frequent, though not necessarily less severe.⁷ Higher temperatures will lead to increased evaporation and less surface moisture which will likely amplify drought conditions.⁸ Snowpack and related hydrologic processes will also be impacted (see below), particularly in the low to middle elevations of the southern Colorado Plateau.⁹ As a result, a significant drying trend is projected to continue for the region, leading to increasing likelihood of unprecedented multi-decadal droughts after 2050.¹⁰

¹ Overpeck, J., G. Garfin, A. Jardine, D. E. Busch, D. Cayan, M. Dettinger, E. Fleishman, A. Gershunov, G. MacDonald, K. T. Redmond, W. R. Travis, and B. Udall. 2013. "Summary for Decision Makers." In *Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, edited by G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy, 1–20. A report by the Southwest Climate Alliance. Washington, DC: Island Press.

² Garfin GM, Jardine A, Merideth R, et al. 2013b. *Assessment of Climate Change in the Southwest United States*. Southwest Climate Alliance.

³ IPCC. 2013. "Summary for Policymakers," In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*; Karl TR, Arguez A, Huang B, et al. 2015. *Possible artifacts of data biases in the recent global surface warming hiatus*. *Science* (80-) 348:1469–1472.

⁴ Diffenbaugh NS, Giorgi F, Pal JS. 2008. *Climate change hotspots in the United States*. *Geophys Res Lett* 35:1–5.

⁵ Garfin GM, Jardine A, Merideth R, et al. 2013. *Assessment of Climate Change in the Southwest United States*. Southwest Climate Alliance.

⁶ Garfin GM, Eischeid JK, Cole KL, et al. 2008. *Downscaled Climate Change Projections for the Southern Colorado Plateau: Variability and Implications for Vegetation Changes*; Garfin GM, Jardine A, Merideth R, et al. 2013. *Assessment of Climate Change in the Southwest United States: a Technical Report Prepared for the U.S. National Climate Assessment*. Island Press, Washington, D.C., USA.

⁷ *Id.*

⁸ Seager R, Ting M, Held I, et al. 2007. *Model projections of an imminent transition to a more arid climate in southwestern North America*. *Science* 316:1181–4.

⁹ Hoerling et al. 2013

¹⁰ Cook BI, Ault TR, Smerdon JE. 2015. *Unprecedented 21st century drought risk in the American Southwest and Central Plains*. 1–7.

While projections of change in seasonal precipitation for the Southwest vary across models, most models agree that more winter precipitation will occur as rain rather than snow.¹¹ There will likely be increases in precipitation variability regarding where and when precipitation occurs with an increase in intense but more infrequent storms.¹² With these shifts, declines in river flow, runoff, and soil moisture are expected to increase.¹³ Extreme droughts and floods will almost certainly become more frequent.¹⁴ A drying trend coupled with increased precipitation variability will substantially alter the current hydrologic cycle and further stress water resource availability.¹⁵

Importantly, “the magnitude and duration of future changes depends most on the amount of greenhouse gases emitted to the atmosphere, particularly carbon dioxide emitted by the burning of coal, oil, and natural gas.”¹⁶ For this reason, our coalition supports the Clean Power Plan and its aim of curbing carbon emissions. Indeed, the CPP is a critical component of protecting Arizona’s population and land, and allowing our region to remain livable for generations to come.

B. The Clean Power Plan Will Result in Improved Public Health and Air Quality For Arizona

The Clean Power Plan, while reducing carbon, also has the important co-benefits of reducing air pollution and improving public health. In addition to CO₂, power plants emit conventional and toxic pollutants that cause significant public health impacts and mar scenic views at national parks and wilderness areas.

Reducing air pollution from coal-fired power plants and replacing those power sources with Renewable Energy (RE) and Energy Efficiency (EE) alternatives will improve public health. For example, NO_x pollution emitted from coal-fired power plants is a precursor to ground

¹¹ North American Regional Climate Change Assessment Program. 2015. *Scatter Plots*, available at <http://www.narccap.ucar.edu/results/scatter/index.html>. Accessed 2 Aug 2015; McGinnis DL. 1997. *Estimating Climate-Change Impacts on Colorado Plateau Snowpack Using Downscaling Methods*. *Prof Geogr* 49:117–125.

¹² Garfin GM, Eischeid JK, Cole KL, et al. 2008. *Downscaled Climate Change Projections for the Southern Colorado Plateau: Variability and Implications for Vegetation Changes*; Garfin GM, Jardine A, Merideth R, et al. 2013a. *Assessment of Climate Change in the Southwest United States: a Technical Report Prepared for the U.S. National Climate Assessment*. Island Press, Washington, D.C., USA.; Seager R, Ting M, Held I, et al. 2007. *Model projections of an imminent transition to a more arid climate in southwestern North America*. *Science* 316:1181–4; Diffenbaugh NS, Giorgi F, Pal JS. 2008. *Climate change hotspots in the United States*. *Geophys Res Lett* 35:1–5.

