CENTER for BIOLOGICAL DIVERSITY Because life is good.

August 24, 2018

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Via Online Submission
https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ghgpetroleumfuels-ws&comm_period=1

Re: Workshop re: Opportunities for Additional Greenhouse Gas Reductions From Petroleum Transportation Fuels

To Whom It May Concern:

One behalf of the Center for Biological Diversity (the "Center") and our more than 100,000 members and supporters in California, the Center submits these comments on the workshop on opportunities for additional greenhouse gas ("GHG") reductions from petroleum transportation fuels, held on August 20, 2018. While the Center appreciates that the California Air Resources Board ("CARB") held the workshop that included a discussion on reducing GHG emissions from fossil fuel production, we are concerned that the presenters did not adequately present and discuss all the reasons California needs to end production of fossil fuels. There was insufficient attention given to the need to address fossil fuel extraction in order to meet state and global climate goals, and insufficient attention given to oil production's continuing unjust and disproportionate harm to the air quality and public health of California's disadvantaged communities.

As one speaker, Peter Erickson, did explain at the workshop, reducing production is critical *in conjunction with* limiting fossil fuel demand in order to solve the climate crisis. The panelists seemed to ignore the need for *both* events to occur, instead attacking what he did not say: that we must *only* limit production. In dismissing Peter Erickson's point and research, the panelists downplayed critical recent scientific studies that have established that there is no room in the global carbon budget for new fossil fuel extraction if we are to avoid the worst dangers from climate change.[1]

Scientific research has estimated the global carbon budget – the cumulative amount of carbon dioxide that can be emitted – for maintaining a likely chance of meeting the Paris climate target of 1.5°C or the higher target of 2°C. According to the Intergovernmental Panel on Climate Change (IPCC), the authoritative international scientific body for the assessment of climate change, total cumulative anthropogenic CO_2 emissions must remain below 400 $GtCO_2$ from 2011 onward for a 66

[1] The Center encourages CARB to review Peter Erickson's rebuttal to Severin Borenstein's "wealth transfer" arguments, provided in a recent post: Peter Erickson and Michael Lazarus, On Oil Imports and Climate Leadership (August 16, 2018), https://www.sei.org/perspectives/new-thoughts-california-oil/ ("Erickson and Lazarus").

percent probability of limiting warming to 1.5°C, and below 1,000 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 2°C above pre-industrial levels.[2]

A 2016 global analysis found that the carbon emissions that would be emitted from burning the oil, gas, and coal in the world's *currently operating* fields and mines would fully exhaust and exceed the carbon budgets consistent with staying below 1.5°C or 2°C.[3] Further, the reserves in currently operating oil and gas fields alone, even excluding coal mines, would lead to warming beyond 1.5°C. An important conclusion of the analysis is that *most* of the existing oil and gas fields and coal mines will need to be closed before their reserves are fully extracted in order to limit warming to 1.5 degrees.[4] Some existing fields and mines will need to be closed to limit warming to 2 degrees.[5] In short, there is no room in the carbon budget for *new* fossil fuel extraction *anywhere*, including in California.[6]

California is both one of the nation's top oil-producing states and one of the world's largest and most prosperous economies. As DOGGR admitted at the workshop, California's crude oil is among the dirtiest and most carbon intensive in the world. Crude oil from California's largest oil fields has higher lifecycle greenhouse gas emissions than most other U.S. and global crudes.[7] Three-quarters of the oil produced in California is at least as carbon-intensive as Canada's tar sands crude.[8] California has both the ability and the moral imperative to reduce fossil fuel extraction.

---

[2] IPCC [Intergovernmental Panel on Climate Change]: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F. et al. (eds.)], Cambridge University Press (2013) at 25; IPCC [Intergovernmental Panel on Climate Change], Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], IPCC, Geneva, Switzerland (2014) at 63-64 & Table 2.2.

[3] Oil Change International, The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production (2016), http://priceofoil.org/2016/09/22/the-skys-limit-report/.

[4] Oil Change International, The Sky's Limit California: Why the Paris Climate Goals Demand That California Lead in a Managed Decline of Oil Extraction (2018), http://priceofoil.org/ca-skys-limit at 7, 13.

[5] Oil Change International, The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production (2016) at 5, 7.

[6] This conclusion was reinforced by the IPCC Fifth Assessment Report which estimated that global fossil fuel reserves exceed the remaining carbon budget (from 2011 onward) for staying below 2°C (a target incompatible with the Paris Agreement) by 4 to 7 times, while fossil fuel resources exceed the carbon budget for 2°C by 31 to 50 times. *See* Bruckner, Thomas et al., Energy Systems. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press (2014), http://ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter7.pdf at Table 7.2.

