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### Authors

Partridge, Tristan  
Barandiaran, Javiera  
Walsh, Casey  
[et al.](#)

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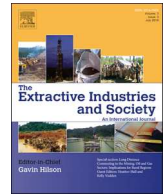
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## Viewpoint

### California oil: Bridging the gaps between local decision-making and state-level climate action

Tristan Partridge<sup>a,\*</sup>, Javiera Barandiaran<sup>b</sup>, Casey Walsh<sup>c</sup>, Kalina Bakardzhieva<sup>b</sup>, Leah Bronstein<sup>b</sup>,  
Monica Hernandez<sup>d</sup>

<sup>a</sup> Institute for Social, Behavioral and Economic Research, University of California, Santa Barbara, CA 93106-2150, United States

<sup>b</sup> Department of Global Studies, University of California, Santa Barbara, CA 93106-7065, United States

<sup>c</sup> Department of Anthropology, University of California, Santa Barbara, CA 93106-3210, United States

<sup>d</sup> Department of Environmental Studies, University of California, Santa Barbara, CA 93106-4160, United States

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#### ABSTRACT

California has set ambitious climate policies, including economy-wide carbon neutrality by 2045. Yet levels of oil production and consumption remain high in the state. This gap between California's oil politics and its climate ambitions is deepened by decentralized decision-making processes. County officials are tasked with extractive planning decisions that have wide-ranging implications. In this Viewpoint article, we analyze proposals for enhanced extraction at the Cat Canyon oilfield in Santa Barbara County. After two of three proposals were withdrawn in recent months, we highlight how it has been oil industry volatility and public opposition – rather than state regulations – that have brought county development plans into closer alignment with state climate goals. As California pursues a goal of ‘managing the decline’ of domestic oil production, we identify strategies for bridging such gaps between local decision-making and state-level climate action, including: a comprehensive state-wide ban on new enhanced oil extraction projects; a 2,500 ft buffer zone around extraction sites; and revenue generation schemes that support a just transition. As Covid-19 forces an oil surplus and lowered production, there are opportunities to enact such changes – particularly by redirecting oil industry labor toward the growing problem of well decommissioning.

## 1. Introduction

After decades of subsidized dominance, the global oil industry is in survival mode – incompatible with long-term climate policies, challenged by popular opposition, and now facing the combined effects of the Covid-19 pandemic and a global price war (Bernauer and Slowey 2020; Carrington et al., 2020; Laing 2020). The first quarter of 2020 was the industry's worst on record: demand crashed, prices collapsed, and US analysts began forecasting another wave of oil company bankruptcies (Hirtenstein 2020; Kimani 2020). In recent years, California has been directing extractive and climate policies ahead of this trend – aiming to ‘manage the decline’ of the oil industry through demand and supply side measures (Newsom 2019). While the current US federal administration plans to withdraw from the 2015 Paris Agreement – and its implied carbon budget that leaves at least a third of global oil reserves unused (McGlade and Ekins 2015) – California has become a leader within a coalition of 25 US states committed to implementing Paris-aligned domestic policies (Lenferna 2018). The

world's fifth largest economy, California is targeting economy-wide carbon neutrality by 2045 (SCED 2018). Yet levels of oil production and consumption remain high in the state. Responses to Covid-19 have even included rapid approval of fracking wells (Wilson 2020). And at the county level, appointed planning commissioners are still being asked to approve particularly energy intensive modes of onshore oil extraction. Such local-level dynamics and decisions have serious implications for state climate goals. The Cat Canyon oilfield in Santa Barbara County is a case in point.

This Viewpoint article places proposed operations at Cat Canyon within state and national contexts and highlights how oil industry volatility and public opposition (rather than a state-wide regulatory framework) have brought the County into closer alignment with California's climate objectives. Section 2 details three oil projects between June 2014 and May 2020 that were under consideration by the Santa Barbara County Department of Planning & Development – noting that two of these projects were withdrawn amid Covid-related industry uncertainty and in light of sustained environmental activism. Section 3

\* Corresponding author.

E-mail address: [tristan.partridge@ucsb.edu](mailto:tristan.partridge@ucsb.edu) (T. Partridge).

