



# County of Los Angeles CHIEF EXECUTIVE OFFICE

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Chief Executive Officer

June 3, 2021

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From: Fesia A. Davenport  
Chief Executive Officer

## **REPORT BACK ON FACILITATING THE DEVELOPMENT OF A “JUST TRANSITION” TO CLEAN ENERGY (ITEM NO. 12, AGENDA OF SEPTEMBER 29, 2020)**

On September 29, 2020, the Board of Supervisors (Board) adopted a motion by Supervisors Ridley-Thomas and Hahn directing the Chief Executive Officer, in collaboration with the Chief Sustainability Officer and the Departments of Public Works (DPW); Regional Planning (DRP); and Workforce Development, Aging and Community Services (WDACS), to work with a stakeholder taskforce (Taskforce) to develop a strategy to promote a Just Transition to Clean Energy (Strategy).

While the motion states an overall goal of transitioning both the workforce and energy market from the fossil fuel industry to cleaner industries, the motion's directives focused on developing a workforce to clean up old fossil fuel infrastructure in a manner that would prioritize public health and safety, and address climate change. The motion further directed DPW to work with the Los Angeles County's (County) Oil and Gas Team – comprised of the Chief Sustainability Office (CSO), DRP, Fire Department, and the Department of Public Health (DPH) – and coordinate with the Taskforce to identify funding strategies to support the Just Transition effort and permanent staff for the Office of Oil and Gas. The motion also directed DPW to identify priority wells in the County that should be abandoned, and develop a “financial and operational” strategy to initiate this work. The first step in this process is to inspect high priority wells to identify urgent threats to public health and safety so that the County can estimate the costs to abandon these wells and seek State and federal funding for that work.

In order to address the first part of the motion regarding development of the Strategy, the CSO contracted with an expert technical consultant to assist with convening the Taskforce and conduct research on the workforce aspects of properly abandoning

orphaned oil wells to support development of the Strategy. This report transmits the Strategy (Attachment I), a report of the consultant's findings (Attachment II), and DPW's response to the motion on financial resources to support this work (Attachment III).

### Stakeholder Engagement

As directed by the motion, CSO convened a Taskforce in order to support development of the Strategy. The Taskforce consisted of representatives from a variety of sectors, including business; labor; environmental and environmental justice organizations; an indigenous-led organization; philanthropy; academia; and local and State government. In addition to three formal convenings of the Taskforce, individual meetings were held with various Taskforce members, as well as other experts, to inform the Strategy recommendations.

The Taskforce met three times to support development of the Strategy and findings (Attachments I and II). The draft documents were distributed to the Taskforce members for review and comment, and nine comment letters were submitted by Taskforce members. The CSO and the consultant reviewed these letters and incorporated comments, as appropriate. The CSO also contacted each member who submitted a letter to discuss their comments and how they were addressed.

### Key Findings and Recommendations

In response to the motion, the CSO directed its consultant to focus their analysis on direct jobs created by abandonment of idle and orphaned oil wells, which are wells that are not actively producing oil and, in the case of "orphaned" wells, also have no financially solvent operator. The analysis found that the direct job creation from abandoning wells is modest and not likely sufficient to support a broad transition of workers. However, it noted that additional jobs may be created by broadening the scope to include indirect and induced jobs related to this work, as well as jobs related to remediation and redevelopment of the land after well closure. Regardless of the job creation potential, it is important to note that abandonment of orphaned wells would not result in job loss, and would likely result in environmental, environmental justice, public health, and economic benefits.

The Strategy was developed based on the findings described above, as well as an understanding of the motion's overall goals, and the County's broader goals around workforce development, equity and environmental justice, and transition to renewable energy. The following is a summary of the Strategy's recommendations on how the County should move forward with a just transition:

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- *Broaden scope of current work to develop a comprehensive Strategy for fossil fuel workers in the Los Angeles (LA) Region:* The County should develop a comprehensive Just Transition Strategy that looks at all sectors of the fossil fuel industry, not just abandonment of orphaned wells, and considers the needs and perspectives of workers as well as frontline communities.
- *Expand the Taskforce to be inclusive of tribal and frontline communities, and workers from all sectors of the fossil fuel industry:* As the scope of the County's just transition work broadens, so should the representation on the Taskforce. Notably, as discussions are broadened to include the ultimate outcome of lands formerly used for extraction activities, local tribes should be involved as partners in this decision-making, especially for sites located on their ancestral lands.
- *Address key data gaps necessary to inform a just transition strategy, such as demographics of fossil fuel workers and economics of fossil fuel industry in the LA Region:* For the Strategy to be actionable, it needs to be grounded in a clear and quantitative understanding of the workforce involved in the fossil fuel industry and the industry itself.
- *Pursue policies and funding to achieve environmental, public health, and economic benefits from abandonment and redevelopment of idle and orphaned oil well sites:* As noted above, there are numerous reasons to pursue closure of idle and orphaned oil well sites, aside from the job creation potential, and the County should pursue opportunities to support and accelerate this work.
- *Develop a plan to leverage State and federal funding to support the Strategy while holding fossil fuel operators accountable to obligations:* The County should position itself to take advantage of available funding to support implementation of the Strategy while also ensuring that fossil fuel operators follow through with their responsibilities for proper closure of their wells.
- *Coordinate with the State, relevant local jurisdictions, and other local efforts on fossil fuel just transition:* Since there are many related efforts currently underway on the State level, as well as in other jurisdictions within the County, the County should track these to ensure consistency and, where possible, leverage other work.

Should you have any questions concerning this matter, please contact me or Gary Gero, Chief Sustainability Officer, at (213) 974-1160 or [ggero@ceo.lacounty.gov](mailto:ggero@ceo.lacounty.gov).

FAD:JMN:TJM  
GG:RK:jg

#### Attachments

c: Executive Office, Board of Supervisors  
County Counsel  
Public Works  
Regional Planning  
Workforce Development, Aging and Community Services

## Strategy for Advancing a Just Transition in Los Angeles County

May 2021

As directed by the Board of Supervisors' (Board) motion, this report presents an initial strategy for the Los Angeles County (County) to promote a just transition to clean energy. This strategy consists of a series of recommended actions the County should take to build on the work done to date, to proactively prepare for a transition of the fossil fuel industry. These recommendations are based on the research findings summarized in Attachment II and the summary of funding options presented in Attachment III, which was developed by the Department of Public Works (DPW). Although the Board motion specifically focused on considerations of the workforce potential from the abandonment or re-abandonment of idle and orphaned oil wells in unincorporated County, the research findings presented in the consultant's technical report suggest that this work would only produce a modest number of direct jobs. However, the proper abandonment of idle and orphaned oil wells provides many other benefits aside from job creation potential. The County should support and accelerate this work to achieve public health benefits and address environmental injustices, while ensuring that any jobs created by this work are high quality.

In order to accomplish the goals described in the Board motion of transitioning both the workforce and energy market from fossil fuels to cleaner industries while promoting public health and combating climate change, the County must pursue a broader scope that leads to permanent and secure employment across a diverse range of sectors. Based on these findings, the Chief Sustainability Officer (CSO) recommends the following as next steps:

- 1. Broaden the scope of current work to develop a comprehensive Just Transition Strategy (Strategy) for fossil fuel workers in the Los Angeles (LA) Region**

Given the public health impacts of air pollution and a changing climate, and the increase in state and national policies to address these threats by transitioning away from the use of fossil fuels, we are recommending that the County begin the process of developing a proactive and comprehensive Strategy that focuses on high-quality jobs across a diverse range of sectors. This strategy should include policies that minimize the potential negative impacts from economic disruptions that may occur – such as the closure of a refinery or bankruptcy of a major fossil fuel company – and create high-quality workforce opportunities for displaced workers and underrepresented communities through the creation and adoption of labor standards.

A comprehensive strategy to support displaced workers should center on high-road, high-quality jobs in industries that require similar skills as the fossil fuel sector, such as jobs in wastewater treatment, environmental remediation, clean transportation, and low-carbon manufacturing. The comprehensive strategy should include an analysis of what industries could be expanded or attracted to the region to provide these opportunities.

Additionally, policies should recognize the varying needs of people in different phases of their career.

In addition to displaced workers, the comprehensive strategy must consider and incorporate the voices and perspectives of all impacted stakeholders, including environmental justice and frontline communities who have been disproportionately impacted by the negative health impacts of the fossil fuel sector, and communities that have traditionally been left out of high-quality workforce opportunities. The comprehensive strategy must also prioritize the perspectives of local Native Nations whose ancestral lands have been the site of fossil fuel extraction activities.

In addition to the Just Transition Taskforce (Taskforce), which was convened as directed by the Board motion, the County should develop a comprehensive stakeholder engagement plan that offers stakeholders various forums to provide feedback, share concerns, and develop strategies. Outreach and engagement activities could include targeted focus groups with specific stakeholder networks; partnering with trusted community leaders to directly engage residents; community workshops; the establishment of working groups focused on specific research areas; and an educational component to ensure that stakeholders are able to understand and fully engage with technical material.

**2. Expand the Taskforce to be inclusive of tribal and frontline communities, and workers and representatives from all sectors of the fossil fuel industry**

As noted earlier, it is critical that the County's Strategy is inclusive of all affected stakeholders. The current Taskforce includes a set of stakeholders with a breadth of knowledge, experience, and capacity to form a strong foundation to support the development of a comprehensive Strategy, including identification of funding for implementation. As a next step, the County should expand this Taskforce to reflect the broader scope of a comprehensive strategy and include additional fossil fuel industry representatives and workers; frontline communities, including indigenous communities; and representatives of local Native Nations.

**3. Identify and address key data gaps necessary to inform a Just Transition strategy, such as demographics of fossil fuel workers and economics of the fossil fuel industry in the LA Region**

Successful examples of Just Transition strategies typically involve assessing and documenting the specific impacts of shutting down individual facilities or sites; detailing the number, types, and pay scales of jobs; and evaluating worker demographics such as race, place of residence, age, and proximity to retirement, in order to identify strategies for supporting workers' financial stability over time. Breaking up the analysis between different segments of the fossil fuel industry can help identify policies for specific sites, and develop customized strategies to support displaced workers. A comprehensive understanding of fossil fuel industry operations and facilities in the LA Region, including the scope and scale of these operations, locations of sites, and proximity to sensitive and

vulnerable populations, is also necessary to the development of a Just Transition strategy.

Not all of these datasets are available for the LA Region; therefore, the CSO recommends that the County identify and address these key data gaps. This will ensure that the Strategy is data-driven and actionable, rather than simply a theoretical exercise. However, the County should take care to balance the need for the development of a strategy grounded in facts and data with the need to take action, and it should be intentional about making decisions when data is sufficient rather than waiting until it is exhaustive.

#### **4. Pursue policies and funding to achieve environmental, public health, and economic benefits from abandonment and redevelopment of idle and orphaned oil well sites**

Although the directive of the Board motion was primarily to analyze jobs created by the abandonment of idle and orphaned oil wells, it is important to recognize that this work would provide many benefits beyond job creation. Importantly, it would reduce environmental and public health risks for frontline communities and the LA Region. Additionally, remediated oil well sites can be redeveloped for commercial or residential uses that offer economic benefits, or can be restored to natural and open space or parks that promote community health. The County must also recognize the potential for these sites to address the historic and ongoing displacement of local Native Nations from their ancestral lands through cultural easements, co-stewardship arrangements, or direct return of land. The County should involve and prioritize Tribal nations from the very beginning of just transition planning and throughout the decision-making process regarding the future of remediated sites, especially those located in culturally significant areas.

