California Leads:
How to Break Fossil Fuel Dependence in the Golden State
ABOUT FOOD & WATER WATCH

Food & Water Watch mobilizes regular people to build political power to move bold and uncompromised solutions to the most pressing food, water, and climate problems of our time. We work to protect people’s health, communities, and democracy from the growing destructive power of the most powerful economic interests.

Food & Water Watch has state and regional offices across the country to help engage concerned citizens on the issues they care about. For the most recent field office contact information, visit foodandwaterwatch.org/about/regional-offices.

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# California Leads: How to Break Fossil Fuel Dependence in the Golden State

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>Fossil Fuels Drive Climate Chaos in California</td>
<td>5</td>
</tr>
<tr>
<td>California Oil Production Harms People, Food and Water</td>
<td>5</td>
</tr>
<tr>
<td>Drilling, Fracking and Well Stimulation Techniques Endanger Californians</td>
<td>6</td>
</tr>
<tr>
<td>Fossil Fuel Production Threatens California’s Food and Water</td>
<td>8</td>
</tr>
<tr>
<td>Wastewater in California’s Aquifers</td>
<td>8</td>
</tr>
<tr>
<td>The Unknown Risks of California’s Wastewater Crops</td>
<td>9</td>
</tr>
<tr>
<td>California’s Dirty Energy Infrastructure Locks in Fossil Fuel Dependence</td>
<td>9</td>
</tr>
<tr>
<td>Power Plants Are Pollution Pitfalls</td>
<td>9</td>
</tr>
<tr>
<td>The Gas Storage Disaster</td>
<td>11</td>
</tr>
<tr>
<td>More Pipelines, More Problems</td>
<td>13</td>
</tr>
<tr>
<td>Biogas Jeopardizes California’s Climate</td>
<td>13</td>
</tr>
<tr>
<td>The Biogas / Factory Farm Nexus</td>
<td>14</td>
</tr>
<tr>
<td>SoCalGas Promotes Biogas</td>
<td>14</td>
</tr>
<tr>
<td>The Golden State Can Turn to Real Renewable Energy</td>
<td>15</td>
</tr>
<tr>
<td>The Golden State Can Lead on Clean Energy</td>
<td>15</td>
</tr>
<tr>
<td>A Potential National Climate Leader</td>
<td>17</td>
</tr>
<tr>
<td>California Leads: Food &amp; Water Watch Recommendations</td>
<td>17</td>
</tr>
</tbody>
</table>
Letter From Wenonah Hauter
Executive Director, Food & Water Watch

California speaks to the American imagination. Many see it as the Golden State where natural wonders sit side by side with the farmland that feeds the world. It is viewed as the cradle of 21st-century innovation — its technology and entrepreneurship set the agenda for modern life. And it is known as a place that defines and embraces the progressive values that will deliver a better future for all of us — inclusion, diversity, democratic engagement, social justice and environmental leadership among them. But beneath the surface are buried other, harder truths.

Climate chaos is an existential threat. Reliance on fossil fuels is driving us at breakneck speed toward ecological disaster. As this crisis accelerates, the world looks for the bold leadership and real solutions that will save our future. Many might look to California, understandably believing that the state’s leadership on so many fronts means California is also leading the battle for our climate. But, for now, that belief will end in disappointment.

When we look at California with clear eyes, we see fossil fuels everywhere. We see a state leading the nation in fossil fuel emissions, second only to Texas. We see a state overrun with dangerous fossil fuel infrastructure: 80,000 active oil and gas wells; a maze of leaky pipelines; disaster-prone storage facilities like Aliso Canyon. This deadly infrastructure sits on top of homes and schools. It plagues and sickens the most vulnerable Californians. And while fossil fuel corporations have drilled, tapped and fracked California for decades, they tirelessly develop new threats to California’s health and safety.

All the while, California is increasingly impacted by climate chaos in the form of deadly wildfires, mudslides and unpredictable, extreme weather.

But Californians aren’t fooled. They know what a green future looks like and they know it doesn’t include dirty fossil fuels. They know that the popular image of California as a place of innovation and bold leadership isn’t a myth, it’s an aspiration. Over the past several years, communities across the state have taken on the mantle of leadership — communities we’ve been proud to stand side by side with have voted directly to ban fracking or moved their elected officials to roll back dirty fossil fuel projects.

Yet statewide leadership is needed to move California off fossil fuels. California is positioned to lead the world on the most pressing climate issues. Governor Gavin Newsom has committed to transition California away from dirty energy. In line with his commitments and vision of a clean energy future for California, this report clearly lays out six commonsense steps the state can take to immediately break California’s dangerous dependence on fossil fuels. Californians are ready to stand with him as he takes the bold steps necessary to lead. It’s past time to make our image of the Golden State a reality.

Wenonah Hauter, Executive Director
Executive Summary

California pumps out more fossil fuel-related carbon emissions than any state but Texas. The state is helping to lead us to the gravest environmental risks known to humanity. As temperatures increase each year, as wildfires rage and as sea levels rise, California is experiencing unprecedented climate impacts. The state is paying the price for its longstanding dependence on fossil fuels. As oil and gas companies profit, Californians suffer.

From the Sacramento Valley to Los Angeles County, the oil and gas industry has fracked California for years. Other dangerous extraction methods — using acids or heated, pressurized stream — are harming communities across the state. Industry’s hazardous byproducts, like toxic wastewater, are pumped deep into California’s drinking water aquifers and spread on California’s crops. All the while, drilling operations do the most damage to California’s most vulnerable communities — drillers operate with impunity in communities of color, in lower-income communities, and near homes, hospitals and schools.