¹³ Hughson DL, Busch DE, Davis S, et al. 2011. *Natural Resource Mitigation, Adaptation and Research Needs Related to Climate Change in the Great Basin and Mojave Desert : Workshop Summary Scientific Investigations Report 2011-5103*; Garfin GM, Jardine A, Merideth R, et al. 2013. *Assessment of Climate Change in the Southwest United States: a Technical Report Prepared for the U.S. National Climate Assessment*. Island Press, Washington, D.C., USA.

¹⁴ Cook BI, Ault TR, Smerdon JE. 2015. *Unprecedented 21st century drought risk in the American Southwest and Central Plains*. 1–7.

¹⁵ Archer SR, Predick KI. 2008. *Climate Change and Ecosystems of the Southwestern United States*. *Rangelands* 30:23–28; Hughson DL, Busch DE, Davis S, et al. 2011. *Natural Resource Mitigation, Adaptation and Research Needs Related to Climate Change in the Great Basin and Mojave Desert : Workshop Summary Scientific Investigations Report 2011 – 5103*.

¹⁶ Overpeck, J., G. Garfin, A. Jardine, D. E. Busch, D. Cayan, M. Dettinger, E. Fleishman, A. Gershunov, G. MacDonald, K. T. Redmond, W. R. Travis, and B. Udall. 2013. “Summary for Decision Makers,” pg. 5, *In Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, eds. G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy, A report by the Southwest Climate Alliance. Washington, DC: Island Press.

level ozone, which is associated with respiratory diseases, asthma attacks, and decreased lung function. In addition, NOx reacts with ammonia, moisture, and other compounds to form particulates that can cause and worsen respiratory diseases, aggravate heart disease, and lead to premature death.¹⁷ Each of these impacts will be lessened as part of the emissions reductions resulting from implementation of the Clean Power Plan in Arizona.

Moreover, the Clean Power Plan will benefit the crown jewel landscapes of Arizona. Arizona is home to many iconic national parks and wilderness areas, such as Grand Canyon, Saguaro, and Petrified Forest National Parks. Coal-fired power plants emit large amounts of air pollution that obscure the renowned scenic views at these Class I areas.¹⁸ The national parks and wilderness areas negatively impacted by coal-fired power plants' air pollution preserve the region's most inspiring landscapes, rare geological formations, and diverse flora and fauna.

Arizona's renowned national parks and wilderness areas are important components of the state's economy. In 2014, more than 4.7 million people visited the Grand Canyon, and this tourism supported more than 7,840 jobs and more than \$509 million in visitor spending.¹⁹ More than 836,000 people visited Petrified Forest last year, supporting more than 715 jobs and \$51 million in visitor spending.²⁰ Studies show that national park visitors prioritize enjoying beautiful scenery when visiting national parks and will visit parks less during hazy conditions.²¹ Implementing RE and EE as cornerstones of the Clean Power Plan in Arizona will improve visibility at Arizona's national parks and wilderness areas, and thereby increase revenue to the parks and surrounding communities.

2. The State Plan Should Reduce Carbon Emissions Expeditiously and Maximize Clean Energy Alternatives

We encourage ADEQ to develop a robust state compliance plan that provides a clear framework for utilities and power plant owners to reduce their carbon emissions. ADEQ should adopt this plan as expeditiously as possible, in order to enable utilities and stakeholders to begin planning for compliance. We encourage Arizona to enact additional programs that advance clean energy solutions, as well as to participate in the Clean Energy Incentive Program (CEIP), to the extent that its early action allowances benefit projects that are unlikely to occur without the incentive, such as those in low-income and tribal communities.

Low-income households face environmental hazards and many also struggle with energy affordability. The energy burden for an Arizona household in poverty is 14 percent, while a household in deep poverty faces an energy burden of 19 percent. The energy burden is the percentage of household income that must go to pay energy costs. The average household spends

¹⁷ EPA, Health – Nitrogen Dioxide, <http://www.epa.gov/air/nitrogenoxides/health.html> (last visited July 13, 2015).

¹⁸ See, e.g., Proposed BART Rule, 77 Fed. Reg. 42,834, 42,860 (July 20, 2012) (Cholla Units 2-4 collectively emit over 9,400 tons per year of NOx pollution).

¹⁹ Catherine Cullinane Thomas et al., Nat'l Park Serv., *2014 National Park Visitor Spending Effects* 19 (2015), available at <http://www.nature.nps.gov/socialscience/economics.cfm>.

²⁰ *Id.* at 23.

