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April 5, 2017

Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Comments on 2030 Target Draft Scoping Plan Update

Dear Ms. Sahota,

On behalf of our 78,000 supporters in the Golden State, including 2,700 scientific experts, the Union of Concerned Scientists (UCS) is pleased to provide our comments on the 2030 Target Draft Scoping Plan Update (or Draft Plan). We previously submitted comments on the Discussion Draft for the 2030 Scoping Plan Update in December 2016. Our comments build upon that letter, and we have attached a copy for reference.

We thank you for the hard work and commitment of you and your staff to help design an effective, far-sighted approach to the critical task of reducing greenhouse gas emissions in California. We appreciate that the full Draft Plan reflects some of the recommendations in our December 2016 letter, and we believe there are still ways the plan can and should be further strengthened. Our comments in this letter focus on the Proposed Scenario and sector strategies and make specific recommendations based on our review of the January 20, 2017 Scoping Plan document.

The Proposed Scenario

California will need to consider all the available emission reduction tools in order to reach its greenhouse gas emission reduction goals for 2030 and 2050, including carbon pricing and sector-based policies like the Renewable Portfolio Standard, Low Carbon Fuel Standard, energy efficiency standards, Zero Emission Vehicle program, and the Sustainable Freight Action Plan, among others. As we explained in the attached December 2016 letter, integrating sector-specific policies and a carbon price can help bring down emissions more effectively and at a lower cost.

UCS therefore agrees with the Draft Plan's approach of relying on a suite of sector-specific emission reduction policies and a post-2020 modified cap-and-trade program to achieve the state's climate goals. We, however, believe it could be strengthened in several key ways.

The "Proposed Scoping Plan Scenario" (Proposed Scenario) relies on the known commitments, defined as already underway or required, plus an extension of cap-and-trade beyond 2020 and a new refinery efficiency measure that results in 20 percent reduction in emissions at refineries by 2030. The Proposed Scenario assumes that cap-and-trade would be responsible for 191 MMTCO2e cumulatively between

2021-2030. However, the amount of emissions reductions that cap-and-trade would need to backfill could be significantly larger if the sector-specific strategies underperform (342 MMTCO2e cumulatively).

UCS recommends that the Draft Scoping Plan Proposed Scenario increase the amount of emission reductions attributed to sector-specific strategies beyond the levels of several known commitments and include additional sector-specific policies. They include: a stronger Low Carbon Fuel Standard, a much more ambitious target for zero emissions freight vehicles and equipment, higher levels of renewable energy investments,[1] and a program that accelerates fuel switching from natural gas to electricity in residential and commercial buildings. Including these feasible and achievable sector-specific policies will help serve as a hedge against uncertainty.

In addition**, the existing cap-and-trade program must be modified to improve outcomes in communities that are burdened by air pollution and most vulnerable to its effects,** in line with the direction of AB 197. Any carbon pricing program should be designed in a way that minimizes the disproportionate impacts felt by these communities. On page 40, the Draft Plan lists several potential changes to the cap-and-trade program currently under evaluation by ARB (reducing the offset usage limit; redesigning the allocation strategy to reduce free allocation; reducing allocation for entities with increasing criteria or toxics emissions). We support these modifications and look forward to a robust discussion of these and other ideas as ARB amends the program post-2020 and the Legislature considers codifying an extension of cap-and-trade that will also address concerns raised by disadvantaged communities.

We also agree with the need to directly reduce emissions from refineries within California. Along with hydrogen production, they constitute the largest individual industrial source of GHG emissions, and release criteria pollutants and toxic air contaminants as well.[2] While UCS has not conducted an independent analysis of the refinery measure, we will be interested in studying the recommendations of ARB and stakeholders on this topic and expect the specific implementation details to be more thoroughly worked out in the regulatory process.

Known Commitments and Other Measures

The Discussion Draft includes a common set of strategies, or known commitments, across the Proposed Scenario and four alternative scenarios. They include measures from the energy and transportation sectors, as well as implementation of the Short Lived Climate Pollutant Strategy. Because the transportation, industrial, and electric power sectors combined accounted for more than three-quarters of the state's heat-trapping emissions in 2014, their share should be reflected in the selection of policies for the Scoping Plan Update. Below we provide comments on the specific known commitments described in the Discussion Draft, and highlight opportunities to strengthen specific strategies to secure additional reductions moving forward.