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traces how local extractive planning decisions (both past and present) have environmental and regulatory implications that extend beyond county borders; and Section 4 relates these developments to questions regarding the future of oil across the state. The final section concludes with a series of proposals for bridging identified gaps between local decision-making and state-level climate action.

## 2. Cat Canyon: redevelopment proposals

The Cat Canyon oilfield is located in the Santa Maria Valley region approximately 150 miles northeast of Los Angeles. Overlying source rocks in the Monterey and Sisquoc Formations, Cat Canyon has been a site of extractive operations for over a century (Roehl and Weinbrandt 1985). Easily recoverable reserves are depleted and many wells lie abandoned or shut in; continuing extraction there is impossible without tertiary or enhanced oil recovery techniques, as at many fields across California (Tennyson 2005). Consequently, oil production at Cat Canyon is carbon and energy intensive, requiring a combination of cyclic steam injection and acidizing techniques to access the remaining heavy, viscous crude oil reserves previously considered unrecoverable. Over the last six years, three projects using these extraction methods were under review by County planning commissioners. All three proposals faced opposition. In addition, the operating companies have not been immune to the broader industry trends mentioned above – bankruptcy, incompatibility with (state) climate policies, increasing enforcement of environmental regulations, and public support for renewable energy transitions. Two of the three projects were subsequently withdrawn in April/May 2020. Reviewing the scope and scale of these projects reveals the significant responsibilities that local planners have in assessing potential impacts on the environment, climate, and energy transitions.

In June 2014, Texas-based ERG submitted the West Cat Canyon Revitalization Plan for 233 new thermally enhanced oil production wells. In 2015, ERG filed for bankruptcy, citing plummeting oil prices, lack of capital, and their underestimation of the time and money required for working through local permitting processes (Cooper 2015). However, the project remained under consideration by County officials. In August 2019, the project was delayed until redesigns can meet County greenhouse gas mitigation requirements. This move came after ERG Resources was bought by a smaller outfit, Denver-based Terracore Operating Company (Scully 2019). The transfer was an additional source of concern for those opposed to the project, since smaller operators often present additional risks. Small businesses are less likely to be able to afford to plug idle wells or remain financially solvent through periods of low oil prices, leaving the state with responsibility for meeting the costs of well abandonment (Ferrari 2019). The Terracore proposal remains under environmental review with the number of new wells revised down to 187. If that proposal is approved, Terracore is expected to construct their 2.9 mile Foxen Petroleum Pipeline which has already received County approval.

A second project was proposed by Aera Energy LLC, a company co-owned by Exxon and Shell with its headquarters in Bakersfield, the seat of government for California's top oil-producing region, Kern County. In April 2015, Aera applied for approval of its East Cat Canyon Oil Field Redevelopment Project to re-establish oil production by using thermally enhanced recovery techniques and by drilling up to 296 wells (including those used for oil production, steam injection, observation, non-potable water production, water injection, and fresh groundwater access) (SBPDP 2019). Like Terracore, Aera specified measures for dealing with the viscosity of the remaining oil Cat Canyon oil: it would be mixed with lighter crude (delivered to the site by oil tanker truck) and then the blended crude would be trucked out for processing and onward delivery to Aera's site in Kern County, more than 100 miles away. In October 2019, this project was also revised in light of responses to the project's draft Environmental Impact Report – particularly challenging

the project on issues of air quality, freshwater usage, wildlife habitat loss, and the 190 one-way tanker truck trips per day added to county roads, among other concerns (Welsh 2019). The number of proposed wells was revised down from 296 to 189 (Aera 2019). On 27 May 2020, citing “uncertainty in the oil market and concerns about the permitting approval process,” the company announced it was withdrawing the project (Aera 2020).