[7] Lifecycle greenhouse gas emissions (including upstream production, midstream refining, and downstream end use of refined products) of crude oil from three of California's largest oil fields (Midway-Sunset, South Belridge, and Wilmington) ranked among the highest of the 75 global crudes evaluated by experts at the Carnegie Endowment for International Peace; Gordon, Deborah et al., Need to Know: the Case for Oil Transparency in California, Carnegie Endowment for International Peace (March 15, 2017), http://carnegieendowment.org/2017/03/15/need-to-know-case-for-oil-transparency-in-california-pub-68166; Carnegie Endowment for International Peace, Oil-Climate Index, Total Estimated GHG Emissions and Production Volumes for 75 OCI Test Oils (2017), http://oci.carnegieendowment.org/#supply-chain; Gordon, Deborah et al., Drilling Down on Oil: The Case of California's Complex Midway Sunset Field, Carnegie Endowment for International Peace (2017), http://carnegieendowment.org/2017/03/15/drilling-down-on-oil-case-of-california-s-complex-midway-sunset-field-pub-68210

[8] Center for Biological Diversity, Oil Stain: How Dirty Crude Undermines California's Climate Progress (2017), https://www.biologicaldiversity.org/programs/climate_law_institute/energy_and_global_warming/pdfs/Oil_Stain.pdf

Relatedly, the workshop failed to address the impact of new permits for oil and gas wells and infrastructure on "locking in" fossil fuel production for decades to come. New approvals of fossil fuel infrastructure projects such as pipelines, marine and rail import/export terminals, and refinery expansions further exacerbate "carbon lock-in" because such projects require upfront investment, incentivizing continued operation for decades into the future.[9] Ending the approval of new fossil fuel projects would avoid the lock-in of decades' worth of fossil fuel production and associated emissions.[10]

Moreover, though this workshop was scoping plan-related, the panelists seemed to gloss over the fact that "in its recent 2030 Climate Change Scoping Plan, the California Air Resources Board estimates that California will use about 150 million fewer barrels of oil in 2030 than it does today. This strong reduction in oil demand leaves ample room for California to gradually phase down oil production, currently about 170 million barrels annually, with no net increase in oil imports."[11]

The Center is also deeply concerned about the lack of in-depth discussion on the health and environmental justice consequences of allowing production to continue. First, the Division of Oil, Gas, and Geothermal Resources has failed to protect Californians from oil industry pollution and other safety risks. Unlike other oil producing states, it allows discharge of oil wastewater into unlined pits, and minimally tested and treated wastewater to be used to irrigate agriculture. Perhaps more alarmingly for CARB, in contrast to DOGGR's assertion at the workshop that its "regulatory modernization" is going well, DOGGR is proposing new and less restrictive regulations pertaining to the oil industry's use of dangerous wastewater injection techniques. These regulations will facilitate further expansion of California's oil and gas production in the state, even legalizing previously prohibited activity like injecting at pressures high enough to fracture the subsurface formation. The energy-intensive attributes of California's oil extraction makes these regulations particularly devastating for the climate.

Second, phasing out California's oil and gas production would provide critically needed public health benefits. Scientific research shows that living near oil and gas wells is associated with a higher risk for developing some forms of cancer,[12] increased asthma attacks and more upper respiratory

---

[9] Davis, Steven J. and Robert H. Socolow, Commitment Accounting of CO_2 Emissions, Environmental Research Letters 9: 084018 (2014); Erickson, Peter et al., Assessing Carbon Lock-in, Environmental Research Letters 10: 084023 (2015); Erickson, Peter et al., Carbon Lock-in from Fossil Fuel Supply Infrastructure, Stockholm Environment Institute, Discussion Brief, https://www.researchgate.net/publication/282706125_Carbon_lock-in_from_fossil_fuel_supply_infrastructure (2015); Seto, Karen C. et al., Carbon Lock-In: Types, Causes, and Policy Implications, Annual Review of Environmental Resources 41: 425-52 (2016); Green, Fergus and Richard Denniss, Cutting With Both Arms of the Scissors: The Economic and Political Case For Restrictive Supply-Side Climate Policies, Climatic Change (2018), https://doi.org/10.1007/s10584-018-2162-x .

[10] Erickson et al. (2015): "The essence of carbon lock-in is that, once certain carbon-intensive investments are made, and development pathways are chosen, fossil fuel dependence and associated carbon emissions can become "locked in", making it more difficult to move to lower-carbon pathways and thus reduce climate risks." Green and Denniss (2018): "When production processes require a large, upfront investment in fixed costs, such as the construction of a port, pipeline or coalmine, future production will take place even when the market price of the resultant product is lower than the long-run opportunity cost of production. This is because rational producers will ignore 'sunk costs' and continue to produce as long as the market price is sufficient to cover the marginal cost (but not the average cost) of production. This is known as 'lock-in.'"