²¹ Abt Assocs. Inc., 2000. *Out of Sight: The Science and Economics of Visibility Impairment* 32–34, available at http://www.catf.us/resources/publications/files/Out_of_Sight2.pdf.

less than 3 percent of its income on energy.²² With poor families allocating five times the income percentage on energy, and families in deep poverty spending more than six times their income share on energy, a profound drain on their budgets is created. Low-income households that aren't able to receive energy assistance are more likely to have children with low-birth weights and acute hospitalizations.²³

To address situations like this, ADEQ should take every step to ensure that all communities experience the benefits of cleaner air, including those that have historically been overburdened by pollution, and that all communities also share in the benefits of the clean energy economy. Low-income families have disproportionately borne the burden of fossil fuel development. In Arizona, metropolitan Phoenix ranks in the top five cities for asthma-related deaths, and the asthma rate for low-income and Latino populations is twice that of the Phoenix population at large. An Arizona State University (ASU) study mapped the incidence of children's asthma hospitalization by zip code, finding that these areas "correspond with concentrations of industries with high emissions levels and concentrations of minority populations." Moreover, not all families in Arizona experience the same heat. In the last 40 years, the availability of foliage and vegetation has correlated with income in Phoenix. Not only does this affect the aesthetics of the neighborhoods, but it makes the summers even more unbearable, increasing the urban heat island effect. Areas with the highest temperatures tend to have a higher concentration of minority, low-income, and elderly populations.²⁴ These families already have disproportionately high energy burdens, and now the environment is forcing them to spend even more on their energy bills or face possible heat sickness. Every year nearly 2,000 people go to the emergency room in Arizona due to heat-related illness,²⁵ and weather-related deaths are 2-7 times more frequent in low-income areas than high-income areas.²⁶ The Clean Power Plan represents an opportunity to free vulnerable families from these dire consequences and empower them with real energy security.

A. Progress in reducing carbon emissions will depend on the amount of Energy Efficiency and Renewable Energy in the state plan

Energy efficiency and renewable energy must play a key role in successfully and cost-effectively reducing emissions. Energy efficiency is often the lowest cost resource and provides many consumer and environmental benefits (see details below).

²² *Lower residential energy use reduces home energy expenditures as share of household income*, U.S. Energy Information Administration, April 18, 2013. Accessed online December 30, 2015. <https://www.eia.gov/todayinenergy/detail.cfm?id=10891>

²³ Frank, D. A., N. B. Neault, A. Skalicky, J. T. Cook, J. D. Wilson, S. Levenson, A. F. Meyers, T. Heeren, D. B. Cutts, P. H. Casey, M. M. Black, and C. Berkowitz. "Heat or Eat: The Low Income Home Energy Assistance Program and Nutritional and Health Risks Among Children Less Than 3 Years of Age." *Pediatrics* (2006). Accessed online December 30, 2015. <http://www.ncbi.nlm.nih.gov/pubmed/17079530>

²⁴ Boudreau, Diane. "Too Hot to Handle." Arizona State University, 1 June 2009. Accessed online December 30, 2015. <https://researchmatters.asu.edu/stories/too-hot-handle-1199>

²⁵ Extreme Weather & Public Health, Arizona Department of Health Services, undated. Accessed online December 30, 2015. <http://www.azdhs.gov/preparedness/epidemiology-disease-control/extreme-weather/index.php#heat-illness>

²⁶ Berko, Jeffrey, Deborah D. Ingram, National Center for Health Statistics; Shubhayu Saha, National Center for Environmental Health; and Jennifer D. Parker, National Center for Health Statistics. "Deaths Attributed to Heat, Cold, and Other Weather Events in the United States, 2006–2010." *National Health Statistics Report* (2014). Accessed online December 30, 2015. <http://www.cdc.gov/nchs/data/nhsr/nhsr076.pdf>

In comments to EPA, ADEQ should recommend that EPA clearly state that energy efficiency programs can be used for compliance under both federal and state plans. Including EE as a means of earning ERCs under a rate-based federal plan will require that EPA administer robust Evaluation Monitoring & Verification (“EM&V”) for ERCs earned through energy efficiency programs, such that only legitimate energy savings receive credit. ADEQ should also request that EPA include model rules in the federal plan for energy efficiency programs and policies and provide guidance and methods that states could use to incentivize energy efficiency in a mass-based plan. Finally, ADEQ should request that EPA provide further guidance on how sources can take credit for energy efficiency policies and programs in a rate-based plan.

If ADEQ decides to pursue a rate-based compliance program, utilities will earn ERCs for implementing demand-side EE programs that result in new energy savings. Rigorous oversight will be essential to ensure measurement and verification standards are commensurate with EPA’s standards.

Whether ADEQ adopts a rate- or mass-based plan, maximizing investment in cost-effective energy efficiency represents the compliance pathway with the lowest cost. The more energy efficiency measures are deployed in Arizona, the more businesses and residential ratepayers will save on their electricity costs. This is because throughout the United States, including in Arizona, the cost of saving a kilowatt-hour (kWh) of electric energy has proven far lower than the cost of generating that same kWh. Most utilities and states are finding that the levelized cost of saving energy, defined as the total cost of a program divided by the lifetime energy savings associated with the program, is in the range of 2 to 5 cents/kWh.²⁷ Plainly, energy efficiency is a far lower cost resource for utilities to match supply and demand for electricity than fossil fuels.