Given these additional benefits, the County should establish an idle and orphaned well abandonment program by continuing to pursue policies that accelerate the abandonment of idle wells, and advocating for State and federal funding to support implementation. Important first steps for the County are to continue working with California Geologic Energy Management (CalGEM) to confirm the number of deserted idle wells, to advocate for the streamlining of the process to declare wells as orphaned, and to develop a plan to ensure the prompt abandonment of those wells. The County's Oil and Gas Strike Team also identified 128 "higher-priority" oil wells through data analysis. The Strike Team did further analysis to estimate the risk of well leakage of these higher priority wells and has identified 43 wells as priorities for field inspections. These wells will be inspected, and any recommendations that come from these inspections will be included in the final Strike Team report, which is expected to be released later this year. The County Department of Regional Planning's Oil Well ordinance, which is expected to be released for public review later this year, could be used to catalyze abandonment of idle well sites in proximity to sensitive land uses. The County should also attach job quality standards for work related to the abandonment, remediation, and redevelopment of oil wells on

County-owned land. For orphaned wells that fall under CalGEM's responsibility, the County should advocate for the State to enact similar policies to promote local hire, quality wages, and good benefits.

The County may also consider pursuing State or federal funding to develop a pilot program focused on abandonment of idle and orphaned wells in unincorporated areas. This program could be focused, for instance, on County-owned land, or idle wells in proximity to sensitive land uses and vulnerable populations, on wells where owners could be incentivized to participate, or on wells identified in the Strike Team report. The pilot could be used to test just transition concepts, develop inclusive decision-making processes on the future of sites, establish a framework for working with other jurisdictions and agencies, and develop model policies to support just transition principles, such as community benefits agreements, local hire, and other labor standards across all phases of work, from well abandonment to site redevelopment or restoration.

#### **5. Develop plan to leverage State and federal funding to support the Strategy while holding fossil fuel operators accountable to obligations**

Given President Biden's Administration's commitment to the plugging and abandonment of wells, evidenced by the Executive Order on Climate Change and funding in America's Job Plan, the County should work with Taskforce members to develop an infrastructure plan for LA that leverages federal funding to support the development and implementation of a Strategy. Collaboration with stakeholders and local jurisdictions in the County will be critical for developing a regional strategy that brings substantial economic investment. The County should also track and advocate for State and federal legislative actions that provide support and resources for implementing the Strategy, as well as County goals for addressing idle and orphaned wells.

While it is important that the County ensure that our region receives its fair share of any available resources, it is also critical that current fossil fuel operators fulfill their obligations through the entire lifecycle of their facilities, and that funds the County collects from these operators is at least on par with the state of the practice in other regions that have significant oil and gas activities. To that end, there are several funding streams the County could pursue that are established practice in other areas. For instance, California is the only major oil producing state that does not charge an oil production or severance tax. Some jurisdictions also charge a wellhead tax, which could be designed to incentivize operators to not allow wells to remain idle by reducing the amount paid if the well is active.

The County could also update its utility franchise fees through changes in calculation methodology or fee increases – because County franchise rates are relatively low, fees could be increased and still remain comparable with other local jurisdictions. Other options the County could consider include a pipeline abandonment permit fee to cover the cost of inspections of pipelines abandoned within the public right-of-way to ensure that the work is done properly, and updates to lease agreements and royalties.

## **6. Coordinate with the State, relevant local jurisdictions, and other local efforts on fossil fuel just transition**

There are a number of active State and local initiatives related to the fossil fuel sector, including just transition and the phasing out of fossil fuel extraction activities, which have the potential to provide funding, regulations, and policy momentum to advance the County's Strategy. On the State level, these include the Governor's Office of Planning and Research developing a Just Transition Roadmap for the entire State, and several proposed bills addressing a just transition and the fossil fuel industry. Within the County, Culver City and the City of Los Angeles have policy initiatives aimed at phasing out oil extraction activities within their city limits; Long Beach residents approved an increase in the City's current barrel tax; and Carson residents voted for an oil industry business license tax. The County should collaborate with these and other local jurisdictions on policies and work related to the fossil fuel sector to ensure consistency, leverage each other's work, broaden workforce opportunities to a regional scale, and better position the region to take advantage of any upcoming funding opportunities.

There are other local efforts and organizations that the County should monitor and coordinate with, such as the Baldwin Hills Community Standards District Health Assessment and Environmental Justice Study, the work being done through local AB 617 Community Steering Committees, and efforts being led by local non-governmental organizations and community-based organizations.

Much of this coordination work, as well as some of the work recommended above, such as pursuing updated and increased fees, falls under the scope of work for the County's Office of Oil and Gas.

**Los Angeles County Just Transition to Clean Energy:  
Workforce Opportunities from the Abandonment and  
Re-Abandonment of Idle Oil Wells**

The LA County Chief Sustainability Office recognizes and acknowledges the first people of this ancestral and unceded territory. With respect to their elders, past and present, we recognize the Gabrieleño Tongva, Fernandeno Tataviam, Ventureño Chumash, and Gabrieleño Kizh, who are still here and are committed to lifting up their stories and culture.

## Executive Summary

This report provides an overview of the oil and gas landscape in Los Angeles County (County); assesses the potential workforce opportunities related to plugging and abandoning idle and orphaned oil wells; and outlines key principles of just transition. Just transition is defined by the Governor's Office of Planning and Research (OPR) as a sustainable and equitable economic transition to carbon-neutrality that builds a robust clean economy in which all Californians prosper. As the County Department of Regional Planning (DRP) updates its Oil Well Ordinance in order to minimize the negative environmental and health impacts of oil extraction, the Board of Supervisors (Board) may want to consider short- and long-term strategies for supporting a just economic transition away from oil. The findings in this report can inform those strategies. They are derived from a literature review of current research and relevant policies; interviews with subject matter experts; and input from the Just Transition Taskforce (Taskforce).

### Key Findings

#### **1) Job creation potential directly from plugging and abandoning idle and orphaned oil wells is limited but data gaps remain**

The literature and interviews with industry experts confirm that a relatively small number of workers are directly involved in plugging and abandoning idle oil wells. A typical project may have three to four workers and a supervisor assigned to a rig, with the number of rigs involved varying by project size. Research conducted by Columbia University's Center on Global Energy Policy confirm this finding and estimate that, on average, plugging 10 wells requires 2.4 person-years of work.<sup>1</sup> Thus, even with policies to accelerate the abandonment of idle wells across the County, expected job numbers from these activities themselves are limited. This research did not include estimates of indirect or induced jobs, as well as jobs related to remediation and redevelopment or restoration work that would follow plugging and abandonment. Inclusion of indirect or induced jobs into the analysis would result in a higher estimate of potential jobs created.

#### **2) Idle oil wells and improperly abandoned oil wells pose significant environmental and public health risks – and represent an environmental injustice**

Idle oil wells are located throughout the County. Their abundance and their proximity to residential and community gathering areas raise environmental and public health and safety concerns. Nationally, studies have shown that idle wells can leak pollutants into nearby groundwater, soil, and atmosphere, exposing residents to fugitive emissions associated with adverse health effects such as reproductive and nervous system problems.<sup>2</sup> Further, researchers recently determined that annual methane emissions from abandoned oil and gas wells in the United States have historically been underestimated by the Environmental Protection Agency; methane emissions

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<sup>1</sup> Raimi, D. Nerurkar, N. Bordoff, J. (July 2020). Green stimulus for oil and gas workers: considering a major federal effort to plug orphaned and abandoned wells. Center on Global Energy Policy Columbia University.

[https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/OrphanWells\\_CGEP-Report\\_071620.pdf](https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/OrphanWells_CGEP-Report_071620.pdf)

<sup>2</sup> Katherine Butler, MPH, et. al. "Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County," Los Angeles County Department of Public Health, February 2018, [http://publichealth.lacounty.gov/eh/docs/ph\\_oilgasfacilitiesphsafetyrisks.pdf](http://publichealth.lacounty.gov/eh/docs/ph_oilgasfacilitiesphsafetyrisks.pdf)

from these wells are likely 20 percent higher than previously documented.<sup>3</sup> Because methane is a very potent greenhouse gas, climate scientists have flagged the issue as a climate risk.<sup>4</sup> Furthermore, a 2015 survey of oil wells in the County demonstrated that populations living most proximate to new and existing active oil wells were disproportionately people of color, lower income, and ranked in the top 25 percent scoring census tracts in CalEnviroScreen 2.0, representing a critical environmental justice concern.<sup>5</sup>

### **3) The current workforce for abandoning oil wells is subcontracted, part-time, and predominately based outside of Los Angeles**

Like other segments of the oil industry, well abandonment work is subcontracted to companies that specialize in conducting this work as part of a suite of other well management services. These subcontractor jobs are temporary, and most are not unionized. Furthermore, many of the companies that specialize in abandonment of oil wells and that are hired to conduct this work are located outside of the County. Of the six companies that the California Geologic Energy Management Division (CalGEM) hired to abandon orphan oil wells between 2017 to 2020, three are based in Kern County, and the others are located in Central and Northern California.<sup>6</sup> None were located in Los Angeles County.

### **4) The regulatory landscape of idle oil wells is complex, and abandonment responsibilities are dependent on well classification**

CalGEM is responsible for classifying each well in the State and for identifying who is legally obligated to ensure that a well is properly abandoned. CalGEM is required to conduct an extensive investigation before classifying a well as "orphaned," meaning that it has no financially viable operator and that the State is responsible for abandonment. Across unincorporated County, there are 1,046 active oil wells; 637 idle oil wells; and 2,731 abandoned oil wells.<sup>7</sup> CalGEM has not classified any wells in the region as orphaned; however, in its June 2020 report, the County Oil and Gas Strike Team reported a CalGEM finding that 1,272 wells throughout all of Los Angeles County could be potentially declared as orphaned once the State completes its investigation into the responsible operator.<sup>8</sup> Additionally, the California Council on Science and Technology reports that approximately 41,390 wells across the State were abandoned prior to modern plugging requirements implemented in 1978.<sup>9</sup> An unknown number of these oil wells

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<sup>3</sup> McGill University. "Methane emissions from abandoned oil and gas wells underestimated: Uncertainty about annual methane emissions from abandoned wells in US and Canada highlights need for better measurements." *ScienceDaily*, January 21, 2021, [www.sciencedaily.com/releases/2021/01/210121092828.htm](http://www.sciencedaily.com/releases/2021/01/210121092828.htm).

<sup>4</sup> Nichola Groom, "Special Report: Millions of abandoned oil wells are leaking methane, a climate menace," *Reuters*, June 16, 2020, <https://www.reuters.com/article/us-usa-drilling-abandoned-specialreport/special-report-millions-of-abandoned-oil-wells-are-leaking-methane-a-climate-menace-idUSKBN23N1NL>.

<sup>5</sup> James Sadd, and Bhavna Shamasunder, "Drilling Down: The community consequences of expanded oil development in Los Angeles," Liberty Hill Foundation, 2015. <https://www.libertyhill.org/news/reports/urban-oil-drilling-report>

<sup>6</sup> *Ibid.* Companies are Rival Well Services Inc., Driltek Inc. and South Valley Companies, Inc.

<sup>7</sup> MRS, "Oil and Gas Assessment Project: Phase II- Report Number 3," County of Los Angeles, June 2020. [https://planning.lacounty.gov/assets/upl/project/oil-gas\\_20200601-report8.pdf](https://planning.lacounty.gov/assets/upl/project/oil-gas_20200601-report8.pdf)

<sup>8</sup> MRS, "Oil and Gas Assessment Project: Phase II- Report Number 3," County of Los Angeles, June 2020. [https://planning.lacounty.gov/assets/upl/project/oil-gas\\_20200601-report8.pdf](https://planning.lacounty.gov/assets/upl/project/oil-gas_20200601-report8.pdf)

<sup>9</sup> Judson Boomhower, et. al, "Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells," California Council on Science and Technology, November 2018. <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>

may require re-abandonment to meet current standards. As a result of these issues, the status of wells and responsible parties in the County is uncertain, which complicates efforts to identify policy and enforcement mechanisms for ensuring proper abandonment.

