BEFORE THE LAST DROP

LESSONS FROM THE PHILLIPS 66 LOS ANGELES REFINERY CLOSURE

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APEN ASIAN PACIFIC ENVIRONMENTAL NETWORK

COMMUNITIES for a BETTER ENVIRONMENT est. 1978

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Communities for a Better Environment (CBE) builds people power in California's communities of color and low-income communities to achieve environmental health and justice by preventing and reducing pollution and building green, healthy, and sustainable communities. CBE is one of the preeminent environmental justice organizations in the nation with member-bases in Richmond, East Oakland, Southeast Los Angeles, and Wilmington, CA.

Front and back cover images by Anastasia Yulo for APEN.

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SOURCING

Publicly available sources for this report are cited in the endnotes, as are interviews with persons who agreed to be named. Where the source of a statement or information is not identified in the endnotes, the identity of the individual(s) who were sources for it is being withheld to protect their privacy and professional interests, or otherwise by agreement. These non-disclosed interviewees include government officials, union leaders and members, and private developers.

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APEN staff members knock doors in Wilmington and Carson. Photo by Anastasia Yulo for APEN.

EXECUTIVE SUMMARY

ES INTRODUCTION

Until very recently, oil refineries have seemed like a permanent part of California's industrial landscape. But now, that perceived permanence is starting to crumble. In the past five years, two major refineries in the Bay Area have ceased petroleum refining: the Phillips 66 Los Angeles Refinery (Phillips 66 Refinery) announced plans to close in the fourth quarter of 2025, and the Valero Benicia refinery announced an April 2026 closure plan amid hints that its Wilmington refinery could be next.

The closures are largely driven by market and economic pressures — including California, nationwide, and worldwide declining demand for petroleum-based transportation fuel — that can be expected to continue. It is thus reasonable to anticipate that more refinery closures may happen in the near to medium term and that a large number of California refineries will eventually close, to the extent the state achieves its vehicle electrification goals and demand for fossil transportation fuel declines accordingly.

IT IS REASONABLE TO ANTICIPATE THAT MORE REFINERY CLOSURES MAY HAPPEN IN THE NEAR TO MEDIUM TERM.

It is clear that we need to take steps now to learn about and prepare for more potential closures. This report will use analysis of the Phillips 66 Refinery closure as a springboard for thinking through the larger question of what refinery communities should expect when a closure occurs and what they can do to prepare for it. The report is divided into four parts, as follows:

- *Facts on the ground*. This section will provide factual background concerning the planned Phillips 66 Refinery closure — including the Refinery's history, impacts over time on the community, site contamination, and emerging plans for site cleanup and redevelopment.
- *Governing law*. This section will describe the regulatory system that will govern the wind-down, closure, and redevelopment process — the law applicable to current operations, worker safety, decommissioning and site remediation, and redevelopment planning.
- *Key issues*. This section will catalog the key issues that have either arisen already with respect to the Phillips 66 Refinery closure or may reasonably be anticipated to arise either in that situation or in future refinery closures, based on analysis of governing law and other experiences with closures.
- *Recommendations*. This section will present recommendations to potentially mitigate some of the identified issues and concerns.

Wilmington residents speak out at an August 2025 toxic tour. Photo by Anastasia Yulo for APEN, CBE.

ES PART 1: FACTS ON THE GROUND

ES 1.1 THE REFINERY

The Phillips 66 Refinery sits on two separate sites: one situated in the Wilmington neighborhood of the City of Los Angeles, near the Port of Los Angeles (Port), and the other situated a few miles away in the City of Carson. The Carson portion of the Refinery, built in 1923 and expanded in the 1980s, does the initial-stage crude oil processing, while the Wilmington portion of the Refinery, in operation since 1919, receives via pipeline the intermediate products produced at Carson and turns them into finished products. The Refinery has changed hands over time amid multiple shifts in corporate ownership and has been the subject of several notable recent environmental enforcement actions — most notably a federal grand jury indictment in 2024 for illegal dumping of hundreds of thousands of gallons of untreated industrial wastewater in the Los Angeles County sewer system.

ES 1.2 THE COMMUNITIES

Wilmington and Carson differ somewhat in their geography, population demographics, and government, but share significant similarities as refinery communities. Demographically, the populations of both Wilmington and Carson are economically, socially, and structurally disadvantaged, populated primarily by people of color, including a large migrant community in Wilmington. Both score very high on CalEnviroScreen, a tool for assessing pollution vulnerability, and are overwhelmingly characterized as disadvantaged communities as defined by state law (SB 535). The two communities are heavily industrialized, with economies that substantially revolve around refineries and the nearby Port.

The pollution load from the Phillips 66 Refinery is heavy in both Wilmington and Carson. Refineries generally are among the top sources in the state of air toxics emissions and contribute about 32 percent of total volatile organic compounds (VOCs) found in Wilmington, Carson, and West Long Beach. The refinery pollution is cumulative with the heavy industrial- and transportation-related pollution that pervades the area, which collectively has been a large contributor to health issues in these communities. Both Wilmington and Carson area residents suffer from high asthma rates, and Wilmington residents' cancer rate is 1.5 times higher than in the South Coast Air Quality Management District (SCAQMD or Air District) as a whole, with 87 percent of that excess cancer risk from stationary sources attributed to the Phillips 66 Refinery.

The Refinery is, overall, a deeply felt presence in both communities. In Wilmington, there is a residential community sited immediately adjacent to the Refinery, separated by only a 12-foot-high fence; and there are homes in Carson a little more than a mile away. Many receive substantial economic support from the local refineries. Despite a sometimes mixed understanding among residents of how the Refinery affects their health and quality of life, and what can be done to push back, local environmental justice organizations and residents have had significant success in moving regulatory authorities to address the Refinery's impact on residents' health and quality of life.

ES 1.3 THE CLOSURE

On October 16, 2024, Phillips 66 announced its plan to close the Refinery in the fourth quarter of 2025. Current planning documents suggest an intention to remove the tanks at the Wilmington site in connection with the closure and redevelopment, but it is unclear as of yet whether the tanks at either the Carson site or at the company's associated Port terminal will remain in operation post-closure.

Phillips 66 states that the closure will result in the direct loss of 900 jobs at the Refinery — 600 employees and an additional 300 contractors. These jobs are the type of blue-collar manufacturing jobs that used to be a cornerstone of the U.S. economy but are now increasingly rare: well-paid union jobs with good benefits and no college degree generally required. In addition to the directly employed Refinery workers, there is indirect employment associated with the Refinery, such as chemical suppliers, shipping, and trucking; as well as induced employment at businesses that depend heavily on its presence — for instance, shops and restaurants frequented by refinery workers. In the past, employees of closed or downsized refineries have tended to take jobs elsewhere in the refinery industry, given the paucity of comparable jobs in other industries. But the number of these jobs is limited, particularly now that more refineries in the state are closing.

REFINERIES ARE AMONG THE TOP SOURCES IN THE STATE OF AIR TOXICS EMISSIONS.

An immediate consequence of the closure announcement, coupled with workers' deep apprehension concerning the availability of replacement jobs, has been the steep and rapid loss of qualified workers at the Refinery, as workers facing job loss seek out other opportunities. The result has been severe strain on Refinery operations — and an associated heightened risk of preventable accidents. As of this writing, the remaining workers have been pushed into working lengthy shifts over long stretches of days. One Refinery insider reported that in March of 2025, employees were working 18-hour shifts. These hours were eventually scaled back to 12-hour days, worked 13 days on and one day off, which is expected to remain their schedule for the duration of the Refinery's operation through its fourth-quarter 2025 closure.

The Refinery closure will also result in a potentially significant diminution of the local tax base. However, data for use in estimating the magnitude of that impact is sparse.

ES 1.4 SITE REMEDIATION AND REDEVELOPMENT

ES 1.4.1 Site Contamination and Remediation

Refinery operations in general can create extraordinary levels of contamination, and the Phillips 66 Wilmington and Carson sites are no exception. The Los Angeles Regional Water Quality Control Board (LA Water Board or Board), which has primary authority for all aspects of site remediation except hazardous waste unit remediation, issued a pollution abatement order to Phillips 66 in 1994 (1994 Abatement Order) concerning the Wilmington and Carson facilities, which the company is still in the process of complying with; as well as a subsequent 2021 order requiring an investigation of PFAS (per- and polyfluoroalkyl "forever chemicals") contamination. The 1994 Abatement Order identifies multiple types of severe contamination at the Refinery, including large underground pools of hydrocarbon liquids, buried hazardous wastes, and extensive groundwater contamination, including highly toxic and carcinogenic BTEX (benzene, toluene, ethylbenzene, and xylene) chemicals — some of which contamination has an ambiguous relationship with nearby drinking water. The groundwater and soil contamination poses possible added risk from the rising water table associated with climate change scenarios.

The LA Water Board has been overseeing investigation and remediation activities at the Refinery sites since issuance of the 1994 Abatement Order. These activities include removal of the underground pools of hydrocarbons, extraction of VOC vapors from soil and groundwater, ongoing groundwater sampling and monitoring, and inspection and testing of existing equipment such as tanks and pipelines to prevent further pollution. The Board has indicated that the ongoing remediation will take many years.

The Board intends to step up investigation and remediation activities in connection with the closure and decommissioning of the Refinery, since it is not possible to conduct significant remediation activities at a facility still in operation, and decommissioning — i.e., removal, cleaning, and safe disposal of the refinery infrastructure — will enable deeper investigation of site contamination. In conjunction with closure and decommissioning, the Board will require development of risk assessments and remedial action plans for both sites, associated with public comment periods. The expectation is that the decommissioning, remediation, and redevelopment timelines will likely overlap to a degree.

The cost of the decommissioning and remediation, and the source of funds to pay for it, are indeterminate at this point. Phillips 66 Securities and Exchange Commission (SEC) filings since the closure announcement estimate $205 million "associated with the expected cessation of operations" at the Refinery, but on its face that reference appears to cover only decommissioning and asbestos removal, and not the long-term cost of soil and groundwater remediation being overseen by the LA Water Board.

ES 1.4.2 Site Redevelopment

Two development companies, Catellus Development Corporation and Deca Companies, have been hired to evaluate redevelopment possibilities at the Refinery sites. The companies have jointly proposed an ambitious project at the Wilmington site, which would include both a commercial and community amenity component in the northern portion of the site, and an industrial component (including fulfillment centers) on the remainder. The stated intention is to initially idle the Refinery rather than immediately decommissioning it, with the intention of waiting until approval of a redevelopment plan before decommissioning is complete. The companies indicated that substantial zoning changes and amendments to associated planning documents would be needed. The City of Los Angeles specified that California Environmental Quality Act (CEQA) review, including a full Environmental Impact Report (EIR), will be required — a process likely to take roughly two to three years. The companies anticipate that the proposed project would be completed sometime between 2037 and 2053.

No such proposal has been filed for redevelopment of the Carson site. However, the City of Carson has taken proactive steps to assert additional control over prospective redevelopment, amending its General Plan to require a new Specific Plan in connection with redevelopment of a closed refinery site (the same approach that Carson took in connection with the closed Shell Carson refinery) and imposing a 10-month moratorium on development applications. This step effectively assures that CEQA will apply to any redevelopment.

The proposal for the Wilmington site does not address how environmental conditions at the site will impact redevelopment, but that impact is potentially significant. While the proposal suggests that decommissioning, remediation, and redevelopment will occur serially, those processes are likely to overlap heavily, leading to the potential for delays. The proposal also does not mention the impact of deed restrictions and the authority of the LA Water Board to determine whether the proposed uses are allowable from a health standpoint. The economic feasibility of the proposed project may also turn on whether Phillips 66 funds and carries out the costly remediation.

Shots with action at Wilmington Refinery, Wilmington, Calif., 1937. SC Digital Library. “Dick” Whittington Photography Collection.

ES PART 2: GOVERNING LAW

ES 2.1 HISTORY AND GENERAL PRINCIPLES

The Phillips 66 Refinery, like its contemporaries, began its industrial life in an era that was largely free from significant regulation. In the intervening time, starting around the 1970s, a myriad of federal and state laws were enacted governing heavy industry operations, addressing both environmental impacts and labor issues. The pattern of these laws has been one of increasing delegation. The federal laws — the Clean Water Act (CWA), the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA), the Occupational Safety and Health Act

(OSHA), and many others — are structured as "cooperative federalism." This means that the federal law sets a floor of standards, but states may deviate upward from those standards and are encouraged to take over implementation in delegated regulatory programs. California now operates delegated programs for all of these federal statutes.

ES 2.2 LAW GOVERNING OPERATION AND WIND-DOWN

The laws governing refinery operation and the wind-down process fall into generally two categories: regulation of environmental and health impacts, and regulation of industrial process safety.

The federal statutes governing air and water emissions — the CAA and CWA, respectively — are administered by the United States Environmental Protection Agency (U.S. EPA), but implemented by California through delegated programs. These programs, in turn, are administered through regional bodies. Air emissions are regulated statewide by the California Air Resources Board (ARB) but regionally by the local air quality management districts (Air Districts), which require, among other things, that major facilities such as the Phillips 66 Refinery obtain CAA Title V permits rolling all of their requirements into one document. Water discharges are regulated at the state level by the California State Water Resources Control Board, which in turn works in tandem with regional water quality control boards, including the LA Water Board.

Hazardous substances and hazardous waste are governed federally largely by RCRA, functioning as a delegated state program and supplemented by California state law. Day-to-day management of hazardous materials and hazardous waste has been further delegated by the state to local agencies via the Certified Unified Program Agency (CUPA) system, which consolidates six major state programs under the CUPAs' management. CUPAs have been established for both the City and County of Los Angeles.

Industrial process safety at refineries is governed by two separate but very similar regulatory programs, one under the authority of the California Occupational Safety and Health Administration (CalOSHA) and the other under the authority of the California Environmental Protection Agency (CalEPA) as part of the California Accidental Release Prevention (CalARP) program. The aspect of these twin programs most relevant to the wind-down of refinery operations is the set of provisions governing management of organizational change (MOOC). The MOOC provisions, triggered by events such as reduced staffing levels or changing shift

duration, could reasonably be interpreted to apply to plans to shut down a refinery. While these provisions trigger an internal assessment, however, there is no requirement that the assessment be delivered to regulators or otherwise made public. Both the CalOSHA and CalARP process safety regulations may be weakened somewhat as a result of an ongoing rulemaking aimed at implementing a recent settlement of a lawsuit challenging them.

THE LAWS GOVERNING REFINERY OPERATION AND THE WIND-DOWN PROCESS FALL INTO GENERALLY TWO CATEGORIES: REGULATION OF ENVIRONMENTAL AND HEALTH IMPACTS, AND REGULATION OF INDUSTRIAL PROCESS SAFETY.

ES 2.3 LAW GOVERNING DECOMMISSIONING AND SITE REMEDIATION

ES 2.3.1 Decommissioning Regulation

The decommissioning process — the cleaning, removal, and safe disposal of infrastructure — involves essentially two sets of rules: state-level regulation, including most notably the air quality rules promulgated by SCAQMD associated with decommissioning operations, and the local government codes (City and County of Los Angeles) governing the demolition process.

At the state level, SCAQMD has promulgated extensive regulation of the pollution generated by the heavy equipment and soil moving associated with demolition and site grading. Applicable SCAQMD requirements include, e.g., equipment permits, fugitive and toxic dust rules, and an asbestos remediation rule. At the local level, the CUPAs have a measure of authority over hazardous materials and storage tank removal, and both the City and County of Los Angeles codes require permits for demolition and site grading. The city and county also have a measure of authority concerning the removal of pipelines that are no longer in use. CEQA applicability may not necessarily be triggered by the decommissioning activities in isolation, although their impact would be considered in any CEQA review of site redevelopment to the extent the decommissioning had not been completed at that stage.

ES 2.3.2 Site Remediation Regulation

Students watch as the Phillips 66 refinery smokes, flares above the schoolyard. Photo by Ashley Hernandez, CBE

Site remediation — the process of removing contamination from the soil and groundwater and closing hazardous waste facilities — is in principle governed by both the regional Water Boards and by the Department of Toxic Substances Control (DTSC), but is largely managed by the Water Boards. Although the Water Boards and DTSC have overlapping statutory authority, the agencies have addressed that overlap at the direction of the California legislature. Thus, at the Phillips 66 Refinery, while DTSC or its CUPA delegees would bring any new action needed to address problems at any RCRA-governed waste management unit (WMU) at the Refinery, and DTSC is managing legacy WMU closures, the LA Water Board is responsible for the remainder of the remediation process.

The regional Water Boards have authority to determine the appropriate remediation level, guided by state policy. While the starting point for that determination is a goal of returning water quality to background levels of contamination, this goal is in practice theoretical, as at most contaminated sites it cannot be met as a practical matter. The real issue is almost always about balancing a set of considerations to determine an appropriate remediation level, a question on which the Water Boards are given broad discretionary latitude. The remediation level determination focuses on economic and technical feasibility, and can involve a decision to establish a “containment zone” in which a less stringent standard will apply. Generally speaking, Water Board determinations concerning water quality protection do not take into account future use of the site, although the Water Board has authority to impose deed restrictions to restrict such future use and future use may be relevant to determining soil remediation requirements.

The LA Water Board has indicated that it will initiate a remediation planning process in response to the Phillips 66 Refinery closure. Specifically, the Board has stated that it will be requiring a full delineation of impacts, a risk assessment, a feasibility study, and a remedial action plan (RAP). The RAP — as well as any containment zone delineation decision — will trigger a public comment period and may be addressed at a public meeting as well as at the Board's discretion.

ES 2.3.3 Purchaser Liability Protection

In 2004, in order to encourage redevelopment of urban brownfield sites, the legislature passed the California Land Reuse and Revitalization Act (CLRRA), which provides that in any incorporated city, a bona fide purchaser of a contaminated site who had nothing to do with creating contamination can enter into a voluntary agreement to conduct the cleanup in exchange for immunity from further cleanup liability. It is possible that a developer purchasing the site from Phillips 66 may choose to take advantage of CLRRA — although the statute sunsets January 1, 2027, so would need to be reauthorized to apply to a purchase that happens after that date.

ES 2.4 LAW GOVERNING REDEVELOPMENT

The possibilities for site redevelopment are defined and bounded by the applicable zoning codes — those of the City of Los Angeles and the City of Carson — whose parameters are governed by state law.

ES 2.4.1 Structure of Zoning Regulations

Zoning codes are required by state law to conform to the local General Plan. State law also defines the required elements of the Plan, which now include an environmental justice element. State law further authorizes local governments to prepare a Specific Plan, which supplants the General Plan for a particular area and adds in an array of standards and requirements applicable to development. Local governments can use other types of documents to supplement the General Plan (e.g., "Community Plans" and "neighborhood plans"), but these lack the force or detail of a Specific Plan.

ES 2.4.2 Amending Zoning Documents

State law defines the process for amending zoning codes, which involves an initial determination by the local planning commission accompanied by public hearings, before the proposed change is referred to the city council. Requirements for amendment of the General Plan — and

by derivation a Specific Plan — are similar, although they may include a few additional elements (e.g., mayoral review, supermajority requirements in some cases).

ES 2.4.3 "Interim Urgency" Zoning

Notwithstanding the usual protracted amendment process, state law also allows for "interim urgency" zoning ordinances. These allow a local government to effectively place a 10-month moratorium on any development that could potentially conflict with a contemplated General or Specific Plan.

ES 2.4.4 Nonconformity

Zoning codes, including those of Los Angeles and Carson, generally allow for continuation of "nonconforming uses" — meaning uses that were once conforming, but no longer are following a change to the zoning map. These continued nonconforming uses are tightly circumscribed, including prohibitions on expansion of the use.

ES 2.4.5 CEQA and Zoning

Most decisions amending zoning and planning documents — including and especially the types of General Plan and zoning code amendments and adoption of Specific Plans that will probably govern the future use of the Phillips 66 Refinery sites — require review under CEQA, and will likely require a full EIR as part of that process. The EIR process is protracted, involving initial scoping, coordination with any "responsible agencies" with discretionary authority over the project, public comment on a draft EIR, and a required response to the comments by the lead agency. It is impossible to reliably predict in advance the duration of the CEQA process associated with a zoning or Plan change, but two years to completion would be an optimistic guess, and three years or longer may be more realistic.