The savings from energy efficiency programs take two forms. Program participants save directly as the efficiency measures they install or incorporate into their buildings reduce their consumption and therefore their energy bills. Moreover, when system-wide demand for electricity is reduced, fewer generating resources must operate. The most expensive generators are displaced first, which can lower the marginal price of electricity significantly.²⁸ Reduced demand also lowers the amount of capacity that must be acquired by the grid operator, and thus the price paid for that capacity. Efficiency and demand response can also obviate the need for costly transmission upgrades.

The best way to protect low-income electricity customers from possible increases in their electric bills as a result of CPP implementation is by maximizing investments in energy efficiency. By providing insulation, home envelope improvements, repairing and replacement of appliances, and other energy-savings measures, low-income households are able to realize significant savings on their energy bills. A study by Oak Ridge National Laboratory found that weatherization provided an annual savings of \$437 per year for weatherized homes.²⁹ Households that have received weatherization reported being much less likely to receive a disconnect notice and had less difficulty paying their energy bills, being able to avoid cutting

²⁷ ACEEE, 2014, Report Number U1402.

²⁸ Hibbard, Paul, Andrea Okie, and Susan Tierney. *EPA’s Clean Power Plan: States’ Tools for Reducing Costs and Increasing Benefits to Consumers*. (July 2014). Accessed online December 23, 2015. http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_epa_clean_power_plan_report.pdf

²⁹ *Weatherization Assistance Program Technical Memorandum Background Data and Statistics*, Oak Ridge National Laboratory, March 2010. Accessed on line December 30, 2015. http://weatherization.ornl.gov/pdfs/ORNL_TM-2010-66.pdf

back on food and prescriptions.³⁰ Indeed, the non-energy benefits of low-income energy efficiency are often more valuable than the energy saved.³¹ Recognizing both the value of the energy saved and the non-energy benefits conferred to the community, low-income energy efficiency must be a critical part of Arizona's compliance to the Clean Power Plan. This can suppress wholesale energy prices, and ensure that low-income customers have universal access to energy efficiency programs. Taking full advantage of this opportunity – including through the CEIP - will help ensure that the most economically vulnerable Arizonans will experience net benefits from CPP implementation.

Renewable energy should also serve as a cornerstone for compliance. Along with carbon savings, the renewable energy industry is creating thousands of new jobs each year. The wind-power industry employs over 80,000 workers in the U.S., a number that can double with the right policies.³² The U.S. solar industry employed 173,807 Americans as of November 2014, a 21.8% growth in employment since September 2013.³³ The geothermal industry supports over 35,000 jobs.³⁴ As renewable energy continues to expand, more jobs will be created. The opportunity to deploy technologies at scale allows companies to invest in large-scale manufacturing, shipping, assembly and other supply operations, all of which add a mix of jobs. Particularly with the high quality solar present in Arizona, our coalition strongly supports the build-out of renewable energy resources in low-conflict zones, especially areas that are already disturbed and where there are not sensitive natural and cultural resources. Indeed, states that adopt plans providing ample opportunities for using RE/EE to meet the emission targets will stimulate RE/EE projects that may yield significant economic benefits.

A report released this November by the Sonoran Institute concludes that large-scale solar and wind could help Arizona meet upwards of half of the state's greenhouse gas emission reduction targets under the CPP. (The study estimated approximately 5.3 million tons of CO₂ displaced annually.) The study finds that by drawing on existing solar and wind projects undergoing planning and permitting and tapping the state's potential for siting large-scale renewable generation facilities in a number of new locations, Arizona can generate at least 4,300 megawatts of new energy by 2030. The study uses a number of conservative development assumptions, so it likely underestimates the potential for large-scale solar and wind to help meet Arizona's CPP targets.³⁵

B. Progress in reducing carbon emissions will depend on Arizona's use of the Clean Energy Incentive Program

We strongly support the inclusion of the Clean Energy Incentive Program (CEIP) in the

³⁰ Tonn, Bruce. *Making Sense of Non-Energy Benefits: Results from the Weatherization Assistance Program*, 2013. Accessed online December 30, 2015.

https://www.iea.org/media/workshops/2013/energyproviders/Session1_4_Tonn_CanadaIEANEBs.pdf

³¹ Schweitzer, Martin, *Estimating The National Effects Of The U.S. Department Of Energy's Weatherization Assistance Program With State-Level Data: A Metaevaluation Using Studies From 1993 To 2005*, September 2005. Accessed online December 30, 2015. http://weatherization.ornl.gov/pdfs/ORNL_CON-493.pdf

³² U.S. Partnership for Renewable Energy Finance, *Renewable Energy Finance, Market & Policy Overview*, April 2014.