#### **5) Plugging and abandoning idle oil wells can be expensive**

The cost of abandoning oil wells varies widely, with a City of Los Angeles report citing costs ranging from \$50,000 to \$500,000 per well in California.<sup>10</sup> Recent projects in urbanized areas of Southern California have had costs up to \$1 million per well based on the fee study work led by the County Department of Public Works (see Attachment III). Between 2017 and 2020, the State abandoned four orphan wells in the County for a total cost of \$1,444,928, or approximately \$362,000 each.<sup>11</sup> In addition to increasing bond amounts and idle well fees, recent legislation authorized CalGEM to incentivize operators to manage and eliminate their wells through the development of an Idle Well Management Plan (IWMP).<sup>12</sup> However, researchers believe current fees are insufficient to cover abandonment costs, especially if CalGEM becomes financially responsible for the thousands of potentially orphaned wells across the State.<sup>13</sup> This concern is growing as the State continues to advance policies and programs to reduce greenhouse gas emissions from fossil fuels, and fossil fuel companies increasingly enter into bankruptcy proceedings. In 2019, the bankruptcy rate for this sector rose by 50 percent, with a total of 42 fossil fuel companies in the United States and Canada filing bankruptcy.<sup>14</sup> Estimates put this number at 73 firms for 2020 and 170 in 2021, increasing the burden on the public.<sup>15</sup>

#### **6) Remediation and redevelopment of idle oil well sites can generate economic, social, and public health benefits**

Once an oil well site has been abandoned and remediated, it is ready for redevelopment. Interviews with regulatory agencies and a review of well permits in the County reveal that housing, warehouses, hotels, and shopping centers are the most common redevelopment uses. Potential redevelopment opportunities vary between the urban and more rural parts of the County and will depend on zoning restrictions and well ownership. The Grove shopping mall in the City of Los Angeles and the Villages at Heritage Springs apartment complex in the City of Santa Fe Springs are examples of successfully redeveloped oil fields.<sup>16</sup> While redevelopment is subject to local regulation and the decisions of the property owner, redevelopment opportunities can create jobs, generate property taxes, increase the supply of affordable housing, and provide parks and open space for frontline communities – all of which are important for community health. Remediation of land also presents opportunities to address the

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<sup>10</sup> “Oil and Gas Health Report,” City of Los Angeles, July 25, 2019.

<sup>11</sup> Data from Excel Spreadsheet provided by CalGEM Supervisor via email on February 10, 2021.

<sup>12</sup> Judson Boomhower, et. al, “Orphan Wells in California: An Initial Assessment of the State’s Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells,” California Council on Science and Technology, November 2018.

<sup>13</sup> Mark Olalde and Ryan Menezes, “The toxic legacy of oil wells: California’s multibillion-dollar problem,” Los Angeles Times, February 6, 2020, <https://www.latimes.com/projects/california-oil-well-drilling-idle-cleanup/>

<sup>14</sup> Erwin Siba, “U.S., Canadian oil company bankruptcies surge 50% in 2019,” Reuters, January 22, 2020.

<https://www.reuters.com/article/us-usa-oil-bankruptcy/u-s-canadian-oil-company-bankruptcies-surge-50-in-2019-report-idUSKBN1ZL2MY>

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

historic and ongoing displacement of local tribes from their ancestral lands, either through direct land return or co-stewardship agreements.

**7) There are current efforts at the Federal, State, and other local levels around oil and gas operations**

The Biden Administration’s recent Executive Order on Climate Change references the potential for job creation from plugging leaks in oil and gas wells, raising hope that Federal funding may soon be available to support the abandonment of idle wells.<sup>17</sup> At the State level, Governor Newsom directed CalGEM to end the issuance of new permits for hydraulic fracturing by January 2024, and directed the California Air Resources Board (CARB) to evaluate how to phase out oil extraction by 2045 through the Climate Change scoping plan.<sup>18</sup> The OPR is developing a Just Transition Roadmap for the entire State, with a focus on key industries and regional economies that will be impacted from a transition to carbon neutrality. Additionally, several active bills address a just transition and the oil industry. Within the County, other jurisdictions are also working to limit oil and gas operations. In June 2017, residents in the City of Carson voted in favor of an oil industry business license tax.<sup>19</sup> In October 2020, Culver City adopted a resolution to evaluate a five-year phase-out period for the amortization of nonconforming oil and gas land uses within the City.<sup>20</sup> Culver City staff is currently developing a proposed Amortization Program, in which they find five years is sufficient time for proper abandonment of wells and facilitation of a “just transition” program for workers.<sup>21</sup> Similarly, the City of Los Angeles is considering updating its zoning code to phase out oil drilling within City limits. The City Attorney is developing a legal roadmap for the City Council to consider.<sup>22</sup> Lastly, residents in the City of Long Beach approved Measure US in 2020, which doubled the barrel tax from 15 cents to 30 cents.

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<sup>17</sup> President Joe Biden, “Executive Order on Tackling the Climate Crisis at Home and Abroad,” United States White House, January 27, 2021. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

<sup>18</sup> “Governor Newsom Takes Action to Phase Out Oil Extraction in California,” Office of Governor Gavin Newsom, State of California, April 23, 2021. <https://www.gov.ca.gov/2021/04/23/governor-newsom-takes-action-to-phase-out-oil-extraction-in-california/>

<sup>19</sup> “Measure C Results,” City of Carson Special Municipal Election, November 7, 2017.

<https://ci.carson.ca.us/content/files/pdfs/cityclerk/election/11072017ElectionResults.pdf>

<sup>20</sup> “Inglewood Oil Field,” Culver City. <https://www.culvercity.org/City-Hall/Get-Involved/Inglewood-Oil-Field>

<sup>21</sup> Ibid.

<sup>22</sup> Nathan Solis, “Los Angeles moves closer to forcing oil & gas drillers out of City,” Courthouse News Service, December 1, 2020. <https://www.courthousenews.com/los-angeles-moves-closer-to-forcing-oil-gas-drillers-out-of-city/>

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## I. Introduction

On September 29, 2020, the Board approved a motion, “Facilitating the Development of a ‘Just Transition’ to Clean Energy” (Motion), directing the Chief Executive Officer; Chief Sustainability Officer (CSO); the Departments of Public Works (DPW); Regional Planning (DRP); and Workforce Development, Aging and Community Services (WDACS), in partnership with a regional taskforce, to produce a strategy for preparing a skilled workforce to clean up old fossil fuel infrastructure, with a specific focus on abandoning and re-abandoning idle oil wells.<sup>23</sup> As directed by the Motion, the County convened the regional Taskforce, consisting of representatives from industry, labor unions, government agencies, environmental and environmental justice organizations, academia, and front-line communities. See Appendix A for the complete list of participants. The Motion also directed DPW to update their ongoing fee study to identify funding strategies to support the Just Transition effort.

In December 2020, the CSO engaged Better World Group (BWG) to facilitate regular meetings of the Taskforce and assist in the development of the Just Transition Strategy (Strategy). This report provides an overview of the oil and gas landscape in the County; assesses the potential workforce opportunities related to plugging and abandoning idle oil wells; and outlines key principles of just transition to help inform short- and long-term strategies that the Board may want to consider in advancing a just and meaningful transition to a fossil fuel-free Los Angeles. Proposed funding strategies are not included in this report; as per the Motion, they will be included in the Fee Study conducted by DPW.

## II. Research Methodology

The findings are the result of a multipronged research and engagement process that included reviewing relevant literature related to oil well regulations, just transition, green jobs, and the regional industry; interviewing experts and regional stakeholders; and input from the Taskforce.

### A. Literature Review

BWG completed a review of relevant articles, research papers, and case studies to ensure that the Strategy reflects current best practices and key principles of just transition, and to better understand the workforce needs associated with oil well plugging and abandonment, and site remediation.

### B. Stakeholder and Topic Expert Interviews

Concurrent with the literature review process, BWG interviewed topic experts from the workforce development, skilled labor, and energy sectors, environmental and environmental justice groups, a representative from an Indigenous and Native Nations organization, as well as individuals from

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<sup>23</sup> Supervisors Mark Ridley-Thomas and Janice Hahn, “Facilitating the Development of a ‘Just Transition’ to Clean Energy,” September 29, 2020. <http://file.lacounty.gov/SDSInter/bos/supdocs/149304.pdf>

regions outside the County that have implemented just transition strategies to better understand the history of just transition; opportunities for growing a skilled workforce to engage in the proper plugging and abandonment of oil drilling sites; and relevant policies and funding to support this work.

### **C. Just Transition Taskforce**

Between December 2020 and February 2021, the CSO convened three meetings of the Taskforce to review the Board motion; examine initial research findings; discuss key principles for supporting displaced fossil fuel workers; refine components of the Strategy; and develop a vision for the ongoing work of the Taskforce. These meetings were held on:

1. Friday, December 4, 2020
2. Thursday, January 28, 2021
3. Friday, February 26, 2021

At the first meeting of the Taskforce, guest speakers from the State of California shared the State's ideas for just transition of fossil fuel industry workers and the regulatory tools and financial incentives in place to address orphaned and idled wells. The Taskforce also heard from Professor Mijin Cha of Occidental College on the workforce involved in the fossil fuel industry in California. During the second meeting, the consultant team presented their preliminary research findings specific to the Motion and answered questions and comments from Taskforce members. The CSO and BWG also facilitated a discussion with Taskforce members regarding just transition principles, as well as the scope and membership of the Taskforce beyond the goals outlined in the Motion. At the last meeting, the CSO and BWG presented refined research findings and draft recommendations in response to the Motion. Taskforce members asked questions and provided additional feedback for consideration. In early March 2021, several Taskforce members and stakeholders submitted comment letters in response to the draft report. This report reflects the comments received, as appropriate.

### **D. Research Assumptions Used to Inform Analysis**

The findings in this report are based on assumptions made by the BWG team in coordination with the CSO. As directed in the Motion, this report focuses primarily on the workforce potential from the cleanup of "old fossil fuel infrastructure," which we interpret as idle oil wells that are considered deserted and/or orphaned. Further, we estimate the number of direct jobs to be generated from these activities based on information from interviews with industry experts, as well as from the Columbia University Center on Global Energy Policy's report on job potential from abandoning oil wells. We do not attempt to estimate the number of indirect and induced jobs, which would typically require the application of much more complex economic models. Estimating indirect and induced jobs would result in larger job estimates since such an analysis would cover a broader range of economic activity related to the oil and gas sector.<sup>24</sup>

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<sup>24</sup> [IMPLAN](#) is an input-output database and modeling system that allows users to calculate the direct and multiplier effects of spending in one industry on other industries located within a geographical region.

Additionally, this report assumes that the process of plugging and abandoning an oil well is separate from the process of remediating the soil for site redevelopment, so we do not estimate the jobs or other benefits of these remediation and redevelopment activities. Furthermore, the numbers of oil wells in the unincorporated County rely on the numbers included in the County's Oil and Gas Strike Team report from June 2020. For additional numbers of oil wells in all the County, including incorporated cities within the County, we rely on the CalGEM WellSTAR Data dashboard. Lastly, BWG defers the development of funding strategies to the DPW fee study.

### III. Background on Oil Wells

#### A. Key Terms for Oil Wells

There are five key terms used to describe oil wells: (1) active; (2) abandoned; (3) idle; (4) idle deserted; and (5) orphan. As these terms are often conflated and misused, definitions of these key terms are presented below for clarity.