California is riddled with deadly fossil fuel infrastructure. Facilities like the Aliso Canyon storage facility that leaked nearly 100,000 metric tons of methane pose a clear and immediate threat to the people of California. From underground gas storage facilities, to climate-polluting power plants, to leaky pipelines sprawling like tentacles across the state — giant corporations are working tirelessly to cement California into a dirty energy future.

At the same time, they distract and deceive, pushing false solutions to urgent problems. California promotes biogas as a part of its transition to renewable energy as a “renewable natural gas.” In reality, it is just a tricky corporate name for a substance made of methane — a potent greenhouse gas — and other pollutants. It comes from landfills and from factory farm manure; it’s anything but clean. Corporations are shameless, but Californians aren’t helpless.

They know what California’s energy leadership looks like: clean, renewable power like solar and wind; energy efficiency; and green energy manufacturing. We have the technology to make a fair and just transition to 100 percent clean, renewable energy backed by storage and transmission — we now need strong political leadership to show the world how California leads on climate.

Candidate Gavin Newsom campaigned on California’s need to transition the state away from dirty energy. Californians supported his vision of a clean energy future. Now, as governor, he has the power and authority to take six specific and tangible steps to make his vision a reality.

Key Findings:

- Since January 2019, California has issued 2,383 new oil and gas-related drilling permits. While the head of the Division of Oil, Gas and Geothermal Resources (DOGGR) was fired in July 2019 for recklessly issuing too many fracking permits, the agency continues to fail to carry out its mandate to protect the “life, health, property, and natural resources” of the people of California.

- California routinely injects toxic oil wastewater into aquifers and uses it to irrigate agriculture. From 2017 to 2019, as many as 39 exemptions were granted to allow oil companies to discard wastewater into groundwater. These exemptions rob Californians of the protections of the Safe Drinking Water Act. Companies also use wastewater to irrigate crops, despite the fact that the public health risks of wastewater crops are unknown.

- California is scarred by 298 natural gas-fired power plants, 18 petroleum liquids plants and 1 coal-fired plant. These fossil-fueled facilities hit communities of color and lower-income communities the hardest and unfairly burden California’s most vulnerable populations. About half of California’s gas-fired power plants are in the most disadvantaged communities; just 9 percent are in the least.

- Corporations are planning seven additional unneeded gas-fired plants for California. For years, California regulators have approved, and utilities have built, unnecessary and expensive gas power plants. Driven by deregulation, these facilities are useless given declining energy demands in California over the past decade.

- Over 100,000 miles of oil and gas pipelines connect California power plants to end users and other dangerous infrastructure. Facilities like Aliso Canyon and California’s 11 other natural gas storage facilities rely on a network of unsafe, leaky pipelines rigged to receive, store and deliver gas.

- From 1999 to 2018, Californians suffered 862 pipeline spills, leaks and other incidents; 118 people have been injured, and 29 have been killed. Pipeline construction is disruptive and dangerous, but risks remain once a pipeline is built. In 2015, one of California’s worst coastal spills occurred when a burst pipeline
spewed nearly 140,000 gallons of crude oil into the Pacific. The operator now proposes to build another pipeline in the same place.

- California houses 47 landfill gas power plants and at least 20 dairy digesters, with another 13 digesters under construction. California’s 2019-2020 state budget bets on biogas from dairy digesters. In reality, the state is doubling down on dirty energy.

Key Recommendations:

- Stop issuing new fossil fuel permits in California immediately, ban fracking and develop a plan to phase out fossil fuel production; immediately implement measures to protect people and the environment until the phase-out is complete.

- Protect California’s water resources and agriculture from toxic wastewater.

- Shut down California’s dangerous fossil fuel infrastructure, including immediately and permanently closing the Aliso Canyon gas storage facility.

- Amend California’s Renewable Portfolio Standards goal to 100 percent clean, renewable energy and eliminate dirty energy.

- Ban factory farming in California.

- Develop a plan for a fair and just transition to 100 percent clean, renewable energy in California by 2030.

While the United States is one of the biggest global contributors of climate change-inducing fossil fuel emissions, California pumps out more fossil fuel-related carbon emissions than any other state but Texas. Our continued reliance on fossil fuels means continuing to warm the planet. And if we pass the 1.5 degree Celsius warming threshold, the harm to our climate could be irreversible; parts of our planet could become uninhabitable this century.

Each year, wildfires become larger and more destructive. In 2018, the deadliest wildfire in California history scorched over 153,000 acres and killed 85 people. The threat of higher temperatures and drought make wildfires more intense and frequent. Sea-level rise endangers coastal communities. These dangers are worsening.

Indeed, since January 2019, California has issued 2,383 new oil and gas-related drilling permits, double the previous year’s rate. The head of DOGGR was fired in July 2019 for issuing too many new fracking permits. But more is needed. With storage and transmission backing up technology, it is feasible to transition to 100 percent clean, renewable energy at prices that will soon be lower than current energy costs. Political courage is needed to move the Golden State toward that goal.

