October 22, 2018

California Air Resources Board

Cap-and-Trade Program

Via https://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=ct2018&comm_period=A

CC: Mary Nichols, Chair, California Air Resources Board

NextGen California's Comments on Proposed Amendments to the California Cap On Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation
(45-day Comment Period)

Thank you for the opportunity to comment on the proposed revisions to California's Cap-and-Trade system for the period beginning in 2021, and on the proposed retroactive and prospectives changes to the existing finalized regulations for the Third Compliance Period.

The proposed regulations for this 45-day comment period reflect tremendous effort and public engagement by CARB staff, and we commend them for their continued engagement. NextGen appreciates the opportunity CARB has provided for the public to provide input on the development of these proposed rules. We have provided written and oral comment in these fora, and have appended those comments here, and incorporate them by reference into this comment.

In this comment, we wish to highlight four items for the Board's consideration: the Third Compliance Period's Industrial Assistance Factors; DEBs designation for certain out of state offsets projects; the need for an assessment of the overall alignment of the cap-and-trade system design with our near-term and longer term pollution reduction goals; and how the price band available should reflect the social cost of carbon.

Industrial Assistance Factors

We refer the Board to our previous comments' discussion of the proposed retroactive allocation of an additional approximately $365,000,000 worth of allowances to some of the states' largest polluters in many of the state's

most disadvantaged communities.[1] Staff has provided no evidence that this change is needed to prevent leakage. Nor is there evidence that existing flexibility mechanisms within the program and these corporations' world-historical profits are insufficient to ensure that they can reasonably be expected to comply with existing rules, for which the companies have had nearly a decade to prepare, and which have been through a full public process.

We strongly urge the Board to reject this harmful change to existing regulations, as the Legislature did when it chose not to adopt this requirement for the third compliance period in enacting AB 398, despite having the clear opportunity to do so. This recommendation is also directly contrary to the spirit of AB 197's requirement that this Board prioritize "rules and regulations that result in direct emission reductions at large stationary sources" so that the cap-and-trade program would not result in a concentrating emissions at sources located in disadvantaged communities – sources like those that would benefit from this proposed retroactive rule change and additional subsidy.

The Board should reject this recommendation as wholly unjustified, demonstrably contrary to the basic concept of the cap-and-trade program's incentive structure, injurious to the state's ability to invest in pollution reduction measures.

Direct Environmental Benefits

NextGen appreciates the clarification staff has provided in the proposed rule that out-of-state offsets that wish to be considered as providing Direct Environmental Benefits to the state of California must demonstrate air or water quality benefits over and above any greenhouse gas or climate-related benefits associated with the project. It would be illogical to consider greenhouse gas reductions or the associated climate benefits from those reductions from offsets projects "Direct Environmental Benefits" for two reasons.

First, offsets are, by definition, one half of a compliance event, with the other party to the transaction emitting additional greenhouse gases in California over and above what would otherwise be permitted. The emissions "reductions" associated with these projects cannot be separated from the additional emissions they enable.

[1] See also the comments from nearly 1200 individual California residents opposing the proposal: https://www.arb.ca.gov/lispub/comm2/bcformltrlog.php?listname=ct-4-26-18-wkshp-ws&comment_num=3&virt_num=1.

Together, the additional emissions and the reduction from the offsets result in a net cancellation, with no added "benefit" coming from the GHG pollution reduction associated with the offset project.

Second, the text of AB 398 designates two categories of out of state offsets: those that do, and those that do not provide Direct Environmental Benefits to California. In order for any project to qualify as an offset, it must reduce GHGs. It would therefore render this statutory distinction meaningless if greenhouse gas reductions and their associated climate-related benefits provide a basis for designating a project as providing Direct Environmental Benefits. Such a reading of the statute would violate both a plain language reading and the established canons of statutory interpretation.

The proposed rule correctly recognizes this distinction, but NextGen believes some ambiguity remains that could potentially lead to some projects inappropriately seeking designation under the DEBs category. We therefore urge the Board to provide additional clarification that environmental benefits to California's air and water must be "Direct," as opposed to indirect. We also urge the Board to instruct staff to develop a more nuanced screen for water quality benefits than is provided in the proposed rule. The proposed rule would deem projects adjacent to any waterway that flows into California as providing direct environmental benefits. The Board should direct Staff to revise the proposed rule to require projects to make specific showings of water quality benefits that directly result from the project, and that those direct benefits occur within California, and not exclusively upstream or as an indirect result of upstream benefits.

Consistency of Market Design and Pollution Reduction Targets

We reiterate our request that the Board analyze the proposed rules for consistency with the Scoping Plan and our long term carbon reduction targets. The proposed regulations do not appear to fully grapple with the credible evidence put forward by many observers that the overallocation that exists in the cap-and-trade market may interfere with the market's ability to drive pollution reductions at the scale required to reach our 2030 target, or to put us on track to achieve the 2050 80% reduction goal and to achieve a carbon neutral state by 2045. We urge the Board to fully analyze whether the proposed rules, and the proposed decision to take no steps to adjust allowance supply or banking rules while maintaining current price floor trajectories will result in an adequate price signal to spur the innovation needed to reach our scientifically-needed goals.

Social Cost of Carbon

The Board should consider revising the proposed price floor, price containment points, and ceiling price trajectories in order to ensure that they adequately address the present scientific consensus regarding the social cost of carbon.

Cap-and-trade allowance prices should reflect the minimum price required in order to achieve cost effective emissions reductions in line with our 2030 target and long term trajectories, but they should also help to ensure that pollution-related externalities are fully internalized by the industries that profit while their pollution harms us all. In a previous comment we noted that, so long as allowance prices remain below the cost per ton marginal excluded complementary measure, the cap-and-trade system is, by definition, operating in a cost-effective manner, insofar as compliance through the cap-and-trade system is allowing the market to discover emissions reductions at lower cost than direct regulation would produce. The IPCC, in its report issued in October 2018 estimated that a 2030 carbon price would need to be at least $135/ton in order to provide a sufficient price signal to avoid the most catastrophic climate impacts. The proposed rule would prevent carbon prices from reaching this minimum projected level even if emissions in California do not fall to their required level and if this this the lowest cost-effective price sufficient to drive the required level of pollution reduction.

It is likely and desirable, however, that prices need never approach this level in order to achieve our targets, and that the Board may wish to ensure that prices remain below both the strict cost-effectiveness threshold or the IPCC's projected minimum effective price. But, it would be an exercise in false economy to set the price cap so low that it also excludes a true social cost of carbon. If it is impossible that the price to pollute a marginal ton of carbon dioxide could ever match or exceed the price of the harm that ton of pollution will cause, there will always be an implicit economic subsidy that all of us pay to polluters. The band of available prices within the carbon market should, at minimum include the possibility that prices equal a scientifically grounded social cost of carbon, if not provide room for prices well in excess for this level to allow for technology markets to develop, spurred by as accurate a price signal as can be obtained.

The proposed price band adopts a price ceiling in 2021 significantly lower than the existing projected single tier price, and maintains the current floor price trajectory through 2030. As a result, the ceiling price in 2030 is well below modern estimates of the social cost of carbon.

As scientists and economists continue to evaluate the social cost of carbon, they are consistently finding that previous studies tended to ignore important variables that may be difficult to quantify, but that tend to increase costs or to otherwise express overly conservative estimates. A recent study, for example, estimates 2030 costs to range from $177 to $805 a ton, with a most likely estimate of $417 per ton.[2] Other studies have found a somewhat lower range with a best estimate of $200 per ton[3] or $150–$200 per ton.[4]

In order to ensure that the cap-and-trade program does not exclude the possibility of allowance prices reaching the social cost of carbon, CARB could adjust the price floor and price ceiling escalation rates in a variety of ways without creating major disruptions to the market. If, for example, CARB maintains the proposed pricing structure, but maintains the projected single tier price in 2021 as the price ceiling, rather than setting the price ceiling to a lower level in 2021, this change alone would bring the 2030 price ceiling significantly closer (but still well below) the social cost of carbon. If CARB adopts this change and increases the annual reserve price escalation rate to 7% beginning in 2022, the 2030 ceiling price comes closer to approximating the lowest value projected by the IPCC to effectively combat the worst effects of climate change. Finally, CARB could make a one-time adjustment to the floor and ceiling price in 2021 to set it to $20, rather than $16.77, and adopt a price ceiling of $80. If CARB adopts these starting points and a 7% escalator, the ceiling price in 2030 begins to apprach the low end of modern social cost of carbon estimates at approximately $147. A similar result would occur if CARB maintained the current price floor and projected single tier price, but applied an 8% annual escalator beginning in 2022.

The methodology discussed here for establishing the available range of market prices may be overly conservative, despite more closely aligning with minimum IPCC recommendations and with low social cost of carbon estimates.The maximum possible carbon price in 2030 would still fall well below most social cost of carbon estimates, and it falls on the very low end of the range of available cost-effective maximum prices, insofar as it is far below the marginal cost of the next excluded complementary measures from the scoping plan. CARB may therefore wish to consider other methodologies that result in higher floor and ceiling prices as well.

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[2] Ricke et al, Country-level Social Cost of Carbon, Nature Climate Change 8, pages 895–900 (2018), https://www.nature.com/articles/s41558-018-0282-y?utm_source=Nature_community&utm_medium=Social_media_advertisingCommunity_sites&utm_content=BenJoh-Nature-MultiJournal-Social_Sciences-Global&utm_campaign=MultipleJournals_USG_SOCIAL#ref-CR3

[3] Moore & Diaz, Temperature Impacts on Economic Growth Warrant Stringent Mitigation Policy (Nature Climate Change volume 5, pages 127–131 (2015), https://www.nature.com/articles/nclimate2481

[4] Pindyck, R. S. The Social Cost of Carbon Revisited (National Bureau of Economic Research, 2016), http://web.mit.edu/rpindyck/www/Papers/SCCRevisitedNov2016.pdf

Conclusion

Once again, NextGen appreciates the substantial effort CARB Staff has invested in developing this proposed rule, as reflected in its preliminary discussion draft, concept paper, and workshop presentation, and its commitment to engage with all stakeholders in a transparent manner. We look forward to continued constructive engagement as this process moves forward.

Sincerely,

David Weiskopf
Climate Policy Director

nextgen california

Attachment 1: October 12, 2017 Workshop Comments

October 27, 2017

California Air Resources Board Staff

Cap and Trade Program

Via http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm

CC: Mary Nichols, Chair, California Air Resources Board

NextGen California's Comments on the October 12, 2017 Workshop on Next Steps for the Post-2020 Cap and Trade Regulation

