

Advocacy Campaign for the Center on Race, Poverty & the Environment



Advancing Environmental Justice in California's Central Valley

HARVARD
UNIVERSITY



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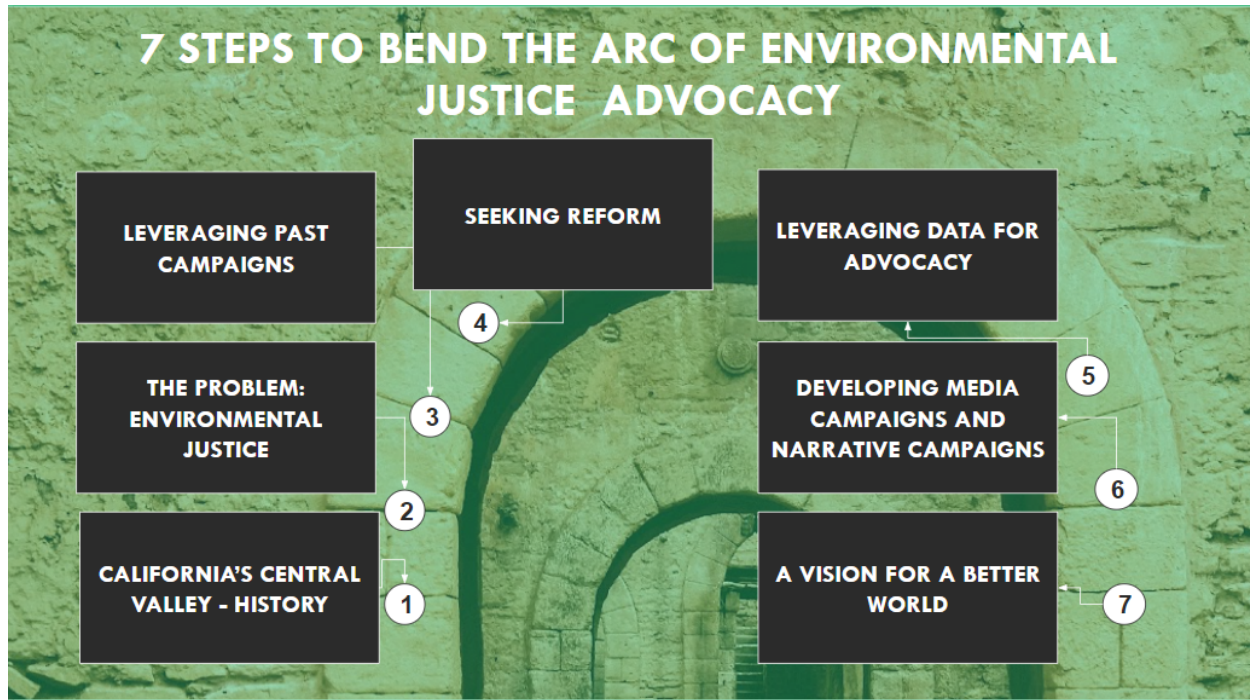
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EXECUTIVE SUMMARY

Over the Spring semester of 2022, our team has been working with the incredible team members at the Center for Race, Poverty, and the Environment (CRPE) to establish guardrails for new Carbon, Capture, and Sequestration (CCS) initiatives in California. In line with CRPE's mission to **achieve environmental justice and healthy, sustainable communities through collective action and the law**, our report engages research findings from both on-the-ground storytelling and scientific studies on the purported benefits and efficacy of CCS for climate justice. The policy recommendations we propose around outlawing CCS for enhanced oil recovery as it relates to opening new or closed facilities address the environmental injustices local communities face as a result of nearby oil and drilling, and our advocacy campaign highlights the tensions between lived experience and uncontextualized scientific studies to push for solutions that are good for the environment and our communities.

CRPE works on providing legal, organizing, and technical assistance to grassroots groups in low-income communities and communities of color. CRPE is located in the Central Valley of California, in the City of Delano. The City of Delano is a farming community with a deep history of resisting both

economic and environmental exploitation. From litigating against the California Department of Toxic Substances Control to get clean groundwater to ensuring farmworkers have the housing they need, CRPE has worked at the nexus of intersectional disparities to foster better outcomes for communities in the Valley.

Over the course of our relationship with CRPE, we have worked on supporting and expanding their work around researching and regulating Carbon Capture & Sequestration (CCS). Our report provides a joint grassroots organizing and administrative advocacy campaign that draws on the principles of the arc of advocacy.

The **first section** gives a necessary overview of the **Central Valley's history**. This section highlights the long history of environmental Justice organized by communities within the Central Valley. The section also goes over the Central Valley's crucial role in the United Farmworkers Movement as we work to root our environmental Justice advocacy in California's proud historical legacy.

The **second section** gives an overview of **the problem** that is being addressed. This section highlights how the long term timeline of the climate justice movement can obscure or even obstruct environmental Justice work happening in real time. We explain that understanding the CCS initiatives being proposed requires a deeper alignment between climate justice and environmental justice.

The **third section** focuses on **learning from and leveraging past campaigns**. The highlighted CRPE campaigns involve the injustices and advocacy related to the Delano Plume, McFarland Cancer Cluster, BioMass, Toxic Fracking Wastewater, and A Committee for a Better Arvin. Then, we elaborate on how lessons and successes from these campaigns can inform and advance this new campaign.

The **fourth section** focuses on **reform mechanisms** that highlight the legislative and advocacy action planning for the campaign. The **fifth section** covers research and **data-based** guardrails that CRPE can leverage for future legislative proposals. In the **sixth section**, we highlight a **media strategy** to engage with community members and then propose some policy recommendations to move the work forward. Then we **conclude** with a **vision for a better Central Valley**.

CALIFORNIA'S CENTRAL VALLEY HISTORY

The Region our Client Serves

1

California's Central Valley



California's Central Valley extends from Sacramento County to Kern County and covers about 18,000 square miles. It is one of the largest agricultural producing regions in the nation producing an estimated \$17 billion in revenues and grows ¼ of the nation's food.

However, the region is also home to the worst air pollution in the nation, intense oil and gas production and polluted groundwater as a result of agricultural pesticide runoff.

According to the Congressional Research Service, California's Central Valley is one of the nation's poorest regions and ranks near last in education and health outcomes.

California's Central Valley is a large fertile geographic region that extends about 300 miles from Sacramento in the north to Bakersfield in the south and covers an estimated 20,000 square miles. The Central Valley is bounded by the Cascade Range to the north, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Ranges and San Francisco Bay to the west.

The Central Valley is one of the largest agricultural producing regions in the nation, producing more than 250 different crops with an estimated value of \$17 billion per year. Despite the tremendous amount of value generated by the agricultural industry within California's Central Valley the region is an economically disadvantaged region.

According to a Congressional Research Service report, California's Central Valley is one of the nation's poorest regions and ranks near the bottom in education and health outcomes.¹ The Congressional Research Service report found that poverty rates within the Central Valley were significantly higher than regions within the Appalachian.

Regional Environmental Concerns

In addition to the economic hardships impacting the Central Valley, **the Valley has the unfortunate distinction of being home to the worst air pollution in the nation, intense oil and gas production and a dense agricultural landscape that has fostered complex water quality issues.**

Air Quality

According to the American Lung Association's "State of the Air 2022" report, **the Central Valley was home to the top two regions with the poorest quality air.** According to the 155-page air quality report, Fresno ranked No 1. and Bakersfield ranked No 2. on the list.²

The report is based on data of air quality throughout the United States, obtained from the U.S. Environmental Protection Agency's Air Quality System. The "2022 State of the Air" report "shows" that an unacceptable number of Americans are still living in areas with poor air quality that could impact their health," said Harold Wimmer, CEO of the American Lung Association.³

Water Quality

Similarly, **rural communities within the Central Valley also suffer from contaminated drinking water.** Currently, more than 300 public water systems in California serve unsafe drinking water to members of the public, according to public compliance data compiled by the California State Water Resources Control Board.⁴

Many factors have led to the groundwater contamination reflected in the state's data, but public health experts say that the region's agriculture industry has played a significant role. Chemical fertilizers and dairy manure seep into the ground and cause nitrate contamination. A report published in April, 2019 in

¹ Congressional Research Service Report, California's San Joaquin Valley: A Region in Transition, December 12, 2005. Accessible at California Department of Food and Agriculture https://www.cdfa.ca.gov/aqvision/files/California/California_CRSReportforCongressSanJoaquinValley-ARegioninTransition.pdf

² American Lung Association, State of the Air 2022, accessible at <https://www.lung.org/getmedia/74b3d3d3-88d1-4335-95d8-c4e47d0282c1/sota-2022.pdf>

³ See Id.

⁴ California State Water Resources Control Board https://www.waterboards.ca.gov/water_issues/programs/hr2wa

Environmental Health, an academic journal, estimated that 15,000 cases of cancer in California could occur within 70 years because of unsafe drinking water.⁵

Unfortunately, these problems are not new to the region. As reported by the New York Times, the failing infrastructure problems that lay at the heart of the potable water crisis in California's Central Valley is tinged with the legacy of rural redlining, said Camille Pannu, the director of the Aoki Water Justice Clinic at the University of California, Davis, who likened the situation in the valley to the one in Flint, Mich. "Flint is everywhere here," she said.⁶

"The fact that more than a million Californians in 2019 have been left behind is really appalling," said Jared Blumenfeld, the former secretary of the California Environmental Protection Agency. "I'll never forget talking to people in Imperial and Coachella Valley who are like, 'You know what, it's amazing when we go back to Mexico, the water is better.'"

In 2019, then CalEPA secretary Blumenfeld said the "vast majority of water systems with unsafe water are in small rural communities where there are too few customers to cover the cost of water treatment and maintenance." Installing even short distances of pipe can cost millions of dollars in infrastructure costs, which is sometimes feasible when costs are dissipated out among a large group of ratepayers, but not so for individual families, or when towns are especially remote.

Many families who live in these rural regions use water from private wells because their homes are not connected to public water systems. The number of people exposed to dangerous water statewide could be even higher than the data shows: The state does not regulate private wells and does not monitor systems with fewer than 15 connections, within many of the Central Valley's rural unincorporated communities the number of contaminated private wells could be significant.

Oil and Gas Extraction

California has had a long close relationship with the oil and gas industry since the first wooden derricks were erected in the rural Central California County of Kern in the 19th century. Since then oil and gas production quickly increased throughout California's Central Valley.

Presently, **California is the nation's sixth-largest oil producer.** However, as a result of the state's geology and complex regulation framework it operates differently from many other energy-producing states. California was once one of the largest oil-producing states in the nation, as a robust industry centered in

⁵ Applying a cumulative risk framework to drinking water assessment, April 30, 2019, Environmental Health, accessible at <https://ehjournal.biomedcentral.com/track/pdf/10.1186/s12940-019-0475-5.pdf>

⁶ Del Real, Jose, *They Grow the Nation's Food, but They Can't Drink the Water*, May 21, 2019, New York Times.

the Central Valley grew extensively . But by 2020, the state's oil production fell to its lowest level in state history, down 68% from its peak in 1985.

In recent years, the oil extraction process of hydraulic fracturing-fracking- has been used extensively in nearly two dozen oil producing states. Despite fracking's increased usage across the nation, the process is currently used on only about 1 in 5 oil wells in California.

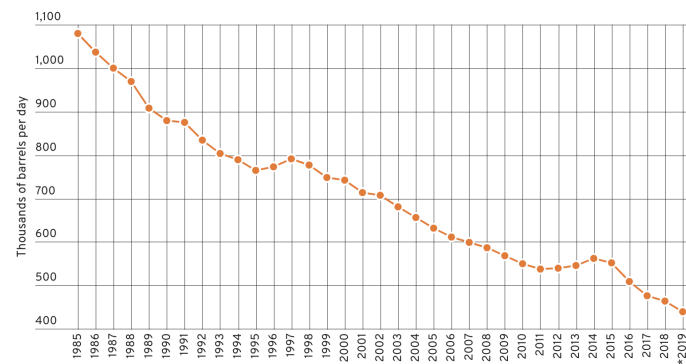
The controversial practice of fracking has been blamed by environmental advocates as contaminating groundwater and air in vulnerable communities across the country. Fracking is the process of high-pressure pumping of chemicals and water into underground rock to crack it open and release the oil reserves.

Fracking has sparked a long and politically charged battle between the oil industry and environmental advocates in California. In late April 2021, California Governor Gavin Newsom stated that California will stop issuing fracking permits by 2024 and halt oil drilling completely by 2045.

Governor Newsom's executive order is the beginning of a lengthy administrative rule-making process that, if successful, would make California the largest state to ban fracking and potentially the first in the world to set a deadline for the end of all oil production. **"California needs to move beyond oil,"** Newsom said **in a news release, arguing it would "create a healthier future for our children."**⁷

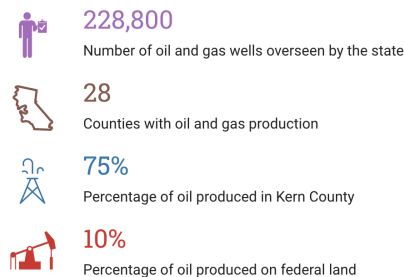
Despite these aggressive actions by Newsom, **California is still the sixth largest oil producing state** in the nation, with an industry directly employing about 152,000 people and is responsible for \$152.3 billion in economic output, according to a 2019 study commissioned by the Western States Petroleum Association.

California crude oil production



*As of September
Source: U.S. Energy Information Administration

Snapshot: oil and gas production in California



Sources: U.S. Bureau of Land Management, California Department of Conservation

⁷ Beam, Adam, *California governor seeks ban on new fracking by 2024*, Associated Press, April 23, 2021.

In response to Newsom's April 2021 executive order which would ban fracking within California, WSPA President and CEO Catherine Reheis-Boyd responded, that **"Banning nearly 20% of the energy production in our state will only hurt workers, families and communities in California and turns our energy independence over to foreign suppliers."**⁸

To date, the most comprehensive analysis of fracking in California was conducted by the California Council on Science and Technology in 2015, as part of a legislative required examination of well-stimulation techniques. One of the report's major conclusions was that currently **scientists were unable to determine fracking's full effects on human health, the environment or groundwater because they don't fully understand all the chemicals used or how they interact with one another.**⁹

Further complicating California's complex relationship with the oil industry is the frequently conflicting state and federal regulatory dynamics. This was highlighted in 2019 when two announcements regarding California's oil industry made national headlines, revealing starkly conflicting visions for the future of the state's energy industry.

While Washington finalized a plan to allow increased oil drilling on more than 700,000 acres in 11 Central California counties, California's oil and gas regulator, California Geologic Energy Management Division (CalGEM), announced a range of measures including a moratorium on certain types of well injections, more oversight of fracking, and an independent audit of the state's process for granting drilling permits.

This 2019 policy divergence underscored the frequent differences between state and federal views on the future of fossil fuels in California. The state has continued to move to ramp down oil production while Washington under the Trump administration sought to increase production.

"The Trump administration has moved federal agencies' policies toward aggressive expansion of fossil fuel development on public lands," California Natural Resources Secretary Wade Crowfoot said in an email. **"The Newsom administration disagrees with this direction....The governor has been clear that we need to reduce our reliance on oil and gas."**

The vast majority of California's oil production comes from California's Central Valley with Kern County producing over 75% of the state's oil. In March of 2021, the Kern County Board of Supervisors adopted the Trump administration's approach and voted 5-0 to fast-track thousands of new oil and gas wells over the next 15 years, the vote came in light of the objections of environmental groups and residents who live in close proximity to the oil fields.

⁸ See *Id.*

⁹ *An Independent Scientific Assessment of Well Stimulation in California*, conducted by the California Council on Science and Technology in 2015. Accessible <https://ccst.us/wp-content/uploads/2015SB4summary.pdf>

According to the Los Angeles Times, “hundreds of people spoke by phone in favor of or against the ordinance or in voicemails played during a daylong public hearing live streamed from the board’s Bakersfield chambers.”¹⁰

Petroleum companies, their workers and business groups spoke in favor of the measure, saying it would support high-paying jobs and produce oil under some of the most stringent environmental laws, instead of relying on dirtier imports.¹¹

Mercedes Macias, a local resident and a Sierra Club member, said oil production caused pollution responsible for a variety of health ailments that hit Latinos, Black and Indigenous people disproportionately.¹²

“It is ludicrous to think that a singular environmental impact report can adequately determine the health impacts of oil and gas drilling,” she said. **“The people of Kern County should not be sacrificed for profit. Oil executives would have you believe that the only way to see our community prosper is through continued dependence on the oil industry. That is not true.”**¹³

Supervisor Leticia Perez said the oil and gas industry has represented a way out of “the incredible shame and degradation of intergenerational poverty,” especially for Latino families.¹⁴

Results like these are not unexpected, the oil and gas industry expends considerable resources lobbying local, state and federal lawmakers.

According to public data published by the California Secretary of State’s Office, lobbying organizations representing oil and gas companies spent almost \$77.5 million advocating on behalf of the oil and gas industry’s interests in Sacramento between 2018 and 2021.¹⁵

“It’s kind of like a David versus Goliath situation,” said Brandon Dawson, the director of Sierra Club California, when speaking about the advocacy resources the oil and gas industry expands to defeat legislation that seeks to regulate their industry.¹⁶

¹⁰ Melley, Brian, *Kern County OKs plan for thousands of new oil and gas wells over environmental objections*, Los Angeles Times, March 9, 2021.

¹¹ See *Id.*

¹² Melley, Brian, *Kern County OKs plan for thousands of new oil and gas wells over environmental objections*, Los Angeles Times, March 9, 2021.