Candidate Gavin Newsom was right when he promised “on day one … issue a directive putting California on a clear path to 100 percent renewable energy.” And he was right when he pledged to oppose fracking and other well stimulation operations and to shut down the Aliso Canyon gas storage facility in Los Angeles. Doing this will require taking on the powerful fossil fuel industry, but Californians are ready to support him when he moves to fulfill those promises.

California Oil Production Harms People, Food and Water

Oil drilling drives climate chaos and damages ecosystems across the planet, and it causes real and immediate harm in California. It’s no surprise that California has been deeply entrenched in fossil fuel production...
for over a century. But it may be surprising to know that for decades, industry-backed decision makers and state agencies have enabled widespread drilling. In fact, during the administration of former governor Jerry Brown, DOGGR issued over 20,000 new injection and production well permits to oil companies; almost 70 percent were drilled by 2018.

While most oil production occurs in the San Joaquin and Los Angeles Basins, the industry also drills throughout California’s central coast, from Ventura to Monterey County. In recent years, California has been dominated by dangerous new oil extraction technologies, including hydraulic fracturing (“fracking”), matrix acidizing and steam injection. Today, there are over 80,000 active oil and gas wells in the state. California is the seventh-largest producer of crude oil, and as of 2018 it had the third most oil-refining capacity of any state. Fossil fuels are everywhere.

More troublingly, oil and gas operations harm the most vulnerable Californians, especially lower-income people and people of color. In 2014, nearly 14 percent of Californians, primarily people of color, lived within a mile of at least one well. And the closer people live to drilling, the higher is their potential exposure to hazardous pollutants that increase the risk of respiratory and neurological problems, birth defects and cancer. In Los Angeles, the communities closest to oil development suffer from headaches, asthma and nosebleeds. Drilling in California happens close to homes, hospitals and schools.

**Drilling, Fracking and Well Stimulation Techniques Endanger Californians**

From the Sacramento Valley to Los Angeles County, the oil and gas industry has been fracking in California for years. Over the last decade, about 20 percent of California’s oil and gas came from fracked wells primarily located in the San Joaquin Basin in Kern County, a lower-income region home to many communities of color. The region is plagued by industrial pollution and dangerous environmental conditions.

Fracking is a destructive drilling method linked to public health problems, toxic waste spills, air pollution, earthquakes and drinking water contamination. After drilling down to a rock formation that holds oil or natural gas, millions of gallons of water mixed with chemicals and a solid material (like sand) are injected under extreme pressure to fracture (or “frack”) the rock. The sand, keeps the fractures open, letting oil or gas flow to the surface. The Authority to Ban Drilling and Fracking

Governor Newsom can act now to legally ban fracking. Under California law, the governor has broad authority to declare a state of emergency and “make, amend, and rescind” regulations to address the emergency. This authority can be applied to situations in which “extreme peril to the safety of persons and property within the state caused by conditions such as air pollution, fire, flood, storm, epidemic... drought... or an earthquake” or conditions or situations “by reason of their magnitude, are or are likely to be beyond the control of the services, personnel, equipment, and facilities of any single county, city and county, or city and require the combined forces of a mutual aid region or regions to combat.” Former governor Jerry Brown used emergency authority for similar purposes during California’s crippling drought.

California has faced drought emergencies; it faces a climate emergency today. The Aliso Canyon blowout; drilling and wells in neighborhoods close to homes, hospitals and schools; the use of scarce water for fossil fuel extraction, processing and generation; and the extreme drought and supercharged wildfires that come with catastrophic climate change all mean that Californians now live in a state of emergency caused by fossil fuel production and consumption, as defined by state law.

Governor Newsom can use his executive authority to recognize this reality by issuing an emergency order to ban fracking, drilling and various forms of well stimulation. He can serve the same goal by issuing an executive order requiring DOGGR to carry out its regulatory mandate to “prevent, as far as possible, damage to life, health, property, and natural resources.”
natural gas to flow up.\textsuperscript{35} While some injected fluid stays underground, the rest flows back out as either flow-back or produced water,\textsuperscript{36} collectively referred to as wastewater (see page 8). In California, most fracking is done less than a mile from the surface. This is shallower than fracking in other states and poses greater risks to groundwater.\textsuperscript{37}

Other methods of well stimulation used in California to reach deeper oil include steam injection, acid fracturing and matrix acidizing.\textsuperscript{38} Steam injection, an unconventional drilling technique sometimes called “steam fracking,” is increasingly used to tap heavy crude oil.\textsuperscript{39} It involves injecting highly pressurized heated steam into tar sands wells (among the most climate-polluting fuel sources in the world\textsuperscript{40}) to liquefy and separate the thick oil, pumping the resulting mixture to the surface.\textsuperscript{41} Toxic solvents or acids can be added to loosen the oil from the sand.\textsuperscript{42} State regulations on fracking do not apply to steam injection, and California’s oversight is inadequate to safely regulate this method of well stimulation.\textsuperscript{43} In a slow-moving disaster from May to July 2019, a steam injection operation run by the oil giant Chevron spilled nearly 800,000 gallons of oil mixed with water approximately 35 miles from Bakersfield.\textsuperscript{44}

Despite spills like this, in northern Santa Barbara County, Aera Energy is looking to revive oil production in the East Cat Canyon oil field and drill hundreds of wells using steam injection.\textsuperscript{45} In Ventura County, there have been failed attempts to tap crude oil in California’s Vaca Tar Sands in Oxnard.\textsuperscript{46} A temporary moratorium that lasts until December 2019 has stalled any plans to drill there.\textsuperscript{47}