ES 2.4.6 Los Angeles and Carson Implementation of Planning and Zoning

The City of Carson has taken targeted steps under its zoning and planning authority to take control of the redevelopment of the Phillips 66 Carson site. In late 2024, the city council initiated the process of considering a General Plan amendment that would mandate the preparation of a Specific Plan in conjunction with "any redevelopment of a Refinery Site for a new use following cessation of refinery operations," supporting the proposed amendment with an interim urgency moratorium. Los Angeles did not respond in a similar way to the closure announcement, although the Wilmington site development proposal includes voluntary development of a Specific Plan.

Tour of Wilmington neighborhoods near the Phillips 66 refinery. Photo by Anastasia Yulo for APEN.

ES PART 3: KEY ISSUES

The unfolding story of the closure and anticipated redevelopment of the Phillips 66 Refinery offers a window into the set of unique issues and problems that will attend the slowdown and eventual end to petroleum refining in California and elsewhere. Understanding these issues can lay the groundwork for addressing them, both specifically with respect to the Phillips 66 closure but more generally in preparation for anticipated future closures.

ES 3.1 PROCESS SAFETY RISKS IN THE RUNUP TO CLOSURE

The severe staffing shortages at the Phillips 66 Refinery that followed the closure announcement were as predictable as they are dangerous. Similar employee flight occurred in connection with the closure of the Phillips 66 Santa Maria refinery in 2023, yet the company's nego-

tiated contract with labor at the Los Angeles Refinery following the closure announcement did not provide sufficient incentives for employees to remain at the Refinery. The chronic understaffing of refineries headed for closure has serious safety implications for workers and the surrounding community, as refineries run complex and volatile processes that are prone to dangerous accidents when mistakes are made. The connection between understaffing and resultant worker fatigue and the likelihood of accidents is well documented, as well as supported by anecdotal reports.

The MOOC provisions of the CalARP and CalOSHA regulations, although they can reasonably be interpreted as applicable to a refinery closure, are insufficient to adequately address the attendant risks, for multiple reasons:

- *Lack of regulatory clarity*. The applicability of MOOC requirements to refinery closure is not clearly spelled out.
- *Limited requirements*. The MOOC provisions essentially require only internal paperwork.
- Insufficient requirement specificity. The specific issues and problems that attend a refinery closure are not addressed.
- *Limited oversight*. There is no regular interface between operators and regulators to ensure that the MOOC requirements are being properly implemented.
- *Limited enforcement*. Enforcement of the state process safety regulations has been largely limited to monetary fines, and those fines tend to be small.

ES 3.2 UNCERTAINTY AROUND DECOMMISSIONING AND REMEDIATION

The decommissioning and remediation of refineries is extraordinarily under-regulated as compared with other sectors of the energy industry, with almost no standardized processes and requirements around cleanups and how to pay for them. This regulatory vacuum creates multiple types of uncertainty around refinery cleanups.

ES 3.2.1 Uncertainty Around Remediation Levels

The Water Board's ad hoc system in place for determining the appropriate level of remediation for a refinery site following closure may function adequately in many situations, but creates a problematic information deficit for communities and agencies who need to contend

with planning around large-scale refinery cleanups and ensuring sufficient funds to cover them. Compounding the problem is the general lack of study of the cost of refinery decommissioning and remediation, in contrast to the fairly extensive study of the cost of oil well plugging and abandonment. There are also few points of comparison available from other refinery closures — the ongoing cleanup of the Philadelphia Energy Solutions (PES) refinery in Philadelphia is likely a poor model for appropriate approaches given significant concerns with its adequacy to protect the surrounding community.

...REFINERIES ARE THE EXCEPTION, WITH NO REQUIREMENT THAT THEY EITHER MAINTAIN A BOND OR SET ASIDE FUNDS FOR CLEANUP.

ES 3.2.2 Uncertain ARO Costs

Although the SEC in principle requires public disclosure of asset retirement obligation (ARO) costs for publicly traded companies as part of their liability disclosure, loopholes in accounting standards allow companies to decline to estimate ARO costs until closure is actually announced. Even when ARO is finally disclosed in the SEC filings, the basis for the numbers provided is generally unclear, and appears at least facially to include only decommissioning costs (equipment removal and disposal) as opposed to soil and groundwater remediation costs.

ES 3.2.3 Uncertainty Around Cleanup Financing

Although most types of energy infrastructure (including power plants and renewable energy facilities) require that their owners provide financial assurance for decommissioning, refineries are the exception, with no requirement that they either maintain a bond or set aside funding for cleanup. This regulatory gap creates substantial risk that funds will be inadequate to complete the refinery cleanups if the owner becomes unable to — a concern that played out in the PES refinery cleanup, where a Chapter 11 bankruptcy filing shortly after the refinery was idled ultimately concluded with the owner's dissolution. While agencies in principle have the option to pursue cleanup cost reimbursement from both current and past operators, doing so is costly and comes with no guarantee of success.

Phillips 66 refinery and surrounding neighborhood. Photo by Anastasia Yulo.

ES 3.2.4 Uncertainty Around Decommissioning Labor

One important aspect of protecting safety around decommissioning and remediation is ensuring that the workers who execute it are fully qualified to perform it thoroughly and with minimal risk to themselves and the surrounding community. In the case of the Phillips 66 Refinery, it appears that the workers most qualified to execute the process are members of the International Longshore and Warehouse Union (ILWU), who are deeply experienced in hazardous cleanups and receive extensive training and supervision. There is currently no requirement in place, however, that ILWU workers be hired for the job; and there is a risk they may not be given the union versus non-union wage differential.

ES 3.2.5 Uncertainty Around Continued Storage Tank Operations

Phillips 66 has as of yet made no formal announcement of its intention with respect to either closure or continued operation of its storage tanks; and the fate of storage tanks is often left unclear when decisions are made to close. Post-closure operation of tanks can create environmental risks that agencies and communities need full information to prepare for. In one case, at the Marathon Martinez refinery, the continued operation of the storage tanks following refinery closure led to a serious problem with flaring at the tanks, resulting in a hefty fine from the local Air District.

ES 3.3 INADEQUATE COMMUNITY INPUT IN REDEVELOPMENT DECISIONS

Communities have some inherent leverage over redevelopment by virtue of local planning and zoning authority — although to the extent a proposed development project were compatible with existing zoning, local authorities may have limited discretionary authority to reject it. However, even when rezoning is required, a primary obstacle to community influence over the project is timing. Typically, developers will present their application as a fully fleshed out proposal, which constrains the scope of the attendant CEQA process. While CEQA requires consideration of project alternatives, the developer's initial filing can generally define the scope of alternatives through its definition of the project's purpose. The City of Carson has taken important steps toward interrupting this type of bureaucratic momentum with its proposed requirement to develop a Specific Plan for closed refinery sites — although even that structure potentially puts significant power in the hands of the developer to initially define the contents of the Plan, as appears to be happening with the Wilmington site.

ES 3.4 LACK OF COORDINATION STRUCTURES

Review of the legal authorities and requirements surrounding the closure and redevelopment of the Phillips 66 Refinery makes clear that there are a lot of cooks in the kitchen. Multiple regulatory agencies at every jurisdictional level — federal, state, and local — are either potentially or already involved in the process. In many cases, agency authority is in principle overlapping; and in many others, agencies' actions influence and impact other agencies' actions. There are also the community stakeholders, whose range of interests is not necessarily represented by any governmental entity; as well as labor associated with both refinery operation and wind-down and site remediation.

Given this array of stakeholders, there is a risk that lack of structured coordination could result in paralysis or enable chaos. Currently, however, there are no collaborative structures in place that are adequate to meet the formidable coordination challenge posed by the Refinery closure. An early coordination resolution from the City of Los Angeles failed to include any of the agencies with actual authority over the closure and redevelopment. There have been efforts to structure collaboration around redevelopment of former oil well sites, none of which provide a turnkey model, but which could potentially be adapted and expanded to address refinery closures.

ES 3.5 LACK OF A TRANSITION SAFETY NET

Any time a major industry closes down in a community that has come to depend on that industry, there will be economic and social repercussions. These transitions invariably impact both workers and communities, inextricably and in tandem, as they struggle together to find new direction in the absence of the industry they were dependent upon. In this and other similar industrial transition contexts, it has been repeatedly made clear that the workers and communities need an economic safety net to bring them through the transition — supporting a training and readjustment for the workers and economic diversification for the community.

At this juncture, it is difficult to predict how the transition will play out in Wilmington and Carson, or in Benicia and other communities that may face refinery closures in the future; but we know enough to understand that some significant disruption will occur. 900 refinery workers will be displaced, together with uncounted indirect and induced employment impacts; and tax revenues will be diminished. While there are potential paths forward for workers and the community — the workers may be able to retrain for jobs in related sectors, and the community can in principle diversify its economy — both need a safety net during the transition period, as well as guidance and assistance with the transition. While both the City and County of Los Angeles passed resolutions in the fall of 2024 seeking to coordinate assistance for displaced workers, the types of assistance contemplated do not include the significant funding needed to directly support workers and communities in transition.

ES 3.6 INFORMATION DEFICIT

If information is power, then power to address the Phillips 66 Refinery closure — and refinery closures more generally — is in deficit. While there have emerged occasional broadly framed analyses of the issue of refinery closures generally, and two case studies of other refinery closures, there has been no in-depth technical analysis to date concerning the local impact of refinery closures either on the macro level (statewide or nationally) or specifically concerning Los Angeles-area refineries.

Study is particularly needed concerning the magnitude and impact of both direct and indirect/induced employment loss, quantification of tax base impacts, anticipated cleanup costs and timeline, and potential new industries appropriate to former refinery communities. The report (Report and Recommendations) and associated technical analyses conducted with respect to Contra Costa County refineries, funded by the California Workforce Development Board's High Road Training Partnerships (HRTP) Program (collectively, Partnership Studies), provide an example of some of the needed analyses.

Maria Serafín, a Wilmington resident, speaks out for a full cleanup of the refinery, August 2025. Photo by Anastasia Yulo for APEN, CBE.

ES PART 4: RECOMMENDATIONS

The closure of refineries creates novel and major challenges for communities and workers. But these challenges are not insurmountable. The issues raised by the Phillips 66 closure, as cataloged in this report, also highlight multiple opportunities at the state and local government levels to meet the challenges head-on with policy solutions.

ES 4.1 RECOMMENDATIONS CONCERNING PROCESS SAFETY RISKS IN THE RUNUP TO CLOSURE

Recommendation No. 1: Enact industrial process safety requirements specifically addressing refinery closure.

Additional industrial process safety provisions for refinery closure should be created to achieve the following:

- Clearly apply to closure and long-term idling (as opposed to more generally applying to permanent organizational changes).
- Require planning that takes into account and manages employee departures in the runup to closure.
- Prioritize employee retention as a risk management strategy.
- Develop procedures to address understaffing to the extent it cannot be avoided.
- Require both long-term planning for a hypothetical closure for all refineries and a more detailed and situation-specific response to an announced closure.
- Define specific and rigorous risk assessment techniques for use in analysis of closure risks, including Hierarchy of Hazard Controls Analysis (HCA).
- Require timely reports made directly to enforcement officials of actions taken with respect to closure preparation, as opposed to mere internal retention of information.
- Define and facilitate rigorous enforcement for non-compliance, including enhanced penalties and injunctive relief.

Recommendation No. 2: Develop best practices for employee retention in the runup to closure.

Either state or local government should, in close collaboration with labor representatives, develop a set of standardized best practices for retaining refinery employees during the runup to closure. These best practices should include, at minimum, extended severance periods accompanied by job training, job placement assistance, and related transition assistance.

ES 4.2 RECOMMENDATIONS CONCERNING UNCERTAINTY AROUND DECOMMISSIONING AND REMEDIATION

Recommendation No. 3: Mandate disclosure of full ARO cost for all refineries.

In the absence of a clear SEC requirement for refineries to disclose their AROs prior to a closure announcement, state government should create a requirement that they do so. The mandate should include disclosure of both decommissioning and remediation costs, full disclosure of the basis for the ARO calculation (which should include any default cost and timeline estimates developed by the Water Board pursuant to Recommendation No. 4), a requirement for an open and collaborative multi-agency process around development of the disclosure, and a near-term deadline for it to be completed.

ALL REFINERIES, WHETHER THEY HAVE ANNOUNCED CLOSURE PLANS OR NOT, SHOULD BE REQUIRED TO DEVELOP A PUBLICLY-AVAILABLE PLAN FOR DECOMMISSIONING AND SITE REMEDIATION.

Recommendation No. 4: Develop default technology standards for refinery site remediation.

State agencies, including the Water Board in cooperation with DTSC and the CUPAs, should develop a default set of decommissioning and remediation technology standards associated with various types of contamination, together with default timelines for their implementation.

Recommendation No. 5: Require all refineries to develop a decommissioning and site remediation plan.

All refineries, whether they have announced closure plans or not, should be required to develop a publicly available plan for decommissioning and site remediation, approved by the relevant regional Water Board.

Recommendation No. 6: Implement stronger financial mechanisms to provide for cleanup costs.

Refineries should be required to provide funds or third-party guarantees to cover ARO costs. There are two optimal and non-mutually exclusive means of implementing this recommendation:

- State level: require creation of an independently managed fund. The fund would need to be kept separate from the refinery owner's day-to-day operating funds.
- Local level: impose a new or increased tax on refineries. The tax may take the form of an increase to an existing tax, e.g., a utility user tax or business license tax; or may introduce a new basis for taxation (including via an existing tax structure), such as a per-barrel tax on petroleum processing.

Recommendation No. 7: Encourage use of unionized labor for decommissioning and remediation.

Governments should encourage use of union labor in site decommissioning and remediation operations, by establishing state and local standards for worker training, and, where public funds are in play, requiring that the funds be tied to an agreement to employ union labor.

Recommendation No. 8: Define requirements for continued storage tank operation.

The California Energy Commission (CEC) should require that notice of intention to close a refinery, provided a year in advance pursuant to SBX 1-2, include a clear statement as to whether any storage tanks associated with the refinery (including any on an associated wharf) will continue in use after the closure, and whether any vapor recovery from those tanks fuels refinery processes. To the extent continued use of the tanks is contemplated, the regional Air District should require as needed a plan to control emissions.

ES 4.3 RECOMMENDATIONS CONCERNING COMMUNITY INPUT IN REDEVELOPMENT DECISIONS

Recommendation No. 9: Implement zoning changes in advance of refinery closure.

Local governments hosting refineries should proactively re-zone the refinery property to reflect the desired redevelopment use before any closure is ever announced, leaving the refinery an indefinite non-conforming use until it closes. The process communities should follow would include the following elements:

- Seek extensive public input on community goals and desires for redevelopment of the refinery site.
- Based on the input received and assistance from appropriate design professionals, develop a community vision for site redevelopment.
- Determine the General Plan and/or zoning code changes that would be needed to permit implementation of the community vision.
- Propose the needed changes in appropriate order, as needed through General Plan amendments and/or development of a Specific Plan, followed by zoning changes that allow the refinery to continue to operate as a nonconforming use.
- Conduct the required CEQA review concerning the proposal.

An oil pumpjack bobs in a Wilmington neighborhood; in the background, neighbors play baseball. Photo by Gissela Chavez, CBE.

Recommendation No. 10: Require a Specific Plan in connection with any proposed site redevelopment (alternative approach).

To the extent a government is faced with a refinery closure before it has had a chance to implement Recommendation No. 9, it should employ the strategy used by the City of Carson: require preparation of a Specific Plan in connection with proposed redevelopment of a refinery site, buying time to consider that requirement as necessary through an interim urgency ordinance that places a temporary moratorium on all redevelopment applications. Ideally, the local government would itself propose the Specific Plan, based on community input.

Recommendation No. 11: Require a community benefit agreement in connection with refinery site redevelopment.

Communities addressing refinery site redevelopment should encourage use of legally enforceable community benefit agreements (CBAs) negotiated between the developer and the community, memorializing both monetary benefits and community protections. CBAs should be mandated by ordinance for public-private partnership projects, and can also be encouraged in other ways. It is important that any CBA requirement be crafted to ensure broad community involvement, and that any agreement represents maximum community consensus.

ES 4.4 RECOMMENDATIONS CONCERNING LACK OF COORDINATION STRUCTURES

Recommendation No. 12: Launch a task force to coordinate among government agencies and stakeholders.

The state and/or local governments should support creation of a task force around refinery closure and redevelopment that brings to the table the multiple interested agency, community, and labor stakeholders. A state mandate would ensure the presence of the relevant state agencies, although a local mandate could likely be put in place more quickly.

ES 4.5 RECOMMENDATIONS CONCERNING LACK OF A TRANSITION SAFETY NET

Recommendation No. 13: Adopt, at minimum, the worker and community safety net provisions in the HRTP Report and Recommendations

The HRTP Report and Recommendations contains extensive recommendations for creation of a worker and community safety net, incorporated here as recommendations. These include creating financial support for worker transition, addressing refinery workers' need to share their training and employment records with prospective employers, outreach and incentive programs to encourage hire of impacted refinery workers, and local community recovery and transition funds. In addition, local government should consider establishing rapid response centers to meet urgent worker needs.

ES 4.6 RECOMMENDATIONS CONCERNING THE INFORMATION DEFICIT

Recommendation No. 14: Fund and conduct studies filling information gaps concerning the local impact of refinery closures.

Analysis similar in scope to the Partnership Studies should be prepared for the Los Angeles area and other counties in the state hosting refineries. Data and analysis is particularly needed concerning tax base impacts of refinery closure, direct and indirect/induced employment impacts of closure, local re-employment opportunities, and community economic diversification opportunities.

Seng, an APEN organizer, speaks at an APEN toxic tour. Photo by Anastasia Yulo for APEN.

INTRODUCTION

Until very recently, oil refineries have seemed like a permanent part of California's industrial landscape. The first one in the nation was built in 1850,[1] and most California refineries have been in existence and supporting our dependence on petroleum products since the early 20th Century.[2]

Now, that perceived permanence is starting to crumble. In only the past decade, refineries in California and across the country[3] have one after another ceased processing petroleum or shut down altogether. This report revolves specifically around the announced closure of the Phillips 66 Los Angeles refinery (Phillips 66 Refinery) by the end of 2025.[4] But that announcement came in the context of multiple recent announcements by other refineries of plans to get out of the business. There were the 2020 announcements by two large Bay Area refineries, Phillips 66 Rodeo and Marathon Martinez, to cease processing petroleum and pivot to renewable diesel production.[5] The Phillips 66 Los Angeles announcement in October 2024 of a fourth quarter 2025 closure was followed only months later by the April 2025 closure announcement by the Valero Benicia refinery — which contained hints that the company's Wilmington refinery could be next.[6]

The forces driving these closures are mixed, but essentially all market-based rather than regulatory. Although many have been quick to mention the closure and California's legislation aimed at controlling gas prices[7] in the same breath,[8] most of the recent closures and pivots predated that legislation; and Phillips 66 spokespeople were clear that the legislation was not the reason for the closure, pointing instead to vaguely worded economic factors.[9] What we know is that in our current "mid-transition" period[10] in the shift away from fossil energy, demand for gasoline is declining in California,[11] the United States,[12] and worldwide[13] as multiple states and nations pursue greenhouse gas reduction goals; and that there are varied market and logistical pressures potentially facing refineries statewide[14] and around the world.[15]

It is reasonable in this context to anticipate that more refinery closures may potentially happen in the near to medium term. In the longer term, we can anticipate that a large number of California refineries will eventually close to the extent the state achieves its vehicle electrification goals and demand for fossil transportation fuel declines accordingly.[16]

The reaction to the recent closures and the prospect of more down the road has been mixed. The Newsom administration is openly apprehensive, and has ordered the California Energy Commission (CEC) to do what it can to maintain transportation fuel supply.[17] Refinery workers, threatened with the loss of well-paying union jobs, are likewise apprehensive.[18] Meanwhile, many people living in refinery communities — those who have been living for decades with the deadly air pollution and frequent accidents associated with refineries[19] — are hopeful that redevelopment that is non-destructive of their health will rise up in their place. And local governments in those communities, even while supportive of that goal, worry whether the redevelopment will replace the tax revenue they stand to lose from refinery closures.