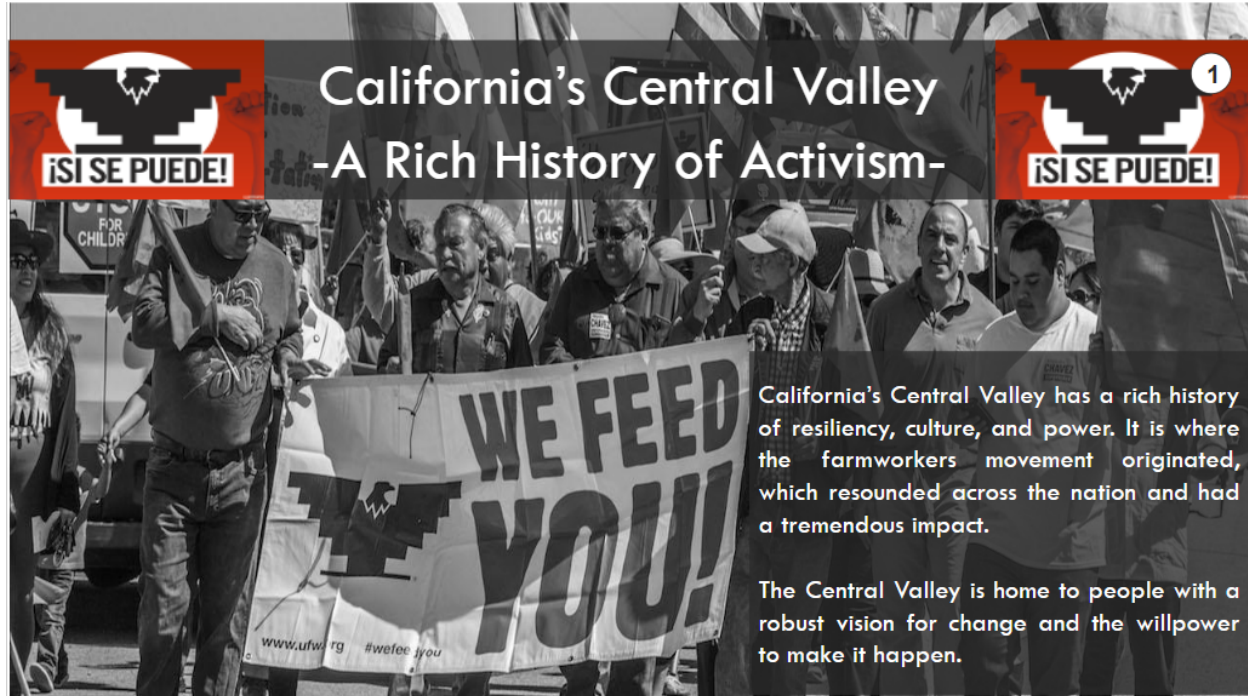
¹³ See *Id.*

¹⁴ See *Id.*

¹⁵ Slowiczek, Josh, *Oil and gas industry heavily outspends environmental groups on lobbying in California*, Desert Sun, Mar 15, 2022 .

¹⁶ See *Id.*

The Central Valley's Farmworker Labor Movement



As outlined previously, **California's Central Valley is one of the largest agricultural producing regions in the nation**, producing more than 250 different crops with an estimated value of \$17 billion per year. Despite the tremendous amount of value generated by the agricultural industry within California's Central Valley the region is an economically disadvantaged region.

Early settlers to California realized that farming California's expansive Central Valley would be very labor intensive, and **from 1870 to 1920 California Anglo growers began to systematically recruit racial minorities to harvest the vast expanses of farmland they had cultivated.**

In 1900 growers imported Japanese laborers and shortly after Mexicans escaping Mexico's civil war soon followed. Finally, commercial farmers began shipping workers from the Philippines to maintain low labor costs. Historically, agricultural workers often come from marginalized communities and are highly susceptible to exploitation.

During the New Deal era, progressive labor reformers called for greater worker protections nationwide. Subsequent legislation followed, the Fair Labor Standards Act (FLSA) passed in 1938 sought to eliminate the abuse of child workers and the National Labor Relations Act (NLRA) passed in 1935 guaranteed the right of private sector employees to organize into trade unions, engage in collective bargaining, and take collective action such as strikes against employers.

These foundational statutes of United States labor law sought to remedy the abuse and exploitation of American laborers. The implementation of the NLRA and the Fair Labor Standards Act improved the working conditions for millions of Americans and led to a heightened understanding of equity within employer-employee relations.

Excluded from the protections outlined in the NLRA and the Fair Labor Standards Act were agricultural workers. The decision to exclude farm workers from certain labor protections during the New Deal Era was largely made on the basis of race. Agricultural workers during this time period were almost exclusively Black and were never included in the political discussions that helped shape the NLRA.

The lack of proper statutory labor conditions allowed the agriculture industry to remain one of the most dangerous in the private sector. In response to the agricultural industries' dangerous working conditions, low wages and poor treatment of farm laborers, leaders like Cesar Chavez, Larry Itliong, and Dolores Huerta began the difficult work of organizing California farm workers across the state in the 1960's.

After many failed attempts by farm worker leaders to secure higher wages and better working conditions from California's agricultural employers, a decision by labor leaders was made and thousands of Mexican American and Filipino farm workers walked out on the California table and wine grape growers in what became known as the Delano grape strike.

The Delano grape strike would last more than five years and would initiate a boycott of California table grapes which would eventually spread throughout the United States. When the strike was initiated many thought the odds were daunting for the farmworkers, and many viewed this as a David versus Goliath scenario. However, the efforts of the California farm workers were a complete success and led to the creation of the nation's first farm workers union- the UFW.

During the strikes' 50-year anniversary in 2015, UFW President Arturo Rodriguez stated, "Fifty years ago this month Filipino and Latino grape workers did what many thought was impossible, they took on the mightiest industry in California—an industry that viewed itself as invincible."¹⁷

The UFW eventually succeeded where other agricultural labor unions had failed in the past. Many factors were responsible for this major milestone in labor history, but a significant factor was the strong coalition of loosely assembled supporters that farmworker leaders were able to activate. Eventually, this coalition of supporters came together to aid the UFW.

As the UFW's activism grew, they began to develop a strong base of support from a diverse coalition which included college students, various trade unions, acclaimed politicians like Senator Robert F. Kennedy,

¹⁷ Nevarez, Griselda, *50 Years Later, Remembering the Delano Grape Strike*, NBC News. Sept. 26, 2015.

activists such as Dorothy Day and Martin Luther King Jr., and significant religious support from different faith traditions.

KEY TAKEAWAY FOR OUR ADVOCACY CAMPAIGN:

After our group examined the history of California's Central Valley, it became clear that the Valley is home to people with a robust vision for change and the willpower to make it happen. The Valley has a rich history of resiliency, culture and power. It is where the farmworkers movement originated, which resounded across the nation and had tremendous impact.

We seek to continue to build off of that organizing groundwork in an effort to bring about meaningful environmental justice solutions for some of the nation's most vulnerable residents.

2

DEFINING THE PROBLEM - CCS

THE PROBLEM

Environmental Justice is Climate Justice, necessarily, but Climate Justice is not necessarily Environmental Justice

- The proliferation of Climate Change is due to the burning of Fossil Fuels, like Coal, crude oil, & natural gas. 2
- Burning fossil fuels release greenhouse gases, like Carbon Dioxide, which cause the storing of heat in the atmosphere.
- This is causing a global crisis impacting the severity and unpredictability of global weather patterns.
- As a potential solution to climate change, Carbon Capture and Sequestration (CCS) seeks to stop Carbon Dioxide from rising to the atmosphere by capturing it, transporting it, and storing it underground.
- Since this process and technology is so new, the harmful side effects are largely unknown.
- The problem is that what is customary is that these plants/storage of harmful material are placed adjacent to poor communities and communities of color. **This is Environmental Racism.**

Climate Change has quickly become the most pervasive issue facing humanity within the last century.

Erratic floods, storms and extreme wildfires, resulting in mass displacement, poverty and death, amongst other disasters are each directly caused by human-led actions. Specifically, the oil and gas industry has driven much of the climate emergency. Burning fossil fuels releases large amounts of carbon dioxide into the air, which becomes trapped into our atmosphere, creating a warming effect.

As the globe continues to confront this climate emergency and policymakers are under intensifying pressure to meet decarbonizing goals, carbon capture and sequestration (CCS) technologies are poised to play a pivotal role in the race to net-zero emissions. By capturing, securing and storing carbon dioxide through a variety of mechanisms, these technologies can reduce the amount of CO₂ in the air. While companies that conduct CCS are on the road to being heavily subsidized, this energy-intensive industry poses concerns as a solution to the climate crisis because primarily, **it will perpetuate a reliance on the same oil and gas industries that are currently harming vulnerable communities.**

Presently, **California is the nation's sixth-largest oil producer.** With little regulation on the location and nature of the oil and gas industries, historic and present-day injustices have left communities of color in California exposed to far greater risk of environmental health hazards from this industry than others. **Communities in the Central Valley both live and work proximate to oil and gas drilling, and refining and experience significant detriment to their well-being, from breathing poor air quality from smoke-stacks to working in fields irrigated with fracked water.**

Currently in the Central Valley, at least two enhanced oil recovery and/or biomass sites are being pitched to be retrofitted as CCS sites. What does this mean? In essence, the enhanced oil recovery site that was causing headaches, contamination and other health issues to residents nearby in Delano before, could be subsidized to do so.

Climate justice solutions like CCS seek to resolve climate change, but do not necessarily generate environmental justice. Beyond lengthening dependence on industries that are harming overburdened communities, **the lack of adequate information regarding CCS is concerning.** From the lack of data on the impact storing carbon can have on seismic activity to the research gaps in quantifying air pollution caused by different capturing technologies, health and safety to nearby communities is not guaranteed by CCS. If safety is not guaranteed, the residents living in nearby communities will be the greatest and most immediately affected by these gaps.

How can nearby communities be sure what will happen to the carbon storage site during earthquakes? If there is leakage, how will that affect the air and water quality of nearby communities? What accountability mechanisms are proposed to ensure the health of Central Valley communities, like Delano?

The Valley has the unfortunate distinction of being home to the worst air pollution in the nation, intense oil and gas production and a dense agricultural landscape that has fostered complex water quality issues. Unregulated, and un-researched CCS sites will further exacerbate these inequities caused by existing environmental racism.

As California works to address climate change, it is critical we do not force communities already facing compounding vulnerabilities to sacrifice their health and safety for others.

3

LEVERAGING PAST CAMPAIGNS

Mission & Model

CRPE's mission has been centered on achieving environmental justice and healthy, sustainable communities through collective action and the law. The organic melding of community organizing and legal action, known as movement lawyering, is a deliberate and sustainable strategy CRPE has used for decades. Specifically, this model of both taking the lead from the communities themselves while empowering them to become leaders themselves, even developing new organizations at times, has been proven to be successful in the Valley.

While learning about each of the intersectional, concurrent and compounding injustices experienced by the communities in the Central Valley, it is clear that CRPE has led difficult but successful campaigns that have led to long-lasting victories. In developing a campaign focused on regulating CCS, our team strongly believes looking to this rich past. Strategically leveraging these learned lessons and organizing strategies will be critical for success in the CCS campaign.¹⁸

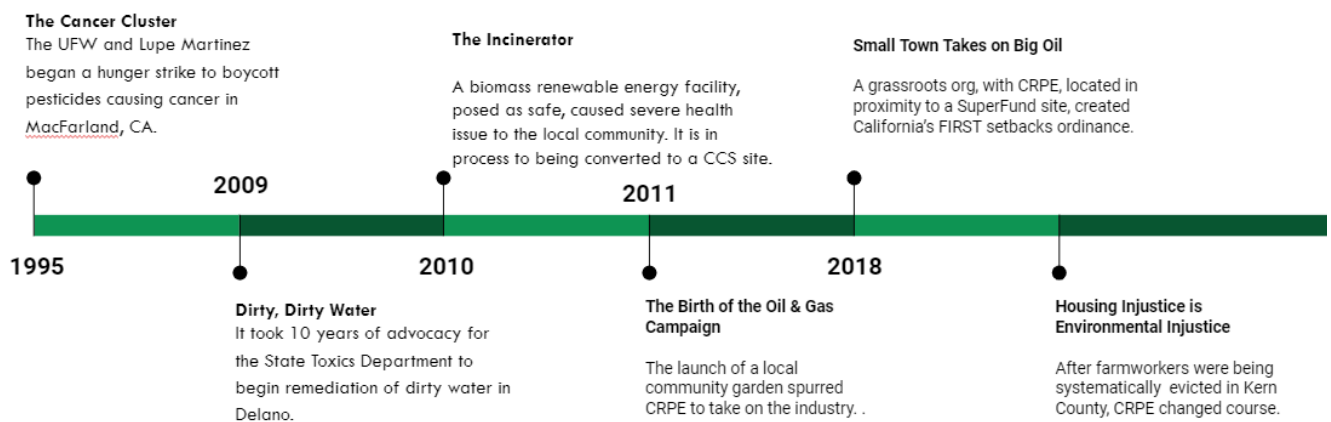
“We don't organize people, we develop leaders. All these small committees have become non-profits themselves because we want to be responsible to them. If CRPE one day disappears because of funding

¹⁸ The campaigns summarized below are based on direct interviews from April 8, 2022 and are not a comprehensive review of all campaigns CRPE has initiated. However, our team believes this summary is a helpful start as each campaign provides a representation of the different advocacy strategies with which CRPE has had success.

or anything else, these communities will be continuing with the same mission and onwards. And there's that foundation to continue the work... And it's not just work. We're compadres, and conmadres because of weddings and quinceaneras. "

- Juan Flores, CRPE

CRPE Campaign Timelines



Historic Campaigns, Organizing Strategies & Lessons Learnt

Living and working in the epicenter of oil extraction in California, residents in Kern County experience injustices in three main forms: distributional inequity, procedural inequity and structural inequity. The purposeful location of oil extraction, refinement and biomass facilities and their resulting air pollution, carbon emissions and groundwater contamination is structural inequity. The lack of resources in the cities and unincorporated areas to mitigate these harm is distributional inequity. And lastly, the consistent lack of response from government agencies to be held accountable and responsible for preventing these harms ahead of time through protective and enforced rules, regulations and laws is procedural inequity, as is the lack of response to repair damages swiftly. Government entities that exclude communities from their inaccessible decision-making processes and are considering oil, gas and agricultural economic interests above the health and wellbeing needs of residents are an example of procedural inequity.

Campaign #1 - Delano Plume & Cancer-Causing Chemicals in the GroundWater

In 2008, Perchloroethylene (PCE) and Trichloroethylene (TCE) contamination was found in the groundwater in Delano, home of the United Farm Workers. These chemicals are used in dry cleaning facilities and can

often leak into groundwater, traveling long distances, impacting water supplies for homes, and can emit into the air and stormwater systems. At the time, a test at a nearby Chevron station found the presence of PCE in the soil. Many residents were becoming sick because of exposure to PCE. Chronic exposure to PCE is known to impair both brain and body functionality, and is associated with various cancers, including bladder cancer, non-Hodgkin's Lymphoma and multiple myeloma.¹⁹

In response to these harms, the Delano Guardians was founded as a volunteer-run grassroots organization intended to protect its residents from intersectional environmental, economic and social injustices. After 10 years of their persistent advocacy, the California Department of Toxic Substances Control (DTSC) finally conducted an investigation and began remediation of the groundwater.²⁰ The State of California allows for a maximum PCE level of five parts per billion and the level found in the groundwater was 440 parts per billion. Known as the Delano Plume, PCE from the ground had seeped into the more than a dozen buildings near Main Street and mixed with the air indoors, according to the DTSC investigation. The clean-up, involving the implementation of a new remediation system, only began in 2021 just last year, after more than a decade of community pressure to hold the state agency accountable.



“For years, the department said there was no money to even do the testing but we didn't give up. We just pounded and pounded them.”

**- Gloria Herrera, President of
Delano Guardians**

“How much are these agencies really protecting us?”

- Lupe Martinez, Delano Guardians, CRPE, & UFW

¹⁹ National Library of Medicine. (Aschengrau, et. al, 2015)

²⁰ The Department of Toxic Substances Control (DTSC) is the state department responsible for enforcing hazardous waste laws, protecting Californians and the environment from harmful effects of toxic chemicals by restoring and cleaning up contaminated sites, and compelling the development of safer products.

Advocacy Strategies Used - Institutional Reform & Coalition-Building

CRPE created a People's Senate, a coalition composed of 14 communities, fighting local hazards and toxics in 6 counties across the State. These communities have been directly harmed by DTSC, the regulatory agency responsible for managing toxic waste in the state. Leveraging each representative's personal and collective experiences, the People's Senate worked to identify concrete reforms the DTSC could take on to ensure the agency is more accountable to the residents it is meant to protect, instead of the economic interests of polluting industries. The reforms included the following:

- **New accountability structures** at the agency, including the Independent Review Panel.
- Additional resources to addressing community concerns and the hiring of the **first ever Assistant Director of Environmental Justice** at the agency

Applicable Recommendations for CCS Campaign

- **Coalition-Building:** CRPE has been leveraging an existing network of environmental justice organizations to organize around regulating CCS. Similar to the People's Senate, as legislation goes through its process, CRPE can utilize this coalition to brainstorm and identify further ways to regulate CCS in the State, in an iterative fashion, that is responsive to new information from both elected officials, government agencies, science literature and other stakeholders.