1. Active – Oil well currently in use and producing oil.
2. Abandoned – Oil well that has been permanently sealed with a cement plug in compliance with current regulations. Note: Some legacy oil wells that were previously abandoned may need to be re-abandoned in order to comply with current regulations.
3. Idle – Oil well that has not been used for production in two or more years and has not been properly plugged and abandoned.<sup>25</sup>
4. Idle Deserted – An idle well may be declared deserted if the operator fails to pay the required idle well fee to the State, at which time the State Supervisor of Oil and Gas has the authority to order the operator to plug and abandon the well, pursuant to Section 3237 of the Public Resources Code.<sup>26</sup>
5. Orphan – An orphan well is “a well that has no party responsible for it, leaving the State to plug and abandon it.”<sup>27</sup> To classify a well as orphaned, CalGEM must follow a multi-step process to determine whether the well has been deserted by the operator and, if so, to determine whether there is a solvent entity to hold responsible for plugging the well.<sup>28</sup>

#### B. Regulatory Framework of Oil Wells in California

In California, oil and gas well activities are primarily regulated by the State. CalGEM is the principal regulatory agency responsible for carrying out statutory requirements related to oil and gas well operations, as outlined in Division 3 of the Public Resources Code and Title 14, Chapter 4 of the California Code of Regulations. Led by the State Oil and Gas Supervisor under the Department of Conservation, CalGEM “uses science and sound engineering practices to regulate the drilling, operation, and permanent closure of energy resource wells.” For the purposes of this report, the Consultant team reviewed CalGEM’s responsibilities related to the abandonment of idle and orphaned oil wells.

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<sup>25</sup> CalGEM, “Idle Well Program,” California Department of Conservation.

[https://www.conservation.ca.gov/calgem/idle\\_well](https://www.conservation.ca.gov/calgem/idle_well)

<sup>26</sup> Judson Boomhower, et. al, “Orphan Wells in California: An Initial Assessment of the State’s Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells,” California Council on Science and Technology, November 2018. <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>

<sup>27</sup> (Public Resources Code section 3206.3(a)(1)(C)).

<sup>28</sup> CalGEM, “Idle Well Program Report on Idle and Long-Term Idle Wells in California” CA Department of Conservation, July 1, 2019. [https://www.conservation.ca.gov/calgem/idle\\_well/Pages/idle-well-program-report.aspx](https://www.conservation.ca.gov/calgem/idle_well/Pages/idle-well-program-report.aspx)

Oil and gas well operators must abide by several State laws intended to ensure the proper management of a well once it becomes idle. To drill new wells or redrill existing wells, operators must file a notice of intention and provide an indemnity bond or cash deposit to CalGEM for approval. The bond or deposit is “intended to protect the State against losses in case the operator cannot afford to plug the well.”<sup>29</sup> CalGEM releases the bond or deposit to the operator after the well is properly abandoned. Upon inspection, CalGEM “may also order or permit the re-abandonment of any well they suspect was not properly plugged.”<sup>30</sup> In the case where a well is determined orphaned, the State is responsible for properly abandoning the well using, in part, funds from the bond tied to the well. The remaining costs for abandoning orphan wells are funded by annually assessed industry fees deposited into the Hazardous and Idle-Deserted, Well Abatement Fund (HIDWAF).<sup>31</sup> In 2018, idle well fees generated over \$4 million in revenue. By statute, CalGEM is currently allowed to expend \$3 million per fiscal year to plug and abandon orphan wells. CalGEM’s expenditure authority for abandoning orphan wells from industry fees will reduce to \$1 million per fiscal year beginning in 2022-23.

Legislation over the past decade has modified bond requirements to better reflect the current cost of well abandonment. Originally set at \$5,000 per well in 1939, bond amounts have significantly increased “to account for well depth, idle status, location onshore or offshore, and number, allowing the use of blanket bonds for operators with many wells.”<sup>32</sup> As of 2018, operators are required to file individual indemnity bonds with CalGEM when they drill, redrill, permanently alter, or acquire a well, for \$25,000 to \$40,000 per well, depending on well depth (Table 1). In lieu of an individual indemnity bond for each operation, an operator may also file a blanket indemnity bond to cover all its wells in the State when they drill, redrill, permanently alter, or acquire 20 or more wells at a time.<sup>33</sup> A recent study conducted by the California Council on Science and Technology suggests that the State’s current bond funds are insufficient to cover the costs for abandoning the expected number of orphan wells Statewide. They find that at current bond levels, the State would be \$500 million short if CalGEM declares 5,000 wells as orphaned.<sup>34</sup>

**Table 1. Individual oil well bonds**

Well Depth	Amount
10,000 ft or more	\$40,000
Less than 10,000 ft	\$25,000
Class II disposal well	\$100,000

Source: CA Council on Science & Technology (November 2018)

CalGEM has recently updated its idle well regulations “to create far more stringent testing requirements that better protect public safety and the environment” and incentivize “operators to

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<sup>29</sup> *ibid*  
<sup>30</sup> *Ibid.*  
<sup>31</sup> *Ibid.*  
<sup>32</sup> *Ibid.*  
<sup>33</sup> *Ibid.*  
<sup>34</sup> *Ibid.*

manage and eliminate their idle wells by entering into IWMPs.”<sup>35</sup> Operators are required to regularly test their idle wells and conduct any necessary repairs or abandonments as outlined in Title 14, Chapter 4 of the California Code of Regulations.<sup>36</sup> Operators with idle wells must also pay an annual fee per idle well based on the number of years the well has remained unused (Table 2). CalGEM deposits fees into HIDWAF. The HIDWAF and the \$3 million in appropriations collected every fiscal year from industry fees<sup>37</sup> are CalGEM’s primary funding sources for abandoning long-term idled or orphaned wells that are deemed hazardous. In lieu of paying the idle well fee, operators can file an IWMP that outlines a long-term plan with commitments to abandoning a specific number of idle wells per year based on their idle well inventory (Table 3). Operators that fail to comply with their IWMP “lose the option to file a new IWMP for the next 5 years” and are subject to pay idle well fees “for each year the operator failed to comply with their IWMP.”<sup>38</sup>

In 2020, CalGEM also started requiring idle wells to be tested for leaks.<sup>39</sup>

**Table 2. Idle well fees**

<b>Years Classified as an Idle Well</b>	<b>Annual Fee Per Well</b>
20 or more	\$1,500
15 to 19	\$750
8 to 14	\$300
3 to 7	\$150

Source: CA Council on Science & Technology (November 2018)

**Table 3. Idle Well Management Plans**

<b># of Idle Wells</b>	<b>Annual Reduction of Long-Term Idle Wells</b>
1,250 or more	6%
251 to 1,249	5%
250 or fewer	4%

Source: CA Council on Science & Technology (November 2018)

On April 23, 2021, Governor Newsom took several executive actions to phase out oil extraction in California, including directing CalGEM to end the issuance of new permits for hydraulic

<sup>35</sup> CalGEM, “Idle Well Program,” California Department of Conservation. [https://www.conservation.ca.gov/calgem/idle\\_well](https://www.conservation.ca.gov/calgem/idle_well)

<sup>36</sup> “Requirements for idle well testing and management,” CA Department of Conservation. [https://www.conservation.ca.gov/calgem/idle\\_well/Documents/Idle\\_Well\\_workshop\\_regs/IW%20Final%20Text%20of%20Regulations%20%28Clean%29.pdf](https://www.conservation.ca.gov/calgem/idle_well/Documents/Idle_Well_workshop_regs/IW%20Final%20Text%20of%20Regulations%20%28Clean%29.pdf)

<sup>37</sup> CalGEM’s expenditure authority for abandoning orphan wells from industry fees will reduce to \$1 million per fiscal year beginning in 2022-23 (SB 724, 2017).

<sup>38</sup> [https://www.conservation.ca.gov/calgem/idle\\_well/Pages/idle-well-operators.aspx#iwmp](https://www.conservation.ca.gov/calgem/idle_well/Pages/idle-well-operators.aspx#iwmp)

<sup>39</sup> California Department of Conservation, “Statutes and Regulations,” January 2020. <https://www.conservation.ca.gov/index/Documents/CALGEM-SR-1%20Web%20Copy.pdf>

fracturing by January 2024.<sup>40</sup> CalGEM will begin initiating the rulemaking process through its regulatory authority.

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<sup>40</sup> "Governor Newsom Takes Action to Phase Out Oil Extraction in California," Office of Governor Gavin Newsom, State of California, April 23, 2021. <https://www.gov.ca.gov/2021/04/23/governor-newsom-takes-action-to-phase-out-oil-extraction-in-california/>

## IV. Oil Drilling in Los Angeles County

The County has a long history of oil extraction. The State's first commercially successful oil well was tapped in 1876 near the town of Newhall, which is in present-day Santa Clarita, and which is located on the ancestral homelands of the Fernandeño Tataviam people.<sup>41</sup> The success of "Well No. 4," part of the Pico Canyon Oilfield, galvanized the development of oil drilling sites throughout the region.<sup>42</sup> Today, "California is the third-largest producer of crude oil in the United States, and Kern County accounts for about 70 percent of the State's oil production and 80 percent of its gas production as of 2018."<sup>43</sup> Kern County produced approximately 119 million barrels of oil in 2019.<sup>44</sup> After Kern County, Los Angeles County is the second-largest oil producing county in the State, producing approximately 19 million barrels of oil in 2018.<sup>45</sup> The County has over 60 percent of the State's refinery capacity, and is considered a "major refinery and distribution center, serving all of Southern California, Southern Nevada, and Arizona."<sup>46</sup> There are five major refineries in the County that are able to produce gasoline and diesel to meet CARB's fuel specifications. In 2020, California refineries received approximately 35 percent of their crude oil supply from California oil wells, 18 percent from Alaska, and 48 percent from foreign sources.<sup>47</sup>

Los Angeles' oil landscape exists amidst the nation's most densely populated area. Many oil extraction sites are located in residential areas. Surveys have documented that people of color disproportionately live in closest proximity to sites and are, therefore, at higher exposure to associated risks. These frontline communities also include indigenous communities and members of local Tribal Nations. Local Native Nations have suffered additional harm because they were forcibly displaced from the ancestral homelands, which are now the sites of extraction activities.

### A. Overview of Oil Wells in the County

Across the unincorporated County, there are 1,046 active oil wells; 637 idle oil wells; and 2,731 abandoned oil wells.<sup>48</sup> The region has no wells that have been officially declared as orphan wells; this is due to the extensive process the State must undertake to declare that an oil well has no financially viable responsible party. Therefore, CalGEM has estimated that there are as many

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<sup>41</sup> Tim St. Onge, "The Los Angeles Oil Boom Through Maps," *The Library of Congress*, July 25, 2019, <https://blogs.loc.gov/maps/2019/07/the-los-angeles-oil-boom-through-maps/>.

<sup>42</sup> Ibid.

<sup>43</sup> Associated Press, "Court strikes down Kern County's industry-friendly system for approving oil drilling," *Los Angeles Times*, Feb 26, 2020, <https://www.latimes.com/environment/story/2020-02-26/kern-county-industry-friendly-system-for-approving-oil-drilling-hit-by-appeals-court>.

<sup>44</sup> Rich Nemec, "California's kern County Oil, Gas Rules Undergoing Further Review," *Natural Gas Intelligence*, February 2, 2021, <https://www.naturalgasintel.com/californias-kern-county-oil-gas-rules-undergoing-further-review/>.

<sup>45</sup> Brad Williams, "Contributions of the Oil and Gas Industry to Los Angeles County," *Western States Petroleum Association*, June 2020, <https://www.wsipa.org/wp-content/uploads/Oil-and-Gas-Industry-Contributions-to-LA-County-.pdf>.

<sup>46</sup> Ibid.

<sup>47</sup> "Oil Supply Sources to California Refineries," *California Energy Commission*, <https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/oil-supply-sources-california-refineries>.