Acid fracturing and matrix acidizing are less used,\textsuperscript{48} but are just as dangerous. Acid fracturing pumps acid instead of sand underground at high pressure to fracture rock; matrix acidizing doesn’t fracture rock, it dissolves it to make it more permeable for easier access to oil.\textsuperscript{49} The latter process can be more dangerous than fracking\textsuperscript{50} since the chemicals it uses can corrode casings, pipelines, tubing, tanks and even underground cement well linings.\textsuperscript{51}
Fossil Fuel Production Threatens California’s Food and Water

Oil and gas production threatens Californians’ water resources and food supplies. Well stimulation requires huge amounts of water.\(^\text{52}\) In addition to the original fluids that are injected underground, drilling and fracking can bring contaminants, brines and radioactive material to the surface in wastewater.\(^\text{53}\) Corporations sometimes use wastewater to frack more wells, but they also discharge it into surface waters or store it in pits until it evaporates into the atmosphere or seeps into the ground.\(^\text{54}\)

However, when oil and gas corporations want to discard toxic wastewater, underground injection is their most common method.\(^\text{55}\) Injecting toxic wastewater into underground wells puts drinking water at risk and is linked to increased earthquake activity.\(^\text{56}\) In California, some corporations have routinely injected oil wastewater directly into aquifers.\(^\text{57}\) They also use wastewater in California agriculture,\(^\text{58}\) posing potential risks to the food California farmers use to feed the world. One San Joaquin Valley farmer was stunned to find that wastewater was being pumped into groundwater aquifers near his orchard.\(^\text{59}\) After regulators first tried to dismiss him, they confirmed that the injection well near his property was illegal and shut it down.\(^\text{60}\)

Wastewater in California’s Aquifers

In 2011, an independent audit of California’s underground injection well activity commissioned by the U.S. Environmental Protection Agency (EPA) found that DOGGR was failing to comply with state and federal laws.\(^\text{61}\) DOGGR employees were illegally approving permits that let oil companies dispose of toxic wastewater into protected aquifers.\(^\text{62}\) (Outrageously, the practice can be deemed legal if the EPA exempts an aquifer from Safe Drinking Water Act protections.\(^\text{63}\)) Over 2,500 wells illegally injected wastewater into California’s underground drinking water.\(^\text{64}\) Many of these wells were in the San Joaquin Valley.\(^\text{65}\) Therefore, unknown concentrations of toxic chemicals permeated groundwater in areas already struggling with disproportionately high levels of pollution.

In 2015, DOGGR regulations set a timeframe for stopping all wastewater injection unless companies obtained an exemption.\(^\text{66}\) But only a few dozen wells were closed that year; “emergency” rules allowed most wastewater injection to continue until 2017.\(^\text{67}\) In January 2017, DOGGR announced that it would shut down 475 wells, but let 1,650 wells continue.\(^\text{68}\) As operators who help fund DOGGR waited for their exemptions, they continued injections.\(^\text{69}\) In the end, oil and gas trade associations won a lawsuit that kept DOGGR from enforcing regulations\(^\text{70}\); corporations continue to inject wastewater into California’s aquifers today.

While DOGGR conceals data on the number of injection wells that actively dispose of wastewater into aquifers, publicly available state data show that 21 aquifer exemptions have been approved between 2017 and 2019.\(^\text{71}\) Federal data show even more exemptions — up to 39.\(^\text{72}\) But one well is too many. Illegal or legal, the practice endangers California’s groundwater.
The Unknown Risks of California’s Wastewater Crops

Oil wastewater is being used to irrigate crops across California’s Central Valley. In the San Joaquin Valley, it is also used to hydrate livestock and recharge groundwater. Although state law requires the treatment of wastewater to be used in irrigation, treatment practices cannot strip wastewater of all toxic chemicals that could violate agricultural water quality standards.

There is also scant data from just a handful of tests to show whether wastewater crops pose a public health risk. For example, California’s Cawelo Water District hired a laboratory to test root crops (like carrots) and citrus irrigated with wastewater for fewer than a dozen petroleum-based chemicals. They also tested nuts and grapes for a wider range of chemicals, but left out many chemical additives used by California oil companies. Given both the high toxicity of wastewater and the scarcity of data on its potential health impacts, it is impossible to quantify the risks that using wastewater for agricultural irrigation might pose to public health.

California’s Dirty Energy Infrastructure Locks in Fossil Fuel Dependence

From underground gas storage facilities to climate-polluting power plants and the labyrinth of pipelines that move oil and gas — fossil fuel infrastructure cements California into a dirty energy future. According to the U.S. Energy Information Administration (EIA), 298 gas-fired power plants (22 of which have generators that also rely on another fuel source), 18 petroleum liquids plants (5 of which also rely on natural gas) and 1 coal-fired plant operate in California. Over 100,000 miles of oil and gas pipelines snake out of these plants across California, connecting to end users and other dangerous infrastructure like California’s 12 natural gas storage facilities (see Table 2 on page 11); 7 new but unneeded gas-fired plants are waiting to be built (see Table 1 on page 10).

Building more dirty energy infrastructure projects in California would lock in a future of climate pollution; these projects have lifespans far longer than the point when experts agree that the world must shed all fossil fuels, meaning that these stranded assets will be wasted economic investments — some U.S. pipelines were built more than 70 years ago, and gas-fired power plants can operate for more than 50 years.