Campaign #2 - A Cancer Cluster in McFarland

While CRPE was not directly involved in this campaign, one of the organization's senior members, Lupe Martinez was. In the 1980s, it was discovered that the town of McFarland had three times the childhood cancer rate than the national average. From 1975 to 1996, 21 cancers of various kinds were reported in McFarland children ranging in age from under two to 19. **Agricultural chemicals were an immediate suspect in the cancer cluster.** McFarland is home to one of the most heavily cropped regions in the nation, and significant quantities of pesticides, herbicides and fertilizers are applied in the vast fields of crops that extend from the town outwards. More than 17 tons and 11,000 gallons of pesticides with connections to cancer, genetic damage and reproductive issues were used in McFarland from from February 1979 to January 1983, the period studied by the California task force.²¹

Advocacy Strategies Used - Direct Action & Regulatory Reform

- In 1984, after the discovery of the cancer cluster in McFarland, United Farm Workers, which at the time included CRPE's member Lupe Martinez, began a **boycott** on five dangerous chemicals being used on the crops.

²¹ "Pesticides and Death Among Plenty", Michael Weisskopf. Washington Post, 1988.

- Cesar Chavez went on a water-only "fast for life" **hunger strike** in 1988 partly as a result of McFarland's cancer cluster and started a campaign to urge growers to stop the use of five pesticides which he believed caused cancer and birth defects.
- In 1995, the group **petitioned** the United States Environmental Protection Agency, Region 9 (EPA) for assistance in evaluating the community's environment. The US EPA investigation spanned from 1997 to 2002 and the EPA collected soil, drinking water, outdoor air, and indoor dust samples. The EPA ruled the area not eligible to be on the Superfund National Priorities List and that the town is similar to other towns in California.

Applicable Recommendations for CCS Campaign

- **Regulatory Reform:** One relevant recommendation is to require the California Environmental Agency (CalEPA) or California Geologic Energy Management Division (CalGem) to conduct evaluations, including quantifying air pollutant impacts, of any CCS sites for which permits have been applied.
- **Direct Action:** While we were at our site visit, CRPE took us to one protest held by a coalition of environmental justice organizations in the Valley. It seemed that some organizations were very motivated by direct action. A direct action strategy to get substantial attention in the media would continue to be helpful, complementing other advocacy strategies. Direct action could also be a mechanism to communicate some impactful catchphrases from our media campaign section.



(Above: Protest at the Bakersfield Bluffs, held by CRPE & a Coalition of EJ groups in the Central Valley. April 2022)

Campaign #3 - BioMass: Renewable or Toxic?

Industrial-scale biomass incinerators located directly in communities, proximate to schools and homes are some of the largest single sources of pollution in the Valley. Two of the largest incinerators in the Valley have been the Covanta Mendota plant and the Covanta Delano plant. When active, the Covanta Mendota incinerator was the largest stationary source of direct particulate matter in all of Kings, Fresno and Madera counties combined and was the largest emitter in the entire Valley. The Covanta Delano incinerator

ranked 9th for particulate matter pollution out of the 5,353 permitted facilities in the Valley.²² The Covanta Mendota plant was less than a half mile from residential housing. In 2015, cardiovascular risk in this area was in the 93rd percentile. The placement of these facilities exacerbated ambient air quality and caused direct harm to residents who live nearby.

In the 1990s, while CRPE, specifically Lupe and other organizers, were working to make changes in McFarland and its cancer cluster, these biomass incinerators were in the process of being developed. The UFW was not able to pay attention to it because of all of the work they were doing in McFarland.²³ At the time, the sites were sold to the communities as a renewable energy facility but they are clearly incinerators that burn wood chips for energy, causing air pollution. The specific complaints from communities proximate to the Covanta incinerator were severe headaches. The dust was incredibly bad and visibility was very poor. CRPE and the surrounding communities were never able to get that information about what the air pollution was or its impacts. To this date, there has never been a study to find out what was really the impact of the incinerator for so many years.

“



So all the biomass facilities because of the prices of renewables shut down because of not being able to stay competitive. It was too expensive. Biomass facilities can only operate if they are subsidized. Covanta shut down. So the only reason why they're coming back online is because of these CCS subsidies.”

- Lupe Martinez, CRPE, UFW & Delano Guardians

(On Left: Lupe Martinez with HKS Team Member Aneesa

Andrabi)

²² California Air Quality Coalition, 2014.

²³ Direct Interview with Lupe Martinez, April 08, 2022.

“Just because it's renewable energy from trees, does not mean it's not polluting. When you burn anything, there's a lot of pollution coming out of it...They used to tell us: if you think something is wrong, call the air board. I could never catch anyone [at the air board] to tell them it smelled awful.”

- Lupe Martinez, CRPE, UFW

Advocacy Strategies Used - Legal Action

- In 2015, the San Joaquin Valley Air District found the Covanta biomass incinerator in Delano **liable** for seven air quality infractions, leading to over \$30,000 in penalties because of “failure to comply with visible emissions limits.” The air district’s action was in response to CRPE’s resident-led effort to monitor and report suspected violations from the Covanta facility. The facility consistently fails to control smoke emitted from a pair of smoke stacks just two miles south of Delano. Across 2014 and 2015, concerned residents living nearby the facility filed over 20 complaints to the San Joaquin Valley Air Pollution Control District.

Applicable Recommendations for CCS Campaign

- **Lesson:** The goal of the CCS campaign is to prevent sites from coming onboard without requisite regulation, like the biomass incinerators that were developed without community input or informed regulation. To that end, our team hopes that complaint-led legal action against CCS sites does not need to happen because there is sufficient regulation and constraints on the CCS sites to begin with, through the legislative process occurring currently.
- **Lesson:** Currently though, there is insufficient federal and state regulatory structure on CCS sites though, as they pertain to air pollution. It is critical to use evidence to keep mobilizing on regulating and constraining CCS sites before they come onboard. Once they come onboard, it will be challenging to file complaints without agencies directly overseeing or regulating the sites.

Campaign #4 - Irrigating Crops with Toxic Fracking Wastewater

One prominent strategy to extract oil in California, as mentioned before, is fracking. Fracking is essentially injecting water, sand and over 600 chemicals into the ground at high volumes in order to extract oil. 95% of fracking in California occurs in Kern County. While this may not be known to most, an uncommon injustice occurring in Kern County is that produce grown proximate to fracking sites are irrigated with wastewater that was a byproduct of fracking. This is a risk to human health if consumed.

After the oil is extracted, when the water comes back up (produced water), it is mixed with fresh water and then sold to farmers so they can irrigate their crops. Produced water from oil wells in Kern County contains many banned chemicals, including cancer-causing arsenic and cadmium and four other human carcinogens.²⁴ In fact, Chevron recycles 21 million gallons of oil field wastewater every day, selling it to farmers who use it to water 45,000 acres of citrus, nut and grape crops. This operation has been continuing for two decades, but ongoing droughts have inspired more companies to apply for the permits they need to begin similar programs.²⁵



“Here in the Valley, if the owner doesn’t tell the farmworkers what’s in the water, the farmworker doesn’t know. Let’s say I work in the field, your hands are dirty. What’s the first thing you do? Wash your hands with the farm’s irrigation system. I dry my hands on my clothes. Then, I bring those clothes home, around my kids. So farmworkers are exposed to fracked water and no one is talking about it. Not even farmworkers, but consumers too. If you’re eating almonds, pistachios, grapes from Kern County, chances are you’re consuming produced water. And there has not been a serious study of this in California. Because it’s not convenient. You would damage the fruit basket of the country.”

- Juan Flores, Lead Organizer, CRPE

(The team next to a fracking site and almond farm).

Advocacy Strategies Used - Media Campaign

- In 2015, an organization called the Movement Generation and The Other 98%, worked with CRPE to create a video series directed towards Governor Jerry Brown to demand a fracking ban in California. The videos were called: “What the Frack!” and included segments called,

²⁴ “California Regulators Banned Fracking Wastewater for Irrigation, but Allow Wastewater From Oil Drilling. Scientists Say There’s Little Difference.” (Inside Climate News, April 2022).

²⁵ “Central Valley’s Growing Concern: Crops Raised with Oil Field Water.” ([Los Angeles Times](#), May 2015).

“Don't Frack with our Food”, and “Stop the Fracking Racism”. The videos included comedians, singers, poets and attorneys and were aired on TV as ads.

Applicable Recommendations for CCS Campaign

- **Media Campaign:** Complementing the legislative process focused on CCS, a larger media campaign building upon the “What the Frack!” series, highlighting the ties fracked water has towards both farmworkers and consumers could be extremely powerful. A campaign focused on CCS, as shown in our Media Campaign section, could also be empowering to different types of people.

Campaign #5: The Birth of the Oil & Gas Campaign

A little after the economic crisis in 2008, CRPE was focusing on how residents in the Valley can be better prepared for future economic disasters. People started communicating that, “We always work the land for someone else. When will we work it for ourselves?” So, CRPE decided to launch community gardens, in order to provide a sustainable food source for the people in the Valley. It was quite a success, with many people able to provide themselves with substantial produce just through the garden, saving both money and gaining joy. On the day of the groundbreaking of the community garden though, the attendees noticed the garden, which was right by a school, was also right by an oil drill. They also noticed everyone complaining of awful headaches. This was the day CRPE decided to take on the oil and gas industry.

“About a decade ago, there was no record of where the oil wells were in California. CRPE organizers went around personally and created a map of the wells to show how close they were to homes and schools and showed it CalGem. At the end of the meeting, they asked us for that map.”

- Juan Flores, Lead Organizer, CRPE

“It's been a campaign that has evolved and has generated a movement. CRPE created a movement within California. With all due respect to all the big orgs in the Bay and LA; it was really good they wanted to help but without these communities though, it was just a whole bunch of people

walking with little postcards and banners. You had to have communities on their side. We came in and that's where CRPE came in and said, we'll organize for you."

- Juan Flores, Lead Organizer, CRPE

Campaign #6: A Better Arvin: A Small Town Takes on Big Oil (Setback Ordinance)

Arvin is a small community located about 20 miles southeast of Bakersfield, in Kern County. In this community, about a dozen oil and gas wells had been operating next to homes and schools. Historically, Arvin residents are exposed to ozone and particulate matter at concentrations higher than 94 to 98 percent of the rest of the state. Many residents suffer from severe asthma, allergies, cancer, and other illnesses.²⁶

In 2018, the Committee for a Better Arvin, a community organization born out of CRPE organizing, led the City to pass California's an unprecedented health-protective oil and gas setback ordinance. Since California has no statewide rule on setbacks yet, a huge regulatory gap in one of the nation's top oil producing states, the Committee for a Better Arvin's victory is even more impressive. Even with the oil and gas ordinance passed though, the oil and gas companies were able to receive permits to drill 4 new wells within city limits by arguing that the permits were applied for before the ordinance was executed. So, the Committee and CRPE utilized California Environmental Quality Act (CEQA) in litigation to protect residents from four new oil and gas wells and ended up winning.

²⁶ "Tired of Wells Threatening Residents' Health, a Small California Town Takes on Big Oil." KQED (August, 2020).



“One of the things that lit a fire in us was this attitude [from the oil and gas companies] that these guys aren’t powerful. As in, ‘Esa gente chiquita, no tiene poder, esta gente pequena’. And at the end of the day, we want clean air and clean water. And when we need to go to Sacramento, we go to Sacramento.”

-Member, Committee for a Better Arvin

(Above: HKS team & Committee for a Better Arvin)

Advocacy Strategies Used - Framing the Facts & Legal Action

- In collaboration with CRPE, the Committee went door-to-door explaining to people why they wanted this ordinance to happen. People would frequently say that this ordinance would take the oil industries jobs away. The Committee just had to double down and strategically communicate with people that no, this would not actually take oil industries jobs away and only protect their health.
- Through “Committee for a Better Arvin v. Kern County”, CRPE and the Committee worked to fight the oil industry in court. Ultimately, in 2019, the judge ended up finding several irregularities and the 4 new drills were no longer permitted.

Applicable Recommendations for CCS Campaign

- **Re-framing facts and reiterating scientific evidence** will be critical for the CCS campaign. Mainstream audiences including elected officials and constituents will understand CCS to be an environmentally positive change and it will be important to re-educate people in understanding the harmful impacts it can have.

Campaign #7: Housing Injustice is Environmental Injustice

In 2010, CRPE was fighting an ethanol plant and a mega-dairy's environmental impact in Wasco. One day, CRPE organizers were going to a Board of Supervisors meeting in Bakersfield and noticed how upset some of the organizers were. They soon learned that the farmworkers were about to be evicted from their homes, right before Christmas. CRPE soon realized they could not ask these workers to fight against the mega-dairy when their main problem was housing.

The farmworkers were being evicted from labor housing specifically. People that were undocumented were particularly targeted during the eviction process. Although it was labor housing and farm companies had an investment in making sure their workers were housed, the laborers were being harassed and evicted.

"For CRPE, it was a bit of a moment of truth. Traditionally, we've worked on environmental issues; that was our bread and butter. Internally we had a big debate. The organizers were very persuasive by saying 'If we want to organize these communities, we have to address the quality of life issues that are most important to them. They're not going to fight for air or water quality if they don't have a house.'"

- Juan Flores, CRPE

Advocacy Strategies Used - Outside Inside

- This campaign was one of the first times CRPE elected people from their organizing networks into elected offices. Specifically, CRPE organizers worked to get people from the communities elected to the housing authority. Eventually, most people got relocated to better housing, which was a win.

Applicable Recommendations for CCS Campaign

- **Lesson:** Environmental justice is an intersectional issue. While working on the CCS campaign, there may be other related injustices that come up that may need to be addressed if they are the frontline community's main burden and concern.

SEEKING REFORM

Status Quo



(Pictured above, CPRE staff, community advocates and HKS students meet with California State Senator Ben Hueso in Sacramento California to discuss SB 1314 (Limón).)

A comprehensive advocacy strategy seeks to leverage local, state, administrative and federal solutions to resolve long standing community issues. Our group worked with a client, CPRE, all semester to address the longstanding environmental issues impacting residents living in California's Central Valley.

During our initial meeting with our client, CPRE Assistant Director, Ingrid Brostrom, informed us that their organization was part of a larger coalition of environmental justice advocates that were collectively working to introduce a legislative resolution in the California Legislature to address the concerns expressed by many Central Valley residents regarding proposed carbon capture and sequestration projects.

From the outset of our time assigned to work with CPRE our group has been responsible for researching legislative solutions to meet the needs of the vulnerable residents of California's Central Valley.

Advocacy Background

SB 1314 (LIMON) Oil and Gas: Class II injection wells: enhanced oil recovery

On February 18, 2022 Senator Monique Limon introduced Senate Bill 1314 in the California Legislature. SB 1314 (Limon) would prohibit the use of captured carbon for enhanced oil recovery and is currently one of 11 pieces of legislation that touch on the topic of Carbon Capture and Storage. Our client, the Center for Poverty, Race, and the Environment is a member of the larger Environment Justice Coalition sponsoring this legislation.

This bill would prohibit an operator from injecting a concentrated carbon dioxide fluid produced by a carbon dioxide capture project or a carbon dioxide capture and sequestration project into a Class II injection well for purposes of enhanced oil recovery, including the facilitation of enhanced oil recovery from another well. **See entire [bill text here](#)**

After SB 1314 (Limon) was introduced in the California Senate the bill was referred to the Senate Natural Resources Committee. SB 1314 (Limon) was heard in the Senate Natural Resources Committee on April 26, and passed out of the committee on a 7-1-1 vote.

Members of the Senate Natural Resources Committee that **previously abstained** from supporting AB 1395 (Muratsuchi) The California Climate Crisis Act include, **Senator Ben Hueso, Senator Bob Hertzberg, Senator Stern, Senator Eggman.**

These same members were likely to oppose or abstain from supporting SB 1314 (Limon) when this bill was heard in the Senate Natural Resources Committee, however, through effective grassroots advocacy efforts initiated by CPRE all of the above identified members were able to support SB 1314 (Limon) when the bill was heard in committee.

Prior related legislation

In 2021, Assemblymember Muratsuchi introduced AB 1395 (Muratsuchi) The California Climate Crisis Act which required the following:

California's Air Resource Board (ARB) to work with relevant state agencies to establish criteria for the use of CO₂ removal technologies and Carbon Capture and Storage (CCS) technologies for the purposes of

achieving statewide net zero GHG emissions and 90% GHG reductions. In establishing criteria, ARB is required to:

- a) Consider the risks and uncertainties associated with the use of CO₂ removal technologies and CCS and include requirements for long-term financial assurances to mitigate them;
- b) Ensure the use of CO₂ removal technologies and CCS does not increase toxic and criteria pollutants, and reduces them where feasible; and,
- c) Exclude the counting of captured CO₂ that is injected into underground wells for the purpose of in-state fossil fuel extraction as removal or reduction for the purposes of achieving net zero GHG emissions.

AB 1395 narrowly passed out of the California Assembly (42-21-16) but eventually stalled in the California Senate with 14 ayes-12 noes -14 abstentions vote. See [link](#)

The following California Senate Democrats abstained. See absentions below:

Archuleta, Bradford, Cortese, Durazo, Eggman, Glazer, Hertzberg, Hueso, Newman, Pan, Roth, Rubio, Stern, Umberg

Recent related legislation

The following bills were introduced in the California Legislature during the 2021-2022 legislative session:

- **SB 905 (Skinner, 2022)** would direct the establishment of a geologic carbon sequestration demonstration initiative, and require the development of program guidelines and criteria for geologic sequestration of carbon, among other things. (This bill is pending before the Senate Education Committee.)
- **SB 1101 (Caballero, 2022)** would require the development of streamlined approval for carbon capture and sequestration projects, and the use of a skilled and trained workforce on these projects, among other things. (This bill is pending before this Committee.)
- **SB 1399 (Wieckowski, 2022)** would create a grant program at the California Energy Commission to fund projects related to carbon capture and sequestration. (This bill is pending before the Senate Energy, Utilities and Communications Committee.)
- **SB 1395 (Muratsuchi, 2021)** would set state policy to achieve net-zero greenhouse gas emissions by 2045 and net-negative emissions thereafter, and bar the counting of EOR injections in these calculations, among other things. (This bill is inactive on the Senate floor.)