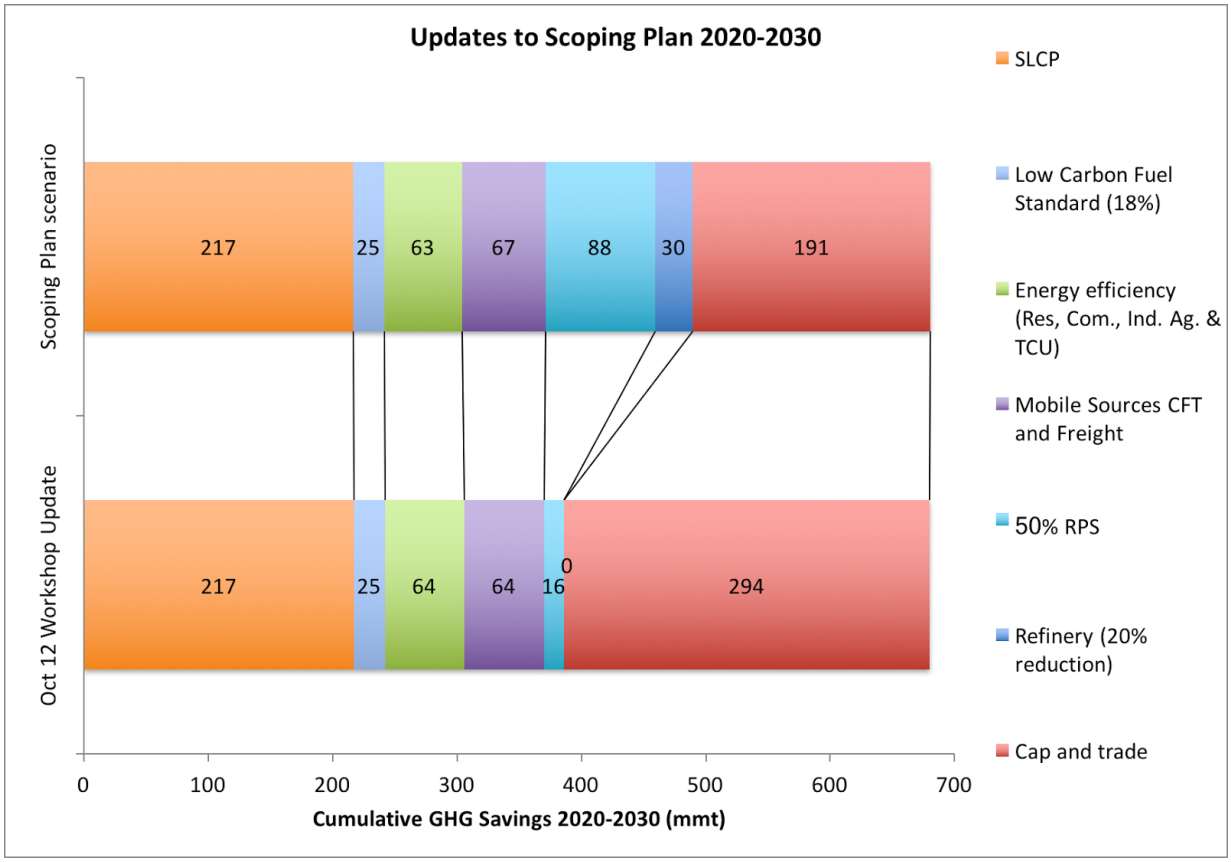
Thank you for the opportunity to provide informal comment on the October 12th presentation and discussion of next steps for the post-2020 cap and trade regulations. We appreciate your ongoing efforts to ensure that California's cap and trade program provides a model for the world to help achieve significant cost-effective greenhouse gas emissions reductions and drive needed investment in greenhouse gas abatement programs throughout the state, and particularly in disadvantaged communities.

As the California Air Resources Board (CARB) considers how best to implement AB 398 and achieve the greenhouse gas reduction targets required under SB 32 and AB 197, cap and trade program design considerations will be more important than ever. According to the updates to the scoping plan that CARB shared on the morning of October 12, 2017, CARB is contemplating a scoping plan under which the existing emissions-reducing policies that will contribute to meeting our 2030 carbon reduction targets will only drive 57% of projected cumulative emissions reductions with cap and trade driving the remaining 43% via the price signal it creates. As recently as March of this year, CARB expected these policies to provide 72% of reductions, and cap and trade to provide 28%.[1] (See Figure 1).

This shift means that the cap and trade program must drive 53% more reductions than CARB had previously expected unless additional technological breakthroughs, more aggressive complementary policies adopted via regulation or legislation, or other exogenous factors lead to significantly more reductions than are currently anticipated. In previous years, scoping plans anticipated that the carbon market would drive far fewer reductions both in absolute terms and as a proportion of all emissions reductions.

[1] Compare PATHWAYS Outputs, GHG Emissions by Measure, Scoping Plan Scenario, https://www.arb.ca.gov/cc/scopingplan/pathways_ghgs_by_measure_final_17jan2017.xlsx, to Slide 16, https://www.arb.ca.gov/cc/scopingplan/meetings/101217/sp-october-workshop-slides.pdf.

Figure 1: Comparison of Cumulative Projected Emissions Reductions, March 2017 PATHWAYS Outputs vs. October 12 Scoping Plan Update Presentation



These shifts come at a time when additional reductions from the electric sector, which has led emissions reductions to date, will begin to take on a diminishing role in California's overall greenhouse gas abatement efforts. Electricity sector emissions currently represent only about one fifth of statewide emissions. Even if this sector were to achieve carbon neutrality in 2030 (a significantly faster rate of decarbonization than is contemplated even by SB 100, which, if passed, would establish a 60% Renewable Energy target for 2030), it would only achieve about half of the required reductions. Other economic sectors, which have historically had more difficulty reducing emissions, must significantly accelerate their rate of decarbonization, and these reductions must be driven in substantial part by the carbon pricing mechanism in the cap and trade program.

At the same time, AB 398 limits some tools available to the state to help drive reductions in some of the sectors where it has been most difficult to make progress, by eliminating CARB's authority to directly regulate CO2 from refineries and by removing authority of Air Districts to adopt more stringent local and source-specific CO2 standards than CARB. AB 398 also requires CARB to maintain high Industry Assistance Factors for refineries and other heavy industrial emitters, which reduces the incentive cap and trade can provide for these sources to invest in technologies that will help them to reduce carbon emissions. These statutory changes place even more pressure on the cap and trade program to drive large emissions reductions from a shrinking pool of emissions, even as some sources are provided with counter-incentives that may tend towards slowing those same reductions.

It is therefore essential that CARB assess how updates to the cap and trade program are likely to affect economy-wide and sector-specific emissions prior to adopting new regulations. The following comments offer constructive suggestions for how CARB can help to ensure that the cap and trade program is as effective as possible as it takes on this difficult, but achievable task.

1. **CARB should adopt market rules that will help to ensure that the ambitious level of emissions reductions reflected in the scoping plan are actually achieved and that the State achieves both cumulative and annual emissions reductions in a manner that complies with SB 32 and AB 197**

SB 32 requires that CARB "ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030."[2] It is notable that this target sets a date certain by which the 40% emissions reduction must be achieved, rather than establishing a cumulative emissions limit. This date-specific target is consistent with the broader goal of California's climate policy: to move our state towards a clean economy that will be sustainable for many future generations. Achieving this goal requires substantially decarbonizing by mid-century and achieving at least the 80% reduction by 2050 specified in Executive Order B-30-15. The 2030 target marks progress along the way but simply meeting this target – or some proxy for it as expressed in a cumulative emissions inventory – does not constitute success; the State's emissions must be on a trajectory that maximizes the chance of achieving broad mid-century decarbonization. The current cap and trade market structure could allow real emissions to greatly exceed the SB 32 target even while the program is nominally meeting all of its own goals, through the use of allowances banked or held in reserve – of which there is a massive supply at present[3] – and offsets. Such an

[2] California Health and Safety Code § 38566.
[3] Legislative Analyst's Office, letter to Hon. Cristina Garcia, June 26, 2017. Attached.

outcome would dramatically increase the required rate of post-2030 emissions cuts, making attainment of critical mid-century goals much more difficult. To avoid this dangerous outcome, actual emissions in 2030 must be at or below SB 32 targets.

Merely identifying the remaining required reductions after existing complementary measures are fully achieved as work for cap and trade to do through "the magic of the marketplace" does not provide Californians with an adequate basis for assessing the efficacy of proposed market changes to achieve the substantial remaining reductions. Nor is this approach consistent with the spirit of AB 197, which requires that CARB's actions to reduce greenhouse gas emissions "be done in a manner that is transparent and accountable to the public and the Legislature" and CARB prioritize approaches "that result in direct emission reductions at large stationary sources of greenhouse gas emissions sources and direct emission reductions from mobile sources."[4]

When considering how best to implement cap and trade for 2020-2030, CARB should therefore analyze and publish one or more scenarios showing actual emissions by sector that comply with the SB32 target that could plausibly result from the combination of cap and trade and existing complementary measures. If CARB determines that additional complementary measure will be needed in order to ensure that cap and trade allowance prices remain within tolerable ranges, it should adopt those policies if it has authority to do so and identify needed policy changes that the legislature should consider.

A. Clarify the Role of Offsets in how Cap and Trade Will Ensure Compliance with SB 32

In providing the assessment of how, specifically, cap and trade will help to ensure compliance with SB 32 and AB 197, CARB should clarify its methodology for how it accounts for the effects of carbon offsets as an available compliance tool in the cap and trade system.

In 2030 sources covered by the cap may use offsets to satisfy 6% of their compliance obligation, at least half of which must provide benefits in California. Assuming that sources use the maximum number of offsets they are allowed to use, that means that their actual covered emissions are likely to be 6.4%, or 12.8 million tons above the nominal 2030 cap of 200.5 million tonnes. Even assuming that the offsets which provide benefits in

[4] AB 197 (2016) Findings and Declarations and California Health and Safety Code § 38562.5(a). I.e., if 6% of aggregate emissions are offset, to reach a nominal cap of 200.5 million tonnes, actual emissions will be 200.5/.94 = 213.3 million tons, 12.8 million tons above the nominal cap.

California result in emission reductions from uncapped sources in California and are reflected in the inventory, the use of out-of-state offsets will still result in additional emissions of up to 6.4 million tons within the capped sources in California, which will need to be compensated by making corresponding reductions from uncapped sources to comply with SB 32. CARB should clarify whether and how it intends to achieve any compensating reductions in uncapped sources within California's inventory.[5]

The 2015 inventory shows total emissions of 440.4 million tons, while the cap & trade allowance budget for 2015 was 394.5 million tons, and total covered emissions in 2015 reported to CARB amounted to 340.3 million tons.[6] This implies that uncapped sources in the inventory were responsible for 100.1 million tons in 2015. To compensate just for the out-of-state offsets allowed to be used in 2030 CARB would have to achieve additional reductions from uncapped sources equal to 6% of the emissions from these sources in 2015, over and above the measures currently included in the scoping plan. ARB should clarify how this is likely to occur, and whether adjustments to the cap and trade system will drive these additional reductions.

B. Price Containment Mechanisms Must Not Hamper Cap and Trade's Effectiveness

As the cap and trade market takes on a leading role in driving over 40% of emissions reductions – more than any other single policy in ARB's scoping plan – it is essential that ARB design market rule in a manner that allows the market to function as a strong incentive to innovate and discover novel means of emissions reductions. This core function of the carbon allowance market cannot occur if price containment mechanisms hamper the market's price discovery function by setting an artificially low ceiling price or setting "speed bumps" or other price points that trigger release of reserve allowances too readily and too early in the program.

Price discovery is the inherent feature of a cap and trade system that allows it to drive cost effective emissions reductions in a dynamic technological and economic environment. If artificial breaks exist within the market that prevent allowances from reaching the price at which a marginal abatement technology becomes commercially viable, that technology will not become available. Conversely, if the technology does become available, it is likely to decline in price as competition, innovation, scale, and learning curves operate within

[5] For the purposes of this analysis we are assuming that all offsets which provide benefits within California result in additional emission reductions from uncapped sources within California and thus have no net impact on the emissions inventory. This is a best case scenario and CARB will need to monitor actual emissions and make adjustments as needed to ensure compliance with SB 32.

[6] https://www.arb.ca.gov/cc/inventory/data/data.htm; https://www.arb.ca.gov/regact/2016/capandtrade16/ctfinro.pdf at p. 114; https://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/2015-ghg-emissions-2016-11-04.xlsx sum of column R

that market segment. By allowing prices to naturally find the level of the needed abatement technology, long term carbon reductions become more cost effective. This means that providing too many price containment measures in the cap and trade system may have the perverse outcome of both delaying needed emissions reductions and of increasing longer term compliance costs by stymieing innovation and deployment of technological advancements.

ARB should carefully consider this dynamic when selecting a methodology for establishing price containment mechanisms, including the price ceiling and price containment points ("speed bumps") at which additional reserve allowances will be released. While preventing price spikes and preventing volatility are desirable considerations, there is significant risk in going too far to preemptively counteract these risks. A healthy market must be allowed to fluctuate within a reasonable range, must accommodate some tolerance for risk, and must, above all, be allowed to enable price discovery in the carbon abatement marketplace.