Only a moratorium on fossil fuel infrastructure can stave off the worst effects of climate change and protect Californians. At the same time, Governor Newsom can use his executive authority to institute a moratorium on all new fossil fuel infrastructure and direct the California Public Utility Commission to block the permitting of any such infrastructure (including oil and natural gas pipelines, fossil fuel power plants, petroleum refineries, natural gas compressor stations and oil and liquefied natural gas export facilities).

Power Plants Are Pollution Pitfalls

For years, California regulators have approved, and utilities have built, unneeded and expensive gas power plants, despite the fact that renewable power and storage technology exists to support a low-cost transition from fossil fuels. Driven by deregulation, these facilities are unnecessary since California’s electricity demand has declined over the past decade. They serve merely to prop up a faltering fracking industry and lock in climate pollution. Indeed, a 2019 study concludes that if we continue to burn fossil fuels at factories and power plants for their effective lifespans, we will surpass the 1.5 degree Celsius tipping point.

The electric power industry is a major emitter of air pollutants that harm human health and the environment. Power plants release air pollutants such as mercury, particulate matter, sulfur dioxide ($SO_2$) and nitrogen...
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Source: EIA
oxides (NOx). All fossil fuel plants discharge SO2 and NOx, and coal-fired plants are significant mercury emitters. The SO2, NOx and particulate matter pollution from power plants contributes to and worsens health problems such as chronic bronchitis, asthma, emphysema and existing heart disease, and also causes labored breathing (especially for people living with asthma) and reduces life expectancy.

Crucially, fossil fuel facilities disproportionately burden California’s communities of color and lower-income communities. Researchers found that closing several oil and coal power plants in the state reduced rates of preterm birth in women living nearby, with greater impacts on the reproductive outcomes for African-American and Asian mothers. But the continued reliance on gas-fired power plants burdens frontline communities. For example, a 2017 study found that half of California’s gas-fired power plants were located in communities designated as disadvantaged; only 9 percent of the plants were in the least disadvantaged areas.

Natural gas-fired power plants are major NOx emitters, contribute to ground-level ozone and smog and threaten the environment and human health. Ground-level ozone creates smog when it mixes with particulate matter, which itself has been linked to various cancers. Prolonged exposure to smog has been connected to premature deaths in adults and low birthweight in babies. Natural gas-fired power plants can also release radon, a radioactive material that is the second leading cause of lung cancer in the United States, after smoking.

In Los Angeles, the Haynes and Scattergood gas power plants are located near several predominantly Latino, African-American and lower-income neighborhoods in South Bay and The Harbor that already face increased environmental health risks. In February 2019, Los Angeles Mayor Eric Garcetti announced plans to no longer upgrade the already partially retrofitted Scattergood, Harbor and the Haynes generating stations, but the process will not be immediate and these facilities continue to operate. Shutting down these plants will reduce the pollution and environmental health burden faced by the people in these neighborhoods.

The Gas Storage Disaster

The recent shift from coal to natural gas for electricity generation has driven underground gas storage to record-high levels (see Table 2). But these outdated storage facilities like SoCalGas’ Aliso Canyon and Playa del Rey were not designed for high-pressure gas storage, making them inherently unsafe.

For example, in October 2015, a large underground storage well at Aliso Canyon had a massive blowout

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<td>Wild Goose Gas</td>
<td>Butte</td>
<td>21</td>
</tr>
</tbody>
</table>

**Table 2: California’s Underground Gas Storage Facilities**

**Source:** CDC/DOGGR.
The Playa del Ray gas storage facility sits dangerously close to a large residential area to the south.
that spewed nearly 100,000 metric tons of methane and other pollutants into the air and spread to homes in the nearby Porter Ranch neighborhood and greater San Fernando Valley. Residents suffered headaches, nosebleeds, nausea and rashes. In 2018, SoCalGas paid a $119.5 million settlement for the leak.

Aliso Canyon’s blowout, the largest in U.S. history, forced 8,000 families to flee their homes. Even after the blowout, continued leaks led to elevated levels of ambient hazardous air pollutants, as well as natural gas odorants, hydrogen sulfide and an “oily” residue throughout the Porter Ranch community. Years later, effects of this disaster linger. In 2018, approximately 30 firefighters who responded to the disaster claimed SoCalGas withheld information about the toxicity of natural gas and other chemicals and filed a civil lawsuit against the company for health problems including nosebleeds, dizziness, migraines, dermatological problems, respiratory problems and cancer.

Although former governor Jerry Brown declared a state of emergency, he failed to completely shut down the Aliso Canyon facility. The facility still operates, and nearby residents await a shutdown order.

Leaky storage wells have posed hazards elsewhere. In July 2016, PG&E’s largest storage facility in the Sacramento-San Joaquin River Delta leaked gas and was temporarily shut down. Playa del Rey’s storage facility has also had numerous environmental lapses, including the release of a “fine oil mist” that covered homes; odor emissions; allegations of contaminated drinking water; and a 2013 vent stack explosion visible for miles. The facility regularly emits dangerous air pollutants that contribute to respiratory illnesses, as well as known carcinogenic chemicals.

**More Pipelines, More Problems**

Facilities like Aliso Canyon rely on a network of pipelines to receive the gas they store and deliver into the grid. But pipeline construction is disruptive and dangerous. Building new and expanding existing pipelines in California threatens human health, wildlife habitats and the environment by compromising soil quality, impacting vegetation, contaminating surface waters and aquifers, and releasing air pollutants.