- **SB 155 (Committee on Budget and Fiscal Review, Chapter 258, Statutes of 2021)** is the Public Resources budget trailer bill for the fiscal year 2021/2022 budget and includes \$50M for the Department of Conservation to develop carbon-negative fuels from materials resulting from forest vegetation management.
- **SB 34 (Calderon, 2013)** would make various changes to state law to facilitate the deployment of carbon capture and sequestration projects, including the assignment of SB 1314 (Limon) Page 8 of 9 pore space ownership. (This bill was held on the Senate Appropriations Committee's suspense file.)
- **SB 1139 (Rubio, 2012)** would have made various changes to state law to facilitate the deployment of carbon capture and sequestration projects, including the assignment of pore space ownership. (This bill was held on the Assembly Appropriations Committee's suspense file.)
- **SB 711 (Rubio, 2011)** would have modified the requirements for the injection of waste fluids underground in oil and gas fields. (This bill was held in the Assembly Natural Resources Committee without hearing.)

Advocacy Action Plan

Virtual Advocacy

On **Mar 31, 2022**, a member from our student group had a Zoom meeting with Senator Ben Hueso's **Legislative Director**, Jose Alvarez, regarding SB 1314 (Limon). During this meeting we conveyed our client's support for this bill and stated that we were available to answer any questions Jose may have regarding this policy proposal.

During this initial meeting Jose mentioned he had not yet attended the Senate Natural Resources Committee staff briefing nor had he been able to read the committee's official analysis of the bill. **This proved to be important because we were able to set the narrative around this bill for him.**

Our student group also reached out to Senator Hertzberg's Chief of Staff, Freddie Quintana, as well as Senator Susan Eggman's District Director to set up meetings for our client, CRPE.

Legislative Office Visits

On Wednesday, April 6th CPRE staff, Central Valley community advocates and members from our HKS student group met with California State Senator Ben Hueso in Sacramento, California to discuss SB 1314 (Limon) prior to the bill being heard in the Senate Natural Resources Committee.

During our meeting with Senator Hueso, our group set aside time for the community advocates who traveled up to Sacramento from California's Central Valley to share their experiences with Senator Hueso. This opportunity proved to be important because Senator Hueso was able to hear first hand accounts of the pollution plaguing the Central Valley.

Stakeholders

Accurately assessing the political positions that key stakeholders are likely to take regarding a specific policy proposal is always an important first step in assessing the viability of potential legislation. For SB 1314 (Limon) our group has outlined the stated/likely policy positions of the following key stakeholder groups (Unions, Local Communities, Oil and Gas industry, Environmental Justice Groups, and Missing Voices):

Unions:

In the past, the following trades unions have been opposed to policies that seek to limit oil and gas extraction in California: **State Building and Construction Trades Council of Ca, California State Association of Electrical Workers, California State Pipe Trades Council, International Brotherhood of Boilermakers, and Western States Section.**

Last year, the above mentioned trades unions opposed AB 1395 (Muratsuchi). In their letter of opposition they wrote the following:

"At the same time, AB 1395 simultaneously limits the tools for achieving carbon neutrality. Limiting California's technology-based solutions while simultaneously extending and expanding the state's climate targets will **unnecessarily threaten high-wage jobs**, further challenge the reliability of our electric grid, and increase costs for consumer goods for all Californians."

Recently, other statewide union groups have begun weighing in with their support for measures like AB 1395 and SB 1314. Specifically, organizations like the **California Nurses Association (CNA)** have been very vocal with their political support for environmental justice issues.

Leveraging the support of key unions like CNA will be key to offset the opposition of the trade unions.

Local Communities

Most Central Valley community advocacy groups are supportive of bills that seek to bring about environmental justice reforms. SB 1314 has a large group of local community advocacy organizations

currently supportive of the bill. Moving forward, local community advocacy groups will be key in getting environmental justice policies signed into law across the state.

Community organizing, youth rallies, educational workshops, protests, and advocacy trips to Sacramento are all critically important components of Central Valley grassroots organizing and should be continued moving forward. Through local community involvement significant changes can be made.

Oil & Gas Industry

Historically, the oil and gas industry has been a strong opponent of any reforms relating to gas extraction at the local, state and federal levels. The Western States Petroleum Association (WSPA) has spearheaded opposition to a variety of local and state reforms.

According to public data published by the California Secretary of State's Office, lobbying organizations representing oil and gas companies spent almost \$77.5 million advocating on behalf of the oil and gas industry's interests in Sacramento between 2018 and 2021. That's approximately 400% more than environmental advocacy groups, which spent roughly \$15 million over that same period. It's also 560% more than the renewable energy sector, which spent \$11.6 million.²⁷

According to the Senate Natural Resources Committee analysis for SB 1314 (Limon) the Western States Petroleum Association states that "Notably, the Biden Administration identified deployment of CCUS technologies as a key priority in national decarbonization efforts. There are billions of dollars in federal incentives available to support deployment of CCUS projects and infrastructure that can and should benefit California. Specifically, the White House Council on Environmental Quality Report to Congress on CCUS states that we will likely have to capture, transport, and permanently sequester significant quantities of carbon dioxide (CO₂) to meet the President's ambitious domestic climate goal of net-zero emissions economy- wide by 2050."

"So long as Californians use oil and gas, California policy should support projects that reduce the greenhouse gas emissions associated with oil and gas production. Unfortunately, SB 1314 will arbitrarily ban an acceptable way to produce oil and gas locally and sequester carbon, and will significantly hinder California's ability to meet its climate targets."

Environmental Justice Groups

Generally speaking, most key environmental justice groups are supportive of SB 1314 and similar statewide policies. Continuing to build on this statewide coalition will be an important step moving forward but something CPRE is well on its way to accomplish.

²⁷ Slowiczek, Josh, Oil and gas industry heavily outspends environmental groups on lobbying in California, Desert Sun, Mar 15, 2022.


Missing Voices

It will be tremendously important to continue to include voices that have been historically missing from environmental justice policy debates. Typically, underserved communities' voices have been missing from many of these policy debates and strategic outreach to advocacy organizations that work with these communities will be important. Outreach to groups like the California Immigrant Policy Center and Coalition for Human Immigrant Rights is recommended given that undocumented immigrants frequently live within many of these impacted communities.

Long-term Advocacy Strategy

SEEKING REFORM

Next Steps-



ADVOCACY ITEMS- 4

- MEET WITH SENATE APPROPRIATIONS COMMITTEE STAFF
- PREPARE FOR A POTENTIAL SENATE FLOOR VOTE
- CONTINUE TO ACTIVATE MEMBERS OF THE COMMUNITY
- POTENTIALLY SCHEDULE ANOTHER SACRAMENTO VISIT FOR COMMUNITY MEMBERS TO MEET WITH MEMBERS OF THE LEGISLATURE
- LAUNCH A SOCIAL MEDIA CAMPAIGN
- BEGIN HAVING COMMUNITY MEMBERS CALL THEIR LEGISLATORS OFFICES ASKING FOR AN "AYE" VOTE FOR SB 1314 (LIMON)

Immediate Next Steps

Immediate steps for our client, CPRE, to take in the near future regarding SB 1314 include meeting with the Senate Appropriations Committee staff to discuss the estimated costs associated with the bill before the Senate Appropriations Committee hearing. Given the scope of this bill, the fiscal costs attributed to the bill should be low.

In addition, advocates can start preparing to reach out to all members of the California Senate in anticipation of SB 1314 being taken up for a vote on the Senate Floor. CPRE and other environmental

justice advocates should consider potentially scheduling another community member trip to Sacramento so community members can share their stories with elected officials and their staff.

Long Term Strategy

Long term community engagement and education regarding the topic of carbon capture and sequestration will be key in an effort to politically activate local members of the communities impacted by oil drilling. This community engagement model was proven in 2016 in the small town of Arvin, California when a 25-year old millennial Mayor stood up to the oil and gas industry by implementing a first in the state oil drilling set-back. The city ordinance included a ban on new drilling in residential zones and within 300 feet of hospitals, parks, and schools.

*“I think what they saw in me, and in the city council, was somebody that they could not control, a group of millennials that were not going to bow down to their political threats.” He rested his elbows on his desk and flashed a quick smile. **“They’re worried that it’s going to spread to other communities.”**”²⁸*

Arvin provides an example for environmental justice advocates to replicate in other rural communities throughout the Central Valley.

5

LEVERAGING DATA FOR ADVOCACY

In addition to the current legislative efforts, our team identified additional evidence-based policy recommendations that could be considered and added to legislation in the future. See Appendix for details of all research studies.

²⁸ Thompson, Gabriel, *Meet the Millennial Mayor Who Took On Big Oil—and Won*, The Nation, July 12, 2019.

Data-Driven Legislative Recommendations related to Regulating CCS

POLICY RECOMMENDATION #1: Require CCS applications to quantify probability of leakage and cost of leakage based on type of storage in application. Create thresholds for allowable probability of leakage and deny CCS project applications that are above this threshold.

POLICY RECOMMENDATION #2: Require CCS project applications to demonstrate exactly which and how much of criteria air pollutants will be emitted, with and without the project, and at each phase of the technology process (pre, or post, or oxyfuel combustion, transport AND conversion of oil/gas fields into stations.) See below a diagram that should be submitted on behalf of the CCS project lead.

POLICY RECOMMENDATION #3: Use pre-combustion capture as much as possible and minimize CCS deployed in fossil fuel power plants unless they do not emit NO_x. Minimize CCS deployed at Bio-IGCC-CCS power plant locations.

POLICY RECOMMENDATION #4: Given reasonable concern about leakage during storage of carbon, the State of California should identify the private companies as responsible for storage of CO₂ and require them to pay fines if there is leakage.

POLICY RECOMMENDATION #5: Require a rigorous EIA assessment of each CCS project.

Additional Recommendations

POLICY RECOMMENDATION #6: Cost-sharing in Commercial Nuclear Fuel could be a model for CCS. However, implementation of such a model may be unlikely due to at least two factors: CCS will largely function / already functions through tax credits (see *section regarding tax credits*) and the long-term storage and management of nuclear fuel remain unresolved. This may hinder any appetite from adopting this model for other industries

POLICY RECOMMENDATION #7: Create a setback policy similar to proposed regulation around new wells and facilities.

POLICY RECOMMENDATION #8: Install pipelines for long term, predictable CCS saline formation storage. "Pipeline costs vary much less than injection/storage costs because pipeline construction costs are not uncertain and the network is simply reacting and adapting to sink costs (Figure 4c)."

POLICY RECOMMENDATION #9: Commission research to understand how the intersection of seismic activity, fracking, and the stability of these sites affect each other. Since it is unclear what the long-term impact will be and how leakage might affect the nearby communities, greater research needs to occur to fully understand the long-term impact. Research needs to be built into all legislation.

POLICY RECOMMENDATION #10: Ensure that the cost of CCS goes to the polluters and is not passed onto taxpayers. The polluters should be working to reduce their emissions instead of only paying for their carbon footprint. As the ones producing the greatest impact, these companies should be responsible for their short and long term impact.

Relevant Evidence for Each Recommendation

Evidence | Policy Recommendation #1

The following is evidence gathered directly from the Intergovernmental Panel for Climate Change (IPCC), specifically their Special Report on CCS.²⁹

- There are two different types of leakage scenarios: (1) abrupt leakage, through injection well failure or leakage up an abandoned well, and (2) gradual leakage, through undetected faults, fractures or wells.”The cost of CO₂ capture and storage is typically built up from three separate components: the cost of capture (including compression), transport costs and the cost of storage (including monitoring costs and, if necessary, remediation of any release).
- For existing CO₂ pipelines, mostly in areas of low population density, accident numbers reported per kilometer pipeline are very low and are comparable to those for hydrocarbon pipelines
- A sudden and large release of CO₂ would pose immediate dangers to human life and health, if there were exposure to concentrations of CO₂ greater than 7–10% by volume in air.
- Pipeline transport of CO₂ through populated areas requires attention to route selection, overpressure protection, leak detection and other design factors. No major obstacles to pipeline design for CCS are foreseen (Sections 4.4.2, A1.2.3.1)
- Although the injection pipe is usually protected with non-return valves (i.e. to prevent release on a power outage), there is still a risk that the pipe itself could tear and leak due to the pressure

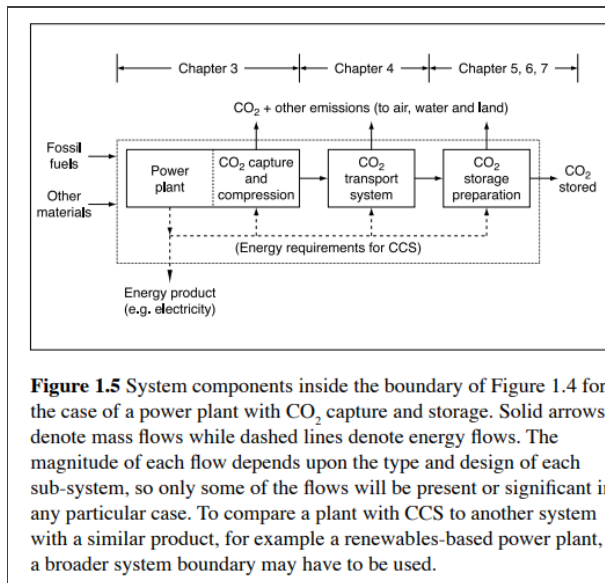
Evidence | Policy Recommendation #2

²⁹ The IPCC Special Report on Carbon Dioxide Capture and Storage, 2005

- 1) The 2021 White House report on CCS publicly states the following evidence that more research needs to be done on criteria air pollutants related to CCS.
 - “The scale of implementation of CCUS and carbon removal likely to be required to achieve climate goals understandably raises concerns about public health and environmental impacts, as well as questions about who stands to benefit from the deployment of these systems. Responsible CCUS projects should address cumulative pollution and should incorporate environmental justice and equity considerations”
 - **“There is a need to further assess and quantify potential impacts on local criteria air pollutants, and other pollutant emissions resulting from carbon capture retrofits at industrial facilities.** This should be done in the context of potential effects of retrofit projects on air quality nonattainment, and while engaging with communities with potential environmental justice concerns. Further research should be done, including air pollution data collection associated with Federally funded demonstration projects, to enable more robust 41 environmental impact analyses and decision-making regarding future projects. This is critical to address potential cumulative effects and other environmental justice concerns.
- 2) There is clear evidence that CCS, by nature of continuing fossil fuel production, will continue air pollution.³⁰
 - “The combustion of fossil fuels produces emissions of the long-lived greenhouse gas carbon dioxide and of short-lived pollutants, including sulfur dioxide, that contribute to the formation of atmospheric aerosols¹. Atmospheric aerosols can cool the climate, masking some of the warming effect that results from the emission of greenhouse gasses. However, aerosol particulates are highly toxic when inhaled, leading to millions of premature deaths per year.”³¹
- 3) Below is a diagram that demonstrates the entire system of CCS, showing the energy penalty used at every step. A similar diagram could be used to also show the air pollutants released at every step in the CCS system.

³⁰ Criteria air pollutants includes ground level ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, nitrogen dioxide.

³¹ [Climate and air quality benefits of a realistic phase-out of fossil fuels](#) (Shindell, Smith, 2019).



4) The impact of the CCS life cycle on emissions and air pollutants is as follows and should be required submission of each CCS site permit.

- Fuel penalty and direct emissions
 - CO₂ capture technologies; CO₂ compression and transport technologies; CO₂ storage technologies.
- Indirect emissions
 - fuel preparation; manufacture of solvents; and treatment of solvent waste.
- Third order emissions
 - Manufacture of infrastructure

Evidence | Policy Recommendation #3

STUDY A: The following is evidence directly gathered from a technical report conducted by the European Environmental Agency focused on the air pollution impacts from CCS.

Summary

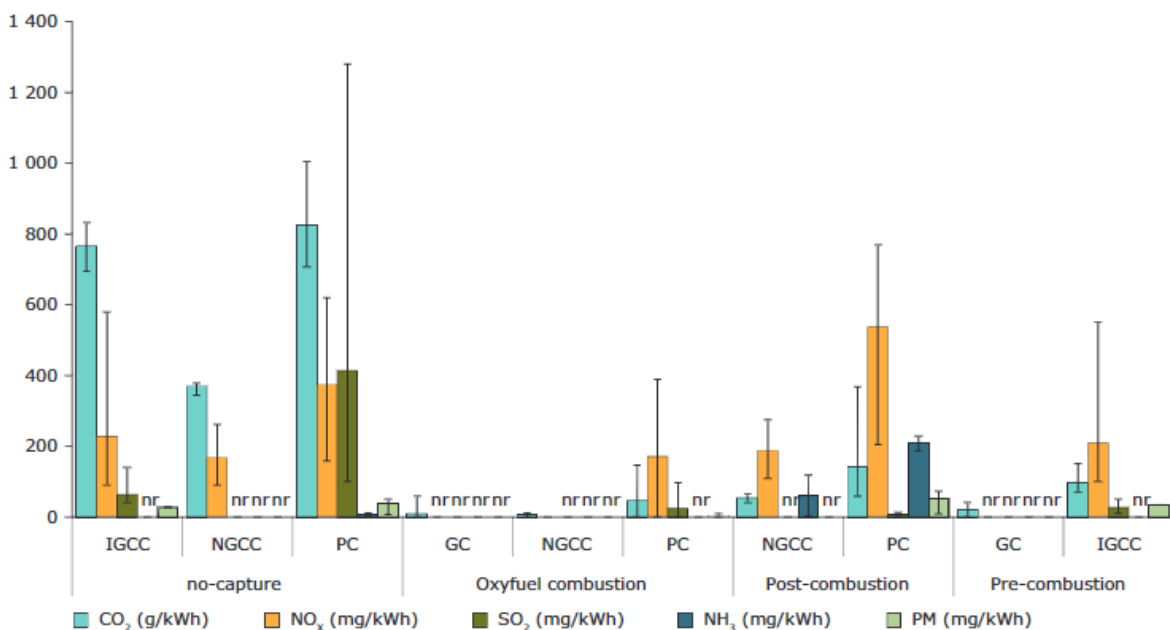
- Different types of carbon capture technologies have varying effects on the percentage CO₂ captured and air pollutant emissions.
- Several studies report that CCS used in fossil fuel power plants could increase emissions of GHGs, gas-phase oxides of nitrogen (NO_x), and airborne particulate matter because of low carbon capture efficiency and the additional fuel consumption needed to power the CCS unit.³² In contrast, CCS deployed in a biomass integrated gasification combined cycle (Bio-IGCC) is considered to be

³² European Environment Agency, 2011; Jacobson, 2019; Sanchez and Kammen, 2016

a promising negative carbon emission technology with competitive costs compared to other carbon mitigation strategies.³³

- Pollutants analyzed in EEA's research study are: the main GHGs CO₂, CH₄ and N₂O and the main criteria air pollutants with potential to harm human health and the environment —NO_x, SO₂, NH₃, NMVOCs and PM₁.
- The implementation of all CCS technologies will result in very low SO₂ emissions. Changes in the emission of NO_x depend on the specific technology.
- **In contrast, emissions of NH₃ are expected to significantly increase.** Ammonia slip from DeNO_x facilities is the main source of NH₃ emission from conventional fossil fuel-fired power plants.
- **Moreover, the captured CO₂ stream may have impurities which would have impacts on CO₂ transport and storage systems and also potential health, safety and environmental impacts.**

Figure 8.7 Emission rates of various pollutants for different conversion technologies with and without CO₂ capture



Notes: The indicated values are based on various fuel specifications and are dependent on the configuration and performance of the power plant and CO₂ capture process.