Energy Sector

UCS is pleased to see that ARB has included efforts to evaluate the benefits of a regional energy market and encourage the development of energy storage into its *Ongoing and Proposed Measures* for the electricity sector. We highlight below several remaining areas that could be strengthened for the Final 2030 Scoping Plan. Given that the energy sector, which includes the state's electricity and natural gas infrastructure, represents nearly 30 percent of California's GHG emissions, it is critical that these strategies put the state on a path to decarbonization and quickly.

[1] This does not necessarily mean increasing the RPS across the board, which would apply to all load serving entities.
[2] https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_trends_00-14_20160617.pdf

Renewable Electricity

As we describe in the December 2016 letter, California has made tremendous strides in renewable energy generation largely due to the successful implementation of the Renewables Portfolio Standard (RPS). In fact, many of the state's major electricity suppliers are well on their way to meeting these requirements, and over the past four years, in-state generation capacity of renewable energy has more than doubled.[3] **UCS believes that the ARB should be open to considering additional renewable procurement beyond what's required by the current RPS if, down the road, emission reductions expected by other strategies focused on the electricity sector do not materialize**. An increase in renewable electricity beyond the 50 percent identified in the Proposed Scenario is possible, and would not necessarily need to be achieved by increasing the RPS. To this end, UCS suggests that ARB modify its *Ongoing and Proposed Measures* for the electricity sector in the following way:

- On page 90, update the current language to read "Per SB 350, increase the RPS to ***at least*** 50 percent of retail sales by 2030 and ensure grid reliability."[4]

Renewable energy procurement will be a key strategy to ensure that future load growth is met with carbon-free generation sources instead of natural gas, including additional load associated with the increased frequency of extreme heat events due to climate change. This benefit will be especially important as electricity load grows to accommodate electric vehicles. Meeting the 50 percent RPS – and even exceeding it – is achievable and feasible and will be important for maximizing the emission-reducing potential of switching from gasoline-powered vehicles to electric as more EVs are brought onto the grid.

Modeling Assumptions

The 2030 Target Scoping Plan Update should emphasize the importance of making investments in energy efficiency programs that target savings during the "evening net load ramp" timeframe, the successful deployment of flexible load programs including a transition to time-of-use rates, and enabling renewables to provide grid services as critical to the electricity sector delivering on its emission reductions. UCS therefore suggests that ARB add the following to its *Ongoing and Proposed Measures* for the electricity sector:

- On page 90, add the following language: "Encourage the deployment of GHG-free technologies including targeted energy efficiency, flexible load, and renewables, to provide essential grid reliability services and reduce reliance on fossil-based resources."

Building Electrification

Given the importance of building electrification as a necessary emission reduction strategy, **UCS believes ARB should accelerate the strategy of reducing fossil natural gas usage in residential and commercial buildings in the Draft Scoping Plan and separate this strategy from increasing the use of renewable natural gas, or biomethane, in the residential and commercial sectors.** Our rationale for the latter point is described in detail in the "Biomethane" section below. Specifically, UCS suggests that ARB move and modify the following *Potential Additional Actions* into the *Ongoing and Proposed Measures* for the electricity sector:

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[3] California Energy Commission. California's 2030 Climate Commitment: Renewable Resources for Half of the State's Electricity by 2030. Online at: https://www.arb.ca.gov/html/fact_sheets/2030_renewables.pdf

[4] New language is in bold italic.

- On page 92, update current language to read: "Decrease usage of fossil natural gas through a combination of energy efficiency programs, ***and*** fuel switching, ~~and the development and use of RNG in the residential, commercial, and industrial sectors.~~" and move to page 90.

We believe that the Final Scenario should assume that the state encourage the deployment of heat pumps, with a focus on new buildings (commercial and residential). Alternative 1 assumes that natural gas or diesel-fired space heaters and electric heat pumps from 2013 or older are replaced with electric heat pumps at a rate of 6 percent per year, and the proportion of new sales that are electric heat pumps increased from either 0 to 75 percent or 0 to 100 percent. ARB may be assuming that some of this transition would happen as a result of the cap-and-trade program, but UCS does not believe that cap-and-trade would send an adequate incentive for building owners to switch from one technology to another. At minimum, UCS suggests that ARB move the following *Potential Additional Actions* into the *Ongoing and Proposed Measures* for the electricity sector:

- Move the following language from page 92 to page 90: "Accelerate the deployment of heat pumps."