Risks remain once a pipeline is built. Landowners along their paths are forced to live under the constant threat of accidents and explosions. From 1999 to 2018, California experienced 862 pipeline spills, leaks and other incidents; 118 people were injured, and 29 died. Moreover, pipelines built since 2010 are nearly five times more likely to have problems than those built from 1980 to 2009, possibly because the rush to complete pipelines during the fracking boom encouraged corner-cutting during construction. In 2010, a PG&E pipeline explosion in San Bruno killed 8 people, injured 58, demolished 38 homes and ravaged 70 more.

In 2015, one of California’s worst coastal spills occurred when a pipeline burst and spilled nearly 140,000 gallons of crude oil into the Pacific. The pipeline operator, Plains All American Pipeline, was fined almost $3.35 million for the spill that covered beaches for miles, killed wildlife and harmed tourism and fishing. Shamelessly, the company has proposed to construct another pipeline to serve offshore drilling companies; it would slash through three California counties for 124 miles.

**Biogas Jeopardizes California’s Climate**

Compounding these problems, some in California have been misleadingly promoting biogas as a part of a transition to renewable energy. Biogas is a mixture of gases produced after plant and animal material — like manure from factory farms, sewage sludge or food waste — is broken down by microorganisms in a process called anaerobic digestion. Top proponents include natural gas companies like SoCalGas that profit from dirty energy. While they greenwash biogas as “renewable natural gas,” it includes waste methane from landfills, sewage treatment plants and livestock manure. The prefix “bio” does not make it clean — methane is the primary constituent of fracked gas and other pollutants. And methane is nearly 90 times more powerful as a greenhouse gas than carbon dioxide (CO₂) over a 20-year period. Burning biogas also releases CO₂ and other pollutants including NOₓ, ammonia and hydrogen sulfide.

Yet California considers this waste gas from landfills, sewage treatment plants and factory farms to be renewable energy under several state programs. The state hosts 47 landfill gas power plants and at least 20 operational dairy digesters, with another 13 under construction. California also holds the dubious distinction of hosting one of the world’s largest operating digesters.

The newly proposed Glendale Biogas Renewable Generation Project is a biogas generation project that Glendale Water & Power (GWP) has been plotting to
build at the city-owned Scholl Canyon Landfill near Eagle Rock — a Los Angeles community beset by a history of poor air quality and air pollution-related health problems and casualties.

The Glendale Project is a part of a larger plan to repower and upgrade the city’s Grayson Power Plant. This is a lose-lose situation for Angelenos and all Californians. The gas power plant would continue to operate. Together with the dirty biogas plant, they would lock California into more dirty infrastructure and continued fossil fuel reliance. Unsurprisingly, GWP never reached out to community members or stakeholders before their plans were exposed.

The 2019-2020 state budget backs biogas and forces California to invest in more dirty dairy digesters. But Californians have the power to reject false solutions. Governor Newsom has the authority and power to enact a moratorium on new factory farms, eliminate the budget for dairy digesters, decommission existing landfill gas/biogas power plants and support and invest in real renewable energy solutions.

The Biogas / Factory Farm Nexus

Biogas is a product of anaerobic digestion, which presents a number of hazards to nearby communities. For example, residents living near a digester in Monterey County have repeatedly complained about odors. In other places, the stench of digesters has filled the air and reportedly made people sick, causing headaches and dizziness.

Increasingly, digesters are being promoted as a means to reach California’s greenhouse gas reduction goals. Proponents also say that “clean” biogas could be pumped into the existing natural gas pipeline network. But gas pipelines, storage facilities and other infrastructure leak tremendous volumes of methane that contribute to climate change.

These digesters also cost millions. Some costs are offset by taxpayer-subsidized handouts; others are simply passed down to utility ratepayers. Before 2002, there were fewer than five digesters operating on dairy farms in California; by 2015, dairy farms were being awarded millions to build biogas digesters on site. Now all of California’s dairy digesters have received considerable financial support from state and federal incentives. In 2018, California invested over $70 million toward 42 new dairy biogas digester projects. These grants, coupled with other incentives, encourage the construction of more dairy digesters across the state.

These taxpayer-subsidized digesters produce neither clean nor safe energy because of methane combustion emissions, leaks, accidental manure spills and explosions. They also encourage colossal amounts of pollution from factory farms, which globally produce millions of tons of methane-emitting manure a day. For instance, the nearly 500,000 dairy cows at factory farms in Tulare County, California produce five times as much waste as the New York City metropolitan area.

Although there are claims that biogas technology offers a way to avoid the negative impacts of methane emissions and toxic gases, leakage from “renewable” methane production is similar to that of fossil fuel gas production. Investing in more biogas means more factory farms. Moreover, most California factory-farmed dairy cows are in the Central Valley, a lower-income region with the state’s highest rates of emergency room visits for childhood asthma. The same is true of landfill and sewage facilities. In 2011, a San Jose landfill digester faced an $882,200 fine for a chemical spill that contaminated a nearby creek. Landfill gases can leak into soil and buildings, posing a potential explosion hazard and threatening public health.