A third project was also submitted mid-2015, proposing up to 231 new wells (for oil production, injection, and water access) and based on three oil leases: the United California, California Trust and Bradley Leases (UCCB). The project was subsequently withdrawn on 1 April 2020 by its operator, PetroRock LLC (whose leases are operated by Vaquero Energy). PetroRock was created in 2007 through the consolidation of several related companies with a primary focus on the ‘redevelopment’ of leases for heavy oil sands extraction in Cat Canyon. These leases had been abandoned by Texaco, who cyclically steamed them from 1965 to 1997 (Nahama 2016; PRLC 2019). When the PetroRock UCCB Production Plan Project was withdrawn, the County planning department noted that they did not expect to review any revised plans in the future. Erin Briggs of the department's Energy, Minerals and Compliance Division suggested that the combined effects of the coronavirus pandemic and repeated massive drops in the price of oil meant that the Cat Canyon project would only lose money (Hodgson 2020).

All three projects encountered widespread public opposition. At Planning Department hearings, a number of people spoke in favor of the expansion of extraction Cat Canyon, including company representatives and landowners who collect rent from land leased to oil operators. But at the same hearings, diverse groups articulated their opposition – including local environmental justice activists who highlighted numerous deficiencies in published environmental impact reports (and thus contributed to extending the permitting processes). It was in this context that global oil demand and prices dropped dramatically during the coronavirus pandemic. Only one of the three Cat Canyon projects remains under consideration – its operator, Terracore, reaffirming in June 2020 plans to press ahead with their proposal (Ezzone 2020). Oil companies have for a long time had to deal with economic volatility and uncertainties. This is reflected in how many industry operators and policy makers around the world have sought to rapidly and completely exploit their territorial fossil fuels – a pattern that is entirely inconsistent with commitments to the global 2°C warming limit (McGlade and Ekins 2015). Analysts now make it clear that there is no viable space for new oil sands projects in a “Paris-compliant” world, such as those underway in Alberta, Canada (CTI 2019). Yet the extraction methods required at Cat Canyon are also some of the most carbon and energy intensive currently in use – and so far California has not acted to prevent the permitting of such projects.

Thermally enhanced oil recovery techniques are carbon-intensive and use significant energy inputs to generate requisite quantities of steam. The original ERG (now Terracore) project alone proposed four new steam generators and the construction of an 8-inch natural gas supply pipeline to replace an existing 4-inch line for the amount of gas required (Scully 2018). The Carnegie Oil-Climate Index measures ‘cradle-to-grave’ carbon intensity of different sources of oil – including energy used in enhanced recovery techniques as well as data on the oil's chemical composition, its effects on refining, and the kinds of products made for end use. This is measured as the amount of greenhouse gas emissions released (in tons of CO<sub>2</sub> equivalent) during the lifecycle of one barrel of oil-energy (Gordon and Wojcicki 2017). Using this index, The Environmental Defense Center (an environmental law organization) estimates that extracting the remaining oil at Cat Canyon would create 620 kgCO<sub>2</sub>e per barrel of produced oil, placing it among the top 10% carbon intense oil operations globally (EDC 2018). Such projects thus work against the California climate goal of economy-wide carbon neutrality by 2045. Furthermore, as described in more detail in

Section 3 below, regulatory approval or change in California influences trends elsewhere in the US (Elkind 2011; Press 2002; Spezio 2018). Ongoing enhanced oil recovery at Cat Canyon would thus effectively be seen as an endorsement of these high intensity extraction techniques and could support investment in their use at other locations.

### 3. Santa Barbara and its influence

As is the norm across California, the five District Supervisors in Santa Barbara County each appoints a Planning Commissioner for their District. As elsewhere in the US, allegiances and political priorities across the County are highly polarized, and fossil fuel projects are strongly contested. This is reflected in an ongoing history of heavy oil industry spending on local elections (Crystal et al., 2020) – echoing national trends (Mayer 2017). Fearing a regional or even national precedent could be set, in 2014 Chevron and other industry groups threatened lawsuits that could bankrupt the County and spent more than \$7 million to successfully defeat the local ballot Measure P that would have banned new fracking, acidizing, and cyclic-steam projects (by contrast, environmental groups in support of that Measure spent approximately \$300,000) (Siegler 2014). Industry spending emphasized contested tax revenues that could contribute to funding firefighters, for example. Such strategies followed many decades of similar practices in Los Angeles and across the state – working systematically to control and deflect regulation, to promote nongovernmental solutions to industrial problems, and to position industry actors as representatives of the public good (Elkind 2012) – continuing trends that have fundamentally shaped government-industry relations in California (Sabin 2005). While elsewhere in California similar Measures have since then been contested, with varying outcomes, the industry focus on Cat Canyon today underlines the broader influence of the County Planning Department's decisions.