<sup>48</sup> MRS, "Oil and Gas Assessment Project: Phase II- Report Number 3," County of Los Angeles, June 2020. [https://planning.lacounty.gov/assets/upl/project/oil-gas\\_20200601-report8.pdf](https://planning.lacounty.gov/assets/upl/project/oil-gas_20200601-report8.pdf)

as 1,272 wells throughout all of Los Angeles that could be potentially declared as orphaned once the State completes its due diligence in finding a responsible operator.<sup>49</sup>

In the County, many oil drilling sites are located within dense residential neighborhoods. This raises serious public health and environmental concerns; idle, unsealed wells can leak pollutants into the groundwater, soil, and atmosphere, exposing residents to fugitive emissions that can cause reproductive and nervous system harms.<sup>50,51</sup> In 2015, a survey of wells in the County demonstrated that populations living most proximate to new and existing active oil wells were disproportionately people of color, lower income, and ranked in the top 25 percent scoring census tracts in CalEnviroScreen 2.0.<sup>52</sup> A recent study estimated that annual methane emissions from abandoned oil and gas wells in the United States have been underestimated by the Environmental Protection Agency, and that methane emissions from these wells are likely 20 percent higher than previously documented.<sup>53</sup> The methane emissions from leaky idle, improperly abandoned wells are increasing greenhouse gas emissions, and climate scientists have flagged the issue as a global warming risk.<sup>54</sup>

The cost of abandoning oil wells varies widely, ranging from \$50,000 - \$500,000 per well in California.<sup>55</sup> Recent projects in urbanized areas of Southern California have had costs up to \$1 million per well, based on the fee study work led by DPW (see Attachment III). There are no financial incentives for operators to plug and abandon wells. The primary reason many operators elect to let a well go idle is because it is no longer profitable to keep it active.<sup>56</sup> Bonding costs are often lower than the actual cost of plugging and abandoning an oil well, which means that operators have a financial incentive to delay retirement of the well.<sup>57</sup> Sealing orphaned wells, for which the responsible party is now the State, is a near impossible financial undertaking without assistance from the oil and gas industry. Between 2017-2020, the State abandoned four orphan wells in the County for a total cost of \$1,444,928.<sup>58</sup>

As oil and gas firms go bankrupt at increasing rates, the State will likely become responsible for financing the plugging and abandonment of the growing number of oil wells that become orphaned as a result. In 2019, the bankruptcy rate for oil and gas firms rose by 50 percent as a total of

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<sup>49</sup> Ibid.

<sup>50</sup> James P. Williams, Amara Regehr, and Mary Kang *Environmental Science & Technology* 2021 55 (1), 563-570  
DOI: 10.1021/acs.est.0c04265

<sup>51</sup> Ibid.

<sup>52</sup> James Sadd, and Bhavna Shamasunder, "Drilling Down: The community consequences of expanded oil development in Los Angeles," Liberty Hill Foundation, 2015. <https://www.libertyhill.org/news/reports/urban-oil-drilling-report>

<sup>53</sup> McGill University. "Methane emissions from abandoned oil and gas wells underestimated: Uncertainty about annual methane emissions from abandoned wells in US and Canada highlights need for better measurements." *ScienceDaily*, January 21, 2021, [www.sciencedaily.com/releases/2021/01/210121092828.htm](http://www.sciencedaily.com/releases/2021/01/210121092828.htm).

<sup>54</sup> Nichola Groom, "Special Report: Millions of abandoned oil wells are leaking methane, a climate menace," *Reuters*, June 16, 2020, <https://www.reuters.com/article/us-usa-drilling-abandoned-specialreport/special-report-millions-of-abandoned-oil-wells-are-leaking-methane-a-climate-menace-idUSKBN23N1NL>.

<sup>55</sup> "Oil and Gas Health Report," City of Los Angeles, July 25, 2019.

<sup>56</sup> "WSPA. "idle Production Wells" (May 17, 2016) <https://www.wspa.org/resources/idle-production-wells/>

<sup>57</sup> Schuwerk, R. Rogers, G. "It's Closing Time: The Huge Bill to Abandon Oilfields Comes Early" (June 2020) Carbon Tracker Initiative.

<sup>58</sup> Data from Excel Spreadsheet provided by CalGEM Supervisor via email on February 10, 2021.

42 oil and gas firms in the United States and Canada filed for bankruptcy.<sup>59</sup> Projections put this number at 73 firms for 2020 and 170 in 2021, drastically increasing the burden on the State without any regulatory interventions. This risk was felt locally when the California Resources Corporation (CRC) - California's largest oil producer and owner of 18,716 oil and gas wells, of which 5,642 are idle - filed for bankruptcy in July 2020, exposing the tremendous financial risk that the State could incur from having such a large operator become financially insolvent.<sup>60</sup> While CRC was able to emerge from bankruptcy three months after its initial filing, its initial filing exposes the ongoing potential financial risk for the State, given the volatility of the oil market.<sup>61</sup>

## **B. Los Angeles County Approach to Oil and Gas Wells**

Local jurisdictions have the authority to regulate oil and gas operations pursuant to their police power to regulate land use. Under the direction of the Board, the County has pursued several initiatives, dating back to March 2016, regarding oil and gas operations in the unincorporated areas of the County. Key County actions include:

- Establishment of a cross-departmental Oil and Gas Strike Team;
- Development of an oil well ordinance to amend the Planning and Zoning Code; and
- Creation of an Office of Oil and Gas under the County's DPW.

On March 29, 2016, the Board passed a motion directing DRP, DPW, the Department of Public Health, and the Fire Department to establish the Oil and Gas Strike Team (Strike Team). The goal of the Strike Team is "to assess the conditions, regulatory compliance, and potential public health and safety risks associated with existing oil and gas facilities in the unincorporated County."<sup>62</sup> The Strike Team has met six times and developed eight reports, with the most recent one released on June 1, 2020. Their reports thus far have provided information such as: an oil and gas well inventory for the unincorporated County, public health assessments on select facilities and wells, and a review of legislative positions and actions regarding oil and gas operations for the County to consider. While these reports have provided context on oil and gas operations in the unincorporated County, they do not include information on the oil abandonment workforce. The Strike Team is currently conducting a study to test for leaks in plugged and abandoned wells in the unincorporated County.<sup>63</sup>

In response to the same March 2016 Board motion, the DRP is updating the Planning and Zoning Code for unincorporated areas to "ensure that oil and gas facilities may no longer operate by right, and ensure that the regulations reflect best practices and current mitigation methods and technologies, minimize environmental impacts and protect sensitive uses and populations."<sup>64</sup> DRP staff conducted four listening sessions with stakeholders and a Regional Planning

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<sup>59</sup>Erwin Siba, "U.S., Canadian oil company bankruptcies surge 50% in 2019," Reuters, January 22, 2020. <https://www.reuters.com/article/us-usa-oil-bankruptcy/u-s-canadian-oil-company-bankruptcies-surge-50-in-2019-report-idUSKBN1ZL2MY>

<sup>60</sup> CalGem WellSTAR Data Dashboard. Accessed March 2, 2021.

<sup>61</sup> Cox, John. "Court Approves CRC's plan to emerge from bankruptcy." Bakersfield Californian.

<sup>62</sup> "Los Angeles County Oil and Gas Strike Team," Los Angeles County Department of Regional Planning. <https://planning.lacounty.gov/oil-gas/strike>

<sup>63</sup> Los Angeles Oil and Gas Strike Team, "Oil and Gas Assessment Project. Phase II – Report Number 3," County of Los Angeles, June 1, 2020. [https://planning.lacounty.gov/assets/upl/project/oil-gas\\_20200601-report8.pdf](https://planning.lacounty.gov/assets/upl/project/oil-gas_20200601-report8.pdf)

<sup>64</sup> "Oil Well Ordinance," Los Angeles County Department of Regional Planning. <https://planning.lacounty.gov/oilwell/>

Commission meeting in advance of releasing a draft Oil Well Ordinance in April 2020. DRP staff are currently preparing a revised draft ordinance that is expected to be released in spring 2021 for public feedback.

In 2018, the Board approved a motion to create the County’s Office of Oil and Gas (Office). Housed under DPW, the Office serves as a “central point of contact” for stakeholders, ensures more “proactive coordination among County departments to facilitate a more efficient approach” for implementing recommendations from the Strike Team and OurCounty Sustainability Plan, and establishes “communication and coordination with other local jurisdictions.”<sup>65</sup> The Office, in coordination with the Strike Team, has prepared a report (Attachment III) in response to the September 2020 “Just Transition to Clean Energy” motion to:

- “Update its ongoing fee study to identify funding strategies to support the Just Transition effort;
- Identify a funding strategy to support permanent staff for the Office; and
- Identify priority wells in the County that should be abandoned and develop a financial and operational strategy for initiating this work.”<sup>66</sup>

Within the County, other jurisdictions are also acting on oil and gas operations. In June 2017, residents in the City of Carson voted in favor of an oil industry business license tax.<sup>67</sup> In October 2020, Culver City adopted a resolution to evaluate a five-year phase-out period for the amortization of non-conforming oil and gas uses within Culver City.<sup>68</sup> The staff in Culver City is currently developing a proposed Amortization Program, in which they find five years is sufficient time for proper abandonment of wells and facilitation of a “just transition” program for workers.<sup>69</sup> The City of Los Angeles is similarly moving closer to updating its zoning code to phase out oil drilling within city limits after the City Attorney developed a legal roadmap for the City Council to consider.<sup>70</sup> Lastly, the City of Long Beach residents approved Measure US in 2020, doubling the barrel tax from 15 cents to 30 cents.

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<sup>65</sup> “About the Office of Oil & Gas,” Los Angeles County Office of Oil and Gas. <https://oilandgas.lacounty.gov/>

<sup>66</sup> Supervisors Mark Ridley-Thomas and Janice Hahn, “Facilitating the Development of a ‘Just Transition’ to Clean Energy,” September 29, 2020. <http://file.lacounty.gov/SDSInter/bos/supdocs/149304.pdf>

<sup>67</sup> “Measure C Results,” City of Carson Special Municipal Election, November 7, 2017.

<https://ci.carson.ca.us/content/files/pdfs/cityclerk/election/11072017ElectionResults.pdf>

<sup>68</sup> “Inglewood Oil Field,” Culver City. <https://www.culvercity.org/City-Hall/Get-Involved/Inglewood-Oil-Field>

<sup>69</sup> Ibid.

<sup>70</sup> Nathan Solis, “Los Angeles moves closer to forcing oil & gas drillers out of City,” Courthouse News Service, December 1, 2020. <https://www.courthousenews.com/los-angeles-moves-closer-to-forcing-oil-gas-drillers-out-of-city/>

## V. Potential Workforce Opportunities from Abandoning and Re-Abandoning of Oil Wells

### A. Characteristics of the Well Abandonment Industry

The process of plugging and abandoning oil wells requires preparation of the wellsite for abandonment and removal of equipment.<sup>71</sup> The plugging process usually requires a workover rig and cement pumped into the wellbore.<sup>72</sup> Cement plugs are placed into the wellbore at specific intervals to prevent potential oil, gas, or water leaks. The length of time to abandon a well depends on the well's history and potential issues at the site.

Skills required to plug wells and restore surface sites are aligned with skills possessed by workers from other segments of the oil and gas industry.<sup>73</sup> Neither previous experience in the oil industry nor a college degree are a prerequisite for this work. In an interview with a representative from a company specializing in oil well abandonment, the representative shared that the only requirement for new workers is an interest in the work.<sup>74</sup> New employees with no previous experience are required to go through a 90-day training program, at the end of which they are tested; if they pass, they are placed on a work crew with more experienced co-workers for further training.

Multiple industry experts confirmed that, like other activities within the oil industry, plugging and abandoning work is subcontracted to companies specialized in providing this service as part of a suite of other oil well management services. These jobs are temporary and predominantly not unionized. Many of the companies that specialize in abandonment of oil wells and that are hired to conduct this work are located outside of the County. To confirm this information, we contacted CalGEM to request a list of all the companies contracted by the State to plug and abandon orphan oil wells in recent years. Of the six companies used by CalGEM to abandon orphan oil wells between 2017 and 2020, three are based in Kern County, and the others are in Central and Northern California.<sup>75</sup>

Since many of the companies abandoning wells come from outside of Los Angeles, much of the work is not done by local workers. A representative from a Bakersfield-based company confirmed that, because many of the jobs in the County are part-time, a majority of the work is performed by workers from Kern County. He added that if there were more full-time projects in Los Angeles, then it would make financial sense for the company to hire a local workforce.