AB 398 provides no guidance to ARB regarding the appropriate price points for the required speed bumps. For this reason, ARB must look to the broader purpose of the cap and trade program: to provide a market based mechanism that allows for cost effective emissions reductions. In order to achieve this goal, the market must be allowed to function in a manner that enables price discovery for carbon abatement. For this reason, ARB should set the "speed bumps" at market prices that are relatively close to the price ceiling. If the market is flooded with allowances whenever prices begin to climb even a small amount above the reserve price, the price discovery function of the allowance market will be significantly frustrated. Price containment mechanisms should not be treated as a means of keeping prices artificially low. Rather, they should be treated as safety valves that will hopefully never be called upon – failsafes to ensure that we do not breach the price ceiling. In order to allow the market to cool off in this situation, without undermining the price discovery function of the market, ARB should set both speed bumps well above the median available market price. It would be unreasonable to set the speed bumps below the median price; a market that has not even reached a median within an acceptable range of prices cannot be said to be "overheating" in any way. CARB should evaluate levels such as 75%, 85% and 95% of the price ceiling as potential speed bump points.

In selecting a price ceiling calculation methodology, AB 398 provides somewhat more guidance. The statute directs CARB to consider among other factors, "the full social cost associated with emitting a metric ton of

greenhouse gases" and "the cost per metric ton of greenhouse gas emissions reductions to achieve the statewide emissions targets."[7]

The former condition provides some guidance as a starting point for assessing potential price ceilings. AB 197 defines the "social costs" of greenhouse gases as an "estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."[8] These costs have been traditionally externalized by polluting entities in order to deflect the full cost of doing business onto citizens who do not benefit economically from the companies' increased profit margins. CARB should set a price floor that reflects a conservative estimate of these costs, and consider a price ceiling that is some multiple of the price floor and reflects a higher-impact estimate of the social costs of greenhouse gases.

Methodologies vary in assessing the social cost of greenhouse gases, but the United States Environmental Protection Agency, employing a highly conservative methodology that likely underestimates the full costs of carbon pollution, estimated a central range of $42 and $50 per tonne CO2e in 2020 and 2030, respectively, in 2007 dollars.[9] In 2017 dollars, these values would be $50 to $60. Low whole number multiples of these costs suggest that a price ceiling of $100 to $180 per tonne in today's dollars, adjusted annually for inflation, would not be disproportionate to the present and past damage carbon pollution imposes on society. These numbers are also consistent with EPA's higher impact estimate (95th percentile at 3% discount rate) of $123 and $152 per tonne in 2007 dollars.[10] CARB should consider the most recent best available science in estimating the social cost of carbon, and consider price ceilings that reflect a precautionary approach to the inherent uncertainty in estimating the damage caused by carbon pollution.

The latter condition, the cost of necessary abatement technology, is also difficult to predict with accuracy, in part because no jurisdiction has ever attempted to achieve emissions reductions at the scale and to the degree that California is attempting to drive through the 2020-2030 cap and trade system. Nevertheless, CARB should

[7] California Health and Safety Code § 38562(c)(2)(A)(i)(III) and (VI).
[8] California Health and Safety Code § 38506
[9] Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised August 2015). This represents among the lowest reasonable estimates of the social cost of carbon. A 2016 study published in Nature Climate Change, for example, estimated the Social Cost of Carbon in 2015 to be $220 per tonne. Frances C. Moore and Delavane B. Diaz, "Temperature impacts on economic growth warrant stringent mitigation policy, " Nature Climate Change 5, 127–131 (2015), https://www.nature.com/nclimate/journal/v5/n2/full/nclimate2481.html.
[10] https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html

examine best available economic modeling and expert resources in attempting to assess what carbon price will be needed in order to enable the commercialization of technologies that will be required in order to reach our 2030 targets, and should provide a buffer above that level to take a conservative approach. If CARB sets the ceiling too low, we risk missing or delaying the opportunity to develop these technologies, which delays their development and cost reduction, which in turn will make reaching our ultimate decarbonization goals even more difficult.

C. *CARB Should Fully Utilize Available Authority to Ensure Emissions Reductions Occur at Major Stationary Sources and from Mobile Sources to Ensure Consistency with AB 197 Requirements.*

As the demands on the cap and trade market increase, it is vital the CARB use the full range of tools available to it to ensure that the market functions effectively and efficiently. This includes basing policies designed to reduce leakage, to the extent possible on sound scientific and economic bases, and maximizing the benefits of complementary policies such as the Low Carbon Fuel Standard.

a. <u>CARB should provide a sound and transparent basis for evaluating changes to policies to prevent leakage</u>

While AB 398 requires CARB to provide high Industrial Assistance Factors (IAF's) for certain industries, to the maximum extent possible, CARB should, to the extent it continues to provide free allowances as a means of reducing leakage, based these allocations on actual leakage risk. To the extent that CARB provides free allowance in excess of this level, both under current final regulations and in the post-2020 period, vital funds are diverted from emissions reduction programs supported by the GGRF, and directed instead to industrial emitters, who will have less incentive to invest in pollution reduction technologies in the near term. Polluters who receive excess free allowances may redirect those funds into banking additional allowances, further undermining the efficacy of the cap and trade market.

While CARB staff is required, under Board Resolution 17-21 to propose regulatory amendments to provide free allowances to industrial polluters "by using the same assistance factors in place for 2013 through 2017,"[11] the Board should be provided with sufficient context and information to evaluate the effects of and any need for this change to current final regulations, which were developed on the basis of significant research and public

[11] https://www.arb.ca.gov/regact/2016/capandtrade16/ctreso17-21.pdf, p. 14.

comment. If the change will provide preferential treatment for certain industries and divert needed funds from the GGRF, the Board should have a robust basis for weighing these tradeoffs against the potential leakage risk, if any, that is mitigated by this change to current regulations.

There is, as yet, no evidence in economic literature to support the idea that preventing leakage requires a 100% IAF in every at-risk industry. When presenting this potential regulatory amendment to the Board, CARB should:

- Evaluate actual leakage risk from maintaining current regulation setting third compliance period IAFs
- Evaluate what, if any leakage is mitigated by changing the existing regulation
- Recommend a research plan, to be carried out over the next few years, to better characterize and quantify leakage risk under the cap and trade program.
- Quantify the costs to California from lost GGRF revenues and the corresponding financial value of the additional allocation to industrial polluters that will benefit from the regulatory change
- Report these costs and changes, if any, to leakage risk to Board when responding to requirements of board resolution 17-21.

b. <u>CARB should adopt a LCFS carbon intensity target significantly higher than the proposed 18%</u>

The Low-Carbon Fuel Standard (LCFS) must set a more ambitious carbon intensity target than the 18% reduction indicated in the Staff Presentation related to the LCFS Draft Regulatory Text.[12] Existing evidence suggests there are likely to be ample supplies of fuel to support carbon intensity (CI) reduction targets well above 18%. Several independent research groups including the International Council on Clean Transportation,[13] ICF International,[14,15] Promotum,[16] and CARB itself[17] have evaluated low-carbon fuel supply and concluded that ample supply exists to support significant substitution of low-carbon

[12] https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/092217workshop_presentation.pdf Slide 19
[13] http://www.theicct.org/potential-low-carbon-fuel-supply-pacific-coast-region-north-america NextGen funded and contributed to this report.
[14] http://www.ucsusa.org/clean-vehicles/california-and-western-states/west-coast-oil
[15] http://www.caletc.com/wp-content/uploads/2016/08/Final-Report-Cap-and-Trade-LCFS.pdf
[16] https://www.nrdc.org/file/2547/download
[17] https://www.arb.ca.gov/newsrel/petroleum_reductions.pdf

alternatives for gasoline and diesel through 2030. A higher CI reduction target would directly reduce emissions by substituting lower-carbon options for high-carbon petroleum fuels, thereby mitigating some of the strain on the cap and trade system. In addition, the proposed LCFS amendments include new provisions relating to Refinery Investment Credits, Renewable Hydrogen Production, Co-Processing and Innovative Crude Production, these provisions incentivize efficiency improvements in the petroleum production and refining process that significantly reduce GHG and air pollutant emissions. The pollution reductions incentivized by these provisions could achieve many of the stationary-source pollution reduction goals set forth in AB 197. Prior to AB 398, it was intended that the Refinery Rule would achieve the intended reductions from refineries. CARB now lacks the authority to implement the Refinery Rule, but the LCFS program can create a strong incentive for significant reductions in air pollutant emissions from refineries through the Refinery Investment Credit, Renewable Hydrogen Credit, Co-Processing and Innovative Crude provisions in the LCFS. Increasing the CI target strengthens the incentive for refiners to make these investments by sending a strong market signal and maximizing the value of LCFS credits generated by these projects.

2. **CARB should address market overallocation and adjust banking rules per AB 398 requirements in order to ensure the cap and trade program operates effectively to help California meet the 2030 emissions reduction targets and 2050 goals**

The cap and trade allowance market is currently significantly overallocated, putting both the efficacy of the cap and trade market and the ability of this market to help us meet our 2030 emissions target and 2050 goals at risk. Overallocation, combined with the ability for market participants to bank allowances for an unlimited period creates a strong incentive for market participants and financial speculators to buy unneeded allowances up to the holding limit at today's low market price. In principle, the requirement to purchase allowances should present polluters with a choice: invest in emissions reductions or, if these investments are more expensive than the market price for allowances, purchase allowances instead. As the cap declines and allowance prices rise, more firms should opt to invest in pollution reductions rather than continue to pollute. But in an overallocated market with no limitation on the future compliance value of banked allowances, firms can continue to pollute at current levels and purchase low cost excess allowances as a hedge against future price increases. In this way, a firm could lock in higher levels of pollution with no risk of facing high compliance costs as the market tightens. When this behavior is aggregated across the market, it can have the effect that, in early years, more allowances are purchased than are surrendered, and in later years, more allowances are surrendered than

purchased. As a result, emissions decline less than the amount by which the cap declines, and the market risks significantly underperforming in later years, which will make it more difficult to achieve the 2030 emissions reduction target. The fact that in this scenario firms delay investments in pollution reduction also means that achieving deeper reductions after 2030 will be even more difficult.

At a time when we are calling on the cap and trade market to do more work than ever to drive emissions reductions, the carbon market must not operate with one arm tied behind its back. CARB should therefore evaluate and implement policy adjustments to eliminate the current overallocation and to limit purely financial speculation in the cap and trade market that hampers the market's ability to drive genuine technological and operational changes that reduce emissions.

A. CARB Should take steps to address overallocation in the cap and trade market

To address the oversupply, CARB should consider options for implementing a cap adjustment that will eliminate the overallocation in the market. The Legislative Analyst's Office estimated in June, 2017 that "the cumulative oversupply of allowances in California's cap and trade program through 2020 could range from 100 million to 300 million allowances, with it most likely being roughly in the middle of that range." They go on to note that if these oversupplied allowances are allowed to carry over for compliance in the 2020-2030 period, it "makes the post-2020 program less stringent, which potentially increases emissions. . . ."[18] At the high end of this range, banked allowances purchased from the current overallocation could substitute for the full 294 million tonnes reduction the scoping plan requires the cap and trade program to produce. If these levels of allowances are banked and only spent in the out years of the program, it could allow obligated parties within the cap and trade market to hold actual emissions steady at higher levels while still nominally meeting their reduction targets. The result of this would be a system that, in 2030, complied with cap and trade market program requirements but left emissions in capped sectors above the cap. CARB can address this problem in part by removing the excess allowances from circulation through one or more cap adjustments, commencing as soon as possible.

AB 398 requires CARB to "Evaluate and address concerns related to overallocation in the state board's determination of the number of available allowances for years 2021 to 2030, inclusive, as appropriate," and to

[18] Legislative Analyst's Office, letter to Hon. Cristina Garcia, June 26, 2017. Attached.

"Establish allowance banking rules that discourage speculation."[19] To comply with these provisions and to ensure that the cap and trade market functions effectively to drive needed levels of emissions reductions, CARB should take steps to prevent current overallocated allowances from allowing real emissions to exceed SB 32 targets and to ensure that California is on a trajectory which maximizes the chance of achieving mid-century decarbonization goals such as the 80% target put forth by Executive Order B-30-15.

To mitigate this risk, CARB should adopt policies that reduce the reserve of excess credits currently available to be banked or otherwise carried over into the late 2020's. We strongly recommend the following steps.