'nr' = not reported; IGCC = Integrated Gasification Combined Cycle; NGCC = Natural Gas Combined Cycle; PC = Pulverised Coal; GC = Gas Cycle

Source: Koornneef et al., 2011.

The chart above demonstrates how the emissions from different pollutants from different types of CCS technologies vary.

³³ Klein et al., 2011; Muratori et al., 2017; Rhodes and Keith, 2005; Zang et al., 2020.

Impacts: Post Combustion

- SO₂ emissions per unit energy decrease for all coal-firing conversion technologies. **Emissions of NO_x and NH₃ are expected to increase.** NO_x emissions per unit energy produced seem to increase almost proportionally with the increase in primary energy demand needed to run the capture unit.
- **A significant increase of NH₃ emission** may be caused by degradation of the amine-based solvents that possibly will be used in post-combustion CO capture.

Impacts: Pre Combustion

- **Pre-combustion technology has the lowest increase in primary energy use and better environmental performance.** In this technology, the compressor power is lower as the CO₂ is removed under process pressures higher than atmospheric pressure. As such, the CO₂ removal process itself requires less energy in this technology.

Impacts: Oxyfuel Combustion

- As with pre-combustion technology, **oxyfuel combustion has lower energy consumption and air pollutant emissions** than conventional coal fired plants fitted with post-combustion carbon. Oxyfuel combustion processes promise to have the highest CO₂ removal efficiencies, within the range of 95–98 %.

Impacts: Transport

- A review of the environmental impact assessments of pipeline constructions (including CO₂ pipelines for enhanced oil recovery) reveals that the impacts on air quality from this type of project under normal operation will be during construction from: movement of heavy equipment for trenching and transport of pipes; trenching activities including storage of excavated materials; movement of personnel; and construction of the pump house and take-off stations.

Converting Oil & Gas Fields to Storage Facilities

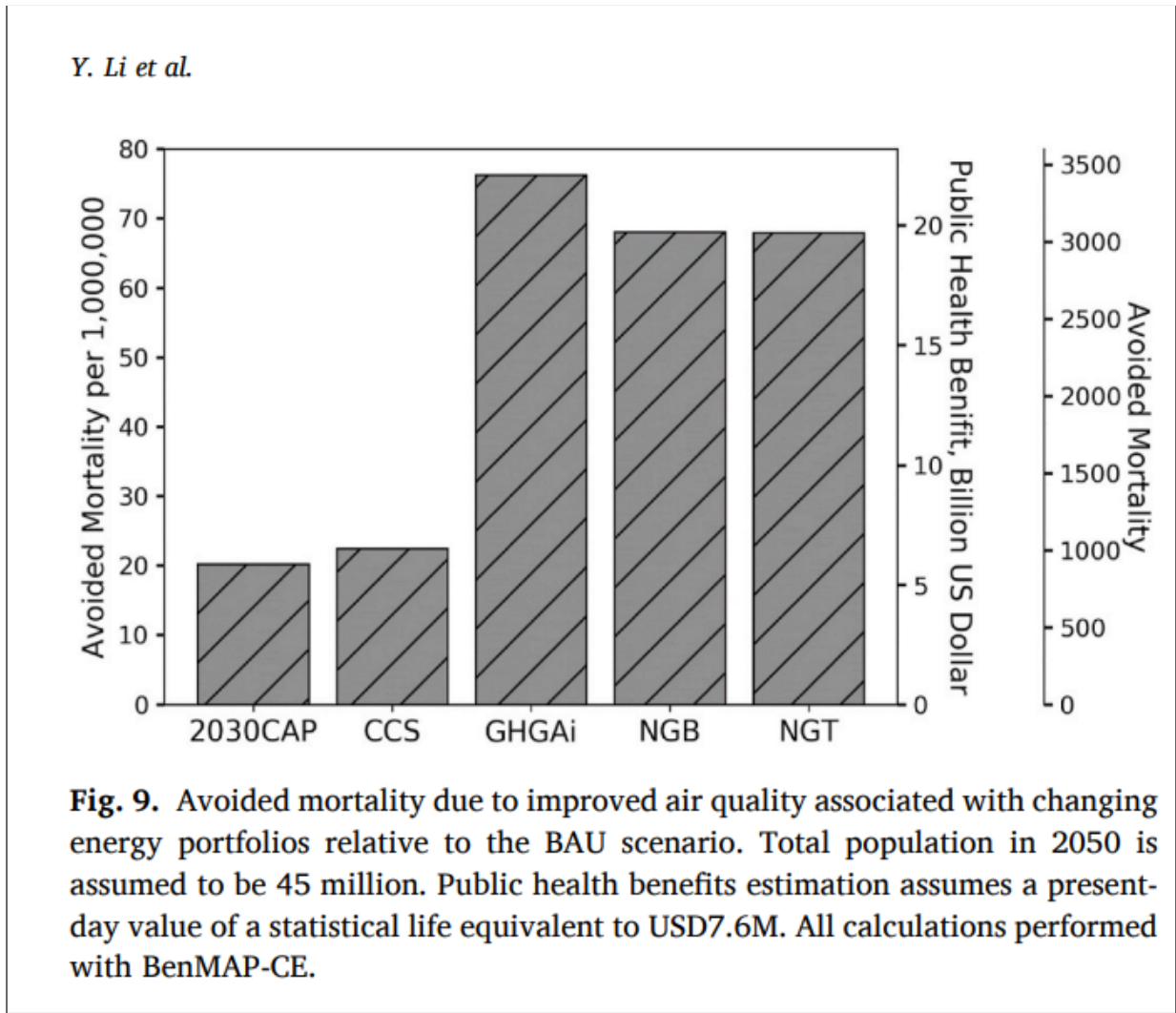
- Conversion of the existing depleted oil and gas fields to CO₂ storage would also require a compressor station.. **Compressor stations will create noise and air pollution and involve handling small quantities of hazardous materials.**

STUDY B: The following is evidence directly gathered from a study conducted by Y. Li et. al's research team at Carnegie Mellon.³⁴ For detailed results, please see the appendix.

- Six future energy scenarios were translated into emissions inventories for air pollution in California:
 - BAU - a business-as-usual future reference scenario.
 - CAP30 - a loose GHG reduction scenario that meets current policy references but only achieves a 40% GHG reduction (relative to 1990 levels) by the year 2030.
 - GHGAi - a climate-friendly 80% GHG reduction scenario featuring broad adoption of advanced technologies and renewable energies.
 - CCS - a scenario that achieves 80% net GHG reductions but allows for more fossil energy combustion by focusing on adoption of carbon capture and sequestration technology.
 - NGB— a variation on the GHGAi scenario that allows for more natural gas combustion for residential and commercial buildings, and
 - NGT – a variation of the GHGAi scenario that allows for more natural gas combustion for electricity generation.
- Deep greenhouse gas (GHG) mitigation scenarios significantly reduce emissions of air pollution precursors, yielding significant reductions in predicted ground-level PM2.5 concentrations.
- CCS strategies yielded only one third of the public health benefits compared to the deep GHG reduction approaches.
- Deep GHG mitigation scenarios that used additional natural gas experienced higher concentrations of ultrafine particles.

³⁴ [Future emissions of particles and gasses that cause regional air pollution in California under different greenhouse gas mitigation strategies \(Y. Li et al., 2022\)](#)

The chart below shows the avoided mortality due to improved air quality with the different scenarios.



Evidence | Policy Recommendation #4

The following is evidence directly gathered from the Intergovernmental Panel for Climate Change (IPCC), specifically their Special Report on CCS.³⁵

- There are legal issues concerning the responsibility for stored carbon dioxide. This is relevant because the CO₂ will be the subject of a contract for storage, or a contract for emissions reduction, or because of the possibility of unintended release. Whether society should expect private

³⁵ The IPCC Special Report on Carbon Dioxide Capture and Storage, 2005

companies to be responsible over centuries for the storage of CO₂ is unclear. A judgment may have to be made about a balance between the costs and benefits to current and to future generations.

- In the case of the very long-term storage of nuclear waste, states have taken on the responsibility for managing storage. The companies that create the waste, and make a profit from using the nuclear material then pay a fee to the government to take responsibility.
- In other fields, the deep-well injection of hazardous materials is sometimes the responsibility of governments and sometimes the responsibility of the companies.
- Rules about insurance and about liability (if there were to be a release of CO₂) will need to be developed so that, even if something happens in the future, when the company that stored it is no longer in business, there will be a means of ensuring another organization is capable and willing to accept responsibility.

Evidence | Policy Recommendation #5

- “To achieve an Environmental Impact Assessment of a CCS project, the entire life cycle of the projected unit has to be evaluated concerning, not only the environmental issues, but also the social and economic effects of the project and risk assessment. Thus, the objective of the EIA is to identify the possible origins of problems, to propose alternatives and to define measures in order to avoid, reduce and, if possible, remedy significant adverse effects.”³⁶

Other Findings

There is some evidence that storing in unstable geological areas may be harmful and there is some evidence that existing CCS sites pass costs onto ratepayers. See Appendix for further detail.

³⁶ Environmental Impact Assessment of Carbon Capture and Sequestration: General overview Nelson Barros, Gisela M. Oliveira (1), M. J. Lemos de Sousa, 2012.

DEVELOPING MEDIA CAMPAIGNS AND NARRATIVE CAMPAIGNS

We Recommend a Four Part Stakeholder Strategy

Because CCS is a very technical issue, we understand that an effective communications strategy is vital for mobilizing support around anti-CCS regulations put forth by CRPE. In line with CRPE's grassroots organizing combined with legal advocacy model, we have developed a few messaging techniques aimed at several main stakeholder audiences:

- a. **Mobilizing within EJ communities to ensure that they understand how CCS will be used for enhanced oil recovery, in order to include this issue in their collective actions.** Our presentation with the Committee for A Better Arvin exemplifies this method: we supplied them with CCS facts, and they choose whether and how to act on it, deciding to draw on their experience of the negative effects of drilling near their communities to present real-time “lived research” to legislators in Sacramento on the potential dangers of CCS.
- b. **Targeting legislators** by uplifting both our policy research and the voices of California constituents from these EJ communities foremost. We hope to also create statewide public opinion pressure by engaging University of California students from all over the state.
- c. **Mobilizing local building trade union members** in an attempt to nuance the labor relations conversation on the ground level first.³⁷ SB1314 is only against opening any new or closed oil and gas facilities meaning that no jobs will be lost through this recommendation. In addition, we hope to highlight that this is inherently a workers struggle, with farmworkers and their families exposed to oil leakage and chemical-laced oil wastewater regularly.
- d. **Targeting those adjacent to the Environmental Justice movement, such as those in the Health and Nutrition movement** by emphasizing that “clean eating” stretches back to include the water used to grow our crops, which is laced with chemicals from adjacent oil drilling.

³⁷ LA Times, 2021, Why a California Oil Workers Union is Getting Behind Clean Energy Boiling Point. URL: <https://www.latimes.com/environment/newsletter/2021-06-10/why-a-california-oil-workers-union-is-getting-behind-clean-energy-boiling-point>

Utilizing print flyers and social media, we hope to broaden CREPEs advocacy reach to young people around California by mobilizing around a “This is a California Issue” narrative to add anti-CCS for enhanced oil recovery language to the UC Green New Deal coalition reform agenda, by framing CRPE’s work within the historic California United Farmworkers Movement and the climate justice struggle. As legislative changemaking often operates on a long-term timeline, we hope that these far-reaching narrative campaigns can sustain momentum and uplift the urgency of the climate crisis alongside that of EJ Community wellbeing.

The following section breaks down our messaging campaign, beginning with the most general messages and then circling back to complicate and expand on them. All of these messaging strategies are based in the research findings and stakeholder interviews detailed previously in this paper, and techniques are informed by our case studies in our *Creating Justice* class and the Arc of Advocacy lessons drawn from them including with regards to leveraging precipitating events and long-running injustices, Data and Research (recognizing that translation is a major component of our campaign), building out a coalition of likely and unlikely supporters, establishing a Moral Framing, and Situating our Campaign within a broader movement or history, namely the farmworkers movement and climate justice struggle.

Primary Themes in Messaging

- **Falsehood of this climate “solution”** – CCS for enhanced oil recovery, which makes up 80 percent of CCS initiatives currently,³⁸ *produces absolutely no carbon benefit* if you count the oil that’s been burned after. **CCS for enhanced oil recovery works to keep fossil fuels relevant, not eliminate them.** It is bad for the climate AND bad for California communities.
- **Harm to communities and Environment Now** – keeping a timeline reference in our messaging is especially important when discussing sustainability initiatives related to the climate crisis, and thus *emphasizing the harm of oil and gas drilling in both the short and long term for both surrounding communities and the environment is crucial.* For quick highlights, we draw on the Committee for A Better Arvin’s research from their historic “Oil and Gas Ordinance” to emphasize dramatically increased rates of cancer and asthma in EJ communities near oil and gas drilling sites, and also reference the air pollution happening in real time that would only increase with the proposed CCS initiatives.³⁹
- **There is not enough research, period.** – The long-term sustainability of carbon capture sequestration is not known, and leakage potential is possible at every step of the CCS process.

³⁸ Ingrid Belgram of CRPE, transcription notes.

³⁹ California Green Zones explains one example of these dangers: “Due in part to local oil and gas drilling, Arvin residents are exposed to ozone and particulate matter at concentrations higher than 94 to 98 percent of the rest of the state. Many residents suffer from severe asthma, allergies, cancer, and other illnesses.”

Research that has been done has been overwhelmingly funded by Oil Companies that want to use CCS for enhanced oil recovery, and the findings that do exist reflect their goals and none of the concerns raised by communities. However, **we do know many immediate impacts of this legislation through the lived experience of frontline EJ communities**, who bear the brunt of these so-called innovations where symptoms come first and research comes after. As CRPE's Ingrid Bergman puts it, *"Kern County is gonna be ground zero"* in terms of testing out CCS projects in California, and it will be crucial to keep frontline community research in this conversation at the state level.

Topline messaging for mobilizing EJ Communities and Legislators

- **Calling out specific phrases in misleading CCS messaging: "carbon zero," "permanent," "safe," and "value-added benefit" are all buzz phrases either false or not supported by research** – With phrases even in purportedly neutral research findings, like the **"value added benefits"** of oil reservoirs versus saline formation storage, we emphasize that that just means that one method allows for more oil drilling while **carbon-zero or carbon-neutrality buzzwords** similarly remove CCS from its harmful context, where enhanced oil recovery means more CO₂ burning, not less.

Applying this *re-information campaign* to one major CCS initiative:

- The California Resources Corporation (CRC) has initiated their Carbon TerraVault Project which aims to store up to 1 billion metric tons of CO₂ in sites around California. The project's first phase, Terra- Vault I, aims to store up to 40 million metric tons of CO₂ in storage facilities around Elk Hills Field.
- The field is a 75 square foot onshore asset area of the CRC located 20 miles west of Bakersfield in Kern County and is one of the most "productive" oil fields in the country, according to the CRC.

The Elk Hills Field is “one of the premier CO₂ sequestration sites in the U.S. ...an optimal site for safe and secure sequestration of CO₂.”

- California Energy Commission



- Local communities should advocate against purported health and economic benefits, and call out the contradictions in the CRC’s project description:

*“CCS projects can have **immediate and long-lasting environmental, economic, and employment benefits to nearby communities.** The Elk Hills Field is of particular focus given the ample availability of multiple depleted oil reservoirs. The rural Elk Hills oil complex spans nearly 75 square miles, **with no burden on local communities,** and includes more than 25,000 acres of habitat conservation lands.”*

- The false hopes and security in CRC’s plan simplify the context of CCS pollution and the cycle of increased fossil fuel burning and environmental dangers it exists within, and so **our messaging campaign uplifts direct counter narratives** such as by highlighting the “burdens on local communities” and “the immediate and long-lasting environmental dangers.” Our campaign that situates anti-CCS legislation as a workers struggle also combats the idea of economic and employment benefits, for unsafe working conditions and unhealthy workers are a direct contradiction to CRC’s messaging. The idea of carbon neutrality is not supported by research and cannot be upheld as a motivating force for putting EJ communities and the planet at risk.
- Spearheading powerful rephrasings in CCS information campaigns: “CCS for enhanced oil recovery is *The New Fracking*”** – Fracking is a dirty word in California especially, and makes this issue immediately recognizable. By coating such a technical issue in words people readily

understand, we open the doors for further discussion and catalyze involvement in anti-CCS legislation.