But what is now clear to everyone, regardless of varying perspectives on the closures, is that we need to better prepare for them. It is understandable that the closure of the Phillips 66 Refinery, and more recently the Valero Benicia refinery, has caught their host communities by surprise.[20] But the next time a closure happens, we should expect it; and we now have the ability to draw lessons from the Phillips 66 Refinery closure and other past closures in preparing for it.

The need to prepare for a refinery closure is especially vital given that refineries are uniquely under-regulated among energy infrastructure. This is in large part due to their age.[21] Some have existed longer than their local communities, and most pre-date the regulatory ecosystem that has guided more modern infrastructure development — including land use and permitting requirements, the operational regulatory structure that governs utilities, and the pervasive closure and decommissioning requirements that govern most modern energy infrastructure development.[22]

Despite the urgency of the need to understand and prepare for refinery closures, study of the matter has been somewhat limited.23 The pivot of the two Bay Area refineries to biofuel production did prompt a state-funded regional study focused on Contra Costa County.24 The disastrous closure of the Philadelphia Energy Solutions (PES) refinery also inspired a smaller-scale lessons-learned study.25 Overall, however, there is not yet a robust body of research and recommendations to guide communities, labor, and other stakeholders reliably through these transitions.

Certainly, some refinery communities are starting to more aggressively prepare for the prospect of closure. The City of Richmond, California, which hosts the Chevron refinery, has battled the headwinds of complacent dependence on the company to push for enhanced tax revenues from it, which are now potentially available to fund the city's transition to a more diversified economy.26 But much more can be done and needs to be done.

This report will use close analysis of the Phillips 66 Refinery closure as a springboard for thinking through the larger question of what refinery communities should expect when a closure occurs, and what they can do to prepare for it. The report is divided into four parts, as follows:

- ***Facts on the ground.*** *This section will provide factual background concerning the planned Phillips 66 Refinery closure — including the Refinery's history, impacts over time on the community, site contamination, and emerging plans for site cleanup and redevelopment.*
- ***Governing law.*** *This section will describe the regulatory system governing the wind-down, closure, and redevelopment process — the law applicable to current operations, worker safety, site decommissioning and remediation,*[27] and redevelopment planning.
- ***Key issues.*** *This section will catalog the key issues that have either arisen already with respect to the Phillips 66 Refinery closure, or may reasonably be anticipated to arise either in that situation or in future refinery closures based on analysis of governing law and other experiences with closures.*
- ***Recommendations.*** *This section will present recommendations to potentially mitigate some of the identified issues and concerns.*

The report will focus primarily on California, starting with the Wilmington neighborhood and City of Carson communities where the closing Phillips 66 Refinery is located, and moving outward to statewide analysis in the discussion of issues and recommendations to address them. The analysis and recommendations in this report can be applied in a more general way to refinery closures that can be anticipated to occur elsewhere in the United States as we move inevitably away from fossil fuels toward a clean energy future.

Children play at a Wilmington Waterfront park. Photo by Gissela Chavez for CBE.

PART 1: FACTS ON THE GROUND

This Part will lay out the facts relevant to understanding the Phillips 66 Refinery closure and what will follow. It will address, in turn, history and facts about the Refinery, the communities that host it, the closure and its impact on labor and the communities, contamination at the Refinery sites and ongoing efforts to remediate it, and plans around site redevelopment.

1.1 THE REFINERY

The Phillips 66 Refinery sits on two separate sites: one situated in the Wilmington neighborhood of the City of Los Angeles, near the Port of Los Angeles (Port) and about 15 miles southeast of LA International Airport, and the other situated a few miles away in the City of Carson.

The Carson portion of the Refinery, built in 1923 and expanded in the 1980s, does the initial-stage crude oil processing, while the Wilmington portion of the Refinery, in operation since 1919, receives via pipeline the intermediate products produced at Carson and turns them into finished products.[28] The Wilmington and Carson portions of the Refinery operate at a combined capacity of 139,000 barrels per day.[29]

A FEDERAL GRAND JURY RETURNED AN INDICTMENT AGAINST PHILLIPS 66 FOR ILLEGALLY DUMPING HUNDREDS OF THOUSANDS OF GALLONS OF INDUSTRIAL WASTEWATER... INTO THE LOS ANGELES COUNTY SEWER SYSTEM.

The Refinery today mainly produces ARB-grade gasoline and diesel and aviation fuel and byproducts such as petroleum coke (petcoke), propane, and butane. It also produces substantial elemental sulfur, generally used in agriculture, pharmaceuticals, and chemical manufacture[30]; as well as food-grade carbon dioxide.[31]

The history of the two Refinery sites includes both multiple ownership changes and more than one fire — both of these being endemic to the California petroleum refining industry.[32] A few years after Standard Oil became the first major oil company to open a refinery in Southern California — the El Segundo refinery (now owned by its corporate descendent Chevron) that commenced operation in 1911— Union Oil built the Wilmington refinery on the site of a landfill project, taking advantage of its location near the Port.[33] The Wilmington operation was connected by pipeline originally to the company's drilling operations in Brea, but after those operations were devastated by a 1926 explosion and fire, the smaller Carson refinery was built. The Refinery was acquired over time by Tosco in 1997, and by Phillips Petroleum Co. in 2001. Phillips merged with Conoco shortly after that to become ConocoPhillips, but ConocoPhillips subsequently decided to spin off its refineries into Phillips 66 — citing falling profits from refining operations.[34]

The Phillips 66 Refinery has been the subject of several notable recent environmental enforcement actions. In November 2024, a federal grand jury returned an indictment against the company for illegally dumping hundreds of thousands of gallons of industrial wastewater, containing a concentration of oil and grease more than 300 times the allowable concentration limit, from the Carson facility into the Los Angeles County sewer system.[35] Prior to that, in 2020, the legal advocacy organization Earthjustice brought suit on behalf of East Yard Communities for Environmental Justice, an environmental justice organization based in the community of Commerce, alleging that the company had failed to fix leaks of carcinogenic benzene and other toxic volatile organic compounds (VOCs) at the two facilities. The lawsuit was settled in 2021.[36] In 2019, the Refinery paid a penalty for violating the regulations governing California gasoline formulation.[37] The Refinery was also the subject of an U.S. Environmental Protection Agency (U.S. EPA) investigation concerning the 2019 fires at the Carson facility.[38]

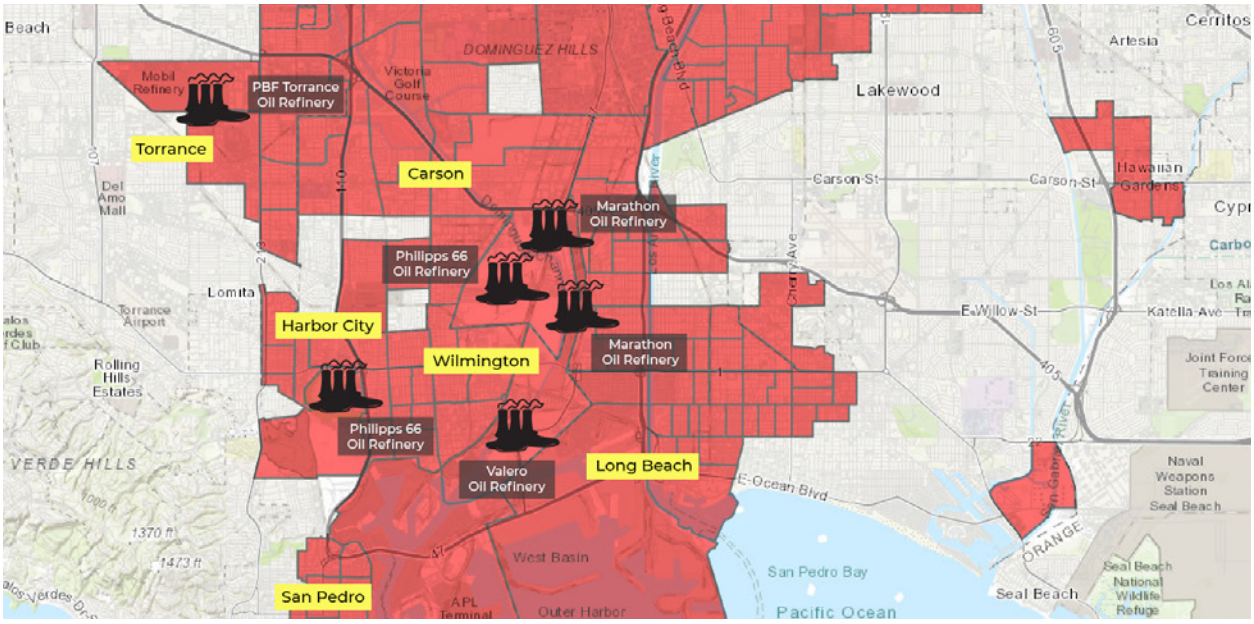
1.2 THE COMMUNITIES

Wilmington and Carson, host to the two parts of the Phillips 66 Refinery, differ some in their geography, population, and government but share important similarities as refinery host communities. Carson is one of the more recently formed cities in Los Angeles, incorporated in 1968, while Wilmington is one of the oldest communities in the area, showing up as a township in the 1870 census,[39] but is not incorporated separately. It is a neighborhood of the City of Los Angeles, despite a degree of geographic and cultural isolation from the city.[40] Both communities are demographically vulnerable and deeply affected by the heavy industry in their midst, dominated by the refineries and the nearby Port.

1.2.1 Community Demographics

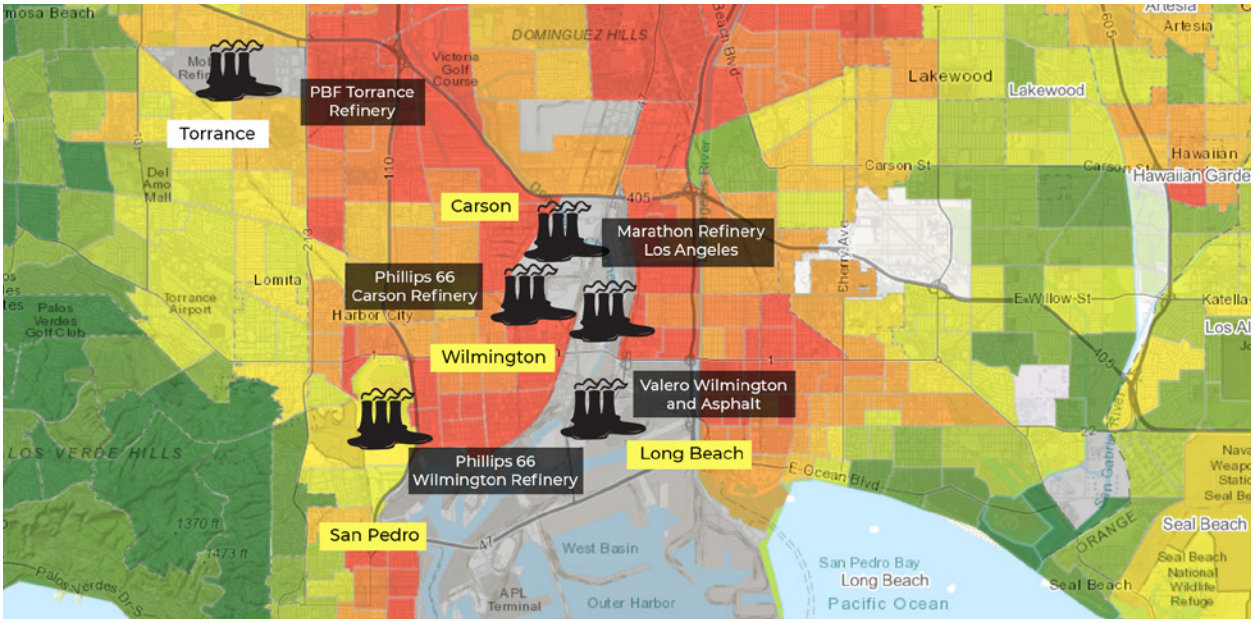
The populations of both Wilmington and Carson communities are economically, socially, and structurally disadvantaged. Both communities are primarily populated by people of color. The Wilmington neighborhood (population roughly 54,000[41]) is approximately 90 percent Hispanic,[42] with a heavy portion of those representing a migrant community; and Carson (population 91,139[43]) is 39 percent Hispanic, 27 percent Asian, and 23 percent Black.[44] As shown in figure 1, the Wilmington and Carson are both largely disadvantaged communities as defined by SB 535.[45]

FIGURE 1: SB 535 TRACTS (SHOWN IN RED)



And as shown in figure 2, CalEnviroScreen, a tool for assessing pollution vulnerability that takes into account environmental, health, and socioeconomic data to produce scores by census tract, shows the tracts near both the Wilmington and Carson refineries with consistently high scores, in many cases in the 90th percentile or greater as compared with the rest of the state. One Wilmington census tract scores 99, and two near the Carson site score 98.[46]

FIGURE 2: CALENVIROSCREEN TRACTS



CalEnviroScreen 4.0 Results

> 90-100 (Highest)	>80-90	>70-80	>60-70	>50-60	>40-50	>30-40	>20-30	>10-20	>0-10 (Lowest)

1.2.2 Community Economics

Wilmington and Carson are both located at the crossroads of heavy industry. An estimated 40 percent of all U.S. imports move through the nearby Port, a total of more than 10 million containers — a large number of which are trucked up the adjacent Interstate 110.[47] Consequently, both are heavily industrial, with economies that substantially revolve around the refineries and the Port. In both communities, despite the presence of some non-manufacturing industry,[48] heavy industry predominates, with the refineries looming large —physically and metaphorically. In Wilmington, upwards of 18 percent of the total land area is taken up by oil refineries, which is more than 3.5 times more than is dedicated to public green spaces, according to analysis by *Grist*.[49] The industrial domination has also left a legacy of undeveloped industrial brownfields, particularly in Carson.[50]

In keeping with the relentlessly familiar pattern of environmental injustice, the community demographics described above are closely associated with the industrialization of Wilmington and Carson, which rapidly expanded over the course of the 20th century. The industrialization resulted in white flight, with white residents selling their homes and moving to the neighboring cities of Palos Verdes Estates and Rancho Palos Verdes.[51] Poverty and economic distress in the refinery communities were also driven by extensive redlining that drove down residents' property values and limited housing options.[52]

1.2.3 Refinery Pollution in the Communities

The pollution from the Phillips 66 Refinery is heavy, toxic, and historically underestimated. The U.S. EPA Toxics Release Inventory (TRI) reports total on- and off-site toxic chemical releases from the Carson facility at 71,826 pounds,[53] and from the Wilmington facility at 260,364 pounds.[54] Refineries, including and especially the Phillips 66 Refinery, are a particularly large source of air toxics. The Center for Public Integrity reports that seven California refineries were among the top 10 industrial sources statewide for both greenhouse gas and toxic air emissions[55]; and advocates have stated that refineries contribute about 32 percent of total VOCs in Wilmington, Carson, and West Long Beach.[56]

The VOC numbers associated with the Phillips 66 Refinery appear to have been chronically undercounted over time. A 2017 South Coast Air Quality Management District (SCAQMD or Air District) report, based on optical sensing analysis, concluded that VOC emissions from the Wilmington and Carson facilities, together with two other nearby refineries, were 2.7 to almost 12 times higher over a 2 ½-month period than had been assumed, with benzene emissions undercounted by factors ranging from 3.2 to 202.[57] Periodic fires and accidents at the refineries add further to the pollution burden.[58]

The refinery-generated pollution in the Wilmington and Carson communities is also cumulative with the heavy industrial- and transportation-related pollution that pervades the area. Residents are simultaneously affected by heavy industrial emissions from the multiple other refineries in the immediate area, emissions from the Port, and the pollution associated with the heavily trucked interstates 110 and 710. The local area has some of the dirtiest air in the state.[59]

Pollution from the Phillips 66 Refinery, in particular the Wilmington portion[60] — exacerbated by the region's cumulative pollution levels — is a large contributor to health problems in the surrounding communities. Both communities suffer from high asthma rates.[61] Wilmington residents' cancer rate is more than 1.5 times higher than in the Air District as a whole,[62] and ProPublica analysis of data from the EPA estimated that the Los Angeles Refinery is responsible for 87 percent of the excess cancer risk from stationary sources.[63]

1.2.4 Community Relationship with the Refinery

The Phillips 66 Refinery is a deeply felt presence for its neighbors. It is readily visible from the highway and generally brightly lit up "like Disneyland at night," according to one community advocate.[64] The same advocate, who has long fought for protection for local residents from the Refinery's health impacts, described the Refinery as a landmark, a "poster child" for refinery impacts on the local community, and "a number one stop for [community-led] toxic tours."[65] Perhaps the best representation of the Wilmington facility's dual role as public landmark and public health threat is the giant grinning pumpkin (known to locals as "Smilin' Jack") that has been painted on Tank #306 every Halloween for the past 73 years — a tradition that arose when workmen were painting the tank the year after the January 1951 gasoline tank explosion that injured 16 employees and created a blaze visible for miles.[66]

Both Carson and Wilmington have residential communities situated in close quarters with the Refinery. The Carson Refinery site is a little over a mile from a residential neighborhood, and the Wilmington site is separated from the neighboring residential community by only a 12-foot-high fence. That arrangement arose in the early years of Wilmington's history when its founder, Phineas Banning,[67] sought to ensure that oil industry workers could live as close as possible to their workplaces.[68] The refinery-adjacent community grew rapidly, but eventually found itself sandwiched between the Refinery and the north-south freeways that sprang up mid-century.

Phillips 66 refinery. Photo by Gissela Chavez for CBE.

Wilmington and Carson have developed the type of fraught relationship with the Refinery that is common in refinery communities. They are home to residents whose economic livelihood has depended on the facility, directly or indirectly; to community organizations — including churches, schools, recreational facilities, and the local Boys and Girls Clubs — who are subsidized by it; and to community members who suffer the health and safety harm associated with proximity to refining operations, as well as severe quality of life impacts.[69]

Since harmful pollution is often invisible and public education inconsistent, residents have sometimes had a mixed understanding of how the Refinery affects their health and quality of life and what can be done to push back. Some have noted that the heavily immigrant population in the communities suffers from a fear of retribution against complainants.[70] But on the whole, many residents are acutely aware of the higher rate of cancer, respiratory illness, and death in their community, and have long worked to address it.[71] Local activists have had significant success in moving regulatory authorities to take action to mitigate the Refinery's harmful impacts.[72]

1.3 THE CLOSURE

On October 16, 2024, Phillips 66 announced its plan to close the Refinery in the fourth quarter of 2025.[73] The announcement, provided consistently with the new CEC requirement that refineries provide notice of closure plans a year in advance,[74] provided little information about the reason for the closure or the company's plans for the site, other than naming the companies who will manage the redevelopment and offering assurances that the company will "take the necessary steps to meet our commercial and customer demands."[75]

The company has been ambiguous about the planned scope of the closure and the meaning of its vague assurances in the closure announcement that it will continue to assist the state with its transportation fuel needs. An August 2025 redevelopment proposal indicates an intention to remove all tanks from the Wilmington site, but it appears the company may intend to keep its tanks at the Port in place. No public statement has been made regarding the tanks on the Carson site. When the Marathon Martinez refinery closed, its tanks at the nearby wharf remained in operation (resulting in a fine for significant flaring, as described in Section 3.2.5), and tank capacity could in principle be kept in operation at the Los Angeles Refinery as a means of ensuring sufficient inventory as required by recent legislation.[76]

The closure is anticipated to significantly affect both the local communities and the Refinery workers in multiple respects.[77]

1.3.1 Impact on Employment

While the closure announcement came as a relief to the communities hit hardest by the Refinery's pollution,[78] it was a blow to the 900 workers — approximately 600 employees and 300 contractors — who operate the Refinery.[79] Few comparable jobs are available to these workers. Refinery industry jobs are the type of blue-collar manufacturing jobs that used to be a cornerstone of the U.S. economy but are now increasingly rare: well-paid union jobs with good benefits and no college degree generally required.[80] The wages and benefits associated with these jobs have been negotiated over decades in the industry,[81] in which workers have a long history of being willing to strike for better working conditions.[82] According to the U.S. Bureau of Labor Statistics, oil refinery workers in Los Angeles County (including management positions) make over $197,000 per year on average, as compared to $92,160 for all private sector jobs in California.[83]

In addition to the directly employed Refinery workers, there is indirect employment associated with the Refinery such as chemical suppliers, shipping, and trucking; as well as an indeterminate amount of induced employment at businesses that depend on its presence such as, for instance, shops and restaurants frequented by refinery workers. Generally speaking, refineries have been shown to be one of the largest "employment multipliers" — meaning creator of indirect employment — out of all industries.[84] The Economic Policy Institute estimates[85] the employment multiplier for the petroleum refining industry to be 14.5, meaning one direct job in an oil refinery creates at least 14.5 jobs in the remainder of the economy.[86] No data has been collected as to refinery-related indirect or induced employment in Los Angeles County and the anticipated consequences of the Phillips 66 refinery closure on them.