1. CARB should quantify the oversupply of allowances at the end of the 2018-2021 compliance period, including permits held in the auction account, APCR and entity holding accounts.
2. CARB should set a schedule for drawing down the oversupply of allowances which ensures that real emissions from capped sectors decline sufficiently for the state to meet SB 32 goals and be on a trajectory which maximizes the chance to achieve mid-century decarbonization targets including Executive Order B-30-15.
3. CARB should evaluate and take steps to draw down the over-supply including, but not limited to:
    a. Reducing the GHG allowance budget by an amount which yields a cumulative reduction equal to the total oversupply
    b. Decreasing the value of allowances held in the auction account, APCR, holding accounts or other accounts over time to erode the cumulative value of banked allowances until the over-supply has been reduced to zero
    c. Retiring allowances in the holding account and/or APCR
4. CARB should periodically review the total oversupply of allowances at the end of each compliance period to determine whether it is decreasing at the rate specified in the schedule. If not, CARB should take additional steps, such as those described in part 3 above, to ensure that the cap and trade market provides real reductions in line with SB 32 targets. CARB should identify the mechanisms it will employ to make these adjustments during this rulemaking process in order to send as consistent a signal to the market as possible.

We recognize that it is difficult to design a market which can tolerate all possible sets of market conditions, participant behavior and technological development. The oversupply of allowances from 2012-2020 is a prime example of this; the effect of the recession, coupled with unexpectedly rapid development of emission-reducing

[19] California Health and Safety Code § 38562(c)(2)(D) and (H).

technologies led to an emissions trajectory far below most reasonable projections. The presence of the allowance oversupply complicates the task of designing the post-2020 market. Rather than risk another inaccurate projection of allowance supply or demand, CARB should set a clear target for addressing this issue and build in predictable review and revision opportunities, to allow incremental course corrections during the 2020-2030 time period. Regular reviews and corrections minimize the risk that unexpected exogenous factors lead to another mismatch between permit supply and demand and ensure that market signals are transparent and consistent, even if mid-course corrections to permit supply or allowance target levels are required.

B. Banking and holding rules should allow obligated parties to manage risk, but not offer windfall profit opportunities to speculators or substitute for real emissions reductions.

The negative effects of overallocation are magnified by current banking rules, which allow market participants to hold allowances across compliance periods. Because prices are currently near the reserve price, which increases five percent annually plus an adjustment for inflation, the purchase of cap and trade allowances at today's prices offers investors bond-like certainty of stock-like returns, or potentially much, much more if prices rise significantly.

Allowance banking should be available for the purposes of encouraging early action to reduce emissions, and to allow flexibility for firms that cannot precisely predict emissions over time. It should not serve to create a windfall financial instrument for third party traders with access to capital and no compliance obligation or interest in achieving the 2030 emissions reduction targets.

CARB should assess options for reducing the incentive to treat cap and trade allowances as merely high-yield/low-risk financial instruments. Among other options, CARB should consider shortening the period during which banked allowances may ultimately be surrendered or forbidding the banking of allowances across three-year compliance periods. If allowances are purchased at the end of the surrender period, CARB should consider a system under which unused allowances can be returned and their purchase price credited towards allowances purchased in the next period. CARB should also consider adjusting allowances' compliance value over time to reflect changes in the reserve price and/or cap decline rates. Banked allowances' compliance value may be adjusted to reflect their relative value against a shrinking cap. One way to accomplish this would be to treat banked allowances as a deposit against future allowance purchases' reserve price plus the dollar amount above the reserve price at which the banked allowance was purchased, but requiring the party surrendering the

banked allowance to make up the difference between the clearing price and the reserve price in the surrender year. Another option is to adjust the compliance value of banked allowances by an amount proportionate to the increased cap stringency and increased reserve price. For example, under a simplified formula, if 100 allowances are purchased in year x at a reserve price of $15, if the reserve price rises to $30 in year y, the 100 banked allowances may be surrendered for a compliance value of 50 tons. CARB should evaluate these and other variations on banked allowance value adjustments to ensure that banking can continue to serve its intended purpose to encourage early action and allow compliance flexibility, without encouraging financial speculation in the cap and trade market, and to fulfill the requirements of AB 398.

3. Offsets

Covered sources under the cap and trade program may use offsets to satisfy part of their compliance obligations with offset credits, provided that they represent emission reductions that are real, permanent, quantifiable, verifiable, enforceable, and additional.[20] AB 398 establishes a Compliance Offsets Protocol Task Force and further restricts the use of offsets for compliance purposes to no more than 4 percent of each covered entity's compliance obligation from 2021 through 2025 and no more than 6 percent from 2026 through 2030, of which no more than one-half may be sourced from projects that do not provide environmental benefits in the state. The offset provisions adopted in AB 398 reflect concern by the Legislature that the use of offsets could dilute or undermine the benefits of cap and trade in California, particularly in disadvantaged communities. CARB should respond to these concerns not simply by applying the mandated numerical limits, but also by reexamining its offset protocols to increase confidence that offsets are indeed producing benefits to California, and in particular that offset credits represent greenhouse gas emission reductions from uncapped sources that are additional to any that would occur in the absence of the offsets program.

At the October 12th workshop, some members of staff and the public expressed confusion as to whether the subset of offsets that provide direct environmental benefits to California must be produced by projects within the state of California. These projects should occur within the state of California or, at minimum, prevent direct effluent pollution to California waters. All offsets must produce real, permanent, verifiable, and additional greenhouse gas emissions reductions. For the distinction of some offsets as having direct environmental benefits to the state to have any meaning, these direct benefits must be over and above any indirect benefits

[20] Health and Safety Code §38562(d)(1) and (2)

attributable to the offset projects' greenhouse gas mitigation. It is our position that this designation in no way violates the Commerce Clause of the federal Constitution, but if CARB is concerned about this issue, it should seek clarification from the California Department of Justice through an Attorney General's Opinion, rather than prejudging the issue by foreclosing the possibility that these offsets be designated specifically for projects that occur within California.

CARB should establish the Compliance Offsets Protocol Task force as soon as possible and include experts who have issued well-reasoned criticisms of CARB's offset rules. In consultation with the Task Force, CARB should reexamine its existing offset protocols as well as consider establishing new ones, and ensure that all offset protocols include conservative benchmarks for assessing additionality. Such benchmarks must represent environmental performance that is well beyond median or average practice in the relevant sectors. Even performance that is one standard deviation better than the mean implies that 16 percent of projects within that sector would exceed that performance level in the absence of an offset program. This means that such a benchmark could simply select business-as-usual, better-than-average performance projects and that all of the awarded offset credits could be non-additional. CARB can mitigate this risk be setting benchmarks that reflect genuinely extraordinary performance (e.g. two standard deviations above the mean) and applying appropriate discount factors for uncertainty. Protocols for carbon sequestration projects should also include reserves and/or discounts that appropriately reflect the risk that sequestered carbon will be lost to natural or man-made phenomenon. Finally, offset protocols should reflect sustainability criteria that prevent environmental harm.

Conclusion

California's cap and trade system has been the foundation of its global leadership in climate policy for the last decade. CARB now has the opportunity, and the responsibility, to ensure that it can continue in this role for the next decade and beyond. We appreciate CARB Staff's willingness to engage with all stakeholders as we develop rules for the 2020-2030 market and look forward to constructive engagement as this process moves forward.

Sincerely,

Dan Lashof,
Chief Operating Officer

David Weiskopf,
Policy Development Manager

Colin Murphy,
Climate Policy Advocate

LAO

June 26, 2017

Hon. Cristina Garcia
Assembly Member, 58th District
Room 2013, State Capitol
Sacramento, California 95814

Dear Assembly Member Garcia:

You recently asked our office to provide various analyses related to an oversupply of allowances in the state's cap-and-trade program. Specifically, in this letter, we:

- Estimate the range of the cumulative allowance oversupply in the cap-and-trade program through 2020.
- Assess the impact of allowing this oversupply to carry over into a post-2020 program on (1) future greenhouse gas (GHG) emissions and (2) near- and long-term allowance prices.
- Assess the impact of alternative approaches to addressing the oversupply of allowances and the connection between the current program and a post-2020 program.

Below, we provide some brief background on the ability to use allowances issued in earlier years to comply in later years (commonly referred to as "banking"), as well as discuss the oversupply issues identified above. As you are aware, these are complex issues, and there is substantial uncertainty about the future business-as-usual scenario, as well as impacts under different alternatives. Throughout our analysis, we describe some of the key areas of uncertainty, our assumptions, and/or potential limitations of our analysis. For example, our analysis of the oversupply of allowances focuses on California and does not include current (Quebec) or potential (Ontario) linked jurisdictions. Emissions and allowances in California make up the large majority (about 85 percent) of the current market, so our analysis likely provides a general sense of the magnitude of the oversupply and the basic issues and tradeoffs associated with different policy options. However, to the extent there is a significant imbalance between supply and demand for allowances in linked jurisdictions, it could have a significant effect on the analysis provided below.

LAO Bottom-Line. We estimate that the cumulative oversupply of allowances in California's cap-and-trade program through 2020 could range from 100 million to 300 million allowances, with it most likely being roughly in the middle of that range. Relative to a scenario where this oversupply is not available for compliance in a post-2020 program, the oversupply makes the post-2020 program less stringent, which potentially increases emissions and puts downward pressure on prices. The ultimate magnitude of this effect would largely depend on future emissions scenarios,

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which are subject to considerable uncertainty. In a scenario where there is otherwise a low demand for allowances, there would be a cumulative oversupply of allowances of about 150 million tons through 2030 and allowance prices could remain relatively low. In contrast, under a high demand scenario, the program would encourage a substantial number of GHG reductions from covered entities and allowance prices would likely be substantially higher than they are now. There are a variety of alternative program designs that could affect the oversupply—each of which has tradeoffs related to future emissions and near- and-long term prices.

Background

Current Program Allows Banking. The current cap-and-trade program allows banking. For example, a covered entity can use a 2016 vintage allowance to comply in 2020. Under certain conditions, banking does not change the *cumulative* level of emissions over the course of the entire period. However, it can change when emissions (and emission reductions) occur. Since the cap on emissions becomes more stringent in later years, banking gives firms an incentive to obtain extra allowances in early years as a way to protect against the risk of higher prices in later years when allowances are more scarce.

Relative to a program without it, banking has the effect of increasing allowance prices (and incentives for reductions) in early years, while reducing prices (and incentives for reductions) in later years. Some of the primary advantages of banking include (1) less short- and long-term price volatility and (2) incentivizing lower cost emission reduction activities in early years. However, one potential downside associated with banking is that it increases the risk that an *annual* emissions target in later years is not met because entities can comply in the later years by using banked allowances, rather than reducing emissions.

Cap-and-Trade and Emissions Certainty. Relative to other GHG reduction strategies, cap-and-trade can provide greater emissions certainty because the state controls the cumulative number of allowances issued. However, there are limitations to the amount of emissions certainty that the current cap-and-trade program provides—particularly as it relates to meeting an *annual* state emissions target, such as the 2030 GHG target established by SB 32. For example, as discussed above, allowing a significant amount of banking increases the risk that a future annual emissions target is not met. Furthermore, offsets that reduce emissions in other states can be used to comply with the cap-and-trade program, but these reductions are not currently counted in the *state* GHG inventory that is used to assess the state's progress toward meeting its GHG goals. Thus, while offsets might be a cost-effective way to reduce GHGs in other jurisdictions, they do not help keep GHG emissions from within the state below the limits established in law.