SoCalGas Promotes Biogas

Headquartered in Los Angeles, SoCalGas is the nation’s largest natural gas distribution utility and a major promoter of the so-called renewable natural gas from biogas — otherwise known as biomethane (processed biogas that can be delivered in pipelines). Renewable natural gas is just a greenwashed, cleaner-sounding name for the same old climate-destroying methane.
The company has been attempting to make biomethane appear climate-friendly and to convince people that biomethane is “clean,” with plans to replace one-fifth of its conventional gas supply with biomethane by 2030. It also filed a request with the California Public Utilities Commission to allow customers to buy biomethane for their homes; it hopes this voluntary program will be approved by the end of 2019.

SoCalGas and its parent company, Sempra Energy, benefit from entrenching California’s natural gas infrastructure. SoCalGas made roughly $6 billion in upgrades to its natural gas system from 2013 to 2017. In August 2018, the company began accepting biomethane that originated from an anaerobic digestion facility in Perris which is already used to fuel roughly 400 waste hauling trucks. And in February 2019, SoCalGas announced that it had begun to inject biomethane from a dairy digester into its natural gas system. The company also plans to sell it for natural gas vehicles, buses and residential and commercial buildings and to pump it through existing pipelines, further entrenching natural gas.

SoCalGas has also partnered to develop power-to-gas technology that uses clean, renewable energy to create natural gas — a perverse turnabout. Power-to-gas would allegedly store surplus intermittent wind and solar energy to convert water into hydrogen that can be combined with CO₂ to create storable methane for power plants. This technology has only been implemented on a small scale; it faces technical hurdles to become viable. Pursuing this unproven technology to convert zero-emission renewables into climate-destroying gas is nonsensical when renewable power and battery storage are becoming cheaper and more effective.

Further entrenching reliance on biogas, SoCalGas supports biomethane-fueled vehicles. Although gas-powered buses may not belch as much particulate pollution as diesel buses, they still emit dangerous air pollutants and greenhouse gases. Gas buses have high lifecycle emissions for many toxic air pollutants and emit large volumes of carbon monoxide and smog-creating NOₓ. California landfill gas buses release 72 percent more NOₓ than electric buses.

Overall, burning biomethane spews CO₂ and other pollutants, making it indistinguishable from fracked gas. SoCalGas asserts that biomethane is “carbon neutral” or “carbon negative,” purportedly because it comes from organic sources that already absorbed CO₂. But methane combustion releases CO₂ and other air pollutants, while gas pipelines and other infrastructure leak methane, negating any alleged biomethane savings.

The Golden State Can Turn to Real Renewable Energy

California has legislation in place to reach 100 percent “clean” energy for electricity by 2045. But new legislation is needed to amend California’s Renewables Portfolio Standard (RPS) to remove currently allowed dirty energy sources like waste methane and to accelerate the deadline to 2030 to avoid runaway climate chaos. To accomplish this, Governor Newsom is empowered to propose a statewide policy to the legislature aimed to create a green public works program, paired with pro-labor policies to ensure that workers share fully in massive clean energy investments.

This program can include competitive grants for large-scale wind, solar and storage projects as well as grid upgrades to support expanded renewables; training programs offered by the California Department of Labor; and the creation of a Climate Action Council with heads from several agencies, workforce organizations, environmental justice leaders and clean energy experts to develop a plan to make California carbon neutral by 2030.

Increased renewable capacity backed by storage is feasible in California. The technology for a large-scale transition to renewables has existed for over 20 years — we now need strong government policies driven by the political will to see them through. These policies and investments to rapidly shift to clean renewables such as solar and wind power should be complemented by upgraded efficiency. Other efforts to upgrade the electric grid, shift to more distributed power generation and enhance transportation and industrial efficiency can further reduce electricity and fossil fuel demand. A fair and just transition to a clean energy future will substantially reduce energy use, save money, create jobs and reduce climate emissions.

The Golden State Can Lead on Clean Energy

The future of energy in California is in clean, renewable power together with energy efficiency manufacturing and installation. By shifting primarily to wind and solar, the United States could also save $4.8 billion in annual global warming damage costs; California could avoid $103 billion annually in air pollution-related health...
Energy efficiency programs alone have provided utility customers in the San Joaquin Valley with close to $250 million in net economic benefits from 2010 to 2015. These savings are real, and will be especially felt in the regions of California that are at the crux of these dirty industries.

Already, traditional energy jobs are slowly declining in California. Even without a statewide green public works program, nearly six times more Californians work in the renewable energy electric generation and energy efficiency sectors (over 450,000 jobs) than in fossil fuel production and generation (79,000 jobs) according to Department of Energy data (see Figure 1.) In fact, California has the biggest workforce in the energy efficiency sector in the country.

Electrifying the grid through renewables coupled with energy efficiency measures can also reduce the state’s power consumption and stabilize energy prices. Currently, solar and wind are the largest renewable energy sources in the state, generating 20 percent and 7 percent of electricity across California.

In California’s electric power sector, the solar industry supports the most jobs, employing over 125,000 people. Costs are also expected to drop for utility-scale solar, making it more widely accessible statewide. California’s pioneering new 2019 Building Energy Efficiency Standards, effective in early 2020, require rooftop solar to be installed on all new homes. This could double the state’s solar generation by 2025. California leads in wind energy development and is home to over 12 wind-related manufacturing facilities. In fact, by 2030, California has the potential to deploy close to 80,000 distributed wind projects.

Green jobs can bolster in-state industries and employment; well-paid workers will manufacture and install California-made solar panels and wind turbines and implement efficiency and clean energy upgrades. A green public works program can also focus on a fair and just transition for fossil fuel workers. Dedicated public funding can support these efforts. A fair and just transition should include guaranteed pensions for fossil fuel workers, training and relocation.