Santa Barbara County consists of five districts: Districts 1 and 2 cover mainly coastal populations, broadly and historically aligned with pro-environmental politics; Districts 4 and 5 cover inland areas to the north which include oil extraction zones – including Cat Canyon which straddles the border between the two. Districts 4 and 5 have a history of pro-industry voting. Thus the District 3 Supervisor often casts a deciding vote. Reflecting this balance, in October 2019 the Board of Supervisors voted 3–1 (with one abstention) for a resolution opposing U.S. Bureau of Land Management plans to open 122,000 acres of public lands in the County to new oil drilling and fracking (Herrick 2019). This balance also meant that the outcome of the March 2020 district elections carried significant consequences for environmental decision-making. Candidates occupied very different positions. One (with a record of campaigns funded by an oil industry political action committee and linked to voter suppression strategies to minimize student voting) unironically championed what he called “locally sourced, locally regulated, ‘farm-to-table petroleum’.” His opponent, meanwhile, was a former EPA administrator with a record of supporting stricter oil industry regulations (Welsh 2020).

Any vote on the remaining Cat Canyon project reached by the Planning Department would ultimately be appealed and then sent to the Board of Supervisors for a final decision. As such, the balance of the five Supervisor votes has significant impacts both locally and across the state. A recent, similar case sets a precedent. In 2015, Pacific Coast Energy Company proposed to drill 144 new and replacement cyclic steam injection wells at the Orcutt Hill site immediately west of Cat Canyon; in July 2016 the Planning Department denied the project due to unavoidable impacts on air, water, flora and fauna; the company appealed the decision to the Board of Supervisors who denied the appeal on 1 November 2016 (EDC 2016). The Board voted 3–2, exactly following the District lines of division (and relative levels of support and opposition for fossil fuel projects) described above (Holland 2016).

Beyond these cases, there is a broader history of events in Santa Barbara influencing the oil industry outside of county borders, due

primarily to a series of oil spills and disasters at different scales. The first major event occurred offshore and continues to have repercussions today. The 28th of January 1969 marked 50 years since the Santa Barbara oil spill, when a well blowout under Platform A, then operated by Union Oil, led to widespread coastal pollution and the deaths of thousands of marine animals and seabirds. The spill was the largest in US history at that time; as much as 4.2 million gallons of crude oil leaked from the well and from fault fissures caused by the blowout (NOAA 2014). The 1969 disaster became a key moment in the growth of a national environmental movement, generating demand for significant national policy change. In its wake, the National Environmental Policy Act was passed and the federal Environmental Protection Agency was created (Schneider and Barboza 2018; Spezio 2018). At the state level, the California State Lands Commission (charged with managing oil and gas resources in state waters) has maintained a moratorium on new oil and gas leases for 50 years – only leases issued before 1969 continue to operate (CSLC n.d.).

The California State Lands Commission also cited the 1969 Santa Barbara oil spill as a “catastrophe” when writing to the federal Bureau of Ocean Energy Management to oppose the draft 2019–2024 National Outer Continental Shelf Oil and Gas Leasing Program – the current administration's now-abandoned plan to expand offshore drilling on an unprecedented scale. A signee to that 2018 letter was the current Governor of California, Gavin Newsom. At the time, he was Lieutenant Governor and thus on the board of the California State Lands Commission. The letter contains a bold statement of intent, one that environmental activists hope will commit Newsom to forward-thinking energy and climate policies: “the fossil fuel era is ending, and California is not interested in the boom-or-bust oil economy” (CSLC 2018:3). This marks the ongoing influence of the 1969 spill on California oil policy today, reflecting the impact of signal events elsewhere. While disasters ‘happen’ locally and have place-specific impacts on lives and well-being, responses to those events often have regional, national and global repercussions as agencies and communities in parallel contexts seek to avoid similar experiences (Maditinos and Vassiliadis 2008).