California Oversupply Likely 100 Million to 300 Million Metric Tons Through 2020

An *annual* oversupply occurs when the total number of allowances issued in a given year is greater than the number of allowances covered entities need to comply. This would result in allowances going unsold and/or being banked by private entities. There was an oversupply of allowances in the first three years of the program for which data is available (2013 through 2015) and there will very likely be an annual oversupply of allowances for the next few years of the program. In addition, since banking is allowed, there will very likely be a *cumulative* oversupply

of allowances that builds up through the first several years of the program. Under various assumptions about factors that affect the demand for allowances (specifically, future annual emissions that would occur even in the absence of cap-and-trade and the number of offsets used), we estimate that the oversupply of allowances in California's cap-and-trade program through 2020 could range from 100 million to 300 million allowances, with it most likely being roughly in the middle of that range. This is roughly the same magnitude of oversupply projected from other researchers and market participants. Again, these estimates do not include the supply and demand for allowances from current (Quebec) or potential (Ontario) linked jurisdictions. Including these other jurisdictions could either increase or decrease the estimate of oversupply. In addition, this estimate does not include the roughly 121 million allowances that are available in the Allowance Price Containment Reserve. (Four percent of allowances are placed in the Allowance Price Containment Reserve and made available at predetermined prices—a strategy intended to moderate potential spikes in allowance prices.)

Allowing Use of Oversupply Post-2020 Reduces Prices and Increases Emissions

We assessed the impact of allowing this oversupply to be used for compliance in the post-2020 program. For the purpose of this analysis, we assume the state (1) allows banking from the current program to the post-2020 program and (2) makes no adjustment to the amount of allowances that are available to decrease the oversupply. Below, we discuss how such an approach could affect emissions and allowance prices given the magnitude of the oversupply and potential scenarios affecting the demand for those allowances. We then discuss how alternative design options that reduce the ability to bank allowances or affect the magnitude of the oversupply could affect emissions and prices.

Makes Post-2020 Program Less Stringent and Reduces Allowance Prices. Relative to a scenario where there is no oversupply carried into a post-2020 program (either by limiting banking or removing the oversupply from the market), allowing some or all of the oversupply carry forward effectively makes the program less stringent. This is because it would increase the total supply of allowances in the post-2020 period, and companies could emit more than the post-2020 caps established by the Air Resources Board (ARB). Therefore, a policy to allow the oversupply to carry over would allow more *cumulative* emissions over the post-2020 period. It also makes it less likely that the state would meet its 2030 *annual* emissions target.

This increase in allowance supply in a post-2020 program also would affect allowance prices both in the near and long term. Higher supply of allowances could lead to lower near- and long-term allowance prices. Since some models predict that allowance prices are likely to be either near the price floor or price ceiling, the oversupply could simply increase the likelihood of prices being at the floor and decrease the likelihood of prices being at the ceiling.

Magnitude of Effects Depends on Future Emissions Scenarios. While we would expect that making an additional supply of allowances available post-2020 generally would reduce program stringency and allowance prices, the magnitude of these effects would depend in large part on the demand for allowances, as described below. Consequently, we assessed the difference between supply and demand for allowances through 2030 under two different demand scenarios. (We

assume the supply of allowances is the amount of allowances ARB currently plans to issue through 2030, including the pre-2020 oversupply discussed above, minus the allowances that are expected to be in the Allowance Price Containment Reserve [APCR].) The two scenarios are:

- ***Low Demand Scenario.*** In this scenario, we estimated the demand for allowances assuming that future emissions without the cap-and-trade program would decline significantly, in large part driven by various other GHG reductions policies, consistent with ARB's Scoping Plan emissions projections. We also assume that the percent of total statewide emissions from capped sources remains constant at 78 percent, and offsets are used to cover about 5 percent (250 million tons) of cumulative compliance obligations.
- ***High Demand Scenario.*** Under this scenario, we assumed future emissions without the cap-and-trade program remain flat through the entire period. The comparatively higher emissions could be driven by such things as higher-than-expected economic growth and/or other state GHG policies achieving less reductions than expected. We also assume offsets are used to cover only about 3 percent (176 million tons) of cumulative compliance.

While these scenarios reflect relatively low and high demand for allowances, it is possible that actual demand for allowances could be higher or lower.

Lower Demand Could Result in Cumulative Oversupply of Allowances Through 2030. Figures 1 (see page 6) shows the cumulative oversupply of allowances through 2030 under both scenarios. In the low demand scenario, there would be a cumulative oversupply of allowances of about 150 million tons through 2030. As shown in Figure 2 (see page 6), this means that the cap itself would not drive any reductions in emissions from covered entities. Instead, the GHG reductions from cap-and-trade would come from offsets (about 250 million tons) and whatever reductions are incentivized by the allowance floor price. In contrast, under a high demand scenario where business as usual emissions are high and offset supply is lower, the cap would be needed to encourage about 600 million tons of cumulative GHG reductions from covered entities, in addition to 176 million tons of reductions from offsets. Under this scenario, allowance prices would likely be substantially higher.

Alternative Approaches Have Tradeoffs

We assessed alternative program designs that could affect the oversupply and how those alternatives would affect emissions and prices. Since there are a number of potential alternatives, we have summarized them in Figure 3 (see page 7). Specifically, the figure describes some options that would reduce the degree to which an oversupply would be carried into a post-2020 program, as well as one option that has been discussed that would increase the magnitude of the oversupply that is carried forward. In general, these options fall into one of two categories: (1) strategies that affect the ability to bank allowances and (2) strategies that affect the amount of the oversupply. We also provide a general description of how each option could affect prices and emissions compared to a baseline case where banking is allowed and all of the oversupply is made available in the post-2020 period. These options likely would have different effects on near- and

long-term prices and emission levels. While we describe the potential effects of each approach, the actual effects would depend on a variety of factors, including emissions and allowance prices that would occur without these changes, as well as certain programmatic design features. For example, the effects of each of these policies on prices and emissions might depend on whether market prices are at the floor or the ceiling, and whether there is a hard price ceiling.

If you have further questions, please contact Ross Brown at 319-8345 or Ross.Brown@lao.ca.gov.

Sincerely,

Anthony M. Gurley

for Mac Taylor
Legislative Analyst

Figure 1

Cumulative Allowance Oversupply Under Different Scenarios

In Millions of Allowances

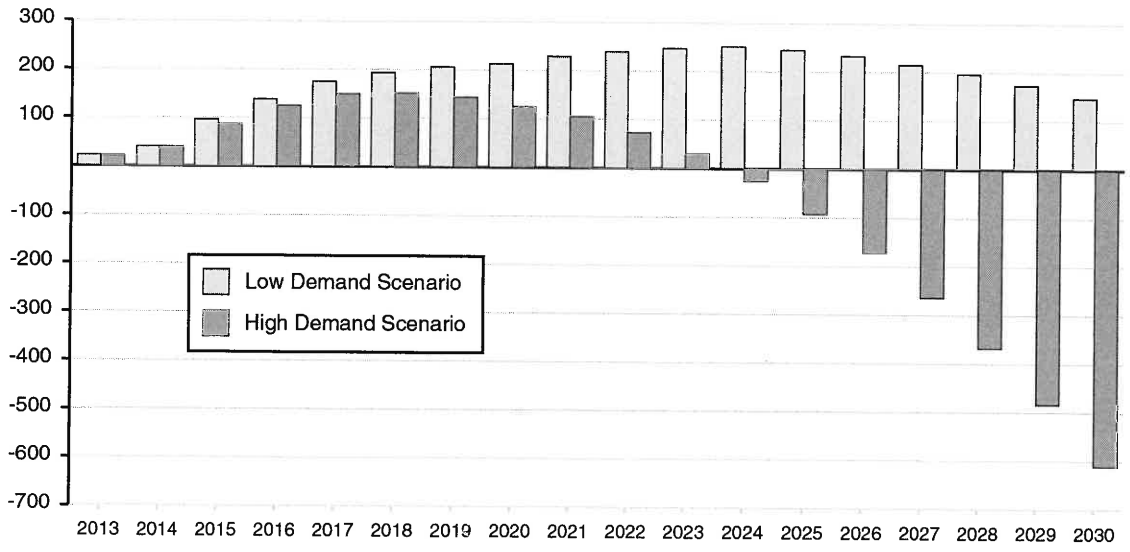


Figure 2

Cumulative GHG Reductions From Cap-and-Trade Through 2030 Under Different Scenarios

(In Million Metric Tons)

	Low Demand Scenario	High Demand Scenario
Reductions from covered entities driven by cap	—[a]	621
Offset reductions	250	176

[a] Since there is a cumulative oversupply of allowances, the cap itself is not driving emission reductions. However, there would be some emission reductions driven by a minimum allowance price.

GHG = greenhouse gas.

Figure 3

Potential Effects of Options to Address Oversupply

Baseline: Allowing Oversupply to Carryover Into Post-2020 Period at Regular Auctions (and No Adjustments to Future Caps)

Alternatives	Effect on Prices	Effect on Emissions
No banking	Lower near-term prices because current allowances cannot be used to comply when cap becomes more stringent.	Higher near-term emissions because lower allowance prices.
	Higher long-term prices because banked allowances not available in future years.	Lower emissions in later years because higher prices.
	Potentially increases price volatility.	
Limited banking (for example, banking allowed for five years)	Lower near-term prices because current allowances cannot be used to comply when cap more stringent in future years.	Higher emissions in near-term because lower prices.
	Higher long-term prices because fewer banked allowances will be available for compliance in later years.	Lower emissions in later years because higher prices.
	Effect on prices would likely be less severe than the "no banking" option.	Effect on emissions would likely be less severe than the "no banking" option.
	Potentially increases price volatility.	
Reduce the number of allowances available by retiring unsold allowances and/or reducing number of allowances issued in future years.	Higher near-term and long-term prices because overall supply of allowances is reduced.	Lower near-term and long-term emissions because prices are higher.
Make oversupply available only at specified prices ("speed bumps," for example)	Higher near-term and long-term prices if prices would otherwise be below speed bumps.	Lower near-term and long-term emissions if prices are higher.
	Effect on prices might be less severe than removing allowances from market entirely.	Effect on emissions might be less severe than removing allowances from market entirely.
	Potentially decreases price volatility.	
Make current APCR allowances available at lower prices (such as offering at regular auction or at "speed bumps")	Lower near-term and long-term prices if prices would otherwise be below the APCR prices.	Higher near-term and long-term emissions if prices are lower.
	Potentially decreases price volatility.	

APCR = Allowance Price Containment Reserve.

nextgen california

Attachment 2: March 2, 2018 Workshop Comments

March 16, 2018

California Air Resources Board Staff

Cap and Trade Program

Via http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm

CC: Mary Nichols, Chair, California Air Resources Board

NextGen California's Comments on the March 2, 2018 Workshop on Potential Amendments to Cap and Trade Regulation

Thank you for the opportunity to comment on the Discussion Draft, Concept Paper, and Staff presentation on potential amendments to California's Cap and Trade Regulations.

We appreciate the significant effort that Staff has made to develop market rules that will ensure that California's cap and trade system continues to be a model for other jurisdictions around the world as we enter the next phase of our efforts to reduce California's greenhouse gas emissions to at least 40% below 1990 levels in the year 2030, and to ensure that we are on a trajectory for at least 80% reductions by 2050 or sooner.

Previously, in response to the Air Resources Board October 12, 2017 presentation, NextGen California provided comment on several of the topics that Staff has requested comment on for the purposes of the this Workshop, which we incorporated here by reference. We have also discussed several of the issues raised in this workshop in three posts on our publicly available website, also attached.[1] We appreciate the thoughtful consideration Staff has given our comments and those of other stakeholders. We appreciate the shared commitment, by many stakeholders in this process, to support a cap and trade program that will deliver cost-effective pollution reductions at a scale sufficient to meet our greenhouse gas reduction targets while driving smart investments in pollution reduction throughout the state.

This comment supplements our previous comments, re-iterates some concerns that staff has not yet fully addressed, and addresses several questions specifically raised in the Discussion Draft.

[1] Available at https://nextgenpolicy.org/blog/getting-californias-climate-rules-right/; https://nextgenpolicy.org/blog/california-cap-trade-price-ceiling-design/; and https://nextgenpolicy.org/blog/investing-balanced-climate-policy-portfolio/.