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<sup>71</sup> "Oil and Gas Well Drilling and Servicing eTool," United States Department of Labor, Occupational Safety and Health Administration, January 18, 2018.

[https://www.osha.gov/SLTC/etools/oilandgas/abandoning\\_well/abandoning.html](https://www.osha.gov/SLTC/etools/oilandgas/abandoning_well/abandoning.html)

<sup>72</sup> NPC North American Resource Development Study. "Plugging and Abandonment of Oil and Gas Wells." September 15, 2011. Paper #2-25 <https://www.coursehero.com/file/43419749/2-25-Well-Plugging-and-Abandonment-Paperpdf/>

<sup>73</sup> Raimi, D. Nerurkar, N. Bordoff, J. (July 2020). Green stimulus for oil and gas workers: considering a major federal effort to plug orphaned and abandoned wells. Center on Global Energy Policy Columbia University.

[https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/OrphanWells\\_CGEP-Report\\_071620.pdf](https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/OrphanWells_CGEP-Report_071620.pdf)

<sup>74</sup> Interview with staff member from Excalibur Well Services Corporation based in Bakersfield.

<sup>75</sup> Ibid. Companies are Rival Well Services Inc., Driltek Inc. and South Valley Companies, Inc.

## B. Job Potential from Oil Well Abandonment

In their report, “Green Stimulus for Oil and Gas Workers”, Raimi, Nerurkar, and Bordoff estimate that, on average, plugging 10 wells requires 2.4 person-years of work. A person-year of work refers to the amount of work, on a specific project, by one person during a year. Using these numbers, the researchers project that plugging 56,600 wells would create roughly 13,500 jobs for one year. BWG used this formula to estimate the number of jobs that were created through the abandonment of oil wells in the County from 2018 to present. The results of this calculation are presented in Table 4. At most, we estimate that a total of 130 job-years were created from abandoning 541 wells. As previously referenced, CalGEM estimates that there are 1,272 potentially orphaned or deserted oil wells in the City of Los Angeles and in the unincorporated County. From this, we can estimate that, if CalGEM were to abandon those wells, approximately 305 job-years could be generated. If the County were to abandon all 637 idle oil wells, it could potentially generate 153 job-years.<sup>76</sup> As this ratio is based on a national average, it is worth noting that these estimates may be slightly lower than the actual number of jobs generated from oil well abandonment locally. Oil wells in the County, as previously noted, may be located in populated areas and, as such, are subject to stricter abandonment standards set by CalGEM, thus increasing the costs and size of workforce needed to properly abandon them.

**Table 4. Estimated Jobs Generated from Oil Well Abandonment in Los Angeles County**

Year	# of Permits Approved to Abandon/Re-abandon Oil Wells in Los Angeles County	Estimate of Job Years Created
2018	163	39
2019	164	39
2020	194	47
2021	20	5
<b>Total</b>	<b>541</b>	<b>130</b>

Data Source: CalGEM WellsStar Data Dashboard

Interviews with industry experts confirmed that the number of direct jobs involved in abandoning oil wells is relatively low. A typical project may have three to four workers plus a supervisor assigned to a rig. For example, a representative from Excalibur Well Services shared that a recent well abandonment project in South Los Angeles required four rigs, so we can assume there were at least 16 workers on that job. The total number of rigs on a project will vary based on project size. As discussed in the methodology section, our analysis focused on direct jobs.

## C. Site Remediation, Restoration, and Redevelopment

Once a well is abandoned, the site must undergo environmental review to determine the degree of potential hazards and contamination. Then, the site must be remediated before a decision can be made regarding future use, whether that be redevelopment for economic purposes, or restoration and preservation as a park or natural area, for example. Site assessment, surface demolition, remediation, and site preparation are all necessary steps that require employment to repurpose or restore a site. To promote the preservation of sites, particularly those with cultural

<sup>76</sup> For consistency, the report references the number of oil wells identified in the June 2020 “Oil and Gas Assessment Project Phase II Report” prepared by MRS LA County Oil and Gas Strike Team.

or historic significance to the sovereign Native Nations of the County, local Native Tribal communities should be included at the initiation of discussions about the ultimate goals for former oil well sites located on their ancestral lands, rather than solely being brought in once a decision has been made. Potential strategies to promote preservation and restoration of these sites include co-management and/or co-stewardship of land with tribes, land easements for tribes to access the land for cultural purposes, or direct return of land to Tribal Nations.

A recent study conducted for the City of Los Angeles estimated that well abandonment and remediation work combined involves 0.5 workers per site.<sup>77</sup> Assuming the potential closure of 429 active wells in the City of Los Angeles and an average remediation cost of \$109,000, the researchers reported that approximately 215 full-year jobs would be generated. They also note that “these employment figures are assumed to be generated for a single year of remediation work only,” and, thus, are only short-term jobs.<sup>78</sup> Using this figure, we estimate that 271 full-year remediation jobs were created from the 541 wells abandoned and approved by CalGEM in the County from 2018 to 2021. If all of the 1,272 potentially orphaned wells in the County were plugged and abandoned, then approximately 636 full-year remediation jobs would be produced. As noted earlier, once remediation is complete, these sites can be redeveloped into housing, industrial, or commercial uses, assuming appropriate zoning and willingness from the property owner.

Some abandoned well sites, such as the AllenCo site in the City of Los Angeles, must undergo demolition prior to initiating site remediation. In 2020, Pinnacle Environmental Technologies prepared an estimated scope of work and timeline for decommissioning the 21 oil and gas wells at the AllenCo site.<sup>79</sup> In the report, they outline three phases of work: 1) Well abandonment (15 months), 2) Site Demolition (5.5 months), and 3) Site Investigation/Assessment and Remediation (12 months). Due to the inability to access the site in person, Pinnacle provided general cost estimates. Pinnacle estimated that well abandonment alone would cost \$4.2 million. Their estimate of remediation costs ranged from a best-case scenario of \$28,000 to a worst-case scenario of \$1 million. Remediation needs will vary substantially between wells located in densely populated city neighborhoods and wells located in less populated areas. This range makes it difficult to estimate potential job opportunities from remediation. Additional research is needed to better capture the potential workforce benefits from well remediation work.

Once a site has been abandoned and remediated, it is ready for redevelopment into other land uses, including commercial or residential uses, or other community-serving uses such as parks or open space. It should be noted, however, that redevelopment of abandoned oil well sites on private property depends on the decisions of the property owner and is regulated by local planning agencies or building departments. From BWG’s interviews and research of well permits in the County, housing, warehouses, hotels, and shopping centers emerged as the most common types of redevelopment projects. Potential redevelopment opportunities vary from urban to more rural

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<sup>77</sup> David Rigby, PhD., Michael Shin, Ph.D., and Geografio LLC. "The Oil and Gas Extraction Sector in the City of Los Angeles," 2017. [http://clkrep.lacity.org/onlinedocs/2017/17-0447\\_misc\\_81A\\_07-29-2019.pdf](http://clkrep.lacity.org/onlinedocs/2017/17-0447_misc_81A_07-29-2019.pdf)

<sup>78</sup> Ibid, Page 36.

<sup>79</sup> Report provided by Liberty Hill Foundation who commissioned the Pinnacle study.

parts of the County and will also depend on zoning restrictions. Redevelopment of these sites will also vary depending on the ownership of the sites. It is difficult to predict the workforce and economic benefits from the accelerated abandonment/re-abandonment of idle and orphaned wells in the County.<sup>80</sup> However, remediation and redevelopment projects on former oil well sites can potentially create construction jobs. The Grove shopping mall<sup>81</sup> in the City of Los Angeles and the Villages at Heritage Springs apartment complex in the City of Santa Fe Springs are examples of successfully redeveloped oil fields.<sup>82</sup>

It should be noted that CalGEM recommends against the construction of structures over plugged and abandoned oil wells, as there is no guarantee that wells abandoned to the most stringent current standards will not leak in the future.<sup>83</sup> However, construction over plugged and abandoned oil well sites is not prevented by State law, and redevelopment permits are granted by the local planning agency or building department.

#### **D. Funding Limitations**

Proper well abandonment is expensive, and funding to abandon deserted and orphaned wells is limited. In addition to the costs to plug and abandon wells, site remediation costs can also be high.<sup>84</sup> As previously discussed, the California Council on Science and Technology reveals that current fees and bonds collected by CalGEM are insufficient to cover these costs.<sup>85</sup> Across all oil wells in California, they find that the collected bond amount is about \$9.1 billion short of the estimated abandonment costs. The number of wells for which the State is responsible also remains unclear. At the current pace of declaring a well orphan, CalGEM will require significantly more resources to determine the State's expected costs. As previously noted, DPW is updating its Fee Study to identify funding strategies to support the Just Transition effort and support permanent staff for the Office. DPW, in consultation with other members of the County Oil and Gas Strike Team, will also "identify priority wells in the County that should be abandoned, and develop a financial and operational strategy for initiating this work."<sup>86</sup>

#### **E. Regulations to Accelerate Well Abandonment and Create Workforce Demand**

Although the direct number of jobs created from abandoning idle and orphaned oil wells, and the remediation and redevelopment of the sites, is relatively low, these are important infrastructure jobs that can begin to offset initial job losses in the fossil fuel sector. BWG was unable to find specific data related to the number of jobs involved in the maintenance of idle wells; however, based on interviews with industry experts, it is reasonable to assume some jobs in idle well maintenance may be lost. Policies to accelerate the pace of well abandonment could help increase the number of jobs generated and bridge employment for lost jobs.

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<sup>80</sup> Ibid.

<sup>81</sup> The Grove also still has active oil wells.

<sup>82</sup> Ibid.

<sup>83</sup> "Property Development in an Oil Field Questions." CalGem Website. <https://www.conservation.ca.gov/calgem/faqs>

<sup>84</sup> Ibid.

<sup>85</sup> Judson Boomhower, et. al, "Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells," California Council on Science and Technology, November 2018. <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>

<sup>86</sup> Supervisors Mark Ridley-Thomas and Janice Hahn, "Facilitating the Development of a 'Just Transition' to Clean Energy," September 29, 2020. <http://file.lacounty.gov/SDSInter/bos/supdocs/149304.pdf>

There are multiple policy avenues the County can use to maximize local, high-quality jobs and environmental benefits from plugging and abandoning idle oil wells. Using its land use authority, the County can accelerate the abandonment of idle and deserted wells. The next iteration of the Draft Well Ordinance, expected to be released by the DRP later this year, could potentially serve as the catalyst for a strategy to generate job creation through not only the plugging of oil wells, but also through their remediation and redevelopment. The County can explore legal options for attaching job quality standards to jobs related to the abandonment, remediation, and redevelopment of oil wells on County-owned land. For those orphaned wells that fall under CalGEM's responsibility, which would require public dollars to fund the plugging and abandonment of the wells, the State could enact similar policies to promote local hire, quality wages, and good benefits.

## **VI. Current Federal and State Action on Oil and Gas Operations**

The Biden Administration's recent Executive Order on Climate Change references the potential for job creation from plugging leaks in oil and gas wells, raising the possibility that Federal funding may soon be available to support the abandonment of idle wells.<sup>87</sup>

At the State level, the OPR is working with the Labor and Workforce Development Agency, developing a Just Transition Roadmap for the entire State. The roadmap is focused on identifying policies to create economic opportunity for communities and workers in industries that will be negatively impacted by climate change, such as, but not limited to, the fossil fuel industry. As part of this process, the State will be hosting public workshops later in 2021.

Additionally, at the time of drafting this report, there are multiple proposed bills in the current legislative cycle focused on idle-deserted oil wells and promoting a just transition.