Biomethane

UCS generally supports the state's efforts to displace fossil natural gas with biomethane, or renewable natural gas, as long as doing so contributes to an overall decrease in natural gas use statewide, and the necessary precautions are taken to address potential methane leakage issues. **We believe that directing a large portion of biomethane towards residential and commercial buildings or in heavy-duty vehicle applications such as transit buses and delivery trucks, when clean electricity alternatives exist, is not the best use of what will be a limited supply, and its use in heavy-duty vehicles should be reserved only for vehicle applications that are not able to electrify.** The industrial sector, however, is very reliant on natural gas with few cost-effective options for decarbonization. Therefore, UCS recommends ARB explore use of this gas is in the industrial sector. The following change should be made in the Final Scoping Plan, as reflected both below and in the previous section ("Building Electrification"):

- On page 92, update existing language to read: "Decrease usage of fossil natural gas through a combination of energy efficiency programs, ***and*** fuel switching, ~~and the development and use of RNG in the residential, commercial, and industrial sectors."~~

Transportation Sector

The transportation sector is the largest sector of emissions, so efforts to reduce transportation-related pollution will be critical to addressing air quality, climate, and oil reduction goals in California. After reviewing the Draft Scoping Plan, many of our previous comments from our December 2016 letter remain regarding greenhouse gas and zero emission vehicle standards, autonomous vehicles, low carbon fuels, cleaner freight and heavy-duty vehicles, and natural gas and biomethane. We recommend ARB address them in order to ensure a robust 2030 Scoping Plan.

During the March 28, 2017 Scoping Plan workshop, ARB staff shared that their analyses showed that reductions from mobile sources were driving the greenhouse gas emissions reductions. It is therefore crucial that the Final Scoping Plan include robust policies to ensure the reductions from this sector are achieved.

Greenhouse Gas and Zero Emission Vehicle Standards

As we discussed in the attached December 2016 comment letter, the greenhouse gas (GHG) standards for light duty vehicles play an essential role in ensuring that gasoline and diesel-powered vehicles are as efficient as possible. **Since the Draft Plan assumes that most vehicles sold in 2030 will still use petroleum-based fuels, it will be critical to not only maintain the current fleet GHG standards through 2025, but also be strengthened for the 2025-2030 period.** UCS supports the goals for the ZEV program as outlined in the Proposed Scenario, including 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030, but the state must take additional actions beyond current policies to achieve them. **We believe that, prior to 2025, the state should implement additional policies and measures to achieve at least 15% ZEV by 2025** since this will very likely require vehicle manufacturers to substantially over-comply with the ZEV regulation. These policies should include a sustainable, reliable, and equitable incentive program, as well as increased refueling infrastructure and programs to increase consumer awareness of clean vehicle options.

Implementing ZEV requirements for model year 2026 and later vehicles is a critical policy to build on current success. But it is important that the stringency of these standards is consistent with the volume of ZEV vehicles needed by 2030 and not rely on over compliance by manufacturers to meet California's climate goals. UCS therefore recommends the following updates:

- On page ES-4, modify the bullet points under "Mobile Source Strategy (Cleaner Fuels and Technology scenario) to include "Maintaining existing GHG standards ***through 2025*** for light- and heavy-duty vehicles. ***Establish post-2025 Advanced Clean Car standards*** to put 4.2 million ZEVs on the roads."

- In table V-1 on page 137, add a bullet point under "Implement Mobile Source Strategy (Cleaner Technology and Fuels)": ***"Revise post-2025 Advanced Clean Car standard consistent with Mobile Source Strategy ZEV and fleet GHG targets."***

- For table II-1 on page 34, designate SB350 as "known commitment" with asterisk. Use another symbol to designate items such as the Mobile Source Plan as a "planned target" or other language that reflects an explicit goal that does not yet have enabling legislation and/or regulation.