1. Price Ceiling and Price Containment Points

a. The price ceiling should be based on sound analysis and the legislative requirement to achieve the 2030 target

Staff has proposed a price ceiling in 2030 between $81 and $150 (2015$). The higher end of this range is consistent with a range we discuss in our previous comment and a mid-range among current scientific mainstream assessments of the social costs of carbon. Nevertheless, we reiterate that "CARB should examine best available economic modeling and expert resources in attempting to assess what carbon price will be needed in order to enable the commercialization of technologies that will be required to reach our 2030 targets, and should provide a buffer above that level to take a conservative approach." We also note that the price ceiling mechanism will shield Californians from potential increases in costs that may be associated with high market prices.

In assessing what an appropriate price ceiling level may be, CARB should not rely solely on the comments of interested parties in regulated industry, nor should it rely solely on the perspective of non-governmental environmental public interest organizations that may have a higher tolerance for high market prices than Californians as a whole. The best guidance for this threshold comes from California's elected legislature. While the legislature has not spoken explicitly to what the ceiling price should be, it does offer some guidance both in the text of AB 398, which Staff cites in its discussion draft, and in the actions it has taken to provide CARB with authority to achieve California's carbon reduction targets.

California's legislature enacted SB 32 in 2016, which establishes the legal requirement and authority for the Air Resources Board to adopt regulations sufficient to reduce greenhouse gas emissions in California to 40% below 1990 levels in 2030. Notably, this authorization remained silent on re-authorizing the cap and trade system beyond 2020 in support of this target. By enacting the 2030 target without requiring CARB to adopt any market based mechanism, the legislature expressed the will of the State that these pollution reductions be achieved even if CARB chose not to extend the cap and trade system, and instead relied solely on direct regulation. By explicitly re-authorizing cap and trade the following year, the legislature also expressed the hope that lower-cost measures could and would be found. But this hope does not negate the requirement that these targets must be achieved, even if reductions from the market mechanism are no more cost effective than direct regulation. Ultimately, the economic, social and public health cost of unchecked climate change are so great that when climate change damages and adaptation costs are considered, even cap-and-trade allowance prices well above the upper end of Staff's proposed range are almost certain to provide net benefits to California.

It is the premise of the cap and trade system that the market can and will, given the opportunity and incentive, find lower-cost reductions than can be achieved through direct regulation alone. But we should not establish a price ceiling that could have the effect of excluding emissions reduction measures that may be more cost effective than direct regulation, but more expensive than an arbitrarily-chosen dollar amount. The best guide, therefore for determining the price ceiling is the marginal cost-per-ton reduction required in the absence of cap and trade. With this dollar amount as the price ceiling, we can be confident that the market will both (a) find any and all pollution reduction measures required to achieve the 2030 target, and (b) do so at a price no higher than the cost of direct regulation.

Despite the difficulty associated with predictive economic modeling of carbon abatement technologies on this scale and time horizon, CARB has, in the scoping plan, provided a reasonable starting place for assessing the approximate high end of this range in its "No Cap and Trade Scenario." We therefore recommend that CARB adopt as a price ceiling the marginal cost per ton associated with the measures included in this scenario, but excluded from the Scoping Plan scenario.

b. The price containment points should not impede pollution abatement price discovery

Staff has requested comment on where to set the price containment points ("Reserve Tiers"). We reiterate here our previous comment on this topic:

> AB 398 provides no guidance to ARB regarding the appropriate price points for the required speed bumps. For this reason, ARB must look to the broader purpose of the cap and trade program: to provide a market based mechanism that allows for cost effective emissions reductions. In order to achieve this goal, the market must be allowed to function in a manner that enables price discovery for carbon abatement. For this reason, ARB should set the "speed bumps" at market prices that are relatively close to the price ceiling. If the market is flooded with allowances whenever prices begin to climb even a small amount above the reserve price, the price discovery function of the allowance market will be significantly frustrated. Price containment mechanisms should not be treated as a means of keeping prices artificially low. Rather, they should be treated as safety valves that will hopefully never be called upon – failsafes to ensure that we do not breach the price ceiling. In order to allow the market to cool off in this situation, without undermining the price discovery function of the market, ARB should set both speed bumps well above the median available market price. It would be unreasonable to set the speed bumps below the median price; a market that has not even reached a median within an acceptable range of prices cannot be said to be "overheating" in any way. CARB should evaluate levels such as 75%, 85% and 95% of the price ceiling as potential speed bump points.

NextGen agrees with the logic of Staff's proposal to set the lower of the two Reserve Tiers at the same level as the 2016 rulemaking's single ACPR tier of $72.90 in 2021 (2015 dollars), but if this value is below the median

available market price, CARB should adopt as the lower Tier price a value no lower than the median value. This Tier should be adjusted annually in the same manner as the auction reserve price ("Price Floor"). Establishing the lower Reserve Tier at this level will maintain continuity and expectations with current and previous market rules, which allow the market to function freely in the range between the floor price and this tier price. There is at this time no evidence to suggest either that this tier is too high, or that it may need to be adjusted downward. To the contrary, prices have remained near the price floor, and market participants have had ample time and abundant opportunity to use CARB's generous allowance allocations to make early investments to ensure that the Reserve Tier is never breached.

The second Reserve Tier should be set midway between the 2016 rulemaking's Reserve Tier price and the Price Ceiling we recommend above. The second tier should also be adjusted annually in the same manner as the price floor, to maintain continuity with current and previous market expectations.

2. Several Interacting Factors Affect the Market's Ability to Drive Cumulative Reductions Expected by the Scoping Plan and Achieve the 2030 Target, Given Current Oversupply

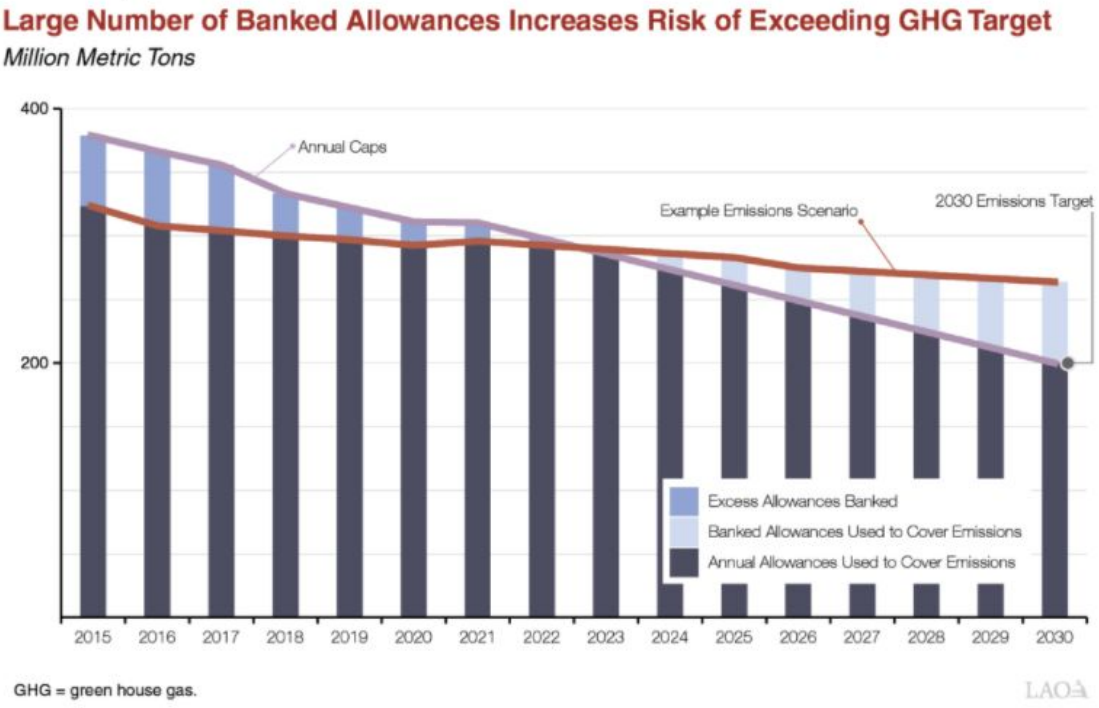
We have previously commented on the significant role assigned to the cap and trade program in the Scoping Plan, and asked CARB to fully evaluate whether and how proposed market rules will enable the program to deliver pollution reductions at this unprecedented scale. Our concern is that nominal compliance with cap-and-trade obligations will not guarantee compliance with the annual emissions target in 2030 if large numbers of banked permits are used for compliance in the last compliance period, or if current market oversupply conditions persist long enough to unduly delay investments in pollution reducing technologies that will be needed to achieve the 2030 target and put us on a trajectory to achieve the 2050 target.

We identify three interdependent factors that will affect the cap and trade program's ability to deliver the pollution reductions required to achieve the 2030 target: Total Allowance Supply and Distribution Among Reserve Tiers, Banking Rules, and Complementary Policies. No one of these factors should be considered in isolation, because each affects the overall market dynamics, including allowance scarcity, price signals, and investment timing. For this reason, CARB should analyze likely market performance under a range of scenarios, and adopt rules that are consistent with the level of performance required of the market under the Scoping Plan Scenario.

a. CARB Should Establish A Transparent Mechanism To Assess Risks from Oversupply and Take Early, Incremental Action Correct it

Multiple independent researchers and program stakeholders have raised the issue of over-supply of allowances relative to expected pre-2020 emissions. A potentially massive balance of allowances currently exists, spread between CARB's Auction Account, individual holding accounts and expected future allocations. While a moderate amount of banked credits can serve as a hedge against price volatility, the current over-supply of allowances greatly exceeds the amount needed as a reserve and threatens the program's ability to meet critical GHG reduction targets in 2030 and beyond. There is sufficient aggregate capacity in holding accounts for this oversupply to be held through much or all of the next decade, and there will likely be a financial incentive to do so as auction reserve prices rise and as we approach 2030.

If permits are held through the mid-2020's and deployed in the late years of the program, real emissions could be significantly above targets even while all parties are nominally in compliance with Cap and Trade rules (See figure below).



[2]

[2] Legislative Analysts's Office, *Cap-and-Trade Extension: Issues for Legislative Oversight, Figure 3,* (2017) http://www.lao.ca.gov/Publications/Report/3719.

It is important that California achieve a trajectory of emissions reductions compatible with the goals of SB 32. In addition to the legal, perceptual and political problems which would arise from missing the SB 32 target, success in the global effort to combat climate change requires broad decarbonization by mid-century. If California ends the 2020's far behind the trajectory needed to achieve this global imperative, the consequences could be severe.

We acknowledge that the scenario described above is a risk, not a certainty, and the Cap and Trade program is designed to be, to a certain extent, self-correcting and resistant to a variety of external challenges. That self-correcting nature is predicated upon the system maintaining an approximate balance between the supply and demand for emission allowances, to allow the market to function in a predictable way.

CARB has asserted in workshops that it possesses the authority to adopt a variety of corrective measures, in the event that the imbalance between allowance supply and demand persists and becomes a threat to program stability. We agree that CARB has sufficient authority to take corrective action, however there may be significant temporal and procedural constraints which would affect such action. The multi-year compliance schedule means that CARB may have to wait for several years before unambiguous evidence emerges that oversupply is persisting through to later years in the program. Then any corrective action would require many months of development and public input before it could be finalized, and then may need to wait until the following compliance period before it could be implemented without disrupting market activity in the compliance period at the time. The cumulative delay to acquire unambiguous evidence of a problem, develop a solution and deploy it without disrupting market activity within the compliance period at the time could easily add up to many years of delay, pushing the implementation date of any remedy to the last compliance period of the proposed program. If the oversupply at that time is even half of the most recent LAO estimate, that would require adjusting the market by 100 million tonnes over two or three years, a precipitous change which could significantly increase price volatility.

To avoid this problem, CARB should take preventive steps now, to address market oversupply. At minimum, CARB should establish a clear set of metrics, triggering criteria and actions to facilitate quick response to potential problems stemming from the pre-2020 imbalance between supply and demand. By creating a process now, CARB maximizes its ability to make early, gradual course corrections which will promote market stability and send a clear and consistent long-term signal to market participants, who can modify their behavior appropriately.