³³ The Solar Foundation, *National Solar Jobs Census*, 2014.

³⁴ Environmental and Energy Study Institute, *Fact Sheet: Jobs in Renewable Energy and Energy Efficiency*, 2015.

³⁵ The Sonoran Institute, *Gliding Toward a Clean Energy Future: Arizona Responds to the EPA's Clean Power Plan*, November 2015: http://www.sonoraninstitute.org/component/docman/cat_view/311-arizona-reports.htm.

federal plan, and ADEQ's participation in the CEIP, so long as the program is narrowly tailored to benefit projects that are unlikely to occur without the incentive, such as those in low-income and tribal communities. CEIP participation is important for many reasons, including the following two. However, each matching allowance issued by EPA represents permission for coal and gas plants regulated by the rule to release an additional ton of carbon dioxide pollution that would not otherwise be allowed by the rule. It is for this reason we suggest the narrow focus of the program.

From an environmental perspective, early reductions in carbon pollution are critical because they can have a larger impact on atmospheric carbon loading than later emissions reductions. Thus they provide can greater benefits in terms of climate stabilization. As in the current CEIP framework, any allowances awarded by the state during this time period must be borrowed from the state's pool of allowances for the 2022-24 compliance period.

From an economic justice perspective, we should do everything possible to ensure that low-income electricity customers have universal access to energy efficiency programs so that they can realize savings on their utility bills regardless of any changes to electric rates. Investments in low-income energy efficiency increase the ability of vulnerable families to pay rent, make ends meet, and can increase community pride through improvement in local housing stock, all valuable outcomes.³⁶ These programs can also benefit the community as a whole by creating green-collar jobs where they are needed most. Allowances from the compliance period (2022-2024) should be set aside to providers of verified low-income efficiency projects under the CEIP during the pre-compliance period between finalization of the state plan and 2022.

Under the CEIP program set forth in the final Clean Power Plan, for each verified MWh saved in 2020 and 2021, the energy efficiency provider operating in a low income community would be granted one Emission Rate Credit ("ERC") from the state and a matching ERC from EPA if the state adopts a rate-based program. Alternatively, under a mass-based program EPA will allocate an equivalent (to be determined) number of allowances. These ERCs or allowances could then be sold to regulated sources that need them for compliance, and the proceeds used to finance additional efficiency programs in low-income neighborhoods. As EPA has noted, the program must be implemented in such a way that the stringency of the state goal is maintained—in a mass-based program, early action allowances thus must be "borrowed" from the budget reflecting the state goal for the compliance period starting in 2022 and cannot be distributed again during the compliance period. EPA is still considering how to ensure that stringency is maintained in the context of rate-based plans.³⁷

By accepting matching credits or allowances from EPA that are above and beyond the state's carbon pollution cap, participation in the CEIP will allow more carbon pollution. It is therefore important to ensure that the program truly incentivizes additional carbon-reducing projects and not reward "business as usual" projects that the market will develop anyway. To this end, and to ensure that no community is left out of Arizona's clean energy transition, we recommend that the program be designed to emphasize rewards for development of low-income energy efficiency and renewable energy projects that benefit low-income communities. The market is not currently producing these types of projects at scale. A well-designed CEIP would

³⁶ Schweitzer, Martin and Bruce Tom, *Nonenergy Benefits from the Weatherization Assistance Program: A Summary of Findings from the Recent Literature*, Oak Ridge National Laboratory, 2002. Accessed online December 30, 2015. http://weatherization.ornl.gov/pdfs/ORNL_CON-484.pdf

³⁷ Sierra Club has submitted comments to EPA on this issue in its December 15, 2015 comments on the CEIP, and is continuing to consider the best approach.

produce early carbon dioxide reductions that would not have otherwise occurred. It would also benefit low-income consumers by lowering their energy bills and putting more money in their pockets for other important needs.

C. Maximizing Allowances for Clean Energy Resources

As a general concept, we urge ADEQ to maximize incentives for renewable energy and energy efficiency. We recognize that, if the state adopts a mass-based plan, ADEQ will face important policy decisions as to how to distribute allowances. We recommend that Arizona conduct an auction (such as via California's AB32 program or RGGI in the Northeast). The distribution can have important consequences for renewable energy and energy efficiency providers. We recommend any distribution method provide incentives for clean energy resources, either through a direct allocation or through set asides.