THE CLOSURE IS ANTICIPATED TO SIGNIFICANTLY AFFECT BOTH THE LOCAL COMMUNITIES AND THE REFINERY WORKERS IN MULTIPLE RESPECTS.

In the past, employees of closed or downsized refineries have tended to take jobs elsewhere in the refinery industry, given the paucity of comparable jobs in other industries. But the number of these jobs is limited, particularly now that more refineries in the state are closing.[87] A close study of the aftermath of the Marathon Martinez pivot to bioenergy refining, which was associated with substantial downsizing, found that in a survey conducted a little over a year later, roughly three-quarters of the laid-off employees had found new jobs — but with a substantial cut in pay.[88] Phillips 66 Refinery workers have identified utility industry jobs (electrical power, wastewater treatment, etc.) as roughly comparable possibilities that could utilize a skill set held by some of them, although these are some of the same types of jobs that the former Marathon Martinez workers took at a cut in pay.[89] In any event, these readily transferrable skills are generally more the province of maintenance workers — whose experience with piping, valves, and the like is useful outside the refinery context — than of refinery operators, who are highly capable at managing dangerous operations but whose skills are not well understood in other industries.

There may potentially be some additional new employment associated with the site cleanup and redevelopment. However, there is no guarantee that union labor will be hired to complete

the Refinery decommissioning, as discussed in Section 3.2.4; and any construction jobs associated with redevelopment will likely emerge only many years down the road.

APEN's Carson town-hall, August 2025. Photo by Anastasia Yulo for APEN.

In the aftermath of the closure announcement, both the City and County of Los Angeles passed measures aimed at assisting the displaced workers. Los Angeles County Supervisors Janice Hahn and Holly Mitchell, recognizing the "abrupt transition" the workers were facing, drew up a motion[90] directing the county's Department of Economic Opportunity to report back with a written action plan to assist affected workers with job training and placement. The motion passed December 3, 2024,[91] but to date no action plan has been made public. City Councilmember Tim McOsker proposed a motion, passed October 22, 2024, requiring the city's Economic and Workforce Development Department to "prepare a transition plan to assist workers" affected by the closure, including "opportunities to reskill and upskill workers for new economy jobs." The Department reported back in June 2025 concerning its progress and plans for providing additional transition assistance.[92]

1.3.2 Impact on Refinery Operations

An immediate consequence of the closure announcement, coupled with workers' deep apprehension concerning the availability of replacement jobs, has been the steep and rapid loss of qualified workers at the Refinery. Workers who have received job offers since the closure announcement are, quite naturally, eagerly accepting them, knowing that their current positions are about to end.

The result has been severe strain on Refinery operations. The remaining workers are being pushed into working lengthy shifts days on end, over long stretches of days. One Refinery insider reports that in March of 2025, employees were working 18-hour shifts. These hours were eventually scaled back to 12-hour days, worked 13 days on and one day off, which is expected to remain their schedule for the duration of the Refinery's operation through its fourth-quarter 2025 closure.

While those exhausting hours are somewhat typical of shifts during a refinery turnaround, when there is need to get a refinery back online as soon as possible, they are not at all typical of long-term regular operations. As discussed in Section 3.1, there is significant evidence that these extended hours can lead to operator fatigue, which in turn risks significant accidents with the sensitive and volatile equipment associated with refinery operation. The Refinery insider described the situation as of April 2025 as "still a crisis," with people "still jumping ship." Refinery workers report that even management doesn't know exactly how much overtime people are working because the company's administrative personnel are leaving as well. One of them noted that few employees took advantage of a job fair offered them early on by the city with 20 agencies present, because they were too overworked to take the time off needed to attend it.[93]

The root of the problem, according to multiple Refinery workers, is that Phillips 66 management was unwilling to offer the level of incentives needed to persuade employees to stay until the Refinery is closed. The amended contract terms offered following the closure announcement — a time when employees had limited bargaining power — provided no assurance against pre-closure layoffs, offered severance only to salaried but not hourly workers, and structured the payments as an end-of-quarter bonus. As a result, the Refinery started losing first the employees it could least afford to lose, including the most senior and experienced people, who in many cases opted for retirement, and the hourly workers essential to day-to-day operation. According to some, the end-of-quarter payment system only made matters worse, as it incentivized workers to stay only through the end of the quarter before taking other jobs. There was concern as well that the company's initial approach to worker retention was coercive rather than incentive-based, involving the withholding of employee work records, according to interviewed workers.

1.3.3 Impact on Tax Revenue

The closure of the Los Angeles Refinery will reduce tax revenue in Wilmington and Carson, but the extent of the anticipated diminishment of the tax base is unclear. The data on this issue is sparse in general,[94] with the recent study conducted in Contra Costa County concerning refinery closures there containing some of the little data that exists regarding closure tax base impacts in California.[95]

In the absence of a Los Angeles-area equivalent of the Contra Costa County study, there are only bits and pieces of information publicly available from which to estimate potential tax base impacts. We know that the Phillips 66 Refinery is subject to property taxes in both Los Angeles and Carson[96]; that the City of Los Angeles imposes in addition a tax on wholesale sales and the fire department special tax[97]; and that Carson passed a ballot measure in 2017

imposing an Oil Industry Business Tax on the refineries,[98] which is projected to bring in $6.5 million dollars in 2024-25.[99] The City of Los Angeles also charges a utility user tax (UUT)[100] — a type of tax that has been a major source of revenue from the refineries in Richmond and Benicia but is likely a smaller proportional source in Los Angeles.

More generally, a World Resources Institute white paper states that lack of quality data on refinery tax revenue "hinders our understanding of their contribution to the local economy, but available evidence suggests it is significant." The paper cites analysis showing that the closure of seven refineries across the U.S. between 2019 and 2022 cost the host communities a collective $21 million in local property tax revenue annually.[101]

1.4 SITE REMEDIATION AND REDEVELOPMENT

In its closure announcement, Phillips 66 indicated an intention to redevelop both the Carson and Wilmington refinery sites, naming the two development companies — Catellus Development Corporation[102] and Deca Companies[103] — it had brought on board to aid with that process. This decision is not surprising, given the apparent high value of the land on which the Refinery sits. Although heavy industrialization in Carson and Wilmington has had significant negative impacts on community residents' quality of life, the flip side of that equation is that the land is unusually valuable for industrial and warehouse purposes given its proximity to the Port. There is parallel speculation that diminishing industrial activity through closure of the Refinery — particularly in Wilmington, where the surrounding area is residential — may open valuable commercial and retail opportunities as well, given the overall high cost of Los Angeles-area real estate.[104]

As discussed in the next section, since the two Refinery sites are heavily contaminated, redevelopment would likely occur somewhat in tandem with site remediation.

1.4.1 Site Contamination and Remediation

1.4.1.1 Contamination at the Refinery

Refinery operations in general can create extraordinary levels of contamination, of a type that poses significant risk to human health and the environment. Most refineries across the country, including in California, have been in operation for decades[105] — in some cases over a century — with a large share of those operating years occurring before the U.S. began putting even rudimentary environmental restrictions on hazardous materials management and disposal in place in the 1970s through such statutes as the Resource Conservation and Recovery Act of

1976 (RCRA)[106] and the Clean Water Act of 1972 (CWA).[107] The hazardous substances that are formed in crude oil processing, and historically often released to the environment, include toxic metals and compounds (like arsenic, cadmium, chromium, and mercury), toxic hydrocarbons (like the "BTEX" chemicals — benzene, ethylbenzene, toluene, and xylene), polynuclear aromatic hydrocarbons (PAHs), and PFAS[108] (per- and polyfluoroalkyl "forever chemicals"), the last being a byproduct of firefighting and firefighting training over time at refineries.[109] At many refinery sites, following years of spills, there is functionally a lake of petroleum hydrocarbons under the surface that needs to be pumped out.[110]

AT MANY REFINERY SITES, FOLLOWING YEARS OF SPILLS, THERE IS FUNCTIONALLY A LAKE OF PETROLEUM HYDROCARBONS UNDER THE SURFACE THAT NEEDS TO BE PUMPED OUT.

The Phillips 66 Wilmington and Carson sites are, unfortunately, no exception. The Los Angeles Regional Water Quality Control Board (LA Water Board), which has primary authority for most aspects of site remediation,[111] issued a pollution abatement order to Phillips 66 in 1994 (1994 Abatement Order) requiring remedial action at both the Wilmington and Carson facilities, which the company is still in the process of complying with.[112] The Order painted a fairly grim picture of conditions at the two sites, including the following observations:

- *Large pools of hydrocarbons.* The Order referenced a history of "uncontrolled release of hydrocarbons including refined product" during the course of operations over the years, and made findings of "free-phase petroleum hydrocarbon pools" — essentially, lakes of hydrocarbons sitting underground on the surface of the aquifer — at both Refinery sites. At Carson, the LA Water Board estimated the largest pool at 6 million square feet in area and up to 13 feet thick.[113]
- *Buried hazardous wastes.* The Order observed that "[t]he dumping and burying of wastes on-site was a common refinery industry practice from 1940 until 1977," and that the Refinery operators had "disposed of wastes on site by burying the waste materials in at least six separate areas of the site." The wastes in question were a "variety of refinery waste materials," including tank bottom sludge containing lead and sludge from acid treating operations.[114]

- *Extensive groundwater contamination.* The Order cites earlier environmental investigation reports that had identified extensive toxic contamination of aquifers underlying the site, including BTEX chemicals and halogenated hydrocarbons.[115] The connection between the groundwater contamination at the sites and risk to drinking water is ambiguous. The LA Water Board has stated with respect to Wilmington that groundwater beneath the Refinery is "not a source of drinking water for the area," as potable water is provided by the City.[116] However, the monitoring at the site includes the Silverado Aquifer, which is a major source of drinking water in the Carson area; and a 2005 Board document ordering a technical report on contamination at the Wilmington site referenced concern that levels of carcinogenic tertiary butyl alcohol (TBA) detected at the Aquifer were an order of magnitude higher than the health-based notification level.[117]

Additionally, the LA Water Board ordered Phillips 66[118] in 2021 to conduct an investigation to determine the extent of PFAS contamination at the two Refinery sites.[119] PFAS, generally associated with firefighting, as noted above, are known as "forever chemicals" due to their extreme persistence in the environment.[120] The investigation of both sites found levels of PFAS contamination at well above EPA's established drinking water Maximum Contaminant Levels (MCLs) for PFAS.[121] The Board ordered additional PFAS sampling at the Wilmington site in an April 2025 order.[122]

Both the Wilmington and Carson sites also contain former hazardous waste management units (WMUs) that are now closed, with post-closure management overseen by the Department of Toxic Substances Control (DTSC). Closure was completed and approved for a stormwater holding basin in 1996 at the Wilmington site,[123] and for a process water pond at the Carson site the same year.[124] These sites — which represent a small fraction of the total land area at the Refinery — are subject to deed restrictions that prohibit certain sensitive uses (residences, hospitals, schools, day cares, agriculture), require non-interference with the closure cap and ongoing groundwater monitoring, and further require an approved soil management plan for any soil disturbance activities.[125]

Given the low elevation of both Wilmington and Carson — both are generally under 40 feet above sea level[126] — and the cities' proximity to the ocean and connected waterbodies, there is an added potential risk that sea level rise associated with climate change could exacerbate the impact of the site contamination and make remediation more difficult in the years to come, as a result of flooding and/or a rise in the water table. Researchers around the Bay Area have been studying the possibility that sea level rise will push groundwater up in coastal communities, causing contaminants in soil to enter buildings through sewer lines and other

Photo by Anastasia Yulo for APEN.

pathways.[127] At University of California, Berkeley, scientists working on the Toxic Tides research project developed an interactive tool showing the location of industrial sites affected by this risk, and released a finding in 2021 that around 400 California sites across the state are at risk of inundation based on a set of sea level rise scenarios studied. The tool indicates that the Wilmington site would be affected under more severe climate scenarios, with the risk for Carson remaining uncertain.[128]

1.4.1.2 Current and Planned Remediation Activities

The LA Water Board has been overseeing investigation and remediation activities at the Refinery sites since issuance of the 1994 Abatement Order. These activities include, generally, the following[129]:

- *Extraction of "free product" oil and contaminated groundwater*. Phillips 66 has been pumping out the large amount of hydrocarbons referenced in the Abatement Order as sitting on top of the aquifers at the site, known as "free product," as well as associated contaminated groundwater (which contains, e.g., the carcinogens dissolved-phase benzene and TBA[130]). At the Carson site, that process has been ongoing since 1986 based on earlier orders. The Board confirmed that more free product and contaminated groundwater exists that will need to be removed.
- *Vapor extraction*. Work has been done to address the hazardous VOC vapors in soil and groundwater that are associated with petroleum contamination. At the Wilmington site,

there are 64 fluid recovery vapor extraction wells and 10 soil vapor extraction wells.

- *Source elimination*. The Board has been directing a program of aboveground storage tank inspections and underground piping management (leak inspection and testing, replacement, and abandonment).
- *Sampling and monitoring*. There are extensive sampling and monitoring activities ongoing at both sites. This work includes, among other things, quarterly groundwater monitoring of the Gage, Silverado, and Lynwood Aquifers.

PHILLIPS 66 HAS PROVIDED FINANCIAL ASSURANCE FOR THE ONGOING WMU CLOSURE ACTIVITIES ONLY – NOT THE LARGER CLEANUP BEING DIRECTED BY THE WATER BOARD – PURSUANT TO STATE LAW REQUIREMENTS: $2.2 MILLION FOR CARSON AND $3.4 MILLION FOR WILMINGTON

Notwithstanding these many decades of ongoing investigation and remediation activity, the LA Water Board has made clear that the remediation is not near to being completed. A Board spokesperson observed last year after the Phillips 66 closure announcement that the remediation could "take years," with the soil and soil vapor contamination likely taking longer to clean up than the groundwater.[131] The Board also, however, treats the closure and decommissioning of the Refinery (i.e., removal, cleaning, and safe disposal of infrastructure) as an opportunity to step up and enhance investigation and remediation activities. Only limited remediation is possible at a facility still in operation, and removal of refinery infrastructure will allow more complete access to contaminated areas.[132] In the months following the closure announcement, the Board issued an order concerning the Wilmington site requiring Phillips 66 to prepare a Master Work Plan by September 30, 2025, that is to include a comprehensive interim remedial action plan (RAP) for all site remediation, plus a "tentative schedule for activities after the cessation of refinery operations," including decommissioning and redevelopment.[133] The Board has indicated an intention to subsequently order a full risk assessment, feasibility study, and RAP.[134]

It is also clear, given the anticipated long timeframe for remediation, that the decommissioning, remediation, and redevelopment timelines will likely coincide. This will create lo-

gistical issues that the Board, Phillips 66, developers, and planning agencies will need to work through. The Board has stated that while remediation systems may be moved to accommodate construction activities, it does not foresee interruptions to those activities. On some parts of the site, as noted above, deed restrictions prohibit soil excavation without an approved soil management plan. No formal process is in place for coordination among the stakeholders involved in the likely overlapping site remediation and redevelopment. Although both the Los Angeles City Planning Department and the LA Water Board have indicated that they anticipate coordinating with one another, the timing and process for that coordination has not been spelled out.

Public comment opportunities in the remediation process have thus far been minimal. The only past opportunity reflected in the LA Water Board's public records is a 2018 fact sheet and notice of opportunity to comment on the "dissolved phase management plan" at the Wilmington site, a stepped-up effort to remove TBA and benzene to keep them from moving into deeper groundwater aquifers.[135] The Board has indicated that it anticipates providing an opportunity for public comment in connection with the future RAP.

Both the cost of the cleanup and the source of funds to pay for it are uncertain at this point. Phillips 66 has provided financial assurance for the ongoing WMU closure activities only — not the larger cleanup being directed by the Water Board — pursuant to state law requirements: $2.2 million for Carson[136] and $3.4 million for Wilmington.[137] In its Securities and Exchange Commission (SEC) Form 10-Q filing for the third quarter of 2024, Phillips 66 provided for the first time[138] an estimate of $205 million "associated with the expected cessation of operations at the Los Angeles Refinery in the fourth quarter of 2025."[139] However, this figure appears to cover only "spending for asbestos abatement and decommissioning of assets at the Los Angeles Refinery"[140] — which at least facially suggests that the $205 million figure is not calculated to cover the soil and groundwater remediation being conducted by the LA Water Board at the site. It is not possible to definitively determine the basis for the $205 million figure from the company's SEC filings, however, as the underlying calculation is not provided.

1.4.2 Site Redevelopment

As noted above, Phillips 66 has hired Catellus and Deca to evaluate redevelopment possibilities. The companies had initial meetings with the City of Los Angeles and City of Carson planning authorities as well as with local residents (it is unclear which ones or how they were identified), and subsequently filed a redevelopment plan proposal for the Wilmington site, but not the Carson site. As discussed in Section 2.4.6, Carson has placed a temporary moratorium on such filings.

Snapshot of proposed "Town Center" portion of redevelopment. Eyestone Environmental for LLC Catellus-Deca, LLC, submitted to the City of Los Angeles, 2025.

Figure 5
Illustrative Plan – Town Center

1.4.2.1 Redevelopment Plans

In August 2025, the development companies (identified as "Catellus-Deca LLC") filed an application for approval of their "Five Points Union Project" on the Wilmington site.[141] The proposal is large and ambitious in scale, covering the entire site, with an estimated buildout timeline ranging from 2037 to 2053. The City of Los Angeles City Planning Department has indicated in its Project Description[142] that the proposed project would trigger full California Environmental Quality Act (CEQA) review. The following can be gleaned from the filing regarding the project proposal:

- *Initial idling*. Phillips 66's plan is to initially idle the Refinery rather than immediately decommissioning it, by cleaning out the infrastructure and filling it with inert gas. All permits would be maintained during the idling period as well. The intention is to wait for approval of development plans before proceeding with demolition and letting go of the permits, so as to leave options open (which could, at least in theory, include restarting the Refinery).
- *Scope of decommissioning*. The Project Description indicates an intention to remove all existing infrastructure on site, including the storage tanks. However, as noted above, Phillips 66 may intend to keep the company's nearby terminal at the Port, and the storage tanks located there, in place. No information is available concerning the company's plans with regard to the tanks located on the Carson site.