There have been more disasters since then, including the onshore 2015 Refugio Oil Spill, when the corroded Line 901 operated by Plains All American Pipeline ruptured and spilled over 140,000 gallons of oil onto the Santa Barbara coastline, with devastating effects. In 2019, a Santa Barbara Superior Court judge ordered the Texas-based Plains All American company to pay fines of \$3.3 million for crimes related to the Refugio spill (Magnoli 2019). The company is still in negotiation with the Santa Barbara County Planning Department, however, awaiting a decision on its project to replace the 123-mile pipeline system that includes Lines 901 and 903. The proposed new system would be smaller in size, ranging from 12 inches (901R) to 16 inches (903R) in diameter with the latter designed to carry up to 1.7 million gallons per day; the previous system was 24 inches and 30 inches in diameter with a maximum capacity in 903 of 12.6 million gallons per day (SBPDP 2017). Still, even reduced capacity pipelines present risks. Using data from the US Pipeline and Hazardous Materials Safety Administration, researchers at the Center for Biological Diversity have illustrated how regularly pipelines fail in California: from 1986 to February 2019 there were 707 hazardous liquid pipeline leaks, spills and other significant incidents that have killed at least nine people and have spilled almost 9.5 million gallons of oil and other toxic liquids (CfBD 2019).

Regional extraction operations were also heavily dependent economically on the 901/903 pipeline system to transport oil out of the county for processing. Among other impacts since the 2015 blowout, three offshore platforms operated by Freeport-McMoRan (Hidalgo, Harvest, and Hermosa) were shuttered and have since been decommissioned, and three further platforms operated by Exxon (Heritage, Harmony, and Hondo) have had to stop production (AP 2015; Curwen 2019). In response, the company has lodged a request to transport oil out of the county by truck – the ExxonMobil Interim Trucking for SYU Phased Restart Project – introducing other and



perhaps even more serious risks. Without access to functioning pipelines, other companies are already trucking oil out of Santa Barbara County – and road transportation of oil regularly results in accidents. The latest, at the time of writing, saw a tanker truck crash and spill around 4500 gallons of crude oil into the Cuyama River close to Twitchell Reservoir, a drinking water reservoir around 12 miles north of Cat Canyon (Yamamura 2020). Thus the future of regional oil extraction – particularly extensive offshore operations – depends on the future of Lines 901 and 903 or a permit to truck oil out of the county – and all of these decisions fall to Santa Barbara County officials. As such, bold visions at the state level for the future of oil in California are unlikely to be fulfilled if undermined by local approval of large-scale extractive projects.

#### 4. Strategies for ‘managing the decline’

Oil production in California has been in steady decline since the mid-1980s (EIA 2020). In this section, we examine which state regulatory projections and policies are aligned with this trajectory and which remain under discussion. As more and more wells stop producing, a critical issue is decommissioning, and some industry actors have acted decisively in response. For example in 2014 the US oil giant, Occidental Petroleum, created a spin-off company (California Resources Corporation) which took ownership of more than 5000 idle wells and related Asset Retirement Obligations liabilities. These liabilities involve massive long-term costs for plugging wells, removing abandoned infrastructure, and remediating soil or water contamination (IEEFA 2020:4). California regulatory authorities have also begun to address decommissioning. In 2018, Assembly Bill 1328 sought new reporting requirements on hydrocarbon emissions from idle and abandoned wells. In 2019, the state Geologic Energy Management Division revised idle well regulations in 2019 to introduce new requirements for testing, financial reporting, and for well repair, closure, or sealing (CalGEM 2019; Reitman et al., 2020). And as the overall decline in production continues, the number of idle and abandoned wells will increase. California operators would also be affected by national measures, such as Bill HR4346 proposed in 2019 that sought to amend the Mineral Leasing Act to increase bonding requirements (which remained largely unchanged since the 1960s), increasing the bond amount for a single lease from \$10,000 to \$50,000, among other measures (Lowenthal 2019).