The imbalance between allowance supply and demand has been identified early. This offers CARB the ability to send predictable signals to the market and ensure that it can respond to the potentially developing problem with modest, incremental adjustments to the market rather than abrupt, volatility-inducing change.

We would like to reiterate our suggestion from the previous letter about how to develop a plan to support predictable, transparent and incremental responses to this problem.

> CARB should adopt policies that reduce the reserve of excess credits currently available to be banked or otherwise carried over into the late 2020's. We strongly recommend the following steps.
>
> 1. CARB should quantify the oversupply of allowances at the end of the 2018-2021 compliance period, including permits held in the auction account, APCR and entity holding accounts.
>
> 2. CARB should set a schedule for drawing down the oversupply of allowances which ensures that real emissions from capped sectors decline sufficiently for the state to meet SB 32 goals and be on a trajectory which maximizes the chance to achieve mid-century decarbonization targets including Executive Order B-30-15.
>
> 3. CARB should evaluate and take steps to draw down the over-supply including, but not limited to:
>
> i. Reducing the GHG allowance budget by an amount which yields a cumulative reduction equal to the total oversupply
> ii. Decreasing the value of allowances held in the auction account, APCR, holding accounts or other accounts over time to erode the cumulative value of banked allowances until the over-supply has been reduced to zero
> iii. Retiring allowances in the holding account and/or APCR
>
> CARB should periodically review the total oversupply of allowances at the end of each compliance period to determine whether it is decreasing at the rate specified in the schedule. If not, CARB should take additional steps, such as those described in part 3 above, to ensure that the cap and trade market provides real reductions in line with SB 32 targets. CARB should identify the mechanisms it will employ to make these adjustments during this rulemaking process in order to send as consistent a signal to the market as possible.

b. CARB Should Retire Oversupplied Allowances, Rather Than Move Them to Reserve Tiers

CARB has, at several points, moved permits from the Auction Account, or other agency accounts, into the Price Containment Reserve. Staff indicated plans to move an additional amount of allowances out of the Auction Account to reflect the additional Compliance Offsets AB 398 authorized to be used after 2025. We recognize and

support Staff's desire to reduce the supply of allowances in the Auction account, which would help bring prices off the floor. Independent analysis, however, suggests that the Auction Account will remain oversupplied by 100 - 200 million allowances unless additional action is taken.[3]

If the market were operating from a position of approximately balanced supply and demand, moving allowances to the APCR would be a prudent course of action to preserve future flexibility by keeping those allowances nominally within the Cap and Trade program. As discussed in the previous section, however, the market is not operating under a balance of allowance supply and demand. There is consensus among independent experts and most stakeholders that allowance supply exceeds demand and will continue to do so for several years, at least. Under these conditions, moving permits to the APCR does not address the fundamental problem; APCR permits return to the market at certain price points and can be used to satisfy compliance obligations. If permits from a Price Tier or the APCR are used for compliance, real emissions from covered entities can be significantly in excess of levels needed to maintain a trajectory towards attainment of SB 32 and mid-century decarbonization goals.

We agree with Staff that it is better to have excess allowances in the APCR or Price Tiers than in the Auction account or entity holding accounts and recognize that actions to move permits out of the Auction Account in the past were a step in the right direction. Moving allowances to the APCR or Price Tiers is not sufficient, however, to address the critical long-term problem of oversupply potentially causing California to miss its emission targets.

Accordingly, we strongly recommend that excess allowances be retired from the program, rather than moved to the APCR or Price Tiers. We also recommend that Price Containment Reserve allowances that would be released at the level of the price ceiling be retired, instead. The presence of an explicit price ceiling mechanism obviates the need to have a separate reserve of allowances at the price ceiling and the statutory requirement to reduce emissions from permits sold at the price ceiling on a ton-for-ton basis means that ceiling price transactions which occur through the price ceiling mechanism have an additional safeguard for environmental integrity.

c. Effective Procedures are Needed to Ensure Environmental Integrity at the Price Ceiling

[3] See http://energyinnovation.org/wp-content/uploads/2018/02/WCI-oversupply-grows-February-update.pdf, which estimates that oversupply in the combined WCI market will be 200 - 340 million tons at the end of 2020. California's share of that total is approximately 100-200 million allownaces, after subtracting the staff proposal to remove 23 million allowance to account for offset credits.

AB 398 requires emissions reductions on a ton-for-ton basis to counteract any emissions above the program's emission budget associated with allowances sold at the price ceiling. Accordingly, CARB should design the price ceiling mechanism to ensure environmental integrity in the event of high allowance prices. The price ceiling mechanism should prioritize the procurement of real, quantifiable, verifiable and permanent emissions reductions beyond what would have happened in absence of the ceiling mechanism and these reductions should be procured as quickly as is practicable.

We laid out principles for effective ceiling mechanism design in our January 16th blog post on the subject.[4] In brief:

- Ton-for-ton reductions must be real, quantifiable, verifiable and permanent reductions in emissions which are additional to those which would have otherwise occurred in the *status quo*.
- CARB should compile a registry of projects eligible to qualify as ton-for-ton reductions well in advance of any need for such projects, in order to ensure that when timely reductions are needed, the necessary procedural steps have already been taken. Project developers would submit their project to this registry and go through the certification process as projects came on-line. This ensures that if the ceiling is reached, there are projects ready to go in a timely fashion.
- If the price ceiling is reached, CARB should, as soon as possible, purchase half of the required emissions cuts from projects which have been certified and added to the registry. CARB should use a reverse-auction or similar blinded procedures to allocate purchases equitably between eligible, cost-effective projects with the intent to engage as many registered projects as possible and procure emissions cuts as rapidly as possible. The intent is to reward as many project developers as possible for participating in the registry system.
- The other half of the required emissions cuts should be allocated by a conventional grantmaking process, administered by CARB, through which CARB should seek to maximize co-benefits to California. CARB could draw projects from the registry described above or make other investments designed to compensate for the excess emissions and advance California's climate, clean air, and equity goals.
- CARB should allocate three-quarters of any remaining revenue from the sale of permits at the price ceiling to projects which reduce emissions under capped sectors, in order to take pressure off the market and reduce the chance that prices will remain at or near the cap level. These projects should

[4] https://nextgenpolicy.org/blog/california-cap-trade-price-ceiling-design/

prioritize areas where market failures or other economic conditions prevent existing policies from effectively reducing emissions.

- The final quarter of remaining revenue should be used to replenish the stock of qualified emissions-reducing projects in the registry, to ensure that timely emissions cuts are available if prices return to the level of the cap.

By building an effective cap-preserving mechanism at the price ceiling, CARB can ensure that the environmental integrity of the cap-and-trade program is preserved under even extreme and unusual market conditions.

d. Banking Rules

In addition to addressing market oversupply, CARB should consider adjustments to current allowance banking rules. Current banking rules, which provide for holding limits, but no restrictions on the length of time banked allowances may be held or any means of adjusting banked allowances' value to account for the need to hit not just cumulative, but also annual emissions targets, do not prevent speculative behavior that may artificially increase near-term allowance prices and costs to Californians if CARB addresses the current market oversupply.

Staff noted in its presentation that there is not currently strong evidence of allowance hoarding or speculative behavior in the market. This is not an indication that present rules are adequate to prevent speculative behavior. Rather, it is an indication that many market participants do not currently anticipate future allowance scarcity. But if the cap and trade market must begin driving pollution reductions at the levels anticipated in the Scoping Plan, and we are to achieve the 2030 target, allowances must necessarily become increasingly scarce, and the program must begin driving more reductions than can be expected if prices remain at or near the auction reserve price. CARB should therefore not rely on present banking practices continuing indefinitely and should proactively prepare for how banking practices are likely to change in a market with an expectation of increasingly scarce allowances.

We therefore reiterate our previous comment on this topic:

> CARB should assess options for reducing the incentive to treat cap and trade allowances as merely high-yield/low-risk financial instruments. Among other options, CARB should consider shortening the period during which banked allowances may ultimately be surrendered or forbidding the banking of allowances across three-year compliance periods. If allowances are purchased at the end of the surrender period, CARB should consider a system under which unused allowances can be returned and

their purchase price credited towards allowances purchased in the next period. CARB should also consider adjusting allowances' compliance value over time to reflect changes in the reserve price and/or cap decline rates. Banked allowances' compliance value may be adjusted to reflect their relative value against a shrinking cap. One way to accomplish this would be to treat banked allowances as a deposit against future allowance purchases' reserve price plus the dollar amount above the reserve price at which the banked allowance was purchased, but requiring the party surrendering the banked allowance to make up the difference between the clearing price and the reserve price in the surrender year. Another option is to adjust the compliance value of banked allowances by an amount proportionate to the increased cap stringency and increased reserve price.

e. Complementary Sector-Specific Policies

As CARB further develops market rules for the 2021 – 2030 cap and trade program it must consider how this program will interact with sector-specific policies to meet the emission reduction target mandated in SB 32. In addition to managing the supply of allowances by setting the price ceiling and speed bumps at appropriate levels and adjusting banking rules to avoid speculative behavior, CARB should reduce demand for allowances by strengthening its other emission reduction policies.

i. Transportation

Targeted policies will be particularly important to reduce emissions from mobile sources, which emit 40 percent of California's greenhouse gases and are likely to be less responsive to the price signal from the cap and trade program than other sectors. Fortunately, CARB has a variety of other tools it can use to reduce mobile source emissions by improving vehicles, transportation fuels, and the transportation system to support California's vibrant economy in a progressively cleaner and more sustainable fashion.

California must transition to 100% clean vehicles as soon as possible to meet its climate and clean air goals. CARB must update its mobile source strategy for light duty vehicles to ensure that 5 million Zero Emission Vehicles (ZEVs) are on the road by 2030, as called for by Executive Order B-48-18. To accomplish this CARB should strengthen its Zero Emissions Vehicle mandate and develop 2026-2030 tailpipe greenhouse gas emissions standards that set a course to 100% clean new cars by no later than 2040. To jumpstart the transformation of California's new car market, CARB should enhance the effectiveness of its clean vehicle rebate program by establishing a rebate schedule that is high enough in the near term to make ZEVs price competitive with internal combustion engine vehicles, with rebate levels declining in steps as a function of cumulative sales. CARB should also work with the Franchise Tax Board to establish a system for instant eligibility verification to enable true point-of-sale rebates. For the medium- and heavy-duty sector CARB

should adopt the Innovative Clean Transit Regulation and continue to focus incentives on true zero emission vehicles whenever they are available for a given duty cycle.

The Low Carbon Fuels Standard (LCFS) is an essential tool for expanding the clean transportation fuels market in parallel with improving the vehicles which use these fuels. The LCFS has reduced emissions by over 30 million metric tons of carbon dioxide equivalent since its inception in 2011 by incentivizing transportation fuel producers to bring to market cleaner alternatives to petroleum like biodiesel, renewable diesel, ethanol, renewable natural gas and electricity. CARB's draft plan to extend the program calls for the carbon intensity reduction target to rise from 8% in 2020 to 20% by 2030. This is a very conservative goal and NextGen will be providing detailed comments to the LCFS rulemaking showing that there will be enough low-carbon fuel available to set a higher target, which will reduce emissions by millions of tons per year.

We can also get smarter and more equitable in the way we think about transportation in the first place. California's Sustainable Communities and Climate Protection Act (aka, SB 375, passed in 2008) requires city transportation planners to improve access to transit, change zoning to bring people closer to jobs and services, and encourage more walking and biking.

SB 375 sets a good goal, but more is needed to achieve it. California should invest more in programs like Transformative Climate Communities, which creates a pool of funding from cap and trade that neighborhoods can use to help make walking, biking, carsharing, and transit the best transportation option for people in their communities. Neighborhoods can begin to guide their own process of transforming their mobility by adopting innovative solutions, while serving as living laboratories for novel ideas.

ii. Buildings

Homes and commercial buildings (restaurants, hospitals, stores, offices, etc.) were responsible for 11 percent of California's heat-trapping pollution in 2015, as much as emissions from in-state electricity generation. Besides improving our buildings' ability to keep warm with less fuels through strong efficiency standards, we need to begin replacing fossil natural gas in buildings with electricity and renewable gas.