- Senate Bill 47 (Limón) would raise the annual limit on the amount of per barrel fees that CalGEM can spend on plugging and abandoning deserted oil wells from \$3 million to \$10 million. It would also allow CalGEM to retain unspent funds up to \$100 million.
- Assembly Bill 896 (Bennett) would require the Oil and Gas Supervisor to establish a collections unit at CalGEM that would be responsible for collecting unpaid idle well fees from operators, establishing the timeline and criteria for determining if a well has been deserted, and locating or collecting costs for an operator or responsible party. Additionally, it would grant the Supervisor the authority to place a lien on an idle well if the operator has failed to pay idle well fees, the well is deemed unsafe by CalGEM, or the State incurred the cost of plugging and abandoning the oil well.
- Senate Bill 84 (Hurtado) would revise the legislative reporting requirements of CalGEM's idle well program, and would revise the authority of the Oil and Gas Supervisor to hold the current or past well operator responsible for fees.

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<sup>87</sup> President Joe Biden, "Executive Order on Tackling the Climate Crisis at Home and Abroad," United States White House, January 27, 2021. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

- Assembly Bill 680 (Burke), the California Just Transition Act, would ensure that all applicants to grant programs funded by the Greenhouse Gas Reduction Fund meet specified standards, including fair and responsible employer standards and inclusive procurement policies, as defined. It would also give preference to applicants that demonstrate a partnership with an educational institution or training program targeting residents of disadvantaged, tribal, and low-income communities.
- Lastly, the Governor’s 2021-2022 Budget contains a trailer bill that would grant the Department of Toxic Substances Control \$3 million to provide funding for job training related to remediation of toxic sites, which may include inactive oil wells.<sup>88</sup>

These proposed bills are included in this report for informational purposes as they are related to the subject matter related to the Taskforce.

## **VII. Developing a Just Transition Strategy**

As the County implements policies to transition away from a fossil fuel-based economy, the County has stated its commitment to supporting displaced workers and creating an inclusive, green economy that provides good jobs and a high quality of life.<sup>89</sup> A just transition addresses the future economic challenges workers and communities will experience; the barriers that some communities have faced in accessing good jobs; and the historical and ongoing injustices imposed on tribal communities on their ancestral lands as a result of extraction activities. The County must establish policies and programs to mitigate anticipated negative impacts, and to meaningfully involve Native Nations, oil and gas workers, and frontline communities disproportionately burdened by the environmental and public health harms of the fossil fuel industry.

### **A. Key Elements for a Just Transition**

Previous efforts to support workers during major economic shifts, such as job losses caused by globalization and trade policies, have not always succeeded.<sup>90</sup> Common challenges experienced by previous transitions include training people for jobs in industries without sufficient demand for workers, inability to place workers in jobs with equivalent wages and benefits, and insufficient financial support for people during training programs.<sup>91</sup> As a result of these past failures, many of the stakeholders we interviewed referenced a growing skepticism about the term “just transition” among fossil fuel workers.

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<sup>88</sup> “CA Trailer Bill RN 21 09951,” California Department of Finance. 2021.

<https://esd.dof.ca.gov/trailer-bill/public/trailerBill/pdf/346>

<sup>89</sup> “OurCounty Sustainability Plan,” Los Angeles County Chief Sustainability Office, 2019.

<https://ourcountyla.lacounty.gov/>

<sup>90</sup> Cha, J.Mijin. Pastor, M. Wander, Madeline, et al, “A Roadmap to an Equitable Low-Carbon Future: Four Pillars for a Just Transition,” USC PERE, 2019.

<sup>91</sup> Ibid.

Compared to other industries, the fossil fuel industry is more likely to provide workers with full-time work, higher salaries, and stronger benefits.<sup>92</sup> This is particularly true for unionized fossil fuel workers at refineries.

Washington state's unsuccessful 2018 carbon-fee proposal, Initiative 1631, included elements to promote a just transition. For example, funds from the carbon-fee would have been used to provide displaced fossil fuel workers with training opportunities, wage and benefit replacements, relocation, counseling services, and benefits and pensions for up to five years for workers near retirement.

There are other successful case studies of transitions that offer insights on key elements to ensure a just transition, which are outlined in Table 6. In their paper, "A Roadmap to an Equitable Low-Carbon Future: Four Pillars of a Just Transition," Cha, Pastor, Wander, et al. identify four key principles of an equitable transition:

**1) Strong Governmental Support**

Strong governmental support to communities and workers negatively affected by job losses can take the form of unemployment payments and re-training.

**2) Dedicated Funding Streams**

Long-term support should focus on investments in new local economies and reuse of fossil fuel infrastructure. Consistent and dedicated funding streams are critical to supporting affected workers and assisting their entry into new business development and training programs.

**3) Strong and Diverse Coalitions**

It is critical to build trust among all affected parties and develop a common goal everyone can support.

**4) Economic Diversification**

At its core, a just transition addresses people concerned about their economic livelihood. Pursuing economic diversification means avoiding over-reliance on a single economic sector as a growth area that can absorb displaced workers and promise employment at family-supporting wages for new workforce entrants.

Lastly, the authors highlight the importance of ensuring economic opportunities are also available to low-income communities and communities of color, who are disproportionately burdened by pollution yet excluded from the gains of the extractive economy.

By establishing this Taskforce, the County is demonstrating two of the key elements of a Just Transition. Strong government support is clear with the County's leadership with other elected officials from incorporated cities within the County, as well as representatives from key

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<sup>92</sup> Ibid.

State agencies in the Taskforce process. Second, although the Taskforce has provided clear guidance on additional members that need to be included in this work, the diverse set of stakeholders on the Taskforce represent the potential for the development of a strong and diverse coalition. Finding a dedicated funding stream for displaced workers and impacted communities and identifying additional economic sectors for job growth are important next steps for this process.

While there are no direct examples of Just Transition strategies related to the plugging and abandonment of idle oil wells, the County can look to recent efforts throughout California to develop Just Transition strategies. The following case studies highlight relevant lessons and ideas.

## **B. Diablo Canyon**

The transition of Diablo Canyon, a commercial nuclear power plant located on the coast of Central California, is illustrative of the four pillars of just transition detailed in the report, “A Roadmap to an Equitable Low-Carbon Future: Four Pillars for a Just Transition.” After deciding not to seek re-licensing of the facility, Pacific Gas and Electric Company (PG&E) worked with a coalition of environmental groups and relevant unions to develop a proactive transition plan, known as the Joint Proposal.<sup>93</sup> Diablo Canyon will operate through 2025; power generated by the facility will be supplanted with a greenhouse gas-free portfolio, while dedicated funding streams will take care of the employees and reduce the financial impacts on the local community.

### **1) Strong government support**

While the California Public Utilities Commission (CPUC) approved parts of the Joint Proposal, the transition programs were initially funded at lower levels than proposed. Rather than accepting the diminished plan, the coalition went to the California Legislature and sponsored Senate Bill 1090, which required the CPUC to accept the Joint Proposal as originally presented. Governor Brown signed the bill into law in September 2018.

### **2) Dedicated funding streams to support transition**

The Joint Proposal contains several provisions to fund jobs and to mitigate the economic impacts on the local economy due to the closure. A \$350 million employee retention, retraining, and compensation plan was created. An \$85 million Community Impacts Mitigation Program was put in place to offset any potential negative impacts to the region’s tax base, and a \$10 million Economic Development Fund was established to mitigate impacts to local businesses.

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<sup>93</sup> “Joint Proposal of Pacific Gas and Electric Company, Friends of the Earth, Natural Resources Defense Council, Environmental California, International Brotherhood of Electrical Workers Local 1245, Coalition of California Utility Employees and Alliance for Nuclear Responsibility to Retire Diablo Canyon Nuclear Power Plant at Expiration of the Current Operating Licenses and Replace It with a Portfolio of GHG Free Resources” (PG&E, June 20, 2016).

### **3) Diverse and strong coalitions**

The coalition backing the Joint Proposal included PG&E, the Natural Resources Defense Council, Environment California, the Alliance for Nuclear Responsibility, International Brotherhood of Electrical Workers Local 1245, and the Coalition of California Utility Employees.

### **4) Economic diversification**

Diablo Canyon generates approximately nine percent of the State's power supply, so a substantial amount of the State's future power needs will come from more diverse sources of greenhouse gas-free renewable resources. Moreover, the employee plan includes retraining; younger workers can expand their skills and transition to jobs related to decommissioning the plant, which would have otherwise gone to outside contractors.

## **C. Case Study: Marathon Refinery**

In August 2020, the Marathon Petroleum Company announced plans to permanently close its oil refinery in Martinez, California. The facility is the State's fourth largest refinery; it generated approximately 161,000 barrels per day, had about 740 employees, and also employed between 250 and 2,500 contract workers at any particular time. The COVID-19 stay-at-home order and the reduced demand for fuel had idled the refinery since April 2020. This resulted in the company's abrupt decision to shut down the facility in the summer of 2020, and laying off most of its workers by the end of 2020.

Marathon had initially proposed that the site be used as an oil-storage operation, which would have only required 50 employees, and thus would have resulted in a significant reduction of the existing workforce. Taking such an approach, and not developing a transition plan for the majority of workers in the existing facility, leaves little opportunity for ensuring workers remain financially stable and little opportunity for mitigating the negative economic impacts on the local community, although Marathon said it made its employees aware of job opportunities at its other facilities. According to news reports, Contra Costa County Supervisor John Gioia said that the county's challenge will be, "to assist workers to find replacement jobs with equal pay [and create] pre-apprenticeship programs to get local people into jobs."

In February 2021, Marathon announced plans to reposition the Martinez refinery to manufacture biodiesel fuel. The company expects the facility to begin producing biodiesel in 2022. As the refinery goes through the permitting process for approval, the county may gain additional insights by monitoring whether and how the refinery's former employees are transitioning into the new operations.

## APPENDIX A

### Just Transition Taskforce Members

- County of Los Angeles, Department of Public Works
- County of Los Angeles, Department of Regional Planning
- County of Los Angeles, Workforce Development, Aging and Community Services
- Sierra Club
- Los Angeles/Orange Counties Building Trades Council
- United Steelworkers Local 675
- County of Los Angeles, Department of Public Health
- County of Los Angeles, Chief Executive Office - Economic/Workforce
- City of Los Angeles
- City of Los Angeles, Board of Public Works
- City of Culver City
- City of Long Beach
- California Geologic Energy Management Division
- California Governor's Office of Planning and Research
- Physicians for Social Responsibility – Los Angeles
- Communities for a Better Environment
- Strategic Concepts in Organizing and Policy Education – Los Angeles
- East Yards Communities for Environmental Justice
- Greenlining Institute
- Community Health Councils
- Liberty Hill Foundation
- Los Angeles Alliance for a New Economy
- Labor Network for Sustainability
- International Brotherhood of Electrical Workers Local 11
- Los Angeles County Business Federation
- California Independent Petroleum Association
- California Resources Corporation
- UCLA Law
- Occidental College
- UC Berkeley Labor Center
- Just Transition Fund

### Stakeholder Participants

- Sacred Places Institute for Indigenous Peoples
- Californians for Energy Independence
- Western States Petroleum Association



## Public Works' Response to Just Transition Motion

This report was prepared to respond to the September 29, 2020, motion approved by the Board of Supervisors entitled, "Facilitating the Development of a 'Just Transition' to Clean Energy." Among other things, the motion instructed the Director of the Department of Public Works (DPW), in consultation with other members of the Los Angeles County (County) Oil and Gas Team, to do the following:

- Update its ongoing fee study to identify funding strategies to support the Just Transition effort;
- Identify a funding strategy to support permanent staff for the Office of Oil and Gas; and
- Identify priority wells in the County that should be abandoned and develop a financial and operational strategy for initiating this work.