- *Nature of development proposal*. The proposal would cover the entire site, splitting it into two regions. In the Anaheim Street corridor to the north, which is currently occupied largely by office buildings and the like, there would be a "town center" that would include commercial uses such as retail and food, as well as community amenities such as a playground, athletic fields, community meeting space, and a sports center. The remainder of the property would be industrial, filled with fulfillment center warehouses and accessory buildings.
- *Timing*. The development companies state that the timeline would be flexible, and hence are seeking a 25-year development agreement with the city (essentially freezing their approvals)[143] that would allow buildout to extend through 2053 — although they also state that it could be completed as early as 2037. The proposal specifies a plan to first demolish and remove existing infrastructure, then to conduct soil and groundwater remediation under the direction of the LA Water Board, and then to commence grading and construction.

Any development of this nature would require significant zoning changes, as both the Wilmington and the Carson sites are currently zoned in parts as heavy industrial (M3[144] at Wilmington and MH[145] in Carson). Any needed zoning change in turn must be consistent with the cities' General Plans and any applicable Specific Plans, such that these also may require amendment.[146] Such changes and amendments, as indicated in the Project Description, trigger CEQA review.[147] In the case of the proposed Five Points Union Project at the Wilmington site, the developers propose zoning changes to accommodate the shift from industrial to commercial use, as well as amendments to the existing Community Plan and development of a new Specific Plan — which, as explained in Section 2.4.1, is an enhanced addition to a General Plan that contains more detailed standards.

The Project Description makes very little reference to how environmental conditions at the site will impact redevelopment, with only a few passing mentions of the fact that remediation needs to occur prior to construction.[148] There are a number of ways, however, in which environmental conditions are likely to impact both the timing and substance of redevelopment at either the Wilmington or Carson site. First, the serial timing of decommissioning, remediation, and redevelopment defined in the Project Description does not take into account the fact that these phases are likely to overlap significantly, as discussed in Section 1.4.1.2. The full extent of required remediation is likely to emerge as the decommissioning and investigation move forward, potentially requiring significant time to address; and the ongoing remediation may be inconsistent with some proposed aspects of the redevelopment, requiring that they be delayed or altered. Second, as described in Section 1.4.1.1, some parts of the Refinery site (including a part of the Wilmington site that appears to be roughly adjacent to the proposed commercial development area) contain deed restrictions associated with former WMUs that

prohibit residential development. Third, the Water Board will need to determine whether the site can be remediated sufficiently to allow the uses being proposed. Key to this determination will be whether vapor intrusion — the escape of VOCs that are contaminating the soil and groundwater — can be sufficiently eliminated.[149] To the extent the VOCs are present, there is a risk that they would waft up into any buildings on the site, causing health impacts. And fourth, the economic feasibility of the entire plan may depend on whether Phillips 66 funds and carries out the costly remediation. Initial indications are that Phillips 66 intends to hold onto liability for environmental remediation at the sites, even if they are eventually sold to redevelopers. But the viability of the project may depend on the company following through.

There is no way to know at this stage whether the Five Points Union Project currently on the table for Wilmington will become a reality. Generally speaking, though, the character and economy of the Wilmington and Carson communities will continue to be a factor in redevelopment proposals. The Wilmington site is proximate to residential development, making it more likely to support commercial development than the Carson site, which is surrounded by other heavy industry, including the Marathon refinery essentially across the street. Both sites are proximate to the Port, making it more likely that development related to goods movement — such as the fulfillment centers that are part of Five Points Union Project — will be a part of any proposal. It is unlikely, given the level of site contamination, that residential housing will be in the mix.

1.4.2.2 Redevelopment Process and Timing

In principle, Phillips 66 or a purchaser is entitled to develop the Refinery property as of right — that is, with no authority on the part of local authorities to discretionarily reject their plans — for a use allowed under current zoning and other applicable law. A key question is whether and how the governing cities will use their zoning authority to guide and cabin redevelopment choices.

Thus far, the City of Los Angeles has not taken an active approach to guiding the redevelopment, providing no indication of an intention to proactively use its zoning authority to constrain development options at the Wilmington site. Its consideration of the Five Points Union Project proposal will be essentially reactive — although it has discretionary authority to reject the proposal given the need for zoning and planning changes associated with it. The City of Carson, however, has taken highly proactive steps aimed at maintaining community control over redevelopment. Late last year, the Carson City Council approved an amendment to its General Plan (with which zoning is required to be consistent) requiring that any application for approval of plans to redevelop a refinery site be accompanied by a Specific Plan — essentially, as the name implies, a particularized addendum to the General Plan.[150] This is

essentially the same approach[151] that the city took to the redevelopment of the Carson Shell refinery, which was decommissioned and converted to a distribution terminal in 1992. As a practical matter, this step means that the Carson City Council will have the option of making a discretionary decision regarding the type of development the city wants to see at the Carson site; and that the city will be able to conduct full environmental review of alternative approaches to development under CEQA regardless of whether the developer seeks a zoning change from the current MH zoning.[152] The Carson City Council passed a 10-month moratorium on redevelopment applications for the Refinery site to support implementation of this approach.[153]

THUS FAR, THE CITY OF LOS ANGELES HAS NOT TAKEN AN ACTIVE APPROACH TO GUIDING THE REDEVELOPMENT, PROVIDING NO INDICATION OF AN INTENTION TO PROACTIVELY USE ITS ZONING AUTHORITY TO CONSTRAIN DEVELOPMENT OPTIONS AT THE WILMINGTON SITE.

The timing of redevelopment will be impacted substantially by the CEQA process. The City of Los Angeles stated in the Project Description that the project would require a full Environmental Impact Report (EIR); and the City of Carson, by requiring a Specific Plan for the site, has functionally ensured the same. EIRs, as discussed in Section 2.4.5, involve an exhaustive process of analysis and formal comment that generally speaking takes 24 to 36 months (potentially longer if a lawsuit is filed challenging the final EIR). Additional delays could in principle occur as a result of the remediation process — for example, if construction activities could not be immediately accommodated to remediation activities, or if the remediation process has not at that point successfully alleviated the risk of vapor intrusion into new buildings.

During the intervening time before a project moves forward, Phillips 66 could in theory seek to conduct demolition activities that require only construction permits, and may not require CEQA review.[154] However, as discussed above, it appears that the developers' intention at the Wilmington site is to leave the refinery equipment in place and idled until its redevelopment plans are approved.

Toxic tour, August 2025. Photo by Anastasia Yulo for APEN, CBE.

PART 2: GOVERNING LAW

The process of winding down refinery operations, decommissioning and remediation, and redeveloping the site is subject to a complex web of interlocking federal, state, and local laws. This Part will, after laying out relevant overarching legal principles, address the laws applicable to these phases of activity, from the present time through commencement of redevelopment.

2.1 HISTORY AND GENERAL PRINCIPLES

The Phillips 66 Refinery, like its contemporaries, began its industrial life in an era that was largely free from significant regulation. At the time it commenced operation, there were essentially no federal or state laws limiting its air and water emissions or hazardous waste handling. The original Refinery construction did not require obtaining the basic land use permit that local governments in modern times require for even trivial construction projects — and the Refinery operates sans any such land use permit to this day.[155]

Starting around the 1970s, a myriad of federal and state laws were enacted governing heavy industry operations, addressing both environmental impacts and labor issues. Implementation of these laws involves, by design, extensive delegation of jurisdictional authority. The federal laws – the Clean Water Act (CWA),[156] the Clean Air Act (CAA),[157] the Resource Conservation and Recovery Act (RCRA),[158] the Occupational Safety and Health Act (OSHA)[159] and many others — are structured as "cooperative federalism." This means that the federal law sets a floor of standards, but states may deviate upward from those standards; and are encouraged to take over implementation in delegated regulatory programs.

All of these laws remain subject to general principles ordering the overlapping authority and jurisdiction of federal, state, and local government. State and local laws are subject to the U.S. Constitution Supremacy Clause, which gives federal law preemptive precedence over conflicting state and local authority.[160] Under the California Constitution, local governments have broad plenary power to govern their local affairs, but there are periodic legal skirmishes about what exactly those local affairs are defined to encompass, and where cities' power ends and state sovereignty begins.[161]

As a practical matter, this system of tiered and delegated authority has resulted in federal agencies having very limited direct involvement in the governance of refineries, beyond setting minimum environmental and labor standards. California has long had delegated authority under the major federal environmental and occupational statutes, and has passed its own comparable set of laws. The state has, in turn, delegated significant authority to local governments over some aspects of implementation and enforcement in these areas, with the result that regulation of refinery operations, wind-down, and site remediation is through an overlapping mix of federal, state, and local laws. The site redevelopment process, by contrast, is largely governed by local zoning and land use law — although cities must adhere to state law governing the zoning process, and comply with the requirements of CEQA when implementing them.

For the most part, these rules governing jurisdictional hierarchy have not caused tension in the sphere of refinery regulation, because the delegation from higher to lower jurisdictional authority has been instituted intentionally by law, as a means of relieving the burden on the higher authority and bringing implementation and enforcement authority closer to the community being governed. However, efforts at legal reform around refinery closure and redevelopment may need to take into account these principles of jurisdictional preemption, which may potentially limit the power of local government in some cases to directly address perceived legal gaps.

2.2 LAW GOVERNING OPERATION AND WIND-DOWN

The laws governing refinery operation and the wind-down process fall into generally two categories: regulation of environmental and health impacts, and regulation of industrial process safety. These laws, while generally relevant only until the refinery ceases operation, are important to issues that have arisen in the wind-down process; and help define some of the regulatory relationships that will persist post-closure.

2.2.1 Environment and Health Regulation

2.2.1.1 Regulation of Air and Water Emissions

The federal statutes governing air and water emissions — the CAA and CWA, respectively — are administered by the U.S. EPA but implemented by California through delegated programs. These programs, in turn, are administered through regional bodies.

2.2.1.1.1 Air

The CAA is administered in California by the Air Resources Board (ARB), which functions in collaboration with 35 local air quality management districts (Air Districts). ARB sets statewide air standards,[162] but the Air Districts have substantial independent authority to development and administer their own local programs[163] — including regulations that specifically govern refineries. The Air District that regulates the Los Angeles-area refineries is SCAQMD, which has developed an extensive set of refinery-specific standards governing flaring,[164] process turnarounds,[165] fenceline air monitoring,[166] and coking operations.[167]

The Phillips 66 Refinery, like all major emissions sources, is required by law to obtain a CAA Title V permit, which is a federal permit that rolls together all of the source's federal and state air emissions requirements into one place, and must be renewed every five years. The Wilmington and Carson sites each have a Title V permit.[168] The decommissioning process — which ends the current sources of operational emissions but adds new emission sources from the demolition (including emissions from asbestos removal[169]) and equipment associated with it — needs to either be covered by the facility's Title V permit, which would need to be modified to reflect the changes[170]; or else would require new permits to construct and operating permits for the decommissioning emissions if the Title V permit has been terminated following closure.[171] A February 2025 Public Records Act (PRA) request to SCAQMD revealed no permit application yet submitted by Phillips 66 specifically associated with the planned closure and decommissioning.

2.2.1.2.2 Water

Similar to the pattern with the CAA, California operates a CWA delegated program, which is managed by a state-level authority — the Water Resources Control Board — that in turn works in tandem with regional control boards, including the LA Water Board that has been managing the cleanup at the Phillips 66 Refinery.[172] California has supplemented the requirements of the CWA through its own water resources statute, the Porter-Cologne Water Quality Control Act of 1969.[173]

REGULATION OF REFINERY OPERATIONS, WIND-DOWN, AND SITE REMEDIATION OCCURS THROUGH AN OVERLAPPING MIX OF STATE AND LOCAL LAWS.

Thus, most of the day-to-day management of water pollution control — including both permitting and enforcement — falls to the regional Water Boards. The LA Water Board issues the required permits to the Phillips 66 Refinery, including its National Pollutant Discharge Elimination System and stormwater discharge permits. Additionally, it has authority to issue cease-and-desist orders addressing ongoing or threatened pollution, and cleanup orders like the 1994 Abatement Order. However, under cooperative federalism principles, U.S. EPA still maintains the ability to exercise enforcement authority — which it used in obtaining the criminal indictment against the Carson refinery for illegal dumping in the County's sewer system.

2.2.1.3 Regulation of Hazardous Substances/Hazardous Waste

The three primary federal statutes addressing hazardous substances and hazardous waste are RCRA; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, sometimes referred to as the Superfund law),[174]; and the Emergency Planning and Community Right-to-Know Act (EPCRA),[175] passed as part of the Superfund Amendments and Reauthorization Act of 1986. RCRA governs management of hazardous waste, creating a "cradle to grave" management system of regulating hazardous waste from its creation through waste site closure and post-closure monitoring. CERCLA governs compensation of the government or third parties who incur cleanup costs for pollution associated with a category of actors deemed responsible parties — a circumstance that has not arisen at the Phillips 66 Refinery, as no third-party claims of that nature have been made. EPCRA requires reporting of releases of hazardous chemicals, as well as development of chemical release emergency preparedness programs.

Both RCRA and EPCRA are functionally managed at the state level. RCRA has been supplemented by the California Hazardous Waste Control Act.[176] As noted above, the DTSC operates a delegated program under RCRA for managing hazardous materials handling and disposal that has been governing post-closure activities at the Wilmington and Carson site WMUs. EPCRA has likewise largely been either delegated or duplicated by state requirements — with its reporting requirements substantially similar to the state's Hazardous Materials Business Plan program,[177] and the emergency planning function carried out by the State Emergency Response Commission.[178]

Most day-to-day aspects of running these regulatory programs have been further delegated to local government agencies via the Certified Unified Program Agency (CUPA) system. This system, established by the SB 1082 amendments to the Health and Safety Code in 1993,[179] enabled the consolidation and coordination among six state programs having to do with hazardous materials and waste: the Hazardous Materials Business Plans, Hazardous Waste Generators (HWG), California Accidental Release Prevention (CalARP), Aboveground Storage Tanks (AST), Underground Storage Tanks (UST), and two sections of the California Fire Code — Hazardous Materials Release Response Plans and Hazardous Materials Inventory programs.[180]

Under SB 1082, local government agencies can apply to become a CUPA and receive delegated authority under the relevant environmental statutes. In the Los Angeles area, CUPAs have been separately certified for the City and the County of Los Angeles, both run by their respective fire departments. The City of Los Angeles CUPA covers most of the constituent programs except for the HWG program, which it contracts out to the LA County CUPA. The Wilmington refinery is under the jurisdiction of the City of LA CUPA (except as contractually covered by the county CUPA's HWG program); and the Carson refinery is under the jurisdiction of the county CUPA. The CUPAs in some cases manage local government requirements pertaining to their jurisdiction: e.g., the city CUPA administers the city's operating permit requirement for refineries,[181] and the county CUPA administers the county's hazardous waste generator permit requirement[182] and regulations governing hazardous materials release emergency response.[183]

2.2.2 Process Safety Regulation

Industrial process safety at California refineries is governed by two separate but very similar[184] regulatory systems governing process safety: one under the authority of the California Occupational Safety and Health Administration (CalOSHA),[185] and the other under the authority of the California Environmental Protection Agency (CalEPA) as part of the CalARP program managed by the CUPAs.[186] These regulations cover a wide range of aspects of industrial safety, such as process hazard analysis, training, operating procedures, contractor selection, human

Photo by Gissela Chavez for CBE.

factors analysis, safety culture, and the like.[187] The CalOSHA and CalARP regulations heavily overlap in their language, often tracking word for word.

Among the process safety requirements in these regulations, and potentially the most pertinent to the wind-down of refinery operations, are the provisions concerning management of change (MOC) and management of organizational change (MOOC). Both sets of requirements, as the names imply, have to do with ensuring that a facility prepares for and manages the potential risks associated with major changes.

Of the two, the definition of MOOC comes closest to encompassing the circumstances of a refinery closure. MOC pertains to changes in process (including changed "process chemicals, technology, procedures, process equipment and facilities")[188]; whereas MOOC pertains to changes in personnel or organizational issues.[189] Specifically, events triggering MOOC requirements include "reducing staffing levels, reducing classification levels of employees, changing shift duration, or increasing employee responsibilities at or above 15%," where those changes are for a duration exceeding 90 calendar days.[190] While this definition does not expressly reference permanent closure, it would be reasonable to interpret it as including both closure and the runup to it. As directly experienced by the Phillips 66 employees already, the runup to closure involves reduced staffing levels, changes in shift duration, and increasing employee responsibilities. The closure itself, of course, constitutes by definition a radical reduction in staffing levels.

When MOOC is triggered, the facility operator is required to conduct an assessment in writing, which is to include "a description of the change being proposed; the makeup of the team responsible for assessing the proposed change; the factors evaluated by the team; the rationale for the team's decision to implement or not implement the change; and the team's findings and recommendations."[191] This assessment, however, is not required to be submitted to any governing body — it is simply required to be prepared and maintained. The CalARP regulations require only that the owner or operator "provide documents or information developed or collected pursuant to this Article to the [C]UPA upon request."[192] Employers and managers are also required to conduct a triennial compliance audit, but the audit is likewise only required to be maintained, not delivered to regulators.[193] The only direct contact with regulators is associated with the triennial inspection requirement, which requires only documentation of the general management of change procedures, not any specific triggering of MOOC requirements.[194]

THE CALOSHA AND CALARP PROCESS SAFETY REGULATIONS MAY BE FURTHER WEAKENED AS A RESULT OF A SETTLEMENT RECENTLY ENTERED INTO RESOLVING A CHALLENGE TO THEM FILED BY THE WESTERN STATES PETROLEUM ASSOCIATION (WSPA).

The CalOSHA and CalARP process safety regulations may be further weakened as a result of a settlement recently entered into resolving a challenge to them filed by the Western States Petroleum Association (WSPA). The 2019 challenge addressed aspects of the regulations that call for robust participation by labor in process safety decision-making, asserting that these provisions are preempted by federal labor law.[195] In September 2024, the California Attorney General's office entered into a settlement with WSPA in which the respective agencies agreed to re-propose the rules in form that greatly reduces the role of labor in process safety[196] — to the significant dismay of organized labor, who were not informed of the settlement until it was a fait accompli. Among other things, the settlement proposes to gut the requirement in both rules that the employer develop a written plan for labor participation in all elements of process safety — including MOOC — and replace it with a requirement that the employer or operator only provide advance notice and "consider[] input."[197]

CalEPA (but not yet CalOSHA) has commenced the rulemaking agreed to in the settlement.[198] The terms of the settlement require that the two agencies "propose … and support" the language changes drawn up in the settlement. However, it remains to be seen how this agreed-upon support will mesh with the provisions of the California Administrative Procedure Act requiring that agencies promulgating rules consider public comments[199] — many of which have presented strong opposition to the changes.

2.3 LAW GOVERNING DECOMMISSIONING AND SITE REMEDIATION

Unlike the case with most other types of energy infrastructure facilities,[200] there are no decommissioning rules specifically governing refineries. The decommissioning and remediation process is governed by generally applicable laws concerning demolition and site contamination. The closure announcement itself does not legally trigger any of these laws, even though the fact of the closure will bring them more into play since (as discussed in Section 1.4.1.2) closure and decommissioning makes remediation more feasible as a practical matter, as it is functionally impossible to decontaminate a facility that is still in operation. This section separately addresses the laws governing decommissioning and those governing contamination remediation.

It bears note that CEQA may not apply directly[201] to the decommissioning and site remediation process (as opposed to the redevelopment process, where it would more likely apply[202]). The Water Boards generally claim the CEQA exemption applicable to enforcement actions when issuing an abatement order — as did the LA Water Board when issuing the 1994 Abatement Order.[203] While CEQA did apply to the decommissioning of the Phillips 66 Santa Maria refinery in San Luis Obispo County,[204] the reason was that the refinery is located in the state's coastal zone, and hence needed a Coastal Development Permit (CDP) pursuant to the California Coastal Act.[205] Since CEQA applies to any discretionary government action, and grant of a CDP is discretionary, the CDP requirement triggered CEQA review.[206] Neither the Carson nor Wilmington site is within the coastal zone, hence no CDP is required. As explained below, the local permits required for the demolition process appear to be non-discretionary, so they would not likely trigger CEQA either.