The set-aside of allowances is an important, explicit incentive for clean energy resources. In the proposed federal plan and model state rules, EPA has outlined one allocation structure that distributes allowances to Electric Generating Units (EGUs) based on their generation over the 2010 – 2012 period and creates set-asides for renewable energy and increased generation from natural gas plants. EPA has requested comment in the model federal plan on whether the renewable energy set-aside should remain at five percent, as proposed, or be adjusted.³⁸ The set-aside of allowances is an important, explicit incentive for clean energy resources and allows the state to direct value to zero-carbon resources rather than rewarding carbon polluters with free allowances. We recommend EPA maintain the set-aside, and consider including energy efficiency providers as eligible for allowances from the set-aside. For states such as Arizona with significant renewable potential, increasing the set-aside to a larger percentage of the state's allowances would provide a most substantial incentive to renewable energy providers and best prevent "leakage" of carbon dioxide emissions to new sources not covered by the existing source rule.³⁹ Specifically, we ask Arizona to urge EPA to reserve at least 10 percent of allowances in order to incentivize clean energy investment in states that receive a federal plan.

In the proposed federal plan, EPA also requests comment on limiting eligibility for renewable energy set-aside allowances to project providers that are also the owners or operators of EGUs.⁴⁰ We strongly oppose this proposed potential condition because it excludes third party entities – such as non-profits focused on advancing renewable energy or tribal nations without EGUs – from benefiting from the CPP if they choose to participate in renewable energy activities. We see little benefit and significant harm in this proposed potential condition and request ADEQ to urge EPA to abandon this idea in the final federal plan. Importantly, even if EPA maintains this provision for states that receive a federal plan, Arizona may still choose to allocate allowances in a manner that works best for the state, including potential third party providers.

EPA is also proposing that, for states receiving a federal plan, eligible RE projects must be located in the mass-based state for which the set-aside has been designated and invites

³⁸ Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; Proposed Rule, 80 Fed. Reg 64966, 65022 (October 23, 2015).

³⁹ Under EPA's definition "leakage" occurs where sources shift CO₂ emissions from regulated to non-regulated sources such that regulated sources comply with emission limits, but CO₂ emissions to atmosphere are not reduced as intended.

⁴⁰ See 80 Fed. Reg at 65024.

comment on whether capacity outside the state should be recognized. Due to the regional nature of the electricity grid, maximizing renewable energy development, wherever it is located, will help prevent leakage of carbon dioxide emissions to unregulated fossil fuel generation. We therefore urge EPA to recognize renewable energy development outside of the state for which the set-aside has been designated, such as Tribal nations without EGUs, to be eligible to apply for set-aside allowances. If the renewable developer outside the state can demonstrate that the energy is being sold to, or is otherwise reducing carbon dioxide emissions from, the state with the set-aside, it should be eligible to receive allowances from the set-aside. This structure would allow renewable developers on Tribal lands to receive incentives from states that have implementation plans in place.

In its proposal for the rate-based federal plan and model rule, EPA also requests comment on allocating a portion of the renewable energy set aside to projects that benefit low-income communities.⁴¹ We support this proposed provision and encourage EPA to allocate a portion of the renewable energy set-aside to benefit low-income communities in the final rule. We particularly support a provision that results in lower utility costs for low-income rate-payers.

As for Arizona's own plan, the state will have numerous options for distributing allowances. Some allocation structures provide greater incentives to renewable energy and energy efficiency than others, as the options below demonstrate.

1. **Auction allowances.** We strongly support this option. Requiring regulated power plants to pay for the permission to pollute, rather than receiving a free distribution of allowances, would provide the best incentive for the plants to reduce their carbon pollution and invest in efficiency and renewables. It would also provide the state with funding to undertake important programs. In states or regions that have conducted auctions, proceeds from the auctions are used to fund energy efficiency, advance renewable energy, and provide rate relief to vulnerable and low-income customers.⁴²
2. **Distribute allowances based on annual generation, or output.** Under this system of allocations, Arizona could provide allowances to generators every 1 – 3 years, based on their expected, or historic, level of generation. “Generators” need not be restricted to EGUs, but could include EGUs *and* renewable energy generators and energy efficiency providers. Through this method, clean energy resource providers are rewarded with allowances directly, and gain an explicit economic incentive to provide clean energy in the market. Utilities that own or contract with clean energy resources – provided those contracts include any allowances earned by the clean energy provider – are rewarded for their investments. In addition to providing direct incentives to clean energy providers, this allocation method may provide sufficient demonstration (as required by EPA) that the state is not allowing “leakage” from existing EGUs to new EGUs (should the state not adopt the new source complement). It is important, however, that a strong incentive to curtail output from fossil

⁴¹ Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; Proposed Rule, 80 Fed. Reg 65024 (October 23, 2015).

⁴² The Regional Greenhouse Gas Initiative: Performance To-Date and the Path Ahead, May 2014. Accessed online December 30, 2015.

http://acadiacenter.org/wp-content/uploads/2014/05/AcadiaCenter_RGGI_Report_140523_Final3.pdf

generators be preserved in any output-based generation method. Using historic levels for allocation purposes can assist with that.

3. **Distribute allowances based on historic emissions.** As noted below, the proposed federal plan would allocate allowances to EGUs based on their generation over the 2010 – 2012 period. We do not recommend this historic emissions approach for Arizona’s plan. While owners of EGUs will see an indirect incentive to invest in renewable energy and energy efficiency in order to reduce emissions at their EGUs, clean energy resources would not see a direct incentive unless set-asides are provided. Historic emissions allocation can provide a strong incentive to curtail generation, but may not adequately reward clean energy alternatives.