Already the scale of the decommissioning problem is vast: data from March 2019 showed 29,515 idle wells and 122,467 plugged or buried wells across the state (Ferrar 2019). The California Council on Science and Technology estimates the total net cost to the State to plug *all* active and idle California oil and gas wells would be around \$9 billion (CCST 2018). State bonding requirements are insufficient to cover these costs; in California, oil companies have to date provided only around \$110 million (Ho et al., 2018; Olalde and Menezes 2020). The May Revision to California’s 2019–20 Budget expressly recognized the need for “careful study and planning to decrease demand and supply of fossil fuels, while managing the decline in a way that is economically responsible and sustainable” (Newsom 2019:74). ‘Managing the decline’ will thus also involve ‘managing’ decommissioned fossil fuel infrastructure. The Terracore project at Cat Canyon, if approved, would add to the number of active and eventually idle wells and thus to the economic and environmental costs of decommissioning – costs that would fall to the state if ongoing industry volatility were to lead to operator bankruptcy, as befell the project’s original designers, ERG.

California agencies have already taken some steps toward ‘managing the decline.’ In his first year in office, Governor Newsom fired California’s oil and gas supervisor (after fracking permits reportedly doubled during Newsom’s first six months in office); signed Assembly Bill 1057 (which raises bonds against spills or well abandonment closer to actual costs); fined Chevron \$2.7 million for one of several spills that together leaked millions of gallons of oil and water at the Cymric Oil

Field (CalGEM 2020; Wilson and Makinen 2019); ordered a review of all fracking and other well stimulation applications; and introduced a moratorium on permits for new high-pressure steam-injection wells (Wilson 2020; Yamamura 2019). Yet these measures have not always reduced oil production. The wording of the moratorium, for example, specified the use of “high-pressure steam to break oil formations below the ground” (CDC 2019) and thus does not apply to the Terracore project at Cat Canyon (which would not use sufficiently “high pressure” modes of steam injection). Similarly, subjecting well stimulation projects to further *review* (rather than a ban) has not been an impediment: in April 2020, Aera Energy was granted 24 permits for fracking operations in Kern County and a further 12 permits in June (Horn 2020). Consequently, environmental justice advocates have been urging stronger action, paying particular attention to policies that would support a just transition and address local health concerns.

One aspect of a just transition involves protecting livelihoods disrupted by planned changes to energy systems. An example proposal is a ‘Just Transition Fee’ – a 5–10% fee on the value of oil production which during 2019–2030 would “generate \$3.5–\$6.9 billion [depending on fee rate and oil prices, and based on production volumes without new wells]... to cover five years of wage replacement and four years of public college tuition for workers facing job losses through 2030, plus other just transition needs” (OCI 2018:8). Such measures are arguably already necessary, given the volatility of oil industry employment. As organizer Ana Rosa Rizo-Centino notes in Santa Barbara County, the promise of local oil jobs can quickly disappear when “market conditions” are behind the withdrawal of such projects (August 2020). Current industry volatility has, in fact, led to calls for government funding to keep oil and gas workers employed when production slows or stops. In May 2020, the Interstate Oil and Gas Compact Commission (IOGCC), representing 31 oil-producing states, requested Department of Energy funds to pay workers to plug idle and abandoned wells (Groom 2020). While critics argue that companies (not the state) should be funding this work and that the goal should be a phase-out (not a recovery) of oil/gas production, this move illustrates one way to combine approaches to decommissioning and the just transition. It remains to be seen whether California’s recent bills (e.g. AB1328) on reporting and bonding requirements for abandoned wells will be accompanied by such labor-focused measures.

Environmental justice organizers also highlight the issue of proximity to oil and gas production, linked to numerous negative health impacts, including adverse birth outcomes (Gonzalez et al., 2020; Tran et al., 2020). Calls for a 2500 foot buffer zone around homes, schools, and healthcare facilities cite reports that find this zone is where the most significant exposures to toxic air contaminants occur, where 8493 active or newly permitted oil/gas wells are located statewide, and where in the region of 850,000 to 1.3 million people live (CCST 2015; Czolowski et al., 2017; OCI 2018). Analysts and activists further point out that the absence of setback requirements in California contrasts with other states that have them, including Colorado (1000 feet) and Pennsylvania (500 feet) (Scauzillo 2018). California Assembly member Al Muratsuchi has since proposed Assembly Bill 345 which includes this 2500 foot setback requirement; the Bill has passed Assembly committees and next faces a Senate vote (Symon 2020). Though not in an urban setting, Cat Canyon would also be affected by these plans: the Benjamin Foxen Elementary School in Sisquoc is located 1900 feet from the border of proposed ERG/Terracore operations (Ullman 2018).