[11] Erickson and Lazarus, *supra.*

[12] McKenzie, Lisa M. et al., Childhood Hematologic Cancer and Residential Proximity to Oil and Gas Development, PLoS One 12: e0170423 (2017).

problems,[13] higher hospitalization rates,[14] birth defects,[15] premature births and high-risk pregnancies,[16] and low-birthweight babies.[17] And the health harms increase the closer one lives to oil and gas wells.[18] The independent California Council on Science and Technology review panel recommended that California institute health and safety setbacks around oil and gas wells.[19]

In California, 8,500 active oil and gas wells are within 2,500 feet of homes, schools, and hospitals.[20] These wells are disproportionately located in low income and communities of color which already suffer an unfair pollution burden.[21] Severin Borenstein asserted at the workshop that limiting California's oil supply would create a wealth transfer from California to the world's oil producers. As explained above, this argument ignores the concomitant reductions in oil demand that California already requires and will likely intensify, which negates Borenstein's assertion. Even more disturbing, however, is the fact that this argument entirely overlooks the price California and its communities burdened with neighborhood oil drilling have been paying for years—such as in health expenses, lost school and work hours, and decreased quality and loss of life.

Recent legislation, in particular AB 398, has made it all but impossible for local air districts to regulate GHG emissions from oil and gas production. AB 617 was presented to the environmental justice communities as a way to mitigate the harmful consequences of AB 398 for these communities.

---

[13] Rasmussen, Sara G. et al., Association Between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations, JAMA Internal Medicine 176: 1334-1343 (2016); Rabinowitz, Peter M. et al., Proximity to Natural Gas Wells and Reported Health Status: Results of a Household Survey in Washington County, Pennsylvania, Environmental Health Perspectives 123: 21-26 (2016).

[14] Jemielita, Thomas et al., Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates, PLoS ONE 10: e0131093 (2015).

[15] McKenzie, Lisa M. et al, Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado, Environmental Health Perspectives 122: 412-417 (2014).

[16] Casey, Joan A. et al., Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA, Epidemiology 27: 163-172 (2016).

[17] Stacy, Shaina L. et al., Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania, PLoS ONE 10: e0126425 (2015); Currie, Janet et al., Hydraulic fracturing and infant health: New evidence from Pennsylvania, Science Advances 3: e1603021 (2017).

[18] McKenzie Lisa M. et al., Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources, Science of the Total Environment 424: 79-87 (2012); Southwest Pennsylvania Environmental Health Project (EHP), The Problem of Setback Distance for Unconventional Oil & Gas Development: an Analysis of Expert Opinions, http://www.environmentalhealthproject.org/dl/26 (2016); Haley, Marsha et al., Adequacy of Current State Setbacks For Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, And Niobrara Shale Plays, Environmental Health Perspectives 124: 1323–1333 (2016); McKenzie, Lisa et al., Ambient Nonmethane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks, Environmental Science and Technology 52: 4514-4525 (2018).

[19] California Council on Science and Technology] CCST and Lawrence Berkeley National Laboratory [LBNL], An Independent Scientific Assessment of Well Stimulation in California, Volume II (2015), at 46, 375, 433, 439, http://ccst.us/projects/hydraulic_fracturing_public/SB4.php; CCST and LBNL, An Independent Scientific Assessment of Well Stimulation in California, Volume III (2015), at 14, 259.

[20] Oil Change International, The Sky's Limit California: Why the Paris Climate Goals Demand That California Lead in a Managed Decline of Oil Extraction (2018), http://priceofoil.org/ca-skys-limit.

[21] Of the 1.8 million residents living within one mile of oil and gas development and in communities identified as most vulnerable by CalEnviroScreen 2.0, nearly 92 percent are people of color: 69 percent Hispanic/Latino, 10 percent African American, 11 percent Asian, and 2 percent Other. Srebotnjak, Tanya and Miriam Rotkin-Ellman, Natural Resources Defense Council, Drilling in California: Who's at Risk? (2014), https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf; Czolowski, Eliza D. et al., Toward Consistent Methodology to Quantify Populations in Proximity to Oil and Gas Development: a National Spatial Analysis and Review, Environmental Health Perspectives 125: 086004 (2017).

Therefore, communities have asked CARB to enact a health and safety buffer as part of the AB 617 process, and the Center supports this ask. In addition, over 800 organizations, as well as dozens of scientists and elected officials, are united in their call on Governor Brown to:

- lead by announcing no new permits for oil and gas extraction, fossil fuel infrastructure, or petrochemical projects in California, and
- set a global precedent by becoming the first oil producing state to announce a phase-out of existing production in line with the Paris climate goals, with a just and equitable transition that protects workers, communities, and economies, starting in places that are suffering most from the impacts of fossil fuel extraction.

CARB will be integral to this process, which would help protect the health and safety of 39 million Californians, and also ensure a more equitable and healthy future for the billions of people around the world who look to California to pave the way. We ask CARB to lead by seriously considering the very real evidence that the only way to solve the climate crisis in time to avert the worst disasters is to keep fossil fuels in the ground.

Sincerely,

Maya Golden-Krasner
Deputy Director | Climate Law Institute
Center for Biological Diversity
mgoldenkrasner@biologicaldiversity.org
(213) 785-5402