Autonomous Vehicle Technologies

While the Draft Plan promotes the use of EVs and shared-ride services for the deployment of Autonomous Vehicles (AV), **it does not commit to the necessary actions for preventing potential emission increases as a result of their deployment**. Existing literature examining the potential climate impacts of AVs shows a wide range of possible futures, from more than a doubling of emissions to a reduction of emissions on the order of 90 percent.[5] We describe how AVs could increase (or decrease) emissions in the attached December 2016 letter. In order to address this concern, ARB should make the following modification in the *Vibrant Communities and Landscapes/VMT Reduction Goals* section:

[5] Greenblatt, Jeffrey and Samveg Saxena. 2015. "Autonomous taxis could greatly reduce greenhouse-gas emissions of US light-duty vehicles," Nature Climate Change 5, 860–863. Online at: http://www.nature.com/nclimate/journal/v5/n9/full/nclimate2685.html
Wadud, Zia and Don Mackenzie and Paul Leiby. "Help or Hindrance? The travel, energy and carbon impacts of highly automated vehicles," February 2016. Online at: http://www.census.gov/prod/ec02/ec02tv-ca.pdf
Brown, Austin and Jeffrey Gonder and Brittany Repac. An Analysis of Possible Energy Impacts of Automated Vehicle. June 2014. Online at: http://link.springer.com/chapter/10.1007%2F978-3-319-05990-7_13

- On page 102, update the high level objective to read: "Promote potential efficiency gains from automated transportation systems and identify policy priorities to maximize sustainable outcomes from automated and connected vehicles (preferably ZEVs), including VMT reduction, coordination with transit, and shared mobility ***and discourage use of automated transportation systems from increasing VMT, oil use, and emissions***".

In addition, we believe that the Final Plan should commit to enacting a process for interagency coordination on AV policy research, development, and implementation. The Department of Motor Vehicles is already beginning to tackle questions about licensing, registration, and safe operation of AVs as companies test these vehicles on California's roads. Other state agencies, including ARB, CEC, PUC as well as regional and local transportation agencies, will be faced with additional questions related to energy use, greenhouse gas emissions, operation, equity and accessibility considerations, and other aspects of AV use as this technology comes to market, and should develop principles to maximize the benefits of this new technology.[6] To ensure that policy development related to AVs is effective and coordinated, state agencies and local transportation decision makers will need to work together and engage the public and stakeholders. UCS therefore recommends inserting the following language into the *On-Going and Proposed Measures – Vehicle Technology* section:

- On page 106, add: ***"Implement a process for intra-state agency and regional and local transportation coordination on automated vehicles to ensure shared policy goals in achieving safe, energy efficient, and low carbon autonomous vehicle deployment."***

Low Carbon Fuels

The Low Carbon Fuel Standard (LCFS) is a core strategy for increasing the consumption of low-carbon, clean fuels in California's transportation sector.[7] The Draft Plan's target of an 18 percent reduction for 2030 is too low. Instead, the 2030 target should at a minimum support the continuation of the level of investment in the first phase of the LCFS.[8] **Thus, we believe that the LCFS target should increase to more than 20 percent in 2030, perhaps 22 percent.** The following update should be made in the *Ongoing and Proposed Measures – Clean Fuels* section:

- On page 106, modify the language to read – "Continue LCFS activities, with increasing stringency of at least ***20***~~18~~ percent reduction in carbon intensity (CI)."

The final target and the schedule will require additional analysis, with a goal of supporting steady investment in progressively cleaner fuels to meet the evolving needs of the California transportation sector.

Cleaner Freight and Heavy-Duty Vehicles

UCS believes that the state can achieve stronger targets for electrifying heavy-duty vehicles than the ones described in the Draft Plan. Battery and fuel cell technology can meet the needs of a significant fraction

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[6] Union of Concerned Scientists, Maximizing the Benefits of Self-Driving Cars, February 2017. Online at: http://www.ucsusa.org/clean-vehicles/principles-self-driving-cars

[7] UCS. Carbon Pricing and Low-Carbon Fuel Programs. January 2017. Online at: http://www.ucsusa.org/sites/default/files/attach/2017/01/LCFS-and-carbon-pricing-programs.pdf

[8] A nominally steady progression of 1% a year from 10% in 2020 to 20% in 2030 would already represent a lower level of ambition, given ongoing improvements in vehicle efficiency, expansion of alternative fuel vehicles and infrastructure, and progress in clean fuel commercialization.

of heavy-duty vehicles today, particularly ones operating over short distances in cities.[9] **Greater electrification and GHG reductions can be pursued under the last mile delivery rule and around drayage trucks.** The greatest reductions in emissions from heavy-duty vehicles will come from electrification.[10] UCS therefore recommends including the following concept in the *On-going and Proposes Measures – Vehicle Technology:*

- On page 106, insert ***"Commit to electrification drayage truck operations, with the ultimate goal of complete electrification of the fleet."***