- This term came about organically through our presentation with the Committee for a Better Arvin, where usage of the phrase immediately clicked with community members after one member redescribed CCS for enhanced oil recovery as “basically, the new fracking?” While a simplification, fracking involves injecting chemicals at high pressure for oil recovery, whereas CCS here is about injecting Carbon at high pressures for oil recovery. As CRPE’s Ingrid Belgram explains that “80% of CCS is going for oil extraction,” we feel making this connection to fracking and the oil industry up front is crucial to swaying Californians at the state and local level.⁴⁰
 - Not only do we recognize this a very technical issue with lots of science jargon separating implementation from impact at the legislative level, but the most impacted communities are often ESL or majority Spanish speaking in general, and we don’t want Big Oil to take advantage of this in their messaging. Using the phrase “the new fracking” which is simple yet powerful **means an accessible starting off point for more research, inquiry, and collective organizing.**
- Our communities **have lived experience with these “innovations”** that we need to treat as real time research of the effects of CCS, before more established scientific studies can catch up.
 - In collecting evidence for their historic Oil and Gas Ordinance that served as an example for oil well setbacks across the state, Arvin Community residents compiled **dozens of community testimonials and over 2,600 petitions** on the dangers their community was facing.
 - Especially where research ethics are in question,⁴¹ our messaging will **uplift this type of collective, ground-up and transparent research** as the necessary backbone for urgently needed sustainability legislation.
- **Carbon Transportation concerns are unaccounted for:** We don’t know enough about CCS transport, so it could be risky. So far the easiest transport is only for on-site injection, causing previously closed facilities to open up and feeding directly into the CCS for enhanced oil recovery

⁴⁰ “Right now, CCS is not happening in California. But it is happening in other places. 80% of CCS is going for oil extraction. So in California, the fossil fuel companies...are going out of business, this is a way for them to stay in business, because they’re actually getting federal and potentially state money in order to continue to operate.” -Ingrid Belgram of CRPE, transcription notes.

⁴¹ “The oil companies have been working on this for decades and getting paying places like Stanford and like really, you know, big names, to do good to do this research that is being paid for with their money, and answering their specific questions to make this look like a good answer, even though it’s not.” (Daniel Ress of CRPE, from transcription notes.)

pipeline. For sustainable CCS initiatives, more research needs to be done on how to safely transport CO2.

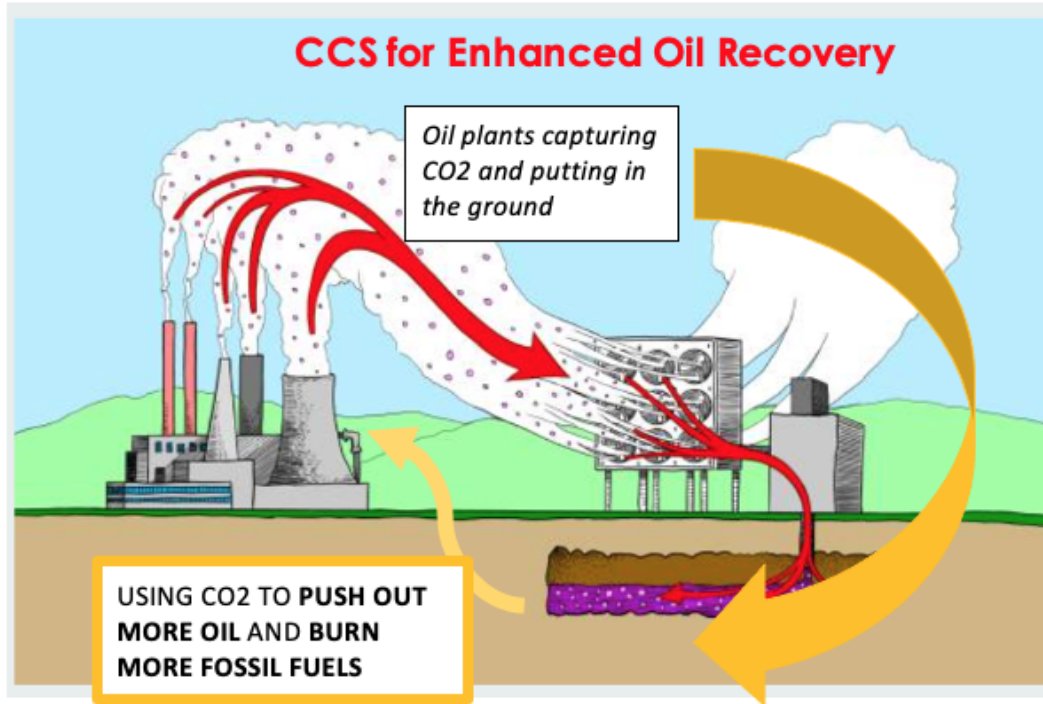
- *“I think one of the big concerns I’ve never heard anything close to a good answer on is how do you transport it safely? **The thing is that this is much more dangerous than natural gas or oil to train to transport.** Because if there’s a burst in the pipeline, it’s heavier than air and it’ll sit, it spreads out for miles and sit [not float up] And if you’re sitting in a field of carbon dioxide, you can’t breathe, you will die.” -Daniel Ress, CRPE.*
- Underscoring the increased likelihood of air pollution, the question of transport includes messaging on Covanta, another closed facility that would potentially re-open for its onsite injection capabilities. Termed the “incinerator” by community residents, this biomass renewable energy resource closed due to widespread headaches and visibility issues on the local highway because it produced so much air pollution.
- **This is costly to our communities:** oil companies shouldn’t be getting a tax subsidy for the environment when they are actively harming the environment, and we shouldn’t have to pay them to damage the health and wellbeing of our communities. Calling out this irony is central to campaign efforts and mobilizing the local community.

We have used the easily-digestible flyer below to briefly sum up the main points from our messaging campaign. It includes a simplified graphic of CCS being used for enhanced oil recovery for a quick introduction to how carbon capture and injection is functioning on the ground. Importantly, the instagram dissemination of this flyer would include the phone numbers for each of the senators listed, who were the deciding votes in the Natural Resources Committee for SB1314 when it came to vote on April 26th, 2022.

[Full page print out flyer is on the next page]

CARBON CAPTURE AND SEQUESTRATION BEING USED AS THE NEW FRACKING

- ➔ Big Oil is **exploiting** "sustainability" initiatives to keep fossil fuels burning
- ➔ They use CO2 capture technology for enhanced oil recovery, keeping their oil plants running and producing more CO2 in the atmosphere than they collect, **while poisoning our communities**



UNSTABLE

- CCS technology comes with **unknown dangers**, with possible CO2 leakage in transportation, injection, and storage
- CO2 underground increases **earthquake potential**

DANGEROUS

- Oil and Gas leaks from oil drilling near our communities and in our agricultural fields **causes known health hazards, including increased rates of cancer**
- **Air pollution** from Oil plants and CCS technology poses more health risks, like **increasing Kern County asthma rates**
- **Water Contamination** through drilling will only get worse

**STOP
ENHANCED
OIL
RECOVERY!
CALL
SENATORS
Hueso,
Hertzberg,
Eggman
SUPPORT BILL
SB1314**

COSTLY

- **Taxpayers will pay big oil to keep poisoning us.** Oil Companies will receive tax subsidies to continue their drilling by pretending to provide environmental benefits through carbon capture

Storytelling Strategy Through a Moral Framing of Reclaiming Hope

Storytelling is absolutely central to anti-CCS research, and all environmental research. This report shows numerous examples of communities mobilizing their collective lived experiences to make issues regarding the negative effects of Oil and Gas Drilling, those of supposedly positive renewable energy production through biomass burning, and of the water recycling efforts by Big Oil to Big Agriculture where wastewater is used to water our crops are taken seriously. Crucial to telling CRPE's story is situating it within the broader context of racial justice and workers' rights movements, and ensuring that Kern County is recognized for the central role it plays in California identity and socioeconomics.

Importantly, while these are not all happy or positive stories, we believe that through framing this advocacy work within an overall bend toward justice and powerful advances made even in nominal “failures” (such as with the legislative story below), we can sustain morale. The Moral Framing of our advocacy effort takes morale seriously, and we find the message that not only is Big Oil exploiting communities in Kern County and the environment, but is **exploiting the concept of hope itself** to be a powerful rallying point, especially for engaging young people. Numerous articles detail the dissociation of “Gen Z” where the climate crisis is leading to absurdist humor and existential dread, as our current realities offer little chance at saving the planet from the harmful effects of generations before.⁴² As Bo Burnham sings in his wildly popular song about this existential dread *All Eyes On Me*, termed the “anthem of a generation”⁴³: “you say the ocean’s rising, like I give a shit...you’re not gonna end it, heaven knows you’ve tried...now get inside”, the need for hopeful narratives in the face of a climate crisis that is so well underway cannot be understated.⁴⁴ As such, in presenting hopeful narratives about on the ground collective organizing for both communities and the environment, as crucial to California functioning as a whole, we counteract and amplify the way Big Oil has taken our worldwide hopes for “sustainability” and attempted to exploit everyone’s hope for a climate fix in furthering their production efforts and profits.

- **Using Litigation to Tell a Story – Collective power against short-term disappointments**
 - One narrative we want to amplify in CRPE's legislative advocacy work is the story of how they got involved in the oil and drilling setbacks work at all, through the establishment of their community garden. In this story, CRPE wanted to build a community garden near a school, and have community members come and support that garden. When they approached the school, community members voiced that this garden couldn't happen until the oil well that was right near the school be moved back. CRPE decided to take action.

⁴² <https://www.newyorker.com/magazine/2018/07/02/bo-burnhams-age-of-anxiety>

⁴³ <https://austincharvey.medium.com/why-bo-burnhams-inside-resonates-so-deeply-with-gen-z-9a7ba6dce57>

⁴⁴ <https://thred.com/culture/opinion-how-bo-burnhams-inside-masterfully-portrays-gen-z-angst/>

- **Through a novel interpretation of Civil Rights law**, CRPE fought against these oil and gas wells by claiming that regulations against fracking in the state had a disproportionate impact based on race. They claimed this was a discrimination case because oil and gas drilling operations were happening disproportionality near schools that had large Latino populations and students of color. Ingrid Belgram explained that for discrimination lawsuits, you have to prove a discriminatory intent to successfully litigate and so **they argued that these fracking regulations themselves actually increased fracking in the state in a way that had a disproportionate impact on Latino students.**
- While the case was not successful in proving discrimination because many judges were not receptive yet to this novel interpretation of civil rights law, CRPE had many victories in terms of collective strength and data collection that came as a result of this litigation. As Ingrid emphasizes: “And we also we were able to get an expert to really hone in on the disparity and **so we had we did all the statistical analysis on, you know, where drilling is happening, what schools are impacted, how many students are impacted, what's the demographics of the students impacted,** and were able to use that in our later efforts to create setbacks and so we're able to use those figures and statistics in our in our policy campaigns.”
- While the case was going on, CRPE was able to highlight stories coming from the Shafter community in a way that had not been acknowledged prior. In discussing disconcerting health patterns prevalent in these communities, our team learned that almost all of the kids have asthma in the school next to the oil well, and that, while the case was ongoing, a young elementary school aged child died very suddenly of unknown causes. Around the same time, another elementary school child was diagnosed with prostate cancer. Because there were no technical research studies urgent enough to trace the causes of these myriad health disparities, these heartbreaking stories needed to be heard in the context of Oil and Gas drilling discrimination where even if not proven, a connection through correlation is well-established on a legal level.
- The community was, however, able to establish a setback to move the well further from this elementary school, a community garden was built, and the community with CRPE came away with new and trained community leaders to carry on the fight.
- In this way, rather than relaying the heartbreaking stories of the children on their own, we believe situating the stories within a legislative action and so within this bend towards an environmental and climate justice sustains morale and victory in the long term.

- **Our Lives Are Not Renewable: tracing notions of “Waste” in Sustainability initiatives**

- Another narrative we hope to uplift in our messaging campaign is the collective organizing around the BioMass production site, the Covanta Mendota “incinerator” which was elaborated on earlier in our report. While “renewable energy” sounds like an exciting prospect for anyone wanting to stop fossil fuel burning, we resituate this as an example of a nonsolution and uplift the power of individuals coming together to push science to do better. The positive arc here is not just with getting Covanta to close down, and emphasizing its negative aspects so that pro-CCS initiatives do not reopen it, but to highlight a model where even the communities most impacted are at the forefront of encouraging even better sustainability initiatives for the environment as a whole. They do not think we need to settle.

- This message comes across in uplifting the oral history of Covanta from former UFW organizer and current Delano Guardians and CRPE leader Lupe Martinez:

*“So anyways, they started to bring in all kinds of mounds up here of wood chips and trees. But at night, the stack would start spewing out all the stuff and sometimes you would come through here and you would smell it really bad –They used to tell us: if you think something is wrong, call the air board. could never catch anyone to tell them it smelled awful. **Not only that, it seemed like there was a fog all over the place.** You gotta realize, those trees right there, they get sprayed with pesticides all year around (almond trees, etc) so if you burn them, then there’s going to be issues’. It was supposed to be safe but who knows. **To this date, there has never been a study that I’m aware of to find out what was really the impact of this thing for so many years.** At that time, most of the people, when these things started off, they’re probably now in their 50s and 60s. **If that’s the case, how many people have cancer? Respiratory problems? More asthma? We don’t know.”***

- In uplifting this narrative, we ask legislators and trade unions: **Who are you letting become collateral damage in this equation?** In order to combat dominant narratives around BioMass and Covanta, we again traced common themes in the companies messaging from their website. We found their slogan “turning waste into energy” a perfect jumping off point for our advocacy work, where the question becomes: who is regarded as “waste” in our sustainability initiatives? Waste, as we’ve seen, apparently includes the health and wellbeing of the entire community around the incinerator as collateral damage. **Therefore, we recommend championing the phrase: “Our lives are not renewable” to**

counteract dominant narratives about BioMass energy production as an alternative to fossil fuel burning.

- **Don't let our workers get erased in technicalities.** We emphasize that workers are the necessary connection between sustaining Californians and sustainability initiatives for the world—they farm our fields to produce agricultural crops for the entire country, and do so alongside oil wells leaking onto their worksites and into their water. Positioning farm workers as frontline voices to tell California legislators what we need in terms of sustainability initiatives is a powerful way to connect the short term with the long term in terms of both environmental and climate justice.⁴⁵

Spreading Our Story and Message

Print media – Physical flyers disseminated locally by EJ Advocacy groups within these communities, including by Committee for a Better Arvin and the Delano Guardians.

Digital media – Twitter and Instagram for accessibility and broad reach

- **Twitter:** CRPE has an active twitter presence and we recommend using these never before used hashtags: #ourlivesarenorenrenewable #stopdrillingstopkilling #LetThemEatOil – because they haven't yet been used, CRPE can better trace their impact and establish a clear virtual network.
 - In addition, we recommend using twitter to send easy-to-grasp memes, such as our “Stop Eating Oil” graphic, to get to audiences involved who are neither local nor necessarily affiliated with climate justice work, but are adjacent—such as with the nutrition and health movement. The graphic below falls into the genre of “homemade memes” or “bad memes” where the rudimentary nature of the meme lends itself well to a bottom-up movement approach as it is easily digestible and disseminated.

“Stop Eating Oil” Graphic description: This meme shows a “Big Oil” Baron championing the phrase “Let Them Eat Oil” as he profits from his ties with the almond agricultural industry, where almond milk is “Made with 100% oil wastewater”—this meme takes on both the arbitrary divide between over-and-under land ownership between Big Agriculture and Big Oil and the disregard for Californians’ health in proposed attempts to save water. As almond milk is a staple of the health movement,⁴⁶ we hope this image will catalyze involvement and further research.

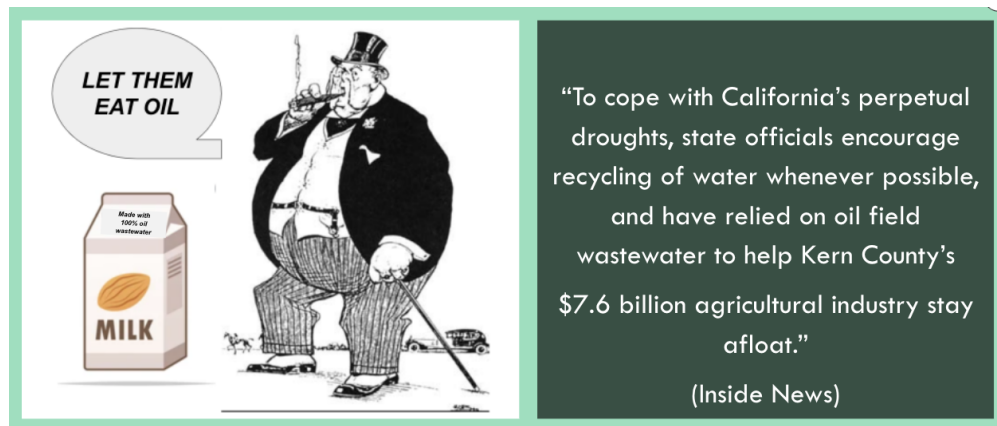
⁴⁵ Thus, we recommend disemmaning a powerful picture comparison of farmworkers in casual wear and the protective oil well worker uniforms as they work side by side. We could not find a picture of this online and the fields were empty of workers when we toured the sites, making the potential impact of this picture even greater.