All that being the case, however, the remediation would very likely be reviewed as part of the CEQA process for any redevelopment, to the extent the remediation has not been completed at the time a development application is submitted (which is the likely scenario). In such case, the LA Water Board would likely function as a "responsible agency"[207] tasked with providing input to the CEQA process, with a local development authority likely serving as lead agency.

2.3.1 Decommissioning Regulation

The decommissioning process involves essentially two sets of rules: state-level regulation, including most notably the air quality rules promulgated by SCAQMD associated with decommissioning operations, and the local government codes (City and County of Los Angeles) governing the demolition process. These rules become applicable if and when Phillips 66 breaks ground on the decommissioning and demolition, but not while the Refinery is merely idled.

2.3.1.1 State-Level Regulation

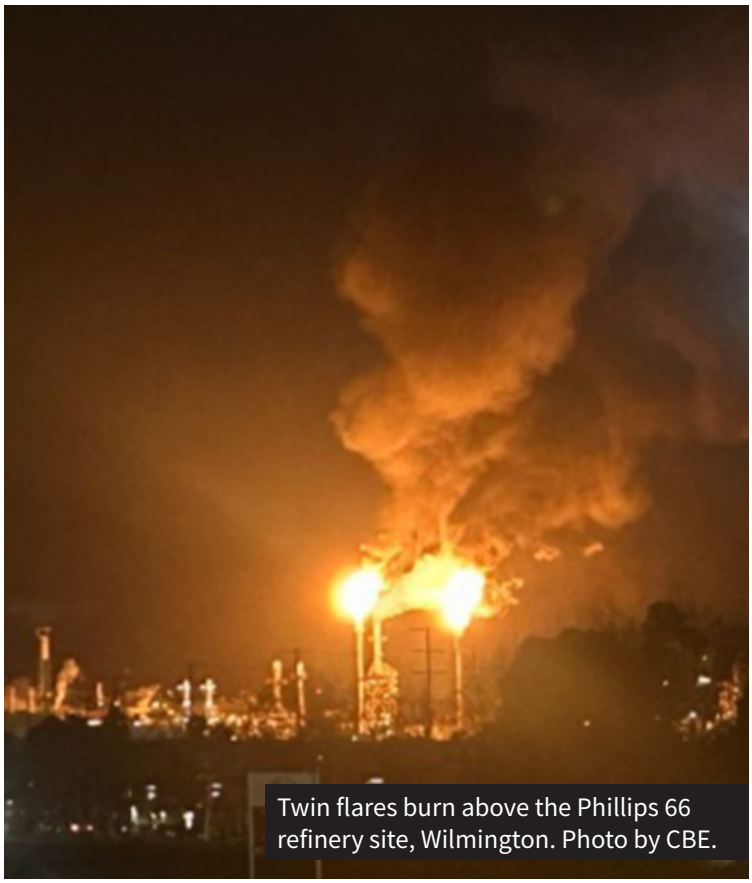
As discussed in Section 2.2.1.1.1, closure and decommissioning of the Refinery may or may not require a modification to the facility's Title V permit. However, it is clear that the decommissioning process will trigger applicability of SCAQMD permitting and other air emissions regulatory requirements to address the considerable air pollution generated by the heavy equipment and soil moving associated with demolition and site grading. Applicable SCAQMD requirements include at least the following:

- *Portable equipment permit.* Any portable equipment used in the cleaning, demolition, or grading process that is either over 50 horsepower or that emits particulate matter requires either a SCAQMD permit to operate or an ARB Portable Equipment Registration Program registration.[208]
- *Fugitive dust rule.* SCAQMD Rule 403 sets forth measures required to be taken to control fugitive dust in operations that tend to generate it, including "earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement."[209]
- *Toxic fugitive dust rule.* SCAQMD Rule 1466 defines measures applicable specifically to activities — including "excavating, grading, … mechanized land clearing, … transferring, and removing" of soil — to prevent fugitive dust emissions where the dust contains toxic air contaminants (as will likely be the case at both the Wilmington and Carson sites[210]).[211]
- *Asbestos remediation rule.* SCAQMD Rule 1403 requires measures to limit asbestos emissions associated with building demolition activities.[212]

In addition, as discussed in Sections 1.4.1.1 and 1.4.1.2, Phillips 66 will need to coordinate with the LA Water Board and DTSC to ensure that demolition and grading activities do not interfere with the ongoing remediation. As noted, the deed restrictions associated with the WMU sites set out specific coordination requirements, including an approved soil management plan for any soil disturbance activities.[213]

2.3.1.2 Local-Level Regulation

Both the City and County of Los Angeles Building Department codes (the latter adopted by Carson[214]) include detailed permitting requirements and regulations governing demolition activities – which generally mirror the Departments' requirements associated with construction, as the impacts tend to be similar. The city and the county codes require permits for both demolition and site grading;[215] and include provisions governing asbestos removal and dust control.[216] The city code additionally requires that the applicant incorporate best management practices for stormwater and erosion control;[217] and provide advance notice to abutting property owners where the buildings involved are more than 45 years old.[218]



Twin flares burn above the Phillips 66 refinery site, Wilmington. Photo by CBE.

The county CUPA has separate authority over removal of hazardous materials maintained and stored at the site under the HWG program, to the extent those materials are not already addressed by DTSC's legacy jurisdiction over the WMUs. The two Los Angeles CUPAs would also have jurisdiction over the decommissioning and removal of aboveground and underground tanks, as part of the AST and UST Programs.

In addition to their authority over Phillips 66's affirmative steps to complete the decommissioning, local government authorities also have a measure of authority to act on their own to address public health and environmental risks associated with hazardous substance releases were Phillips 66 to fail to do so, and to recover costs. Mirroring federal and state-level RCRA and CERCLA authority, under the city code, the city Environmental Manager (an agglomeration of various department heads, and likely in practice the CUPA) may order a corrective action for non-compliance with hazardous waste or substance control

laws, and may take action itself and recover costs if the order is not complied with.[219] There are scenarios in which this authority could allow infrastructure removal, to the extent the infrastructure was contributing to the risk being addressed. The city Building Department has separate authority to remove buildings determined to constitute a public nuisance should the owner fail to comply with an order to do so.[220]

Relatedly, both the City of Carson and Los Angeles County have enacted ordinances governing pipeline franchises (granting permission to operate a pipeline in public spaces) that govern the pipeline owner's obligation upon expiration of the franchise.[221] Among other rules, these ordinances apply to the pipelines existing at or running between the two refinery sites, and either jurisdiction could in principle trigger the post-expiration obligations simply by choosing not to renew. The regulations allow the pipeline owner to choose to apply for either abandonment of the pipeline "in place," subject to prescribed conditions, or to remove it.[222] The county's regulations appear to allow the franchisee to make the choice between abandonment and removal,[223] but Carson's regulations give the city explicit authority to determine whether either abandonment or removal "may be effected without detriment to the public interest."[224] Both Carson and the county have authority to remove the pipelines themselves if post-termination permits (whether for abandonment in place or removal) are not complied with.[225]

As noted above, CEQA applicability is likely not triggered by the demolition and grading permits required under the city and county codes, because those permits are non-discretionary.[226] Thus, in principle, Phillips 66 could potentially proceed with demolition activities in advance of completing the CEQA review that will likely be required in connection with redevelopment. However, if the company intends to complete demolition only after its redevelopment plans are approved, as it appears may be the case, it would need to include analysis of the demolition impacts in its EIR. CEQA would more plausibly apply to a decision by a local government to pursue a corrective action or conduct building demolition, which is made discretionarily.

2.3.2 Site Remediation Regulation

Site remediation — the process of removing contamination from the soil and groundwater and closing hazardous waste facilities — is already underway at both the Wilmington and Carson sites, as discussed in Section 1.4.1.2. This section will address both the division of authority between the Water Board and DTSC (and its CUPA delegees) in the ongoing remediation, and the standards that will guide that remediation and procedures for implementing it.

2.3.2.1 Division of Authority

The regional Water Boards and DTSC have, in principle, partially overlapping and duplicative authority for site remediation. The Water Boards have extraordinarily broad authority to issue cleanup and abatement orders — such as the 1994 Abatement Order — in response to any waste disposal that has "caused ... or threatens to cause or permit" the discharge of waste that "is, or probably will be" discharged into the waters of the state (surface and ground[227]), or "creates, or threatens to create, a condition of pollution or nuisance."[228] As a practical matter, virtually any discharge of chemical waste material matches these parameters. DTSC, in turn, has more specific authority — now mostly delegated to the CUPAs — to manage the operation and closure of WMUs and issue RCRA corrective action orders to address discharges of hazardous waste from WMUs.[229] Both DTSC and the Water Boards have broad investigative authority — DTSC at any facility subject to RCRA permits[230] and the Water Boards over both water quality control and waste discharge[231] — and authority to perform and seek cost recovery for spills from petroleum storage tanks.[232]

"SITE REMEDIATION" REFERS TO THE PROCESS OF REMOVING CONTAMINATION FROM THE SOIL AND GROUNDWATER AND CLOSING HAZARDOUS WASTE FACILITIES.

The California legislature addressed this jurisdictional overlap in 1993 via SB 1082. That legislation did not itself attempt the complex process of untangling the two agencies' enmeshed authority, but rather ordered CalEPA to complete that task, following public hearings, by designating one agency or the other to have lead authority in various site cleanup scenarios.[233] The result of that process was laid out in the agencies' SB 1082 Framework document,[234] subsequently codified into regulation. In relevant part, with respect to hazardous substance-related corrective actions, the Framework document recognized DTSC authority to issue corrective action orders related to WMUs, although requiring it to consult with the Water Boards when it did so; but gave the Water Boards authority to oversee corrective actions that were then ongoing specifically at refineries.

The SB 1082 division of authority has thus far not had immediate impact on the site remediation taking place at the Phillips 66 Refinery, which has been proceeding for decades under the LA Water Board's abatement order authority. DTSC has legacy authority over the post-closure

management of the two WMUs at the Refinery, overseeing compliance and financial assurance.[235] In theory, it leaves open the possibility that DTSC or its CUPA delegees could initiate and manage a new corrective action at the site to the extent any waste management facilities remain open there, although that scenario is unlikely as a practical matter given the Water Board's current comprehensive management of the cleanup.

2.3.2.2 Determination of Remediation Levels

Following issuance of an abatement order, the formal process for completion of a remediation generally involves development of a RAP. No RAP has yet been proposed or approved (although an interim RAP has been ordered to be prepared at the Wilmington site[236]), so the final level of remediation that the Board will require remains to be determined.

The criteria by which Water Boards decide the remediation level that will be required are set forth multiple places, including a 1968 policy resolution,[237] a 1992 Water Board Site Cleanup Program resolution (SCP Resolution),[238] and in statute[239] and regulation.[240] These mandates vary in their level of complexity, with some setting out more general principles and others — particularly the SCP Resolution — laying out with greater specificity the types of remediation measures to be considered in developing a RAP.

All of the criteria, however, boil down to the general principle that for purposes of protecting water quality, the Water Boards will select the highest level of remediation that it determines to be both feasible and situationally appropriate. It is in these feasibility and appropriateness considerations that the complications and ambiguity lie. The applicable authorities require that the starting point for determining a remediation level be the 1968 policy resolution, which restates the CWA requirement that the waters of the state "shall be so regulated as to achieve the highest water quality consistent with maximum benefit to the people of the State" — which in the simplest terms means that the Water Boards use as a starting point a goal of returning the site to background levels of contamination.[241] This starting point is functionally theoretical, however, as it cannot be met as a practical matter at most contaminated sites. The technology simply does not exist to extract all contamination from heavily polluted groundwater. The real issue is almost always about balancing a set of considerations to determine an appropriate remediation level, a question on which the Water Boards are given broad discretionary latitude.

The SCP Resolution focuses on economic and technical feasibility in a determination of the appropriate extent of deviation from background conditions — in particular, whether to allow establishment of a "containment zone" in which a less stringent remediation standard will apply. In that context, the SCP Resolution provides specific definitions of economic and technical feasibility that are fairly broad in their framing — although making clear that eco-

Photo by Gissela Chavez for CBE.

nomic feasibility is a general and not a discharger-specific determination, and does not refer to the discharger's ability to finance the cleanup (although financial ability can be taken into account in establishing a cleanup schedule).[242] The SCP Resolution lays out additional criteria to be considered in establishing a containment zone that are similar to the statutory criteria, including, *inter alia,* "[t]he present and probably future uses of ground water and surface water in the area," and "[p]otential adverse effects on approved local development plans."

Although the references in the SCP Resolution to future uses of water and approved local development plans suggest the possibility that the Water Board could take into account future uses of the site in determining remediation levels, in practice future use is generally only considered with respect to soil remediation (as opposed to water quality protection); and it is unclear the extent to which every regional Water Board does so, as opposed to focusing strictly on feasibility. Regardless, however, Water Boards have the authority to establish land use restrictions prohibiting sensitive uses if contamination that cannot feasibly be mitigated would pose a health threat.[243]

2.3.2.3 Procedures Governing Remediation and Public Input

The multiple sources referenced above — resolutions, statutes, and regulations — also lay out step-by-step the procedures the Board will follow in determining remediation levels and timelines, as well as conducting any further investigation. These procedures include mandatory and permissive public comment opportunities.

2.3.2.3.1 Remedial Action Plan Development

The Water Boards generally require that a RAP be developed defining how a cleanup will be conducted to address an abatement order, based on the process defined in the SCP Resolution.[244] The Resolution governs the types of evidence the Boards can consider in its determinations regarding remediation levels and methods, the level of investigation the owner or discharger can be asked to conduct, and "procedures to ensure that dischargers shall have the opportunity to select cost-effective methods for detecting discharges or threatened discharges and methods for cleaning up or abating" them — specifying detail concerning appropriate investigation and sampling techniques as well as remediation technologies.[245] The SCP Resolution requires, consistent with the usual requirements for RAPs,[246] that the remediation proposal lay out alternatives and select a preferred alternative.[247]

The LA Water Board has indicated that for the Phillips 66 Refinery, it will require the following steps, pursuant to its governing requirements and procedures:

1. A full delineation of soil and soil gas impacts.
2. A risk assessment.
3. A feasibility study and RAP.
4. A public comment period on the proposed RAP.
5. Board review, comments, and eventual approval of the RAP.
6. Ongoing remediation and monitoring pursuant to the RAP.

The LA Water Board has indicated that these steps will be put fully in motion following removal of Refinery equipment from the sites in the decommissioning process. However, as noted, the Board has already ordered that Phillips 66 prepare an interim RAP for the Wilmington site.[248] And while the intention is to conduct a "full delineation" of soil and gas impacts following decommissioning and regrading, the extensive investigatory work since the issuance of the 1994 Abatement Order will inform that delineation.

2.3.2.3.2 Public Participation

The Water Board is required to provide for public notice and participation "when approving a cleanup proposal" for a site for which it has issued an abatement order.[249] This requirement would clearly be triggered upon approval of a final RAP, but the Water Board appears at least once to have interpreted it more broadly at the Phillips 66 Refinery, applying it in 2018 to provide for public participation concerning a discrete phase of the ongoing site remediation —

the "Dissolved Phase Management Plan" for removal of the TBA and benzene from groundwater.[250] Comment opportunities must include the following:

1. *Notice*. A notification and fact sheet "in English and any other languages commonly spoken in the area, as appropriate," sent to any "affected or potential affected property owner, resident, or occupant in the area of the site."
2. *Access*. "[T]imely access to written material" about the cleanup, to the maximum extent possible, available on the internet.
3. *Comment*. A 30-day comment period on the cleanup proposal.
4. *Public meeting*. A public meeting "in the area of the site" during the public comment period if one is requested, "the level of expressed public interest warrants" it, or the Board determines that "existing site contamination poses a significant health threat."[251]

THE TECHNOLOGY SIMPLY DOES NOT EXIST TO EXTRACT ALL CONTAMINATION FROM HEAVILY POLLUTED GROUNDWATER. THE REAL ISSUE IS ALMOST ALWAYS ABOUT BALANCING A SET OF CONSIDERATIONS TO DETERMINE AN APPROPRIATE REMEDIATION LEVEL...

Additionally, notwithstanding any other public participation requirements, the Water Boards are required in the SCP Resolution to provide for public participation prior to the designation of a containment zone. The Resolution provides that notice of intention to designate a containment zone is to be provided to "all known interested persons," which includes residents of properties "adjacent" to the proposed zone; and that the application for the zone, the proposed management plan, and "any other available materials" should be made available for review and comment.[252]

The governing statute also defines public outreach measures that may permissively be used by the Water Boards "to disseminate information and assist the [Board] in gathering community input regarding a site." These measures include an annual fact sheet, the posting of reports and other documents on the internet, formation and facilitation of an advisory group, additional public meetings and workshops, comment period extensions, and preparation of a public participation plan.[253]

2.3.3 Purchaser Liability Protection

In 2004, in order to encourage redevelopment of urban brownfield sites, the legislature passed the California Land Reuse and Revitalization Act (CLRRA), which provides that in any incorporated city, a bona fide purchaser of a contaminated site who had nothing to do with creating contamination can enter into a voluntary agreement to conduct the cleanup in exchange for immunity from further liability.[254] The bona fide purchaser must conduct a due diligence inquiry, and agree to meet remediation standards established by the relevant Water Board. It is possible that a developer purchasing the Refinery site from Phillips 66 may choose to take advantage of CLRRA — although the statute sunsets January 1, 2027, so would need to be reauthorized to apply to a purchase that happens after that date.[255]

2.4 LAW GOVERNING REDEVELOPMENT

The possibilities for site redevelopment are defined and bounded by the applicable zoning codes — those of the City of Los Angeles and the City of Carson — whose parameters are in turn governed by state law. As discussed in Section 1.4.2.1, any redevelopment of the Phillips 66 Refinery site that is not a heavy industrial use will require a zoning code amendment. As also discussed there, the City of Carson is requiring the preparation of a Specific Plan for the Refinery site, and developers are voluntarily proposing a Specific Plan in connection with redevelopment of the Wilmington site. The most likely scenario is that a developer would submit its application for the redevelopment together with an application for the zoning code amendment or Specific Plan.[256]

2.4.1 Structure of Zoning Requirements

By both state and local law, local zoning codes are required to conform to the applicable General Plan.[257] State law defines the elements a General Plan must contain — including, e.g., a land use element, a conservation element, a transportation element, a noise element, a safety element, and a military readiness element.[258] SB 1000 in 2016 added to that list a requirement that plans contain an "environmental justice element" identifying disadvantaged communities (as defined by SB 535)[259] and setting out objectives to reduce their health risk, promote civil engagement in the public decision-making process, and prioritize improvements to meet the communities' needs.[260]

State law further authorizes preparation of a Specific Plan, consistent with[261] but supplanting the General for a particular area. Unlike the General Plan, a Specific Plan is required to provide considerable detail about its standards and implementation, including plans for transporta-

Photo credit: Gissela Chavez for CBE, APEN.

tion, energy, and other infrastructure; standards applicable to development, including natural resources conservation; and implementation measures such as public works projects and financing measures needed to actualize the Specific Plan objectives.[262] Specific plans have been described as a hybrid between a General Plan and zoning, providing a level of specificity that straddles the two. A Specific Plan is required to be adopted in the same manner as the General Plan, since it effectively supplants the General Plan within the covered area.[263]

A number of other types of planning documents are used by local governments to supplement the General Plan, but none have the force or required level of detail of a Specific Plan.[264] State law recognizes Community Plans,[265] which essentially function as supplements to — but not, like a Specific Plan, as replacements for — the General Plan. A Community Plan must contain a land use element, and presents goals and policies that are unique to the area it covers, but is not a regulatory document setting forth development standards. There are also "neighborhood plans," which are like a Community Plan but more loosely defined, and "precise plans," which are similar to a Specific Plan but lack all of its requirement elements.[266]