To summarize the use of allowances under a mass-based program, Arizona can structure its distribution in such a way as to provide important incentives to clean energy resources. These are just a few of many potential allocation structures. We encourage ADEQ to pursue policies that provide clear incentives for clean energy resources, including energy efficiency, and policies that protect low income customers, regardless of the features in EPA’s final federal plan.

D. Define “commence construction” in a manner that it does not create a barrier for clean energy development and deployment.

EPA has requested comments for defining what “commence construction” means for eligible renewable energy projects and “commence operations” of energy efficiency projects. We request that ADEQ respond to EPA’s request and suggest that the following be included in ADEQ’s deliberations as it develops its comments:

1. It is important that these definitions be clear enough to ensure that projects will provide the benefits that make them eligible under either the CEIP or the federal plan, while minimizing the possibility that a developer will not undertake a project or program due to an unnecessary lag between signing a contract and completing construction.
2. An example to suggest to EPA may be the PSD regs (40 CFR 52.21(b)), which state that commencing construction is when: a) the owner or operator has all necessary preconstruction approvals or permits and either (b) has begun, or caused to begin a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or (c) entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

3. Effective Planning Depends on Early and Robust Environmental Justice Outreach and Analysis

As noted above in the context of trading policies, it is critical that residents of communities that are disparately affected by the negative impacts of pollution related to fossil fuel energy generation become key partners in crafting policies that will affect them. The CPP requires states to meaningfully involve overburdened communities in the State Implementation Plan (SIP) prior to the initial plan submittal and throughout. ADEQ must conduct outreach to community groups in order to collect additional input and ensure that the plan addresses concerns and does not harm vulnerable communities. Specifically, we ask that ADEQ:

- Conduct outreach to specific representatives and organizations focused on environmental justice and environmental justice communities, low-income communities, and other vulnerable populations;
- Encourage and facilitate participation in the plan development, and include feedback prior to initial plan submittal; provide background information on the initial and final plans in the appropriate languages, and to provide translators at the public hearings.
- Solicit input from stakeholders on state environmental justice analyses specific to the distribution of participating generation sources, location of CEIP projects, and customer bill impacts;
- Provide enhanced opportunities to comment on the initial plan and respond to those comments; and.
- Address concerns and issues raised during the outreach to environmental justice communities in the state plan.

Prior to plan submittal, ADEQ should build on EPA's proximity analysis and attempt to identify any specific communities that are either already experiencing disproportionate pollution impacts from one or more power plants, or which may experience disproportionate pollution impacts as a result of plan implementation.

4. The Marketplace Should Enable Trading, while protecting against potential co-pollutant hot spots.

We support the idea that the marketplace should enable robust trading. Indeed, utilities in Arizona have already recognized the benefit of inter-state cooperation as indicated by APS's decision to join the Energy Imbalance Market (EIM) in 2016. There are numerous benefits for Arizona to trade with other states and tribes in the region. At this early stage, given California's use of a mass-based system, it appears that a mass-based approach for Arizona's implementation plan would provide a greater opportunity for trading among states and tribes. For the reasons discussed below, however, we can only support a mass-based approach if the new source complement is included. Should Arizona pursue a rate-based approach, we believe there are ways to implement a rate-based plan that preserve EPA's intended emissions outcomes, and also maintain the benefits of trading and markets. We look forward to working with ADEQ to develop either type of plan.⁴³

⁴³The state should conduct an analysis of the likely consequences of adopting each type of plan and make public its findings, with an opportunity for comment. At first glance, it appears that the rate-based standard may be more likely to drive a clean energy transition. When averaged across all the state's sources that must comply with the Clean Power Plan, the rate-based standard for Arizona requires an approximately 35% reduction from the fleet's

Trading of carbon allowances or credits, both intra- and inter-state, lowers generators' cost of compliance with carbon regulations by providing flexibility for sources to reduce carbon emissions where it is most cost-effective. We support the adoption of a trading-ready program that would allow for multi-state trading, but advocate for ADEQ to ensure reductions of co-pollutants in already overburdened communities. Specifically, as part of its stakeholder process, we encourage ADEQ to identify complementary policies or programs that are essential to protect these communities from continuing to bear the burden of pollution. The impacts of pollution on low-income communities and communities of color further underscores the importance of developing clean energy and efficiency programs to serve those communities. In the state planning process, ADEQ should evaluate whether there is a risk of increased generation and pollution in Arizona, or certain Arizona communities, as a result of interstate trading, provide this information to the public, and design the plan to avoid this result.