In February 2019, Los Angeles Mayor Eric Garcetti announced that the Los Angeles Department of Water and Power would not repower three coastal natural gas power plants. Los Angeles is taking a lead on 100% renewable energy, and the rest of the state should follow.
support for laid-off fossil fuel workers and community transition support for regional economies that are centered around fossil fuel activity, to ensure that they receive financial support needed to advance clean energy projects.\textsuperscript{192}

A Potential National Climate Leader

Governor Newsom committed to provide the people of California with clean air and water, to protect vulnerable communities and to stave off the impacts of climate change. He campaigned on a pledge to “a long-term transition away from fossil fuels” and to oppose fracking and other dangerous well stimulation operations.\textsuperscript{193} He recognized that decisions must be made to protect the environment, address the rising sea level and safeguard drinking water resources that are affected by climate change.\textsuperscript{194} Now is the time to deliver on those commitments.

California and the global community cannot afford further delay; a growing grassroots movement is demanding that elected leaders take bold action. In Congress, a joint resolution was introduced in July 2019 declaring a climate emergency — included in it was recognition that we need to move off fossil fuels. In California, the Last Chance Alliance, made up of hundreds of organizations including Food & Water Watch, is waging a dynamic campaign calling on Governor Newsom to stop issuing fossil fuel permits, drop oil production and roll out a 2,500-foot setback. Moving off fossil fuel production and use and investing in 100 percent, clean renewable energy is the only viable path for the Golden State. With the looming climate crisis, compounded by thousands of active oil wells and the continued expansion of fossil fuel infrastructure, real change from strong leadership is more critical than ever. Governor Newsom can rise to national climate leadership and ensure that California leads the world by taking six tangible steps.

California Leads: Food & Water Watch Recommendations

1. Stop issuing new fossil fuel permits in California immediately, ban fracking and develop a plan to phase out fossil fuel production; immediately implement measures to protect people and the environment until the phase-out is complete.
   • Ban all drilling, fracking and well simulation technologies like acidizing and steam injection;
• Institute a moratorium on new drilling permits to stop the expansion of fossil fuels;
• Institute a 2,500-foot setback for all current wells to better protect homes, schools, hospitals and water supplies;
• Develop a plan to phase out oil and gas production in California by 2030 and ensure a fair and just transition for workers and communities impacted by the phase-out.

2. Protect California's water resources and agriculture from toxic wastewater.
   • Halt the practice of injecting oil wastewater into aquifers;
   • Prohibit the use of wastewater to irrigate crops.

3. Shut down California's dangerous fossil fuel infrastructure, including immediately and permanently closing the Aliso Canyon gas storage facility.
   • Institute a moratorium on any new permits for fossil fuel infrastructure, including pipelines, power plants, refineries and export facilities.

4. Amend California's Renewables Portfolio Standard goal to 100 percent clean, renewable energy and eliminate dirty energy.
   • Include only real, 100 percent, zero-emission renewable energy (solar, wind, water and geothermal) in the state RPS goal, while removing false solutions like waste methane from landfills, sewage treatment plants and factory farms from its eligible RPS energy sources.

5. Ban factory farming in California.
   • Enact a moratorium on new factory farms;
   • Eliminate funding in the budget for dairy digesters;
   • Support funding to transition from factory farms to sustainable small and mid-sized farms.

6. Develop a plan for a fair and just transition to 100 percent clean, renewable energy in California by 2030.
   • Invest in a green energy public works program that fosters a rapid transition to real, zero-emission clean energy like solar and wind, accompanied by widescale deployment of energy efficiency;
   • Ensure that clean energy investments are targeted in socially and economically disadvantaged areas and in environmental justice communities with disproportionate pollution burdens;
   • Fully fund fair and just transition programs that are needed for fossil fuel workers.
Endnotes


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The Fracking Endgame: Locked Into Plastics, Pollution and Climate Chaos
As a 10-year fracking boom has evolved, and as our planet hangs on the precipice of climate catastrophe, fossil fuel corporations and their elected enablers are seeking to turn up the pace of new fracking projects once again. Our latest research shows that their endgame is a world locked into plastics, pollution and climate chaos. In addition to the buildout of a growing pipeline network, we’ve discovered that more than 700 new facilities have been built or proposed to capitalize off of a glut of cheap fracked gas.

Building Climate Justice: Investing in Energy Efficiency for a Fair and Just Transition
Buildings are the biggest energy hogs in the United States. They use nearly 40 percent of U.S. energy demand — more power than the entire industrial and transportation sectors use, respectively. Food & Water Watch has estimated the energy, financial and climate savings that a $500 billion investment in upgrading the energy efficiency of buildings could have over 15 years. This investment would reap dramatic economic benefits, create good jobs, reduce energy use and save money — all while reducing climate emissions.

Cleanwashing: How States Count Polluting Energy Sources as Renewable
Twenty-nine states and the District of Columbia have mandatory programs to encourage renewable electricity generation. These Renewable Portfolio Standard (RPS) programs set renewable electricity goals and determine which energy sources qualify as renewable. Food & Water Watch graded each of the state RPS programs based on a number of key metrics. Unfortunately, most RPS programs have not been robust enough to foster a rapid transition to clean, renewable energy. California received a grade of “D,” among the worst in the nation.