### Funding Strategies

The County does not have the authority to abandon oil and gas wells. That authority rests with the California Department of Conservation Geologic Energy Management Division (CalGEM). The new funding sources described below could serve the County's goals toward Just Transition by providing funding opportunities to the responsible agency, CalGEM, to properly abandon oil wells in the unincorporated County for which the operator is non-existent or has insufficient resources. This funding would supplement monies allocated by the State legislature to abandon oil and gas wells but used to abandon those idle/orphaned oil and gas wells prioritized by the County. It is noted that the Governor's May Revise Budget has included \$200 million for well abandonment that will greatly increase the available funding for this work.

#### 1. **The American Jobs Plan**

The American Jobs Plan (Plan) is an investment in America that will create millions of well-paying jobs, rebuild our country's infrastructure, and position the United States to out-compete China. Public domestic investment, as a share of the economy, has fallen by more than 40 percent since the 1960s. The Plan will invest in America in a way we have not invested since we built the interstate highways and won the Space Race to the moon.

The Plan has prioritized putting the energy industry to work plugging orphan oil and gas wells. Hundreds of thousands of idle and orphaned oil and gas wells pose serious safety hazards, while also causing ongoing air, water, and other environmental damage. Many of these potentially hazardous wells are located in urban communities that have suffered from years of disinvestment. President Biden's plan includes an immediate up-front investment of \$16 billion



## Public Works' Response to Just Transition Motion

that will put hundreds of thousands of people to work in union jobs plugging oil and gas wells. In addition to creating jobs in hard-hit communities, this investment will reduce the methane and brine that leak from these wells, in combination with investments in reducing leaks from other sources like aging pipes and various components of the oil and gas distribution systems.

We recommend that the County provide strong advocacy in Washington and Sacramento to ensure the investment of \$16 billion is preserved in the final legislation and that California, one of the largest producers in the US, gets its share of the funds. As the second largest oil producing County in California, Los Angeles County should get a significant funding allocation through CalGEM.

### **2. Advocate for Strong State Oil and Gas Legislation**

In addition to the Plan, we recommend increasing advocacy in Sacramento to ensure the State legislative branches and the Governor enforce adequate bonding requirements for idle and orphan well abandonment. The State's idle well program must be strengthened in order to ensure the industry pays for the proper abandonment of oil and gas wells instead of the burden falling on the California taxpayer.

### **3. Institute an Oil Production Tax (Barrel Tax) and Wellhead Tax**

#### **a. Oil Production Tax (Barrel Tax)**

California is the only major oil producing state that does not charge an oil production or severance tax. Several cities in Los Angeles and Orange counties currently do tax the oil companies between \$0.20 and \$0.60 per barrel (42 gallons) of oil extracted from the ground. Additionally, some of the cities also charge a "per wellhead" charge as a component of their tax. Oil and gas production in the unincorporated County encompass 1,683 total wells with approximately 1,046 active wells as of 2019, per CalGEM data, with a total annual production of approximately 6,033,058 barrels.

There is opportunity for the County to adopt a per barrel oil production tax adjusted annually by the Consumer Price Index. For example, if the rate was set at \$0.42 per barrel, this tax could generate approximately \$2,700,000 annually.



## Public Works' Response to Just Transition Motion

This tax would be subject to Propositions 26 and 218 requirements and required a two-thirds majority of the vote to pass.

### **b. Wellhead Tax**

Within unincorporated County area, 637 wells are idle, many for decades, and they pose significant environmental contamination risks to the surrounding communities. The operators for some of these idle wells may have gone out of business or do not have the financial resources to properly abandon their oil wells. These are frequently referred to as "orphan" wells. A good example is the recent bankruptcy of California Resources Corporation, owner of over 18,000 wells throughout California and about half of which are idle.

In combination with the oil production tax, there is opportunity for the County to adopt a per wellhead tax in manner that could incentivize companies keeping wells from becoming idle. The wellhead tax could be reduced for those wells that are producing, actively maintained, and paying their fair share through in the companion oil production taxes. This ensures that companies with a greater number of idle wells pay into the fund and reduce the burden of active well owners who are producing oil and gas while maintaining their facilities.

For example, if the rate was set at \$3,750 per well, which is comparable with other jurisdictions, the wellhead tax could generate approximately \$4,800,00 annually, or \$2,388,750 if wellhead tax is only applied to idle wells.

This tax would also be subject to Propositions 26 and 218 requirements and required a two-thirds majority of the vote to pass.

### **4. Update the Utility Franchise Fees**

Another source of new funding could be additional revenue from utility franchise fees. Currently, the County collects approximately \$10 million in utility franchise fees from utilities that utilize the County public right-of-way to provide their services. The County could explore redirecting any new revenue increases as of the establishment of the Office of Oil and Gas to fund its activities.



## Public Works' Response to Just Transition Motion

Increases in revenue could come from fee increases, changes in the methodology of calculating the fees on utilities, and/or through new franchises that are established after the Office of Oil and Gas' inception date. According to a recent report prepared by MRS Environmental Inc., the County's rates could be increased but still be comparable to other jurisdictions.

Revenue would be optimized by charging a fee rate based on linear feet for pipelines that are smaller than 13.75 inches in diameter and preserving the volumetric rates for pipelines that are 13.75 inches or higher. For example, changing from the cubic foot formula to linear feet with the existing \$1.50 rate would accrue approximately \$113,000 more on a yearly basis.

In addition, the County could require the applicants to pay for the actual costs associated with processing the application for a franchise, extending a franchise, or transferring a franchise agreement. The County should require an initial minimum deposit at the time of the application in an amount of \$10,000 to cover this cost in addition from utility franchises fees collected for the use of the public right-of-way.

### 5. **Pipeline Abandonment Permit Fee**

A pipeline abandonment permit fee would cover the cost of inspection for abandonment of an oil or gas pipeline. This will ensure that the operator of the pipeline properly drains the hazardous materials and seals the pipe to prevent any future soil or water contamination within the public right-of-way.

### 6. **Update Lease Agreements/Royalties**

The Chief Executive Office-Real Estate Division has ground leases and collects royalties for oil operations on County fee-owned property.

An audit would determine if the County is maximizing revenues from this source. A typical monthly report from the leases should include number of barrels of oil sold, price per barrel, and the detail of the amount corresponding to the County based on the percentage royalty agreed in the contracts.



## Public Works' Response to Just Transition Motion

### **Prioritization of Wells to be Abandoned**

On July 28, 2015, the Board directed the Department of Regional Planning (DRP), in consultation with the Department of Public Health (DPH), to develop an inventory of all oil and gas fields and the associated level of environmental monitoring taking place at those facilities within unincorporated County. The resulting report, issued on December 31, 2015, provided a snapshot of the oil and gas wells that are currently in operation based on the records of CalGEM. The report identified 1,687 oil and gas wells within the unincorporated County, of which 85 percent are located within zones that allow the use "by right" and 95 percent are operated by 12 distinct operators.

Of the 1,687 wells, 57 percent are currently operating under the unprecedented and comprehensive regulatory requirements created by the Baldwin Hills Community Standards District (CSD), which promotes the safe operation of the Inglewood Oil Field. Among its many requirements, the CSD restricts the amount of drilling that is allowed; requires ongoing monitoring of air quality, groundwater, noise, and seismic activity; establishes setbacks from sensitive areas; and mandates landscaping requirements as well as requiring various emergency response protocols and monthly meetings with a community advisory panel.

While the CSD does provide extensive oversight for over half of the wells within the unincorporated County, the report found that due to the long history of oil production in the County, in which wells were typically permitted by right, the remaining wells outside of the CSD area are operating with a lack of consistency in permit conditions, and regulations vary from project to project.

On March 29, 2016, the Board adopted a motion entitled "Proactive Planning and Enforcement of Oil and Gas Facilities Operating in Unincorporated Los Angeles County," in part to direct the Director of DRP, in coordination with the Fire Chief, the Interim Director of DPH, and the Director of DPW to convene a Strike Team to assess the conditions, regulatory compliance, and potential public health and safety risks associated with existing oil and gas facilities in the unincorporated County. Additionally, the Strike Team was to report back in writing on a biannual basis with a summary of its findings and recommendations.

The Strike Team, comprised of representatives from DRP, DPH, Fire, and DPW, worked proactively to complete a comprehensive assessment of the approximately 800 oil and gas wells operated within the unincorporated areas, which are not subject to the rigorous requirements of the CSD. In addition, the Strike Team is developing action plans, as necessary, to ensure that these facilities are in compliance with all existing applicable rules and regulations, as well as providing recommendations on additional oversight or operational changes that may be required to ensure a safe operation.



## Public Works' Response to Just Transition Motion

To date, the Strike Team has filed eight biannual reports to the Board with the latest issued in July 2020. The latest report is the fourth of five Phase II biannual reports to be provided to the Board during the current 36-month long Strike Team Phase II effort. Under Phase II, the Strike Team was tasked with researching and investigating the following oil and gas elements:

- Abandoned and orphan wells
- Storage facilities
- Pipelines
- Hazardous chemicals

As part of the Phase II effort regarding idle, abandoned, and orphan wells, the Strike Team, in coordination with CalGEM, identified wells that were potentially of concern, mapped detailed locations of the idle wells, and collected various data on them. The detailed results of this information can be found in the Strike Team reports found on their website at <https://planning.lacounty.gov/oil-gas/strike>.

The initial priority ranking produced scores ranging from zero to 143 with 128 wells ranking a score of above 75 and, therefore, classified as a "higher-priority well." The higher-priority wells were generally located in the southern County areas in communities with higher population densities. They included the following communities:

- Carson
- Dominguez
- East Los Angeles
- La Puente
- Marina del Rey
- Whittier

The Strike Team reviewed the CalGEM database for each of the high-priority wells. The following factors were utilized to estimate the risks of well leakage of the high-priority wells:

- Abandonment date
- Blowouts or loss of well control occurrence
- Any gas pressure encountered during drilling or gas production
- Any crude oil encountered during drilling or any crude production history
- Any gas encounter at depths less than 1,000 feet
- Any recent leak testing conducted (in last 20 years)



## Public Works' Response to Just Transition Motion

As a result of the Strike Team Phase II efforts, to date 43 wells out of the original 128 prioritized wells were identified for Priority 1 inspection. The team developed a well site inspection protocol that will be used to verify actual well conditions and to identify any wells that may pose an urgent threat to public health and safety. The 43 wells will be site inspected prior to, along with any recommendations included in, the final Strike Team report later this calendar year.

### **Use of the New Funds**

- **Office of Oil and Gas**

The Office of Oil and Gas (Office) only received initial "seed" funding of \$300,000 for two years. In order to properly staff the Office to perform the coordination and communication functions established by the Board, the Office needs two full-time staff with part-time supervision. It is recommended that one of the staff be a licensed geologist with experience in the oil and gas industry. This would require annual funding of approximately \$400,000.

- **Establish and Idle/Orphaned/Deserted Well Abandonment Program**

Based on the reports developed by the Strike Team, 43 wells have been identified as Priority 1. The first step is to perform on-site inspections of these Priority 1 wells to confirm that they are the highest risk and need to be abandoned as soon as possible to protect the environment and the surrounding communities.

Abandonment costs in the County are very high. Recent projects have shown that the cost to abandon wells in urbanized areas within Southern California can range from \$500,000 to \$1 million per well. Using the median cost, the County would need to raise approximately \$32 million to abandon the 43 Priority 1 wells. However, the site inspections will provide information that can be used to further characterize and prioritize these wells so that more refined cost estimates can be made. This will also allow the County to seek State and federal funding to support the abandonment of those wells that pose the greatest risk.

Even if the County were to pass an oil production tax or wellhead tax, raising the funds to properly abandon these 43 Priority 1 wells would likely take more than a decade to complete. Clearly, State and federal funding is needed to tackle this costly and potentially devastating problem. Therefore, cleaning up these old oil and gas wells that were drilled decades ago will require the focused efforts of all parties including the industry, local, State, and federal government.