It should be noted, however, the unconditional trading of pollution credits or allowances can lead to pollution "hotspots," which tend to be disproportionately close to low-income communities and communities of color. Trading of carbon allowances is different because the impacts of carbon pollution are distributed globally rather than locally or regionally, so there is no risk of carbon hotspots. Nonetheless, the largest sources of carbon dioxide, coal-fired power plants, emit large amounts of unhealthy co-pollutants that are correlated to the amount of carbon dioxide they emit and that do have localized impacts. As the CPP shifts generation from coal to less carbon-intensive sources, the overall emissions of co-pollutants will decrease, but the pollution reduction benefits may not be evenly distributed. It is possible that some of these power plants will use trading to avoid cutting carbon pollution, thus continuing to expose nearby communities to co-pollutants. It is also possible that trading could enable some power plants to increase their generation and co-pollutants. For example, this could happen if a large power plant retires and other regional power plants are dispatched at higher levels to meet electricity demand.

5. Adopting the New Source Complement as Part of a Mass-based Plan Provides More Certain Environmental Benefits

If ADEQ adopts a mass-based plan, it is essential that the state include the new source complement. This is the best option to meet EPA's requirement to address leakage, for several reasons. Most importantly, it provides greater certainty of Arizona's long-term emissions, without stifling growth. By providing an overall emissions budget, it requires utilities to invest in energy efficiency and clean energy to reduce emissions from regulated sources, rather than allowing them to escape regulation of their emissions by instead investing in new gas plants. (In other words, it prevents leakage.) A new source complement will not stifle growth because EPA's calculation of emissions under the existing source standard already allows for significant growth in generation from existing units. Over the period 2012 to 2030, EPA's calculation assumes a regional growth in electricity demand of approximately 20%, or just over 1% per year.

Adopting the new source complement likely provides other benefits beyond preventing leakage, such as administrative simplicity and consistent market signals to existing and new gas

2012 average rate (CO₂/Mwh), whereas the mass-based target for 2030 requires a 25% reduction from the fleet's total carbon dioxide emissions. Additional analysis is required to evaluate the environmental and economic impacts likely to result from each type of plan.

plants. By providing an overall emissions budget, it will help encourage utilities to invest in energy efficiency, rather than potential new gas plants. Because EPA has indicated that adoption of a mass-based program without a new source complement will require states to demonstrate that there is no leakage from existing to new sources, Arizona's emission reduction obligation will not diminish without the new source complement, but will be much more administratively difficult. It is important to encourage utilities to invest in energy efficiency rather than new gas plants that could become future stranded assets.

6. Early Submittal and Long-Term Planning Provide Benefits for Numerous Entities

The early submittal of a state plan would provide certainty for businesses and utilities – particularly in the Integrated Resource Planning (IRP) process. For this reason, and recognizing and respecting the state's limited resources, we encourage ADEQ to move as quickly as possible to prepare a final plan prior to 2018. Early submittal of a state plan would also provide a greater opportunity for eligible resources to participate in the CEIP.⁴⁴ After all, EPA's goal of extending the first compliance obligation from 2020 to 2022 was to provide time for planning. If the plan is not submitted until September of 2018, utilities and other interested parties gain no benefit from EPA's extended compliance timeline. In addition, early development of a state plan will allow more resources to qualify for early action credits or allowances, because those credits or allowances can only be awarded to projects that are installed after a state's plan is submitted,

Finally, through developing a state plan, ADEQ and stakeholders will likely identify key state policies that enable Arizona to comply with the Clean Power Plan through 2031 and beyond. These policies – such as renewable energy and the energy efficiency standards – are critical complementary policies. Because these Arizona standards terminate in 2020 and 2025 respectively, we encourage ADEQ to collaborate with the Arizona Corporation Commission, legislators, and stakeholders, where necessary, to maintain and expand these policies to support CPP compliance. ADEQ should think beyond the CPP timeline and explore ways that CPP policies can advance renewable energy and integrate renewables into the grid through 2040.

Summary

To summarize our comments, we encourage ADEQ to develop a state compliance plan that provides a clear framework for utilities and independent power plant owners to reduce their carbon emissions. ADEQ should adopt this plan as expeditiously as possible, in order to enable utilities and stakeholders to begin planning for compliance. We encourage Arizona to participate in the Clean Energy Incentive Program (CEIP) and other mechanisms that advance clean energy solutions, particularly because of the benefits it could provide to so many with low incomes. Furthermore, ADEQ should take every step to ensure that all communities experience the benefits of cleaner air, including those that have historically been overburdened by pollution, and that all communities also share in the benefits of the clean energy economy.

⁴⁴ Projects only become eligible for the CEIP if they commence construction, in the case of RE, or commence operation, in the case of EE, after the submission of a final state plan, or after September 6, 2018 for states receiving a federal plan, whichever is earlier.

We appreciate the opportunity to provide our initial thoughts on the key priorities for Arizona. We look forward to continued engagement in the public process. Thank you for your consideration.

Sincerely,



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