2.4.2 Amending Zoning Documents

The procedural elements required for a municipal zone change are set forth in state law[267] and reflected in the Los Angeles and Carson municipal codes. In Los Angeles, an amendment — which may be proposed by the city council, the Planning Commission, or the property owner/developer[268] — must be referred initially to the Planning Commission for preparation of a report concerning conformity with the General Plan and a set of general factors (public necessity, convenience, general welfare, and good zoning practice). The Planning Commission may also hold hearings regarding the proposed amendment.[269]

State law does not prescribe the procedures for amending the General Plan, except to specify that the mandatory elements may not be amended more frequently than four times per year.[270] In the municipal codes, procedures for amending the General Plan are similar to zoning amendment procedures, but include some additional procedural elements — e.g., mandatory hearings and a 30-day review period for the mayor, whose disapproval of any proposal triggers a council supermajority requirement for approval.[271] Although a Specific Plan is functionally a standalone piece of the General Plan, these General Plan amendment procedures do not apply to Specific Plan adoption — a Specific Plan can be adopted through the same process as a zoning amendment.[272] However, amendments to an established Specific Plan require the same process as amendments to the General Plan.[273]

While amending the zoning code to prohibit ongoing uses can sometimes raise "vested rights" concerns — the legal concept that where someone has relied on existing zoning to conduct an activity, a local government faces constraints in outlawing that activity via a zone change[274] — rights in the existing zoning code vest only when someone has actually broken ground on a project, as opposed to merely planning for it. In order to protect developers against the impact of zoning changes, the law allows them to enter into development agreements with local governments in order to safeguard any legal authorization for a proposed project from future zoning amendments.[275] The proposal for the Five Points Union Project at the Wilmington site includes a request for a 25-year development agreement.[276]

2.4.3 "Interim Urgency" Zoning

Notwithstanding the usual protracted amendment process, state law also allows for "interim urgency" zoning ordinances, where deemed necessary to protect public welfare. Among the allowable uses for interim urgency ordinances is to create an effective moratorium on uses that might be in conflict with any General Plan or Specific Plan that the municipal legislative body or planning department is contemplating. The duration of an interim urgency ordinance is capped at 10 months and 15 days, with limited allowable extensions.[277]

2.4.4 Nonconformity

Zoning codes, including those of Los Angeles and Carson, generally allow for continuation of "nonconforming uses" — meaning uses that were once conforming, but no longer are following a change to the zoning map. However, these uses are tightly circumscribed. A facility that becomes nonconforming cannot be changed, expanded, or altered except in narrow circumstances (minor repairs, conforming to other legal requirements, etc.).[278] Municipalities may — but need not necessarily — place a time limit on how long nonconforming uses may continue.[279]

2.4.5 CEQA and Zoning

Most decisions amending zoning and planning documents — including and especially the types of General Plan and zoning code amendments and adoption of Specific Plans that may govern the future use of the Phillips 66 Refinery sites — are by definition both heavily discretionary and likely to result in physical environmental impacts.[280] It is thus the norm (albeit not categorically mandatory) not only that CEQA applies to these types of decisions, but that a full EIR will be required[281] — hence the determination by the City of Los Angeles that an EIR will be prepared in connection with the proposed Five Points Union Project.[282] The EIR process can serve as a vehicle for both facilitating robust public comments and for coordinating the array of agencies who will need to have input into the proposed change.

The steps in the CEQA process are as follows:

i. *Initial determination*. The lead agency (in this case, the planning department or commission) makes an initial determination about what level of CEQA review is required — which turns on whether the proposed action "may have a significant effect on the environment."[283] Sometimes, but not always, the determination is informed by an "initial study" — although the City of Los Angeles has determined that no initial study will be performed in connection with the proposed Five Points Union Project because it has already been determined that an EIR is required. In an initial study, the agency may find no evidence of a significant impact (a "negative declaration"), evidence that such an impact exists but can be fully mitigated by project changes (a "mitigated negative declaration"), or evidence that a full EIR is required.

ii. *Notice of preparation and scoping*. If an EIR is found to be required, the agency will issue a "notice of preparation," which is made publicly available and sent to any other "responsible agencies" with discretionary authority over the project. At this point, members of the

public may comment about what they would like to see included in the EIR, although the agency is not required to formally respond to such "scoping" comments. However, the CEQA regulations (generally referred to as the "CEQA Guidelines") encourage agencies to conduct a formal scoping process.[284]

iii. *Draft EIR*. Once a draft EIR is prepared, the lead agency initiates a formal comment period with both responsible agencies and the public, which needs to be at least 30 days. Public hearings concerning the draft are "encouraged" but not required.[285]

iv. *Response to comments*. The lead agency is required to provide a written response to any public or responsible agency comments received that raise "significant environmental issues" at least 10 days before certifying the EIR as final.

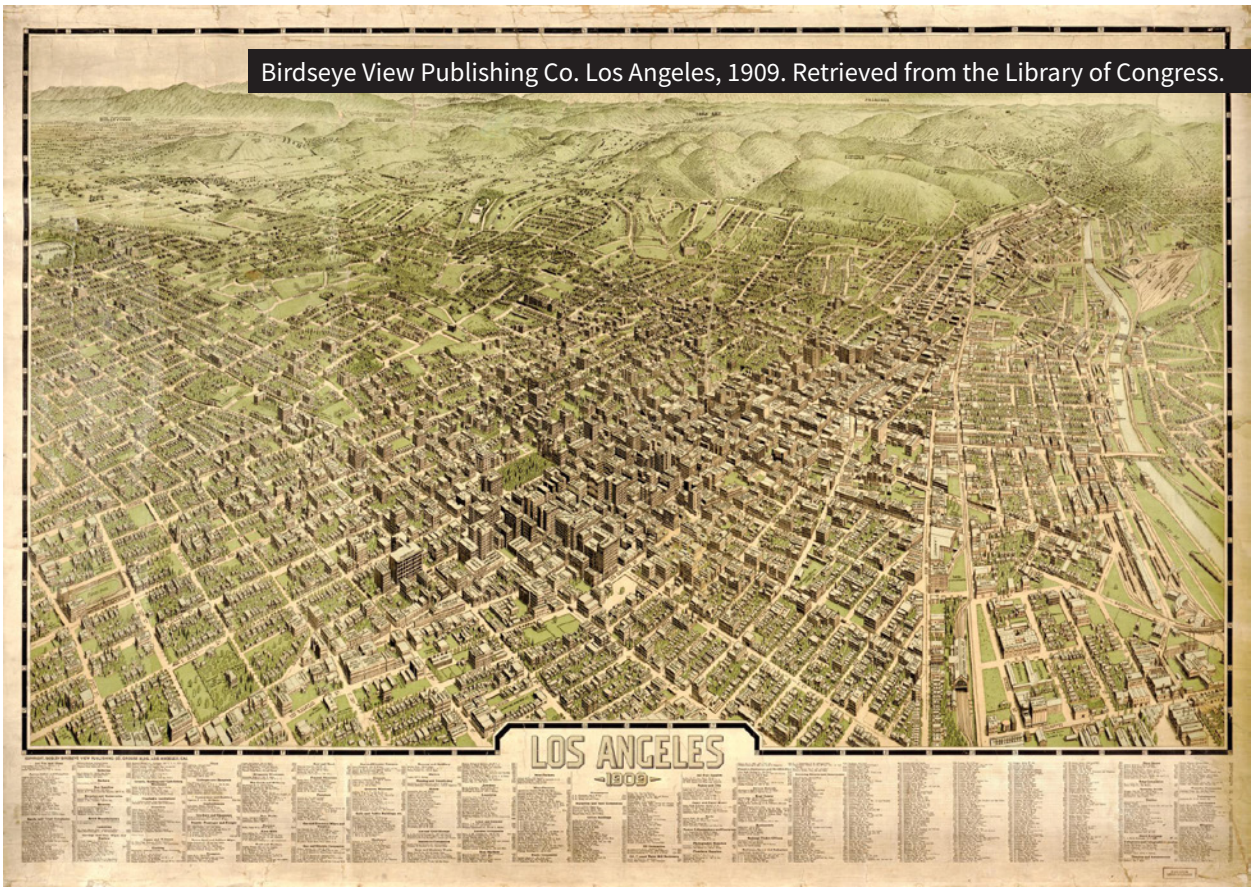
v. *Final EIR*. The lead agency is required to certify the final EIR before approving the project. Before it does so, however, it may either provide an additional opportunity for review (generally focusing on its responses to comments) or recirculate the draft if it has made any major changes to it.[286]

vi. *Notice of Determination*. Once the EIR is certified, the agency files a Notice of Determination of its decision on the proposed project (the zone or plan change).

This CEQA process, which would occur alongside the required zoning and planning amendment processes, is necessarily protracted. The analysis required for the EIR will be extensive, and could easily take a year or more for the planning agencies to prepare. If extensive public and/or agency comments are received, the planning agencies will need significant time to respond to them, particularly if they are of a technical nature. If public hearings are held at the scoping and draft EIR stage — which they reasonably should be, given the deep significance of the Refinery sites to the affected communities — the process will necessarily be drawn out further. It is impossible to create in advance a reliable prediction for the duration of the CEQA process in this scenario, but it would be fair to say that two years to completion would be an optimistic guess, and three years or longer may be more realistic.

2.4.6 Los Angeles and Carson Implementation of Planning and Zoning

Both Wilmington and Carson have recently been amending their zoning codes. Los Angeles adopted a revised code in October 2024,[287] and the City of Carson is in the middle of its own update, with a draft issued in March 2024.[288] None of the changes appear to materially affect the zoning applicable to the Wilmington and Carson sites. Both cities also recently amended their General Plans to ensure compliance with the SB 1000 requirement to include an environmental justice element. Los Angeles made technical amendments to the Plan in 2021,[289] and Carson in 2023.[290]



Birdseye View Publishing Co. Los Angeles, 1909. Retrieved from the Library of Congress.

As discussed in Section 1.4.2.2, the City of Carson has taken targeted steps under its zoning and planning authority to take control of the redevelopment of the Phillips 66 Carson site. In late 2024, the Carson City Council passed a General Plan amendment mandating the preparation of a Specific Plan in conjunction with "any redevelopment of a Refinery Site for a new use following cessation of refinery operations."[291] In support of that determination, the Carson City Council passed an interim urgency ordinance putting a 10-month moratorium on "consideration of applications and approval and issuance of permits" for redevelopment of refinery sites.[292]

Los Angeles did not respond in a similar way to the closure announcement, and hence now has the proposal for the Five Points Union Project at the Wilmington site pending before it. Among other things, the developers are proposing to amend the Community Plan for the Wilmington and adjacent harbor area,[293] which the city is currently in the process of updating, in part to include the SB 1000 environmental justice elements.[294] The current proposed revised plan (not including whatever additional changes the developers may propose) does not address the Wilmington refineries with any specificity. It sets a goal of "a healthy and livable

community where collaborative efforts to reduce the footprint of the petroleum industry within the community plan area are advanced," [295] but the substantive provisions address the oil extraction industry, not refining.

Los Angeles has some history of using the Specific Plan process to set standards for urban redevelopment, albeit generally for larger geographic areas rather than a specific site. Its Specific Plan for Warner Center,[296] a west San Fernando Valley community, created an air quality trust fund to mitigate impacts of anticipated new development. The city also implemented a Specific Plan for the Cornfield Arroyo Seco area near Chinatown.[297]

Children play at Ken Malloy Park. Photo by Gissela Chavez for CBE.

PART 3: KEY ISSUES

The unfolding story of the closure and anticipated redevelopment of the Phillips 66 Refinery offers a window into the set of unique issues and problems that will attend the slowdown and eventual end to petroleum refining in California and elsewhere. Understanding these issues can lay the groundwork for addressing them, both specifically with respect to the Phillips 66 closure but more generally in preparation for anticipated future closures.

This Part will lay out in broader terms the types of issues that will need to be addressed generally in refinery closure and redevelopment to ensure safety and fairness for communities, workers, and other stakeholders. It will reference both issues that have specifically arisen in the context of the Phillips 66 closure and issues more generally likely to arise in future closures based on experience elsewhere and extrapolation from regulatory gaps. While the disruptive impacts of a refinery closure are to some degree unavoidable — people will be thrown out of work, local tax revenues will take potentially a large hit, and costly site cleanups will be needed — this section will provide analytical groundwork for finding ways in which those impacts could be addressed effectively in the ways explained in Part 4.

3.1 PROCESS SAFETY RISKS IN THE RUNUP TO CLOSURE

3.1.1 Staffing and Maintenance Deficiencies

As discussed in Section 1.3.2, the runup to the anticipated closure of the Phillips 66 Refinery at the end of 2025 has caused a significant understaffing problem, with workers at one point assigned to shifts as long as 18 hours, and regularly putting in 12-hour shifts over 13 straight days. This problem is as predictable as it is dangerous, and is not being adequately addressed by either refinery management or enforcement of process safety regulations.

There is little doubt why the staffing shortage has happened. Notice of the closure came a year in advance, pursuant to the state law requirement in SBX 1-2 — a valuable provision in that it provides the state and communities much-needed time to address the fallout from a closure, but that also engenders the unintended consequence of workers fleeing to other opportunities when informed their jobs are ending. Labor representatives state that this type of worker flight happened also in association with the closure of the Phillips 66 Santa Maria refinery in early 2023, which likewise had to function with a skeleton staff as the closure date approached.

If Phillips 66 management saw the handwriting on the wall regarding an impending loss of staff, their actions did not reflect it. Their economic interest alone, in the absence of a regulatory mandate, was insufficient to drive them to take the measures necessary to retain a robust workforce. Management used its leverage to bargain hard for a contract covering the closure period that provided few meaningful incentives for employees to remain for the duration of the Refinery's waning days. As discussed in Section 1.3.2, union representatives report that the contract provided no assurance against pre-closure layoffs, offered severance only to salaried but not hourly workers, and structured the payments as an end-of-quarter bonus — the latter provision, according to some, providing an incentive for workers to hold out only until the end of a quarter before taking a job elsewhere.

These representatives believe that workers could have been induced to stay had they been offered incentives that protected their income and career prospects — such as extended severance and health care, job training, outplacement assistance, and where possible guaranteed transfer to refinery jobs available elsewhere. This belief is supported to a degree by experience at other shuttered refineries. When the Shell refinery in Louisiana was headed

for closure, the company offered up to 78 weeks' severance, which significantly reduced (albeit did not eliminate) pre-closure attrition.[298]

The chronic understaffing of refineries headed for closure has serious safety implications for workers and the surrounding community. Refineries run complex and volatile processes that are prone to dangerous accidents when mistakes are made. The worst of these accidents have been widely reported on — e.g., the 2012 fire at the Chevron Richmond refinery that sent as many as 15,000 people to local hospitals,[299] the 2015 explosion at the ExxonMobil Torrance refinery that caused chemical ash to rain on the surrounding community for hours,[300] and the spent catalyst release and fire incidents at the PBF Martinez refinery[301] — but many more accidents occur on a regular basis.[302] Oil refining is an inherently hazardous process, involving "the processing of flammable, corrosive, and toxic chemicals in huge volumes at high temperatures and pressures."[303] When accidents happen in this high-risk environment, they can be severe, with the potential to kill or injure both workers and community members.[304]

WHEN ACCIDENTS HAPPEN IN THIS HIGH-RISK ENVIRONMENT, THEY CAN BE SEVERE, WITH POTENTIAL TO KILL OR INJURE BOTH WORKERS AND COMMUNITY MEMBERS.

It has long been understood that the risk of such accidents is increased by understaffing and worker fatigue. A 2006 report from Swiss Re, the world's second-largest reinsurer, determined that the U.S. had sustained financial losses from refinery accidents at a rate about three times higher than European Union refineries, and concluded that the difference is due in part to U.S. companies "pushing the operating envelope" with respect to, among other things, employee "alertness."[305] The American Petroleum Institute (API) has a specific standard addressing worker fatigue in the refining industry.[306] Although it is not always possible to pinpoint the cause of particular accidents, references to staffing shortages and worker fatigue show up repeatedly in analyses, both formal and informal, of the cause. The spent catalyst incident at the PBF Martinez refinery,[307] 2023 fires at the Marathon Martinez refinery,[308] and a fire at the Phillips 66 (then Unocal) Rodeo refinery[309] have all been attributed in part, and with varying degrees of certainty, to issues with worker staffing and/or fatigue.

Photo by Gissela Chavez for CBE.

Compounding these end-of-life refinery safety issues is the potential reluctance of refinery operators to perform extensive turnaround maintenance on a refinery that is destined to close in the near term.[310] Workers report that although they technically have the authority to halt processes in cases of immediate danger, they feel disincentive pressure to do so when the result could be to permanently shut down the refinery ahead of schedule, given the perceived unlikelihood that the refinery operator would be willing to complete a turnaround with extensive maintenance when closure is imminent.

There is not a strong consensus, however, about what sort of contract terms and incentives would be sufficient to ensure worker continuity through the time of closure. As discussed in Section 1.3.2, some labor leaders observed that quarterly bonuses incentivized early departures as soon as initial bonuses were received. However, others have expressed the view that withholding bonuses and severance until closure is an unnecessarily punitive approach, and favor offering incentives that leave employees with more flexibility.

3.1.2 Limitations of Existing Process Safety Regulations

As discussed in Section 2.2.2, the MOOC provisions in both the CalARP and CalOSHA process safety regulations can reasonably be interpreted to address staffing issues in the runup to closure. Details are not readily available concerning how, if at all, these MOOC requirements may have been implemented or enforced at the Phillips 66 Refinery or elsewhere. However,

generally speaking, there are a number of potential issues that limit their force in the context of an impending closure.

First, there is an issue of regulatory clarity. While there is certainly basis to argue that permanent closure of a refinery is an event triggering MOOC requirements, that connection is not spelled out in either the CalARP or CalOSHA regulations. Although it remains possible that that Phillips 66 has treated the MOOC provisions as applicable, triggering the MOOC assessment requirement, there is currently no available information suggesting that either the assessment has been prepared or that CalOSHA or the CUPA has stepped in to require such preparation.[311]

Second, even to the extent MOOC requirements are interpreted to apply to the runup to permanent closure, they require very little beyond paperwork. While there is a requirement to prepare an assessment, there are no standards to ensure the rigor of that assessment. For example, the regulations require that a Hierarchy of Hazard Controls Analysis (HCA) be applied to all existing processes and be part of an MOC review, but there is no requirement to apply it to a MOOC assessment,[312] an issue noted in a 2014 state report on refinery safety.[313]

Third, the MOOC requirements, to the extent applicable, are insufficiently specific to refinery closures to effectively address them. Anticipation of closure is categorically like other organizational change situations, but carries with it enhanced risks. Whereas in an ordinary organizational change situation management knows what the staffing changes will be and can plan for them, in the runup to closure the main goal is to prevent unanticipated organizational changes — i.e., the abrupt departure of essential employees that requires scrambling to fill their roles with the dwindling remaining employee population. While a rational operator implementing the MOOC requirements would understand the need to develop an aggressive plan to retain employees in the runup to closure, that need is not currently spelled out.

Fourth, as is the case for most of the process safety requirements, there is no regular interface between operators and regulators to ensure that the requirements are being properly implemented. The MOOC assessment, when prepared, is merely required to be maintained onsite. Although there are triennial audit and inspection requirements to ensure compliance with the regulations generally, the results of the audit are not sent to regulators - they are merely required to be retained for three triennial cycles[314]; and the triennial inspection requirement requires only documentation of the general MOC procedures, not any specific triggering of MOOC requirements.[315] There is thus no system in place for regulatory authorities — CalOSHA and the CUPA — to learn in a timely way whether and when MOOC assessments have or have not been done.[316]

And fifth, perhaps related to the problem above, enforcement of process safety requirements in general has been somewhat limited. The 2014 refinery safety report identifies significant hinderances to robust enforcement, including agency capacity limitations.[317] The report also noted that penalty amounts tend to be small, a fact supported by the publicly available CalOSHA process safety enforcement record against Phillips 66.[318] Labor representatives have noted a pattern of CalOSHA over-relying on monetary penalties rather than injunctive enforcement.