⁴⁶

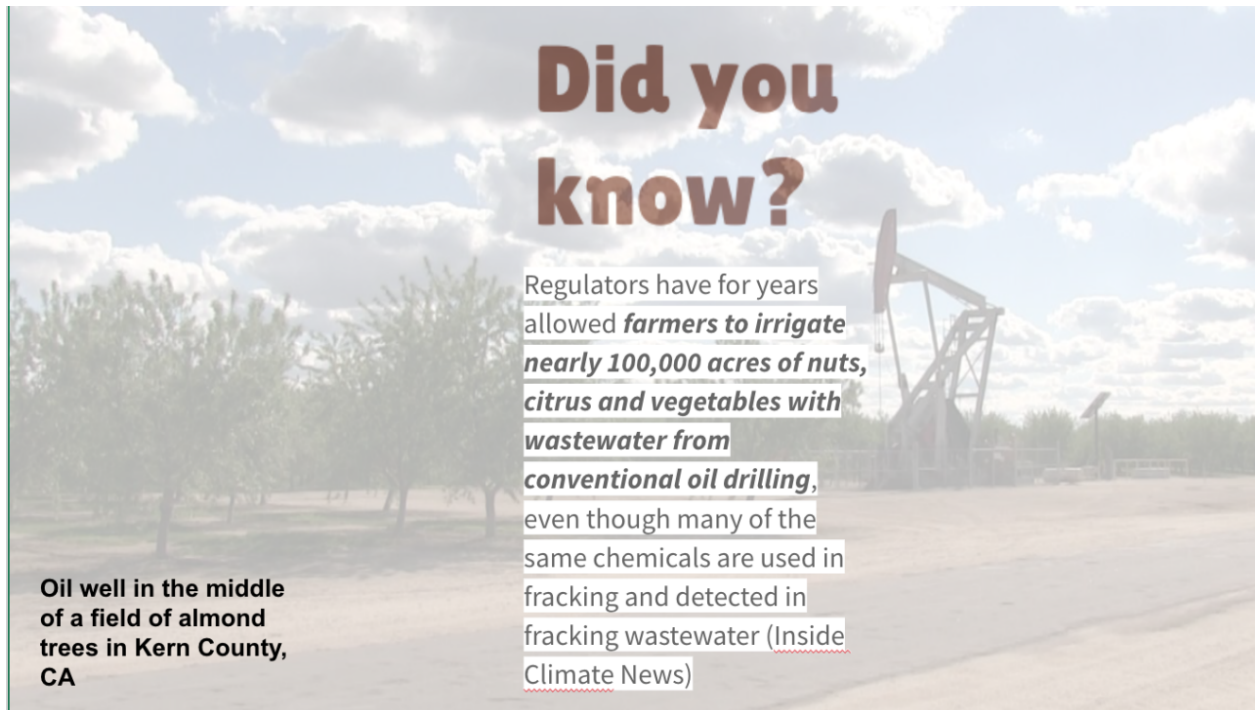
<https://www.irishtimes.com/life-and-style/food-and-drink/how-the-wellness-movement-spoiled-milk-s-healthy-reputation-1.37773>
92



We recommend pairing semi-humorous memes like that above with more statistical pictorials, such as with this example:



We believe flooding social media with these graphics will slowly build the EJ Advocacy network to include more “unlikely supporters” in the long run. Another picture below shows a troubling quote about wastewater on top of a picture of an oil drilling well in the middle of an almond tree field:



- **Instagram⁴⁷**: we envision Instagram here functioning as an alternative research network, and an accessible database. Because the concept of ethical research and data gathering is a focal point of our advocacy campaign, we hope to create an accessible means for community members to share their stories and get information. This communal knowledge base will function with instagram pictorials and written first hand accounts, video submissions, and an online form for individuals to fill out with their own testimonies. This “communal knowledge well” means local communities can share and receive information in real time, and offers a transparency notably lacking in the messaging from the California Resource Corporation’s TerraVault project, the Covanta Mendota website, and all CCS-for-sustainability initiatives we have seen in this report.
 - We believe it is important for this Instagram to function much like CRPE’s advocacy does: by having a “more is more” mindset to building community leadership. An abundance mindset in terms of solutions means including all the many intersecting environmental issues CRPE has worked on and will grow as the movement expands.
 - We hope addressing these environmental entanglements together head on, rather than trying to divide and conquer, will enable broad based support and real solutions to the

⁴⁷ We opted not to create the Instagram account ourselves, as it should be affiliated with a CRPE-adjacent email account.

climate crisis. Our Instagram idea directly addresses the community needs articulated by EJ stakeholder Lupe Martinez:

“The biggest challenge now is how do we unite all of the communities that are suffering from the same thing? Sometimes we’re too busy with our own issues, and we don’t see what other communities are facing. I think our challenge is to come together. The communities are so poor that travel and communication is hard. The biggest challenge is getting over all of those things, and uniting all of those communities to come together. Kettleman City is suffering, or Buttonwillow is suffering, or Westmoreland and down south—they’re all connected. We’re all suffering from the same thing. Either we have a dump site, or bad water, bad air. We’re all having the same issues, and we all face the same problems.”⁴⁸

- Instagram and Twitter will function together for our Translation goals: making sure this technical issue is not divorced from on the ground experiences when discussed by legislators and Big Oil. We are reminded of the guiding quote by Lupe Martinez in our translation mission: **“they called it environmental justice, we called it, you know, ‘the chemicals are killing us’.”**

As you can see, the Instagram account we propose so far would include some of the following:

1. An **online story archive** where community members can share their stories to create this tangible database and make sure living memory is documented and accessible.
2. **Community profiles** that both personalize the issue and situate it in a broader movement, making these connections personal all the way through.

Examples are below, and we will add as the movement grows:

⁴⁸<https://hfe-observatories.org/the-environmental-justice-legacy-of-the-united-farm-workers-of-america-stories-from-the-birthplace-of-industrial-agriculture/>



COMMUNITY PROFILES:
Lupe Martinez

"they called it environmental justice we called it, you know, 'the chemicals are killing us'"

Lupe Martinez was involved with the UFW from the 1960s through 2006. Over the years his roles with the union included volunteer, organizer, contract administrator, negotiator, Regional Director, National Organizing Director, and Vice President of the Executive Board. He is now the Associate Director of the Center on Race, Poverty and the Environment, where he first worked from 1991-1993.

Lupe recalls his environmental justice activism from his time with the UFW, where farm workers were handling pesticides unregulated, being told that they were spraying "medicine" on grapes and almonds.

He believes water is the most important issue currently facing Kern County and EJ communities in the Central Valley, because it connects all environmental and worker struggles right now



COMMUNITY PROFILES:
Krista Brieno

Growing up in California's Central Valley, Krista Brieno suffered from asthma and was prohibited from playing any sports as a child because the activity coupled with the region's very poor air quality could trigger a life-threatening asthmatic reaction.

Krista is now a pediatric nurse at Stanford Children's hospital and lives in the Santa Cruz Mountains, and since moving out of California's Central Valley for college her asthma has completely disappeared and she has been able to adopt a healthy and active lifestyle.

She currently is on day 875 of an active jogging streak and was recently featured in Runners World magazine.

Note: We highlighted Krista Brieno's story in our legislative advocacy campaign, where Aaron emailed legislators and talked about his sister's personal experience growing up with asthma from Oil and Gas drilling and local air pollution. We feel this helped sway the vote, as the bill passed through the Natural Resources Committee.

3. In addition to Community Profiles, we will have quote and statistics highlights that partner organizations can pull to use in their advocacy campaigns in line with CRPE's model of creating a constellation of EJ Community Advocacy strongholds.
4. We will also include **video clips**, which are sometimes more digestible than words.
- **Virtual Organizing platform put forth by the UC Green New Deal Coalition:** Finally, we recommend mobilizing young college students interested in climate justice to take on this issue and as a unified group establish their support for anti-CCS regulations. We believe this will take some of the burden off of EJ communities and specifically older and (more directly affected) members of this community. By getting anti-CCS language on the UC Green New Deal Agenda we ensure environmental justice is taken seriously in climate justice struggles, so that our hopes for sustainability and a possible future cannot be exploited by Big Oil.
 - The current UC Green New Deal policy agenda platform is pictured below, and includes similar initiatives for fossil fuel burning management that are positive—such as with “increasing accountability measures for declared emission reduction and sustainability goals” and zero carbon transportation projects on California campuses. As it pushes for these ideals, we hope student leaders will also tackle fake sustainability solutions on the California-wide scale as climate justice work necessarily transcends campus boundaries.

Policy demands from the UC Green New Deal Coalition's platform

The University of California Green New Deal Coalition, a coalition of UC community members, created a policy platform that urges the UC to take more action to decarbonize its campuses through improvements made in areas such as transportation, energy and housing.



Some potential solutions proposed in the UC Green New Deal Coalition's platform include:

- + Replacing cogeneration and steam plants powering UC campuses with a majority electric supply from 100% renewables.
- + Prohibiting new natural gas infrastructure in all new buildings.
- + Increasing accountability measures for declared emission reduction and sustainability goals.
- + Banning campuses from buying new campus vehicles serving housing and maintenance that use combustion engines.
- + Constructing affordable housing for UC students and employees close to campuses and ensuring it remains affordable.
- + Strengthening compliance with the Native American Graves Protection and Repatriation Act and the California Native American Graves Protection and Repatriation Act and proactively consulting local tribes before any new development project.
- + Committing to the full divestment of the pension fund and endowment from fossil fuels and broadening the UC's definition of divestment.
- + Ensuring that every UC employee is paid a living wage and guaranteeing the use of union labor.
- + Investing in active and sustainable modes of transportation through adopting policies that incentivize those who primary commute by biking or walking and building safe bike lanes on each UC campus among commonly used transit lanes.
- + Encouraging the use of public transportation and working with local governments to connect public transportation directly with campus destinations.
- + Introducing more sophisticated rainwater capture and water recycling systems.
- + Managing UC land better in order to mitigate the risk of high intensity fires.
- + Evaluating existing UC infrastructure to see if it can be retrofitted with ecologically impactful improvements.
- + Working with local cities to expand support for University-affiliated basic needs centers.
- + Expanding programs that support increasing students' abilities to access to food. Reducing the provision of animal products served per quarter or semester at UC campuses.
- + Terminating contracts with outside suppliers that are primary contributors to environmental waste.
- + Providing additional funding for educators to develop new classes and educational opportunities for teaching about the climate crisis and requiring climate justice education for all students.
- + Empowering each UC campus' sustainability office to engage in regular meetings with campus environmental advocacy groups.

Sources: The UC Green New Deal Coalition.

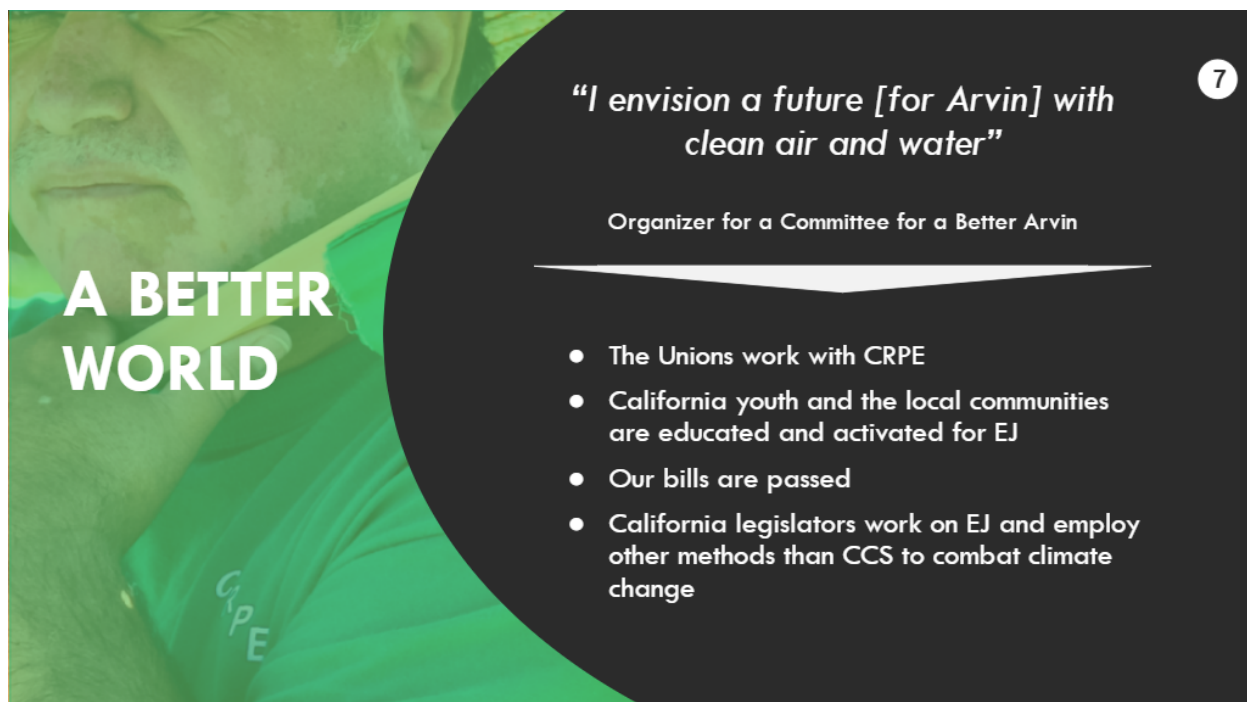
Graphic reporting by Christine Tran, National news and higher education editor. Graphic by Olivia Bollinger, Graphics contributor.

- Ideally, we hope that by providing the UC Green New Deal Coalition with our findings combined with CRPE's extensive research and background legislation, we can get them to sign CRPE'S SB1314 letter of support, thereby establishing college students across California as a whole as stakeholders in the EJ Community struggle for racial, economic, and environmental justice.

- Proposed Open Letter and Campaign of Support:
<https://docs.google.com/document/d/18nH85Ms9EnwY2uDaqgh-Y-n91QjpMwbKiW4hzl-jbYnQ/edit>

7

A VISION FOR A BETTER WORLD



A BETTER WORLD

"I envision a future [for Arvin] with clean air and water"

Organizer for a Committee for a Better Arvin

- The Unions work with CRPE
- California youth and the local communities are educated and activated for EJ
- Our bills are passed
- California legislators work on EJ and employ other methods than CCS to combat climate change

7

We want to close our advocacy campaign with a vision of how the world could be if we are successful with our campaign. During our conversation with the Committee for a Better Arvin, we asked the Committee leaders about their vision for a Better Arvin in five or ten years. One of the members said

"I envision a future [for Arvin] with clean air and water."

Our campaign has the potential to contribute to this and to bring the community one step closer to this vision.

If we are successful with our campaign we will also see a number of additional changes. First, most unions - including the unions that are traditionally close to the oil companies - will work with the Center for Race, Poverty and the Environment. We will fight a joint fight for workers rights, instead of being in

opposition. Second, our media campaign will have been successful. This means that we successfully educated and activated youth throughout California and the local communities in the Central Valley on the topic of Environmental Justice and Carbon Capture and Sequestration. Third, our bills - our current bill (California Senate Bill SB 1314 (Limon)) and potential future bills - will have passed and become codified in California. Finally, California legislators will commit to Environmental Justice and employ other methods than Carbon Capture and Sequestration to combat climate change.

APPENDICES

A: Data for Advocacy - Evidence on Secondary Recommendations

Future Liability

How can we create an economic tool to have companies be responsible for issues later in the future?

POLICY RECOMMENDATION #6: Cost-sharing in Commercial Nuclear Fuel could be a model for CCS.

However, implementation of such a model may be unlikely due to at least two factors:

- CCS will largely function / already functions through tax credits
(see section regarding tax credits)
- The long-term storage and management of nuclear fuel remain unresolved. This may hinder any appetite from adopting this model for other industries

EVIDENCE:

Quick overview of the nuclear waste benchmark in the US

- **The Nuclear Waste Policy Act is the basis for nuclear waste policy**, “The Nuclear Waste Policy Act of 1982 (NWPAA), enacted in 1983, made the management and permanent disposal of commercial spent nuclear fuel a federal responsibility”
- **The NWPAA “also established the Nuclear Waste Fund**, which consists of fees from owners of commercial nuclear power reactors, to pay for, among other things, the development of such repositories.”
- **Today, the location search for a permanent storage facility remains unresolved**
 - Among other things, “several Native American tribes with ties to the lands surrounding Yucca Mountain have strongly opposed Congress designating Yucca Mountain as the sole site for a geologic repository.”
 - This situation led to the government paying billions of damages to the nuclear power reactor operators
- **The Nuclear Waste Fund is structured as**

- ... a „separate fund in the US Department of the Treasury”
- ... and the fund is “financed primarily with the receipts from the collection of fees from nuclear utilities and accrued interest to use for certain purposes, including among other things, the development of geologic repositories.”
- Because the federal government is failing to meet its contractual obligations, **the fund has been effectively paused**
 - **The collection of nuclear utility quarterly fees has been paused since 2014**, “There have been no new receipts credited to the Nuclear Waste Fund from collections of nuclear utility quarterly fees since the fee was set to zero on May 16, 2014, as a result of litigation in the U.S. Court of Appeals for the District of Columbia Circuit” (Gao report)
 - **Additionally, the government faces federal liabilities**, “Federal liabilities for managing commercial spent nuclear fuel reflect the costs that owners and generators of this fuel have paid and are expected to pay in the future because DOE has not met its contractual obligations to begin disposing of the fuel.”
Setbacks Policy

Can we create setbacks like the state is doing for oil in terms of we can't be X amount of feet from a toxic site etc?