In addressing the question of which regulatory projections and policies align with a “managed” decline in oil production in California, much hinges on how the terms “responsible” and “sustainable” in that goal are understood. A statewide measure such as AB345 would rule out new wells and thus lead to a phase-out of oil production within this buffer zone – and would address immediate environmental harms since these are relatively densely populated areas where proximity to extraction operations already leads to severe health impacts, disproportionately affecting low-income communities and communities of

color. Such a phase-out would also substantially support California's climate goals: wells within this zone accounted for 12% of statewide oil production in 2016 (OCI 2018:8). Additionally, linking any lost jobs in production to new jobs in decommissioning appears to be a vital part of a just transition and of “responsible” planning. However, while managing the decline of domestic oil production will be a critical component in achieving California's broader climate goals, all such objectives remain tenuous as long as county-level planning decisions proceed in the absence of stronger statewide regulations.

## 5. Conclusions: oil futures in California

This Viewpoint article has highlighted how public pressure and oil industry volatility associated with the coronavirus pandemic – rather than California's ambitious climate agenda – have together limited the amount of energy-intensive oil extraction that is planned for Cat Canyon. Analyzing these permitting and extractive development processes in Santa Barbara County has also shown how some of these decisions have environmental and regulatory implications that extend beyond county borders, in turn raising questions about the relative future strength of state-level climate and energy transition policies. We conclude here by linking these dynamics to the global significance of actions undertaken in California and outlining some of the strategies required for California to maintain its position as a climate leader within the US.

Both within California and elsewhere, climate policy has focused largely on reducing CO<sub>2</sub> emissions through a variety of methods, including a reduction of fossil fuel combustion and systems for carbon offsetting. However, supply-side measures are also necessary because the interests and institutions that support increased fossil fuel *production* also perpetuate and increase fossil fuel *use* (Lazarus et al., 2015:3, emphasis added). Within the global market, price signals resulting from reduced supply or demand in one location lead to a related increase in production or consumption in another, but without being matched 100%. Thus, for “every barrel of oil *not* produced, and every barrel of oil *not* consumed, there are global emissions reductions” (OCI 2018:15). This is particularly true of extraction wells that consume large amounts of oil and gas. Drawing on Metcalf (2016) and Rajagopal & Plevin (2013), the Stockholm Environment Institute argues that restricting the supply of California oil would reduce global oil consumption, calculating that “for each barrel of oil not produced in California, global oil consumption would drop by 0.2 to 0.6 barrels” (Erickson and Lazarus 2018:3).

Cutting oil production is thus a vital step toward fulfilling climate goals – especially when significant uncertainties have been found in the effectiveness of California's carbon offset program (Haya et al., 2020). Future production at Cat Canyon would not only add to overall oil production in California, it would also signal support for increasing state output exactly when reductions are most necessary if climate targets are to be met. Furthermore, from a global justice perspective, California is in a position (of ability and obligation) to take a leading role in climate action: “California is one of the oil producers with the greatest capacity to reduce its extraction quickly while minimizing social and economic disruption... Of the 15 countries and U.S. states that have extracted the most oil over the past century, California has the second-highest GDP per capita, trailing only Norway” (OCI 2018:10). Fulfilling this role will require coordinated extractive regulation and enforcement across county and State governments.

‘Managing the decline’ of oil demand and supply in California will therefore involve a combination of the measures described above: halting permits for new extraction wells (especially those that use energy-intensive extraction methods); implementing the 2500 foot buffer zone; introducing designs for managing a Just Transition; and ensuring that fossil fuel production and use is reduced. Meeting California's ambitious climate targets cannot be left to a patchwork of local jurisdictions and the non-governmental sector. Environmental groups are

all too aware that city or county ballot bans are expensive, difficult to win, and tend to leave jurisdictions vulnerable to litigation from oil companies. Revised (and enforced) state legislation is required to address conflicts with local decision making outcomes and to thus deliver most effectively on California's climate goals.

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