Freight equipment in particular is a critical component of the Scoping Plan since heat trapping emissions from freight are increasing. Likewise, as the Sustainable Freight Action Plan notes, freight equipment accounts for nearly half of statewide emissions of diesel particulate matter and nitrogen oxides, and freight hubs are a significant source of air toxics that can cause localized cancer hot spots. We believe that the included target of deploying 100,000 zero emissions freight vehicles and equipment by 2030 underestimates reasonable and necessary deployment levels.[11] The Final Scoping Plan should reflect the update below:

- On page 107, modify the language to read: "Deployment of ~~over~~ ***at least*** 100,000 freight vehicles and equipment capable of zero emission operation ***in addition to forklift electrification***, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030." (This change should be reflected elsewhere in the document when this strategy is mentioned.)

Natural Gas and Biomethane

Biomethane (or renewable natural gas) is limited in supply with many competing demands for this resource in California. This includes businesses in the industrial sector that rely on natural gas and have few low carbon options other than biomethane. The biomethane available long-term in California would satisfy just 15 percent of demand for diesel in California today, so **its use in heavy-duty vehicles should be reserved only for vehicle applications that are not able to electrify, which is a decreasing fraction of the vehicle sector.**

The Final Scoping Plan should include a commitment to focus any policy support for natural gas or biomethane powered vehicles in applications not conducive to electrification similar to the multi-state agency commitment made in the multi-state Sustainable Freight Action Plan for electrifying freight sources everywhere feasible and using low carbon renewable fuels everywhere else. This concept is reflected in the recommendation below.

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[9] In California, more than 50 percent of heavy-duty vehicles have an operating range (maximum trip distance) of less than 50 miles, which is well within the range of existing heavy-duty electric vehicles on a single charge or tank of hydrogen. From US Census Bureau. 2004. California 2002 economic census: Vehicle inventory and use survey. EC02TV-CA. Washington, DC. Online at; http://www.census.gov/prod/ec02/ec02tv-ca.pdf

[10] Chandler, Sara, Joel Espino, and Jimmy O'Dea. 2016. Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California. Online at: http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf

[11] A recent ICF analysis commissioned by the California Electric Transportation Coalition found that California already has 100,000 pieces of freight equipment capable of zero emission operation and, that even under its least aggressive assumptions, the population of electric freight equipment will approach 300,000 by 2030. From: ICF International. 2014. California Transportation Electrification Assessment – Phase 1. These numbers include Class 1, 2, and 3 forklifts; transportation refrigeration units; yard tractors, cranes, and forklifts at ports; airport ground support equipment; and medium- and heavy-duty vehicles.

- On page 103, modify the following principle under the Clean Fuels Goals to read: "Electrify the transportation sector using both electricity and hydrogen ***everywhere feasible and as rapidly as possible."***

Water Sector

California's water sector uses significant amounts of energy and therefore has an important role in helping the state meet its climate goals. We appreciate that the Draft Plan highlights the need for better tracking the greenhouse gas emissions from this sector, and mentions SB 1425 (2016, Pavley) in particular, which establishes a voluntary greenhouse gas registry for the water-energy nexus. UCS still recommends the following sentence be updated to corrected inaccuracies:

- On page 128, edit the following sentence to read: "agriculture uses about ~~40~~ ***80*** percent of the State's ~~managed~~ ***developed*** water supply" and remove the footnote that defines *applied water*, which is not the same hydrological concept as *managed supply*.

Managed supply is a separate term, which is not commonly-used. Rather, the typical definition, used in the California Water Action Plan, is to describe the amount of "developed water supply" that is consumed by different sectors (agriculture consumes 80% in California).[12]

Climate Science and Incorporating Climate Impacts into Key Assumptions and Strategies

The discussion of updated climate science in the Draft Plan underscores the need for deep reductions in greenhouse gases over the coming decades to avoid catastrophic climate change, and the need for serious action to increase the state's resilience to a changing climate future. We refer ARB to our comments in our December 2016 letter for other suggestions on how to further strengthen this section.

In addition, climate change will impact key sectors in the Scoping Plan, such as energy, transportation, and forestry, affecting their ability to deliver services and placing our safety, quality of life, and economy at risk.[13] It could also affect a sector's ability to help achieve the 2030 and 2050 goals, especially as we look towards mid-century and beyond. For more detail on how a changing climate, from rising temperatures to changing precipitation patterns, could affect these sectors' performance, see our December 2016 letter. UCS is currently investigating how hydropower projections and the Energy Demand Forecast integrate these climate-related assumptions. We will follow up with ARB staff separately from this letter on this issue.