POLICY RECOMMENDATION #7: Create a setback policy similar to proposed regulation around new wells and facilities.

Evidence: [Link](#): Moving to protect communities as the state works to phase out fossil fuels, Governor Gavin Newsom announced that the Department of Conservation’s Geologic Energy Management Division (CalGEM) has released a proposed regulation that would prohibit new wells and facilities within a **3,200-foot** exclusion area – or setback – from homes, schools, hospitals, nursing homes and other sensitive locations. It would also require pollution controls for existing wells and facilities within the same **3,200-foot** setback area.

Storing in Oil Reservoirs vs Saline Formation

Is there a difference in outcome here?

POLICY RECOMMENDATION #8: Install pipelines for long-term, predictable CCS saline formation storage. “Pipeline costs vary much less than injection/storage costs because pipeline construction costs are not uncertain and the network is simply reacting and adapting to sink costs (Figure 4c).”

Oil Reservoirs

- There is not much research showing a difference in oil reservoirs versus saline formation.
- The US is the world leader in enhanced oil recovery, where they inject CO₂ permanently in the formation and recover additional oil. “In an enhanced oil recovery application, the integrity of the CO₂ that remains in the reservoir is well-understood and very high, as long as the original pressure of the reservoir is not exceeded. (Office of Fossil Energy and Carbon Management)

Saline Formations

Source Office of Fossil Energy and Carbon Management

:<https://www.energy.gov/fecm/science-innovation/carbon-capture-and-storage-research/carbon-storage-rd>

- No “value-added benefit”, but they can store a ton “more than 12,000 billion tonnes of CO₂ estimated in the US”
- Most existing large CO₂ point sources are within easy access to saline formation injection points. Compatible with a strategy of transforming large portions of the existing US energy and industrial assets to near zero carbon emissions via low cost carbon storage retrofits.
- **Research is still being done on if it could potentially contaminate drinking water supplies.**
- Cost of saline injections are less predictable ([due to geologic heterogeneities](#))

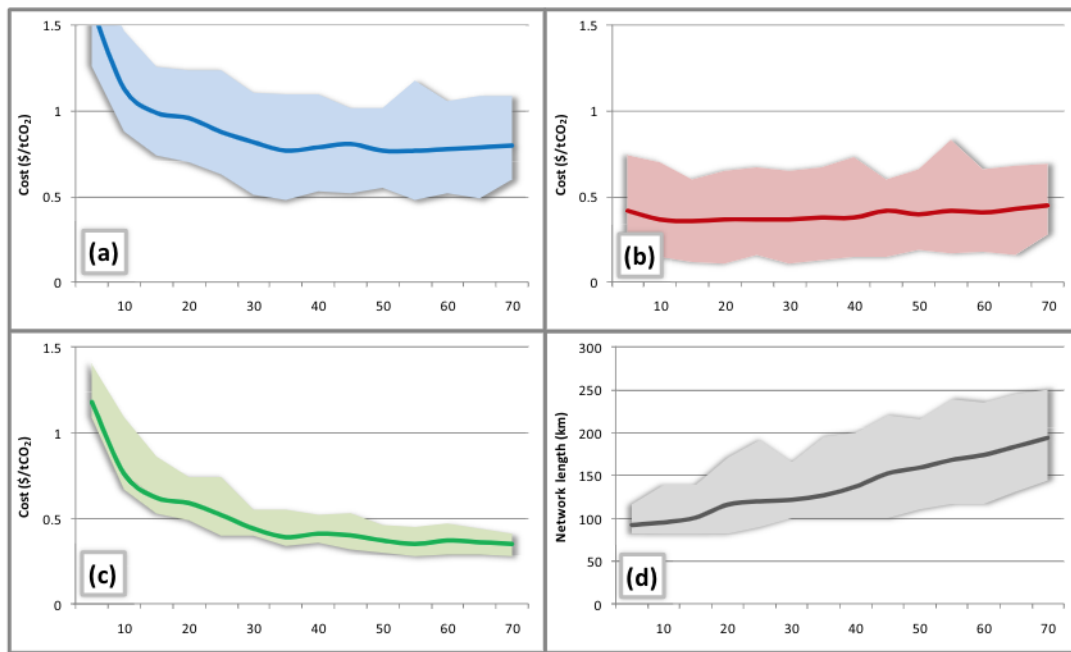


Figure 4. Cost and network variability for 5 - 70 MtCO₂/yr scenarios: (a) transport and storage costs; (b) storage costs; (c) transport costs; and (d) network length. Solid lines are mean values for the 100 *SimCCS* runs for each carbon management scenario.

Unstable Geological Areas

Is there evidence that storing in unstable geological areas is bad?

There is some evidence that storing in unstable geological areas may be harmful:

- [Storing CO2 underground can curb carbon emissions, but is it safe?](#)
 - The project, which began in August 2017, will run for three and a half years and is taking place at the Hellisheidi geothermal power plant near the Icelandic capital Reykjavik. Here, CO2 is being captured from the plant, transported via pipelines and then **stored hundreds of meters underground**.
 - To deal with the issues of leakage, CarbFix2 has a novel solution. **They dissolve their CO2 in water** before it is injected underground, meaning it is stored dissolved in liquid rather than a gas. And they've chosen basaltic rock as their storage point, which reacts with carbon to form calcite.
 - **To tackle seismicity** the plant closely manages the **injection of water and dissolved gasses** to avoid causing tremors in an already seismically active area. The type of rock is important to – a high permeability and porosity mean the CO2 can circulate more easily without getting clogged up.
 - **The biggest risk** in this project does not come from the CO2 capture, transport or storage, notes Dr Aradóttir, but rather from the **co-capture of hydrogen sulphide (H2S)**, which is also produced at the plant. In high concentrations this **can be poisonous**, so care must be taken to avoid gas leaks in the capture process that could harm workers.
- [Carbon capture and storage likely to cause earthquakes, say Stanford researchers](#)
 - In a [paper appearing in the journal PNAS](#), Stanford geophysics Professor Mark Zoback and environmental Earth science Professor Steven Gorelick argue that, in many areas, carbon sequestration is likely to create pressure build-up large enough to break the reservoirs' seals, releasing the stored CO2.
 - Carbon injection is unlikely to trigger large, destructive earthquakes, the professors argue, but "the implications are different if you're trying to store carbon for thousands of years." Zoback said.

- Zoback and Gorelick state that even a fault slip of a few centimeters could allow stored CO₂ to reach the surface – a serious concern, since the researchers argue that carbon repositories need a leak rate of less than 1 percent every thousand years to be effective.
- "But for the U.S. and the world to be considering CCS one of the potential solutions to the greenhouse gas problem – it's a very high risk endeavor," he said. "We need options that are practical, don't cost literally trillions of dollars and aren't vulnerable to moderate size earthquakes."
- [CCS and Earthquakes - Anything to Worry About?](#)
 - They (Zoback and Gorelick) state (p. 2) that their “principal concern is not that injection associated with CCS projects is likely to trigger large earthquakes; the problem is that even small to moderate earthquakes threaten the seal integrity of a CO₂ repository”.
 - They acknowledge that only slip on large faults can result in earthquakes large enough to cause damage to human environments, and that such faults are easily identified and avoided.
 - The potential for slip on existing faults/fractures and seismicity can and should be taken into account during site selection.
 - Avoiding smaller quakes that may not cause harm but may alarm the public and local communities will require careful site operation and regulation.

POLICY RECOMMENDATION #9: Commission research to understand how the intersection of seismic activity, fracking, and the stability of these sites affect each other. Since it is unclear what the long-term impact will be and how leakage might affect the nearby communities, greater research needs to occur to fully understand the long-term impact. Research needs to be built into all legislation.

Passing CCS Costs Onto Ratepayers

Since CCS is relatively new in the US and across the world, it is not clear how costs will be passed onto taxpayers. However, the drafted policies outline that there is some evidence that existing CCS sites pass costs onto ratepayers

[US Section 45Q Tax Credit for Carbon Dioxide Sequestration](#)

- To meet this test the taxpayer must pay or incur five percent or more of the total cost of the CCS facility. The guidance provides special instructions in case of cost overruns. For retrofits, the cost of the additional equipment is counted.
- To be eligible for the reformed 45Q tax credit, CCS facilities have to be under construction by January 1, 2024. As such, the construction of the actual carbon capture equipment needs to start before this date or the original planning and design of the facility includes installation of carbon capture equipment.
- While 45Q is largely considered the most progressive CCS-specific incentive globally, its ability to fully unlock vast emissions and technology cost reductions while propelling the large-scale deployment of CCS depends on the full guidance of how to claim the credit. While two parts - largely considered the most straightforward and uncontroversial given expected similarities to other clean energy tax credits – have already been issued, further clarifications have yet to be issued.

[As carbon capture storage commitments near \\$4b, what are the options for heavy industry?](#)

- The Australia Institute says about \$4 billion of taxpayer money has been spent on CCS
- New data shows that almost \$4 billion of taxpayer money has been committed to develop the technology and after decades it is still not operating at industry scale.
- "Since 2003, Australian governments have committed over \$4 billion of public money to carbon capture and storage, with hardly anything to show for it," Mr Merzian said.
- Carbon capture and storage technology is not new, it's been used [commercially since the 1970s](#), and there are dozens of [commercial-scale projects around the world](#).
- Australia has the largest facility in the world at [Chevron's Gorgon LNG project](#) off the West Australian coast.
- But while CCS technology is well understood, its implementation is proving problematic and very expensive.
- "It is highly expensive and really doesn't lend itself for economies of scale," he said.
- [The Global CCS Institute](#) says currently "some 40 megatonnes of CO2 are captured and stored annually".

- "What they don't talk about is it produces extra oil, which when burnt puts 74 million tonnes a year back into the atmosphere. So it's a net positive technology at the moment," Mr Bourne said.
- The Global CCS Institute concedes CCS needs to increase "at least 100-fold by 2050".

[£168m wasted on failed carbon capture and storage competitions](#)

- Two failed competitions to develop carbon capture and storage (CCS) technology in the UK over the past six years cost the taxpayers approximately £168m due to the government's inability to agree on terms.

POLICY RECOMMENDATION #10: Ensure that the cost of CCS goes to the polluters and is not passed onto taxpayers. The polluters should be working to reduce their emissions instead of only paying for their carbon footprint. As the ones producing the greatest impact, these companies should be responsible for their short and long term impact.

B: Data for Advocacy - Evidence on Primary Recommendations

Permitting

If the State or Federal government were to permit CCS more formally, how would it go about this?

Federal permits that would apply to CCS projects include the following:

- Clean Air Act Title V Operating Permit: "A Title V Operating Permit is required for any "major source" and certain other sources. A major source has actual or potential emissions at or above the major source threshold for certain air pollutants. In air quality attainment areas, the major source threshold is 100 tons/year, while lower thresholds may apply in non-attainment areas (for the pollutant that is in nonattainment). Major source thresholds for hazardous air pollutants (HAP) are 10 tons/year for a single HAP or 25 tons/year for any combination of HAP"
- National Pollutant Discharge Elimination System: The Clean Water Act (CWA) is the principle law governing pollution control and water quality of the Nation's waterways. The CWA establishes conditions and permitting for discharges of pollutants into the waters of the United States under the National Pollution Discharge Elimination System (NPDES)— created in 1972 by the CWA. To the extent there are discharges of process wastewater or stormwater associated with CCS systems, these would be NPDES permitted. The NPDES program has the authority to implement pollution

control measures such as setting wastewater standards for industries and regulating point sources that discharge pollutants to surface waters.⁴⁹

Additional Evidence Gathered Directly from 2022 Carnegie Mellon Study:

- The researchers used two models:
 - CA-TIMES: CA-TIMES is an integrated energy-engineering-environmental economic systems model focusing on the transition of California's energy system (Yang et al., 2014)
 - CA-REMARQUE: The California Regional Multisector Air Quality Emissions (CAREMARQUE_v1.0) model was developed to predict changes to criteria pollutant emission inventories in California in response to sophisticated emission control programs and energy scenario projections provided by the CA-TIMES model.
- More details on the best scenario: The GHGAi scenario represents the most cost-effective pathway to reduce GHG emissions by 80% without the deployment of negative carbon emission technology
 - Strategies to implement this scenario include:: aggressive decarbonization of electricity generation, adoption of electricity for most end-use applications, efficiency improvements for appliances, and deployment of low-carbon transportation fuels and technologies.
 - Major air quality and public health benefits are generated under the GHGAi scenario due to the significant emissions reductions for PM_{0.1} (41%), PM_{2.5} (8%), and NO_x (26%) relative to the reference future BAU scenario.
 - Long-term air quality simulations predict that ground-level PM_{2.5} concentrations will decrease by more than 1 µg m⁻³ across most of California's major population centers under the GHGAi scenario, reducing air pollution mortality by approximately 3500 deaths per yr with a public health benefit greater than USD 20B yr⁻¹ ..
- Despite the decrease of natural gas electricity and the increase of wind and solar power, the CCS scenario is drastically different from the other scenarios in the way that 24% of the electricity comes from Bio-IGCC-CCSout. **Therefore, in the CCS scenario PM_{2.5} and NO_x emission increase from the northern California biomass and solid waste power plants as shown in Fig. 7 and Fig. S29.** It is noteworthy that the changes of PM_{0.1} and PM_{2.5} in the CCS scenario relative to BAU can go in different directions (Fig. 6(c) vs Fig. 7) because power plants with different

⁴⁹ [White House 2021 Report](#).

technologies have different PM emission profiles that center in the ultrafine (natural gas electricity) or fine (biomass electricity) portion of the airborne particle size distribution.

- The CAP30 scenario and the CCS scenario produce similar levels of PM_{2.5} reduction in major urban centers, **but increasing PM_{2.5} concentrations are predicted at locations outside of urban centers under the CCS scenario due to the increased use of fossil fuel combustion under this scenario.**
- The less aggressive CAP30 and CCS scenarios produced only one third of these public health benefits due to more modest PM_{2.5} reductions in these scenarios.
- The CCS scenario achieves the same GHG reductions as the GHGAi scenario, but the negative GHG emissions from Bio-IGCC-CCS technology allow more fossil energy consumption in transportation and the built environment.
- PM_{0.1} emissions in the CCS scenario decrease (– 25%) relative to the BAU scenario as a result of less natural gas usage in buildings and power plants, but PM_{2.5} emission increase (+2.5%) **suggesting potential air quality disbenefit associated with the CCS future especially around the Bio-IGCC-CCS power plant locations.** Even though total PM_{2.5} emissions increased under the CCS scenario, overall public health improved relative to the BAU scenario because the increase in PM_{2.5} concentration occurs in sparsely populated areas. Despite these mitigating factors, the air quality benefits associated with the CCS scenario are three times lower than the air quality benefits associated with the GHGAi scenario.

Additional Evidence on Carbon Storage Leakage

Types of Storage and Risk of Occurrences (IPCC Special Report, 2005).

On-shore storage risk identification [17], [18], [19], [20], [21]	Probability of occurrence	Direct and indirect consequences of the event occurrence	Risk level	Impact level ^[22]
Overpressure in the reservoir due to CO ₂ injection and storage ^[23]	Very low (controlled by mitigation measures; limitation of injectivity and CO ₂ flow pressure)	Rise of hydrostatic pressure in the reservoir: displacement of brine (saline aquifers) or other fluids (as CH ₄ , from coal seams) Activation of micro fractures and /or faults as a result from hydrostatic pressure elevation Temporary or definite lack of capacity of the reservoir: Impossibility of further CO ₂ injection in the site - Selection of other CCS unit or inactivity (Closure of the CCS unit)	Low (COAL) to Moderate (AQUIFERS)	Irrelevant to Significant but mitigable
Migration of CO ₂ into neighbour geologic formations ^[21]	Very high (expected behaviour of CO ₂ plume)	Lateral and/or descendent diffusion of CO ₂ from the storage complex into neighbour formations (the caprock - top sealing rock layer is, by definition, impermeable to CO ₂) CO ₂ Reactive processes with minerals of neighbour geologic formations (secondary trap mechanisms occurring at long-term storage)	Very Low	Irrelevant
Migration of CO ₂ into neighbour aquifers or aquitards ^[21]	Very low (screening criteria for site selection excludes locations near aquifers or aquitards)	Dissolution of CO ₂ into the water, possible pH decrease and water acidification; Reaction of CO ₂ with other water dissolved substances; Potable water contamination with impurities (from the CO ₂ stream such as H ₂ S)	Very High	Significant not mitigable
Leakage of CO ₂ into the atmosphere from storage complex through ^[21]	1. Unlikely (containment criteria for site selection)	Possibility of CO ₂ entry into the caprock due to integrity failure (caused by unexpected geologic events such as an earthquake) Possibility of CO ₂ to find a way through the overburden to the subsurface, ground waters or even the atmosphere	Acute	Significant not mitigable
1. Caprock 2. Injection wellbores 3. Abandoned well bores ^[24]	2. Low and 3. Low (continuous monitoring of wells during operation and post-closure phases; mitigation and remediation plans)	Flow of fluids along the well (CO ₂ and possibly also brine) caused by: • failure of well integrity or improper sealing of an injection well • degradation of well cement, casing or plugging after long-term storage period • Eventual penetration of CO ₂ leaking flow into the subsurface, ground waters or even atmosphere	Moderate to Very High (depends on CO ₂ flow rate through well)	Significant but mitigable
Soil and ground water disruption after long-term storage	Not Yet Determined (requires further data from tests and field experience from existing CCS units)	Possibility of ground movement and fracture through induced micro seismicity and stress Possibility of groundwater circulation disturbance cause by fracturing activation or expansion Possibility of uplift or subsidence of layers caused by overpressure of the reservoir	Acute	Unknown (but probably not mitigable)