CARB and California's energy regulators have taken some initial steps to recognize the benefits of building electrification and have the opportunity to do more in 2018. To the extent that buildings continue to use gas it is also possible to reduce emissions by replacing some fossil natural gas with renewable natural gas (RNG). For example, biogas captured from landfills, dairy digesters, and waste treatment plants can be purified to produce pipeline quality gas and injected into the existing gas distribution system. This strategy

should not be considered a substitute for building electrification because using RNG does not eliminate methane leaks and RNG supplies are limited.

iii. Oil Supply

When it adopted the 2030 Scoping Plan, CARB also resolved to "continue to evaluate and explore opportunities to achieve significant cuts in greenhouse gas emissions from all sources, including supply-side opportunities to reduce production of energy sources." A recent report from the Stockholm Environment Institute (SEI) shows that there are indeed significant opportunities to reduce emissions by aligning California's oil supply policies with its policies to reduce demand for petroleum products.[5] Indeed, failure to do so would lead to significant leakage of the emission reduction benefits from California's clean cars and low carbon fuels policies as the petroleum demand reductions produced by these policies are partially offset by increased oil demand outside of California. SEI's analysis also indicates that the cost of emission reductions driven by phasing down oil production in California are comparable to the cost of other policies included in the Scoping Plan.

CARB should evaluate available regulatory pathways to begin bringing fossil fuel production in California into line with the decline in consumption (relative to a BAU baseline) we are currently achieving, and prepare for the significant declines in consumption that will and must occur if we are to achieve our 2030 and 2050 pollution reduction targets.

iv. CARB Should Continue to Develop New Pathways

As our understanding of climate change increases, so does the need to address a broader spectrum of both causes and effects. CARB must proactively expand the portfolio of tools at its disposal, to continue to drive down emissions in an efficient manner while addressing critical economic, equity, and environmental goals. Expanding the set of tools at our disposal will be essential to our long term success. Accordingly, CARB should commit significant resources to develop new methods of leveraging the power of the Cap and Trade market to address a variety of critical challenges. Developing methods to quantify the GHG benefit from forest management practices which reduce wildfire risk and valorizing that through the Cap and Trade market would help bring resources into this desperately needed area. Developing a carbon capture and sequestration protocol eligible to generate credits or offset emissions would help drive that critical climate-protective technology forward. Another possible opportunity to drive further emissions reductions would be to use the Cap and Trade market to value fossil fuel supply limitation measures.

[5] https://www.sei-international.org/mediamanager/documents/Publications/SEI_2018-DB-California_oil.pdf

3. CARB Should Provide a Transparent Analysis Showing that its Proposed Cap and Trade Market Rules, plus Complementary Policies, will Deliver Compliance with SB 32

The Scoping Plan attributes 236 million tons of cumulative emissions reductions between 2021 and 2030 to the cap and trade program, and 60 (34 – 79) million tons of reductions in the year 2030. These numbers, however, were derived by subtraction, not analysis. Staff developed an estimate of the total emission reductions from a Reference scenario required to meet the SB 32 target and subtracted reductions expected from a set of sector-specific "known commitments," yielding a gap that the Scoping Plan *assumes* will be filled by the cap and trade program.

While this may have been an acceptable approach for developing the Scoping Plan at a time when the post-2020 cap and trade market rules had not yet been defined, CARB staff should present a more rigorous estimate of the emission reductions that cap and trade can be expected to deliver given the final set of market rules it proposes for adoption. This would allow the Board to assess whether the proposed rules, in combination with complementary sector-specific policies, are likely to achieve the SB 32 target, as required.

This analysis should not only provide a reasonable estimate of the aggregate emission reductions expected from cap and trade, given the proposed market rules, but also one or more SB 32-compliant scenarios showing actual emissions by sector that could plausibly result from the combination of cap and trade and known commitments to complementary sector-specific measures. This level of disaggregation is necessary to allow CARB and interested stakeholders to evaluate the credibility of the analysis in attributing emissions reductions to different policies while avoiding double counting. This would also allow CARB to determine whether it would be desirable to strengthen known commitments or adopt additional complementary measures to provide greater assurance that the SB 32 target will be met.

4. CARB Should Maintain Current Industrial Assistance Factors Until 2021 and Re-examine Benchmark Factors for 2021-2030

CARB has not yet identified any rational basis for changing the industrial assistance factors (IAFs) for the current compliance period. The Discussion Draft and Presentation assert, without support, that altering current regulations represents a "conservative" approach and provides polluters with a "smooth path" to their post-2020 allocation levels. Neither document provides any evidence or even conjecture that this change is needed or useful

to counter emissions leakage. In the absence of strong evidence of need to ensure the environmental integrity of the cap and trade program, CARB should not allocate additional free allowances to these polluters, many of which operate in some of California's most polluted and most-disadvantaged communities. This action therefore runs directly contrary to the intent of AB 197, which directs CARB to prioritize pollution reductions in these communities, not give these polluters additional leeway at the expense of other market participants.

Polluters that would benefit financially from the proposed change in existing final regulations are currently operating under the existing IAFs, which are already higher than CARB's analysis shows is needed to prevent leakage, and they have the expectation of the post-2020 IAFs required by AB 398. Neither the statute nor market conditions indicate any need for a change to current regulations. The legislature had every opportunity to require this change, and chose instead to maintain existing regulation for the current period, and to implement changes only after 2021.

It is unconscionable for CARB to consider an action so clearly contrary to the intent of both AB 398 and AB 197 to adjust the current rules merely for the sake of being able to draw a straight line on a graph to provide a "smooth path," as is done in Staff's presentation on this topic.

Staff's repeated reminders that the IAFs do not relieve covered entities of their entire compliance obligation and that the proposed increase in free allowances is relatively small proportion of the entire allowance market are irrelevant to the question as to whether the current regulations should be changed to provide these polluters with additional free allowances. The same rationale could equally justify giving free allowances to any entity for any reason. Unless Staff can provide strong evidence that current factors are resulting in leakage that would be mitigated by increasing the free allowances polluters receive, there is no basis for changing the current allocation.

Staff has also indicated that with additional free allowances, these sources will have more capital on hand which may be invested in pollution reductions, but has provided no evidence that capital availability is a constraint on pollution reduction investments or that these source intend to use the value of additional free allowances to make these investments. These sources have not made any binding commitments to invest the value of additional free allowances in pollution reduction projects and nothing in the staff proposal would compel them to do so. It is just as likely that the additional free allowances will be spent on shareholder profits, lobbying, executive compensation, or any other unspecified corporate expenditures.

If the proposed change takes place, there is no evidence they will do anything to prevent leakage or incentivize pollution reductions.With current market prices at or near the auction reserve price, they also do little to nothing to shield California consumers form any price impacts. Rather, they will only serve to divert over $300 million worth of allowances and the associated revenue they would raise at auction away from investments in pollution reductions and other community resilience investments. This money would instead go directly into the hands of the very polluting industries whose impacts that money should go towards abating.

The Board has directed Staff to propose this change, and Staff has no choice but to follow the Board's direction. Nevertheless, Staff should fully inform the Board that the change to the current regulations is unnecessary, not required by statute, and counter to the intent of the cap and trade program so that the Board may make an informed decision to reject the change.

In addition to maintaining the existing IAFs in current regulation, Staff should examine potential adjustments to industrial allocations in the 2021 to 2030 period. The current benchmark factors, for example, were set based on data that reflected industry practice that may no longer be current. CARB should fully examine current practice and recent technological advancements, and if appropriate, adjust the benchmark factors accordingly.

5. Offsets

a. Direct Environmental Benefits

Staff has requested feedback on how offsets may be qualified as providing Direct Environmental Benefits to the state of California (DEBs) for the purposes of compliance with AB 398. Staff has proposed to define DEBs as "the reduction or avoidance of any air pollutant in the state or avoidance of any pollutant that could have an adverse impact on waters of the state," to qualify any in-state offset project as compliant with this requirement, and to allow for individualized project reviews for offsets that are neither geographically inside California nor directly beneficial to a river that flows through California.

These guidelines provide a useful starting place for distinguishing projects with direct versus indirect benefits to California. Staff should provide more specificity on how projects may fail to meet these requirements.

First, CARB should clarify that, for the purposes of DEBs certification, the pollution reductions or avoidances from an offset project must occur as a *direct*, rather than *indirect* effect of the offset project, and that those

reductions must result in air or water quality benefits inside the geographic boundaries of California. For example, an out of state anaerobic methane digester may *directly* reduce some air pollutants that would otherwise be emitted from the undigested feedstock, but unless it is clear that these pollutants would affect air quality in California, these pollution reductions should not qualify as DEBs. Similarly, the combustion of that methane for onsite space heating may *indirectly* reduce emissions that would otherwise have occurred if the onsite operations had providing the space heating from another source, or the operation may *indirectly* reduce emissions elsewhere if the captured methane is injected into a natural gas pipeline for sale as RNG. In either case, whether these indirect emission reductions occur in California or not, they should not be considered DEBs because they are, by definition, not "Direct."

Second, Staff should clarify that the reduction or avoidance of "any air pollutant" refers to air pollution reductions above and beyond any greenhouse gas reductions that occur as a result of the project. Staff indicated that this is the intent of the proposed rule, and agreed that it is the clear intent of the statute in establishing DEBs offsets as a separate category from non-DEBs offsets. We are requesting that Staff clearly make this distinction in the regulatory documents as well.

Finally, staff should indicate clearly to offsets project developers that the bar for showing that out of state projects provide DEBs is a high one, and one that is increasingly difficult to satisfy, the farther a project is form California. CARB would be well within its rights to exclude out of state offsets altogether from eligibility for DEBs designation. Some stakeholders have expressed concern that this clear geographic distinction may violate the federal Commerce Clause, but this concern is misplaced. CARB is not seeking to prevent the purchase or sale of offsets, nor is it engaged in any discriminatory or protectionist behavior, nor is it seeking to regulate activities that occur outside of California. CARB offers regulated entities the opportunity to meet a portion of their compliance obligation for the voluntary cap and trade program through the voluntary alternative compliance mechanism of purchasing offsets that meet certain standards of effectiveness. CARB's role in determining the form of voluntary alternative compliance within a voluntary alternative compliance air pollution reduction program bears no connection whatsoever to the federal Commerce Clause or the protectionist behavior it seeks to prevent. CARB should therefore feel no obligation to accept out of state offsets (or any other offsets for that matter) at all merely out of concern for Commerce Clause compliance. CARB should therefore prioritize the clear intent of the legislature to ensure that at least half of the offsets provided for cap and trade compliance provide direct, tangible environmental co-benefits to California, and set a high bar for out of state projects to demonstrate that they meet these requirements.

b. Other Offsets Topics

In AB 398 the legislature reduced the share of compliance obligations that can be satisfied with offsets as well as requiring that at least half of the offsets submitted for compliance provide direct environmental benefits in California. This is a clear indication that the legislature prioritizes direct emission reductions over offsets (as it stated explicitly in AB 197, enacted in 2016) and is concerned generally that offsets may not achieve climate and other benefits that are equivalent to directly reducing emissions from sources covered by the cap and trade program. In the preliminary discussion draft staff has only addressed the definition of Direct Environmental Benefits. As stated in our previous comments, NextGen encourages CARB to respond to the legislature's concerns about offsets in a comprehensive manner by quickly establishing the Compliance Offsets Protocol Task force and ensuring that all offset protocols include conservative benchmarks for assessing additionality.

6. Conclusion

California's cap and trade system has been the foundation of its global leadership in climate policy for the last decade. CARB now has the opportunity, and the responsibility, to ensure that it can continue in this role for the next decade and beyond. We appreciate the substantial effort CARB Staff has invested in this essential task, as reflected in its preliminary discussion draft, concept paper, and workshop presentation, and its commitment to engage with all stakeholders in a transparent manner. We look forward to continued constructive engagement as this process moves forward.

Sincerely,

Dan Lashof,
Chief Operating Officer

David Weiskopf,
Climate Policy Director

Colin Murphy,
Transportation Policy Manager