The Draft Plan includes updated language that describes Governor Brown's directive to state agencies to consider climate impacts in their decisions. We appreciate that ARB added language on page 2 to describe the "sixth pillar" of the Governor's strategy – which focuses on adaptation – and the requirement per EO-B-30-15 that state agencies prioritize actions that both reduce heat trapping emissions and build resilience.

[12] California Natural Resources Agency, California Department of Food and Agriculture, and Cal/EPA. 2014. California Water Action Plan. Sacramento, CA. Online at: http://resources.ca.gov/docs/california_water_action_plan/2014_California_Water_Action_Plan.pdf

[13] California Natural Resources Agency. 2014. Safeguarding California: Reducing Climate Risk. Sacramento, CA. Online at: http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf

The Final Plan should also highlight the opportunity for local governments to build climate resilience as they lower their carbon emissions. This is especially important for long-lived infrastructure (e.g., energy, transportation, water, buildings, etc.) that is being built today, which will likely face climate impacts over the next several decades that could threaten its performance and reliability.[14] Long-term plans may face a similar challenge. There are several places in the Scoping Plan where this important concept can be inserted:

- On page 27, edit the following sentence to read "Local municipal code changes, zoning changes, or policy directions that apply broadly to the community within the general plan or climate action plan can help promote the deployment of renewable, zero emission, and low carbon technologies such as zero net energy buildings, renewable fuel production facilities, and zero emission charging stations, ***and increase the climate resilience of communities and these investments.***" and "Local governments can incentivize locally generated renewable energy and infrastructure for alternative fuels and electric vehicles, implement water efficiency measures, develop waste-to-energy and waste-to-fuel projects, ~~and~~ preserve and enhance carbon sequestration in both rural and urban landscapes, ***and invest in other greenhouse gas reduction measures that also help local governments prepare for a changing climate."***
- On pages 131-135, the *Enabling Local Action* and *Climate Action Through Local Planning and Permitting* should be updated to reflect the opportunity for local governments to help prepare for a changing climate through local planning, permitting and other actions to reduce heat trapping emissions, including through municipal and regional plans, local codes, climate action plans, and the planning, design, and permitting of a variety of long-lived infrastructure projects, among others.

Many solutions exist that can contribute to efforts to both mitigate and adapt to climate change, including green roofs and urban forests that reduce urban heat island effect, electricity use for cooling purposes, and storm water runoff while also absorbing carbon; distributed generation which supports grid resilience during extreme events and emits fewer greenhouse gas emissions than more centralized, fossil-fuel energy sources; and water efficiency solutions that can help a municipality prepare for a smaller future water supply while also reducing heat trapping emissions from water treatment and distribution.[15]

Conclusion

With recent actions at the federal level to roll back crucial efforts to reduce climate pollution, California's leadership and ambitious actions to reduce carbon emissions and accelerate a clean energy transition have never been more critical.

While we agree with the overall approach taken in the Draft Scoping Plan, **UCS recommends that the Final Scoping Plan increase the level of emission reductions attributed to sector-specific strategies beyond the levels of several known commitments and include additional sector-specific policies, which we've outlined in this letter.** We look forward to working with ARB staff as they finalize the Scoping Plan over the coming months, setting forth a vision for California's most effective path forward

[14] Climate models project that climate impacts will likely become more severe by mid-century, so it's even more important that projects and plans that consider this timeframe integrate climate considerations. AB 2800 (Quirk, 2016) established a Climate-Safe Infrastructure Working Group of state engineers and climate scientists to identify how to best integrate climate science into state infrastructure engineering decisions, like oversight, investment, design, and construction. The Working Group will send its recommendations to the Legislature during the summer of 2018.

[15] Center for Clean Air Policy, 2014. Green Resilience: Climate Adaptation + Mitigation Synergies. Washington, DC. Online at: http://ccap.org/assets/CCAP-Green-Resilience-Climate-Adaptation-Mitigation-Synergies_April-2014.pdf

to achieve its goals of a thriving low-carbon economy, healthy and vibrant communities, and a clean environment.

Below find UCS contacts if ARB staff would like to engage in further discussion of our comments:

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