A few local governments, including Contra Costa County[319] and the Cities of Richmond[320] and Benicia,[321] have enacted their own process safety ordinances, which are in some respects stronger than the CalARP and CalOSHA regulations.[322] However, these local ordinances do not include strategies for addressing the safety issues associated with the runup to refinery closure, as none specifically address MOOC.

3.2 UNCERTAINTY AROUND DECOMMISSIONING AND REMEDIATION

The process of decommissioning and remediation of refineries is extraordinarily under-regulated as compared with other sectors of the energy industry. In the electric generating industry, decommissioning is overseen by public utility commissions, which can control the timing, funding, and other aspects of a planned shutdown and decommissioning (which enabled the Diablo Canyon nuclear reactor retirement agreement in 2016[323]). In the nuclear industry, plant operators are expressly required to prepare in advance for decommissioning (with that term defined in the regulations to include site remediation[324]) by setting aside money to cover anticipated costs, potentially via an external sinking fund or other defined mechanisms.[325] Oil wells are required to be covered by a bond to cover decommissioning costs,[326] and are subject to specific closure requirements.[327] Renewable energy development is likewise subject to extensive decommissioning requirements, with states requiring that permit applicants include decommissioning plans for solar and wind facilities accompanied by a bond.[328]

There are no comparable requirements comprehensively addressing petroleum refineries' end of life. The 100-plus-year-old refining industry predates by many decades the regulatory structures that ensured that the later-arriving nuclear and renewable energy industries would have decommissioning plans and financing in place, leaving owners and regulators in the position of scrambling to chart a course for decommissioning and remediation only when a closure decision has been made.

As explained in the sections below, this situation creates very real risks for the process of refinery decommissioning and site remediation. Decommissioning plans and remediation levels are determined on a case-by-case basis, making it difficult for agencies and communities to know what to expect and plan around it. The absence of bonding requirements for refineries risks inadequate funding for the cleanup if the refinery owner lacks the resources to complete it. The SEC, whose job it is to ensure disclosure of full information regarding publicly traded companies' financial health and solvency, does not require full disclosure regarding the potentially enormous cost of asset retirement until the closure is actually announced. There are also insufficient rules to ensure the hiring of competent union labor for the decommissioning process, and potential confusion around the scope of closure and how best to manage the continuing impacts of infrastructure (e.g., tanks that continue in use post-closure) that is not included in the decommissioning.

THE DECOMMISSIONING AND REMEDIATION OF REFINERIES IS EXTRAORDINARILY UNDER-REGULATED AS COMPARED WITH OTHER SECTORS OF THE ENERGY INDUSTRY.

3.2.1 Uncertainty Around Remediation Levels

Existing California law provides a generally effective framework for evaluating site contamination and determining a required response. As explained in Section 2.3.2.2, the regional Water Board overseeing the cleanup is required by law to require the most stringent remediation that is economically and technical feasible, to the extent background levels cannot be achieved (which they generally cannot be at a heavily contaminated refinery site). Accordingly, for any given site, the site owner or operator will submit a proposed RAP based on their hired consultants' assessment of what is and is not feasible.

This ad hoc system, even if it functions well, results in extensive uncertainty regarding what to expect in these very large-scale cleanups, even where understanding what will be involved in the cleanup is essential to community planning around the refinery closure. A lack of standardized information about the type and level of remediation that will be required leaves communities functionally in the dark about what to expect and how to plan around it, and affords refinery operators latitude to underestimate their asset retirement obligation (ARO) if they estimate it at all. More generally, it leaves state regulators with insufficient information to

gauge the statewide economic impact of refinery closures. Multiple reports place the ARO of oil wells in the state collectively in the billions of dollars,[329] based on reasonably well defined well closure obligations, but no such collective estimate exists for refinery closures in the absence of such definition.[330]

Some form of ad hoc decision-making regarding remediation strategies will always be necessary, as sites vary in the specifics of their contamination and geography. And general information does exist concerning available remediation technologies and their appropriate uses.[331] However, there are currently no publicly available standardized guidelines defining the default best technologies and what they generally cost to implement or long-term cleanup cost estimates and timelines based on those default technologies. Additionally, while the Water Boards have been requiring investigation and remediation activities at California refineries for decades, in practice, as at the Phillips 66 Refinery, the activities are generally stepped up and fully defined long term following closure — again, resulting in limited information being available to communities and the state to support an accurate cleanup cost estimate at the point of a closure announcement. At Phillips 66, the Water Board is only now preparing for the development of RAPs for the two sites.

Finally, it bears note that at the PES refinery, community organizations have documented significant concerns around the planned closure methodology, which is to cap the soil at the heavily contaminated site. Advocates have pointed out that the plan will add extensive impervious surface, and that the refinery site is located in a flood zone, making the cap method minimally effective and vulnerable to sea level rise.[332] It is thus not a good model for estimating remediation costs.

3.2.2 Uncertain ARO Costs

Although the refinery cleanup process lacks standardized default methodologies and cost estimates to facilitate estimation of an operator's ARO, the larger problem is that the current system does not require such estimation at all. For all intents and purposes, despite the site characterization and remediation that is ongoing at California refineries, the full cost of site cleanup remains a black box to communities, investors, other involved agencies, and lawmakers.

The problem of inadequate refinery ARO estimation is documented and explained in a 2024 report by Carbon Tracker, an energy transition think tank.[333] The report exposes a loophole in accounting rules that allows refinery operators to refuse any disclosure of anticipated ARO costs until such time as a closure is announced. When a company prepares its SEC annual and quarterly filings, it is required to present a full financial picture of the company's assets and liabilities based on established accounting standards — including the International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP). The GAAP

define AROs as any legal obligations related to the "retirement of a long-lived asset."[334] Ordinarily, such obligations need to be disclosed on the liability side of the balance sheet.


Wilmington, CA. Photo by Gissela Chavez for CBE.

The catch — and the loophole for refinery operators — is that the accounting principles allow an assumption that refineries do not have finite lives. For accounting purposes, a refinery is treated as having an indefinite life, with no assumption made that it will eventually cease operation. Despite efforts in the past to beef up reporting requirements for environmental liabilities,[335] the IFRS have been interpreted not to require an estimate of an ARO when there is insufficient information available "to reasonably estimate ... the settlement date or the range of potential settlement dates" — with "settlement date" referring to the anticipated facility closure date, when the retirement obligation effectively comes due. Since operating refineries generally do not have a defined date on which they are slated to close until a closure decision is actually made, the ARO liability is left off the balance sheet and the SEC filings prior to a closure announcement — generally replaced by a statement that the ARO cannot be estimated because no defined settlement date yet exists.

Thus, even though it is clear from recent events that refineries have finite lives, as they continue to close all around us, oil companies are shielded from disclosure of their ARO due to the legal fiction that they will live in perpetuity. At the point a refinery's ARO is disclosed following announcement of a closure, it is largely too late for regulators, shareholders, and communities to take ARO information into account and plan around it. As explained in Section 1.4.1.2, Phillips 66 provided an ARO estimate that included $205 million in cleanup costs for the Los Angeles Refinery for the first time in its SEC Form 10-Q for the fourth quarter of 2024. Valero

similarly included the cost of the ARO for the Benicia refinery only after it announced the refinery's closure.[336]

Moreover, even to the extent an ARO estimate is belatedly provided contemporaneously with the closure announcement, it is not at all clear that these estimates include site remediation costs. As noted in Section 1.4.1.2, the Phillips 66 $205 million estimate is framed as the cost of asbestos abatement and decommissioning of assets at the Los Angeles Refinery.[337] It is impossible to tell whether this figure includes cleanup costs beyond removing and disposing of the refinery infrastructure, because no cost breakdown is provided in the filing. But there is reason to believe it does not, because the filing does not clearly indicate accounting for significant cleanup expenditures extending into future years — when the Water Board has made clear that the process and attendant liability will last a very long time, likely overlapping with any future redevelopment.[338] The Valero SEC filing referencing the Benicia refinery ARO is similarly opaque about what if any soil and groundwater remediation costs have been included, referencing only "decommissioning" costs.[339]

A CARBON TRACKER REPORT... DEVELOPED A ROUGH ESTIMATE OF SIX DIFFERENT REFINERY OPERATORS. THE AUTHORS ESTIMATED A COMBINED TOTAL OF $34 BILLION DOLLARS IN DECOMMISSIONING COSTS FOR THIS COMPANY.

As the Carbon Tracker report makes clear, this information gap regarding refinery AROs is potentially enormous and consequential. Despite the absence of data concerning estimated cleanup costs, Carbon Tracker developed a very rough estimate of AROs for six different companies that operate refineries, including Phillips 66. The authors estimate a combined total of $34 billion dollars in decommissioning costs[340] for these companies,[341] including $6.3 billion in total for Phillips 66.[342] The report then compares the estimated ARO liability with the companies' total equity, and the results are sobering. For the six companies overall, the ARO liability figure represents 45 percent of the companies' combined total equity. That figure was 20 percent for Phillips 66, the lowest among the six.

3.2.3 Uncertainty Around Cleanup Financing

The early consensus around the Phillips 66 Refinery closure has been that there is little danger that site cleanup will not be paid for, because the valuable Port-proximate real estate is sure to interest developers and attract buyers.[343] It is entirely possible the consensus is correct, but it is not a certainty. At this point, the value of the land and its interest to developers may be contingent on the cost of the site cleanup and the duration and success of the approval process for any project developers may decide to pursue. There is some basis, in turn, to question whether Phillips 66 can be counted on to fully fund the cleanup potentially decades into the future, given the apparent role of private equity with a "vulture capital" reputation in the Refinery's closure. Phillips 66 reported a $908 million loss on the Refinery in 2004 following a $2.5 billion investment in the company by billionaire activist investor Paul Singer, who has pushed for a focus on other company assets.[344]

Whether or not financing the cleanup will turn out to be an issue for the Phillips 66 Refinery, however, it is clearly a larger issue that needs to be addressed in preparing for refinery closures, statewide and nationally. The lack of financial assurance requirements for refinery decommissioning[345] — in contrast to the bonding and fund-creation requirements and availability of ratepayer funds in other energy sectors — intrinsically creates the risk that funds may not materialize following refinery closure to pay for a costly cleanup. Indeed, concern with the high cost of refinery cleanups coupled with potential funding deficiencies drove U.S. EPA to develop a draft rule pursuant to CERCLA § 108 establishing financial responsibility requirements for refineries, until the effort was scuttled in the waning days of the first Trump administration.[346]

The absence of bonding requirements for refineries risks insufficient funding for the cleanup if the refinery owner lacks the resources to complete it. The history of the PES closure, which was accompanied by a Chapter 11 bankruptcy filing shortly after the refinery was idled that ultimately led to the owner's liquidation,[347] underscores the problem with lack of financial assurance mechanisms. While an abatement order cannot be discharged in bankruptcy, in the absence of such an order a site owner can potentially avoid cleanup liability through dissolution.[348] Even in the absence of bankruptcy, while operators and their predecessors remain legally liable for cleanup costs under RCRA, CERCLA, and their state-level counterparts, it can be extremely difficult as a practical matter for regulators to collect cleanup costs — e.g., where the company has created corporate structures that shield deep-pocketed parent corporations from liability, or where it simply chooses to respond with costly and complex litigation rather than cooperation.

3.2.4 Uncertainty Around Decommissioning Labor

The decommissioning of refinery infrastructure is a complex process involving large volumes of contaminated and potentially highly hazardous materials. One important aspect of protecting public and worker safety is ensuring that the workers who execute the decommissioning are fully qualified to perform it thoroughly and with minimal risk to themselves and the surrounding community.

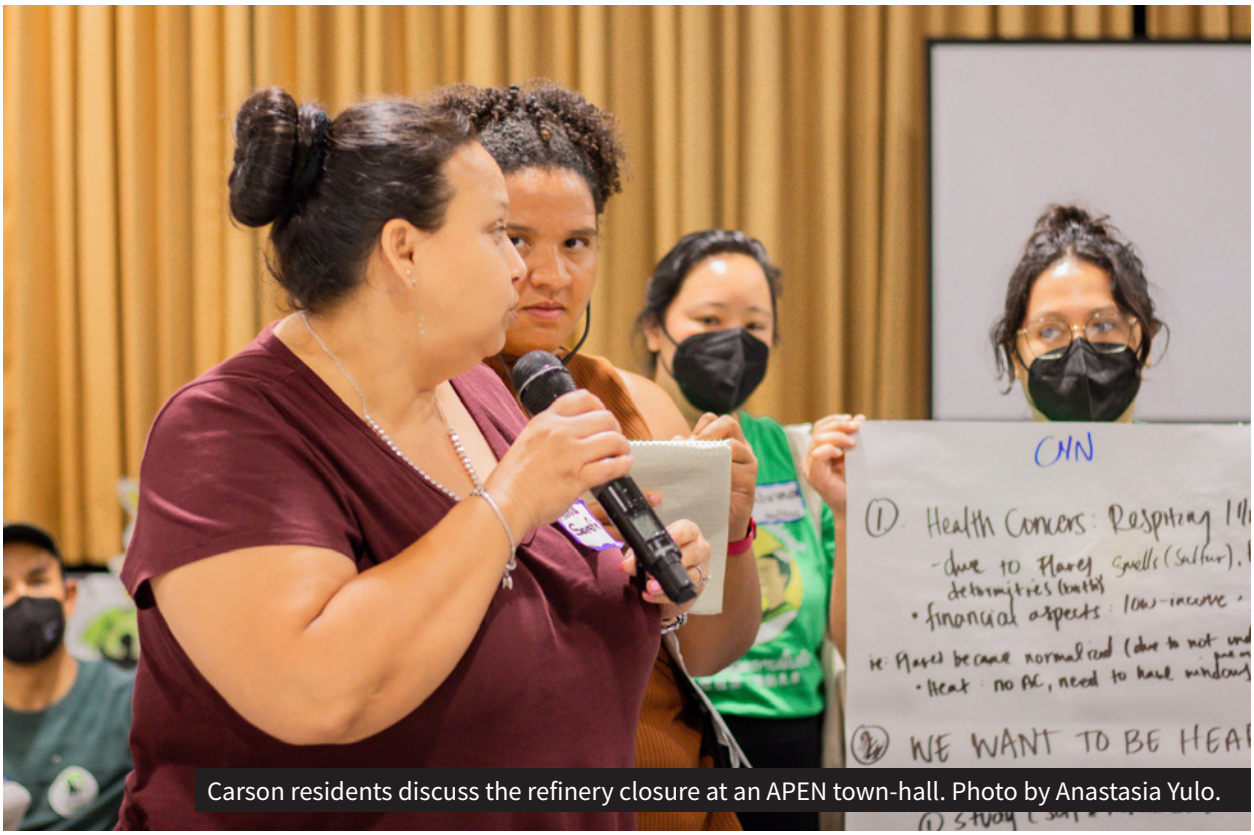
The workers who appear most qualified to conduct the Los Angeles Refinery decommissioning are members of the International Longshore and Warehouse Union (ILWU), whose Los Angeles-area Local 56 covers ship scalers and painters, and provides skilled hazardous materials services in the region.[349] Local 56 reports that the union requires strict drug and health testing for workers performing hazardous cleanup jobs, and provides extensive in-person training run by the Teamsters Union, in contrast to non-union workers, who generally are trained with videos.

There is currently no requirement in place, however, that ILWU workers be hired for the job, and there is a risk they may not be. Union wages are roughly double the rate paid by non-union shops ($40 versus $20 per hour), who typically bring in the non-union workers from out of state. Local 56 officials expressed concern that in the past, when they have been pulled in to do quality control of hazardous remediation work performed by non-union contractors, the work was deeply substandard.

3.2.5 Uncertainty Around Continued Storage Tank Operations

As discussed above, it is not entirely clear as of this writing the extent to which Phillips 66 intends to continue to operate any of its tanks. The possibility of continued tank operation raises a potential air pollution concern. In one other refinery closure in the state — of Marathon Martinez, which subsequently converted to bioenergy production — the closure of refining operations but continued operation of the tanks created a significant air emissions issue. Before the closure, the vapors from the tanks had been re-routed for use as fuel in the refining process, but after closure, when the vapors no longer had a beneficial use, they were simply flared off. The Bay Area Air Quality Management District fined Marathon $5 million for the resulting air quality violations, its second-largest penalty ever assessed.[350]

As of now, there is no information available concerning any connection between the tanks and the remainder of the Phillips 66 Refinery that could in theory give rise to a similar problem. But it is an issue that could easily recur. ABX 2-1 empowers the CEC to require inventory storage to alleviate shortages and price spikes, which could potentially encourage refineries ceasing operations to leave their storage tanks in operation in order to facilitate maintenance of product supply.



Carson residents discuss the refinery closure at an APEN town-hall. Photo by Anastasia Yulo.

3.3 INADEQUATE COMMUNITY INPUT IN REDEVELOPMENT DECISIONS

As a baseline matter, an owner of private property has wide latitude to decide how to develop it. Community power over development choices is derived from fundamentally two sources: the authority to create and amend zoning and planning restrictions, and the CEQA process that attends the zoning and planning amendment process and/or the project approval process. However, these sources of legal power do not automatically guarantee a strong community voice in redevelopment.

In the first instance, not every possible redevelopment scenario at any given California refinery site would necessarily involve a zoning change triggering CEQA. At the point a refinery shuts down, a site owner is allowed to redevelop the site as of right (i.e., non-discretionarily) consistently with the existing zoning — heavy industrial — with little if any community input. The zoning codes in some cases allow lighter industrial uses in a heavy industrial zone, just not vice versa.[351] To the extent no zone change is required in connection with a proposal, the

applicability of CEQA will hinge on the existence of a discretionary determination triggered by the development application — or on the existence of a Special Plan requirement along the lines of the City of Carson's. It bears note that the amendments to CEQA enacted in June 2025[352] exempt from CEQA any "advanced manufacturing" developments on sites zoned for such developments. "Advanced manufacturing" is very broadly defined[353] to include at least some uses that are consistent with the existing zoning, and hence would not trigger CEQA due to a zone change. However, to the extent either a zone change or a Special Plan is required in connection with an advanced manufacturing project, it is those actions that would trigger CEQA, regardless of the exemption for the project itself.

To the extent CEQA does apply and/or a zone change is required, a primary obstacle to the effectiveness of these legal tools as a vehicle for community control has been timing. If the developer chooses to amend the zoning in connection with a proposed new use, thus triggering CEQA, it will typically present its concept to planning authorities as a fully developed proposal, reflecting only the level of community input it has chosen to seek out and incorporate.[354] The ensuing CEQA process, although it technically requires consideration of alternatives to the proposed project, will be bounded to a great extent by the developer's definition of the project purpose — which generally has the effect of taking alternatives off the table that do not meet that pre-defined purpose. For instance, if the developer proposing a battery manufacturing operation defines its purpose as battery manufacturing, then a community-proposed alternative of a grocery store may be dismissed in development of the CEQA EIR as not meeting that purpose.[355]

It is evident that the key to enhancing community input into decision-making around site redevelopment is to create opportunities for such input before developers can create bureaucratic momentum by filing an application. The City of Carson has taken admirable steps in that direction by putting a moratorium on redevelopment applications for the Refinery site in support of its Specific Plan requirement for it. This approach will go a long way toward ensuring that Carson maintains a say in the bigger picture decision concerning appropriate post-closure uses of the site. However, the moratorium is a time-limited tool – 10 months plus limited extensions – that the city had to scramble to put in place following the closure announcement. And the Specific Plan requirement, although it will require an enhanced level of detailed analysis and description of proposed site use in connection with any development proposal, still leaves the ball in the developer's court to propose the substance of the Plan (as the developers are proposing to do in the Wilmington project), unless the city takes initiative to do so itself in advance of receiving a developer proposal.

Wilmington, CA. Photo by Gissela Chavez for CBE.

3.4 LACK OF COORDINATION STRUCTURES

A simple review of the legal authorities and requirements surrounding the closure and redevelopment of the Phillips 66 Refinery makes clear that there are a lot of cooks in the kitchen. Multiple regulatory agencies at every jurisdictional level — federal, state, and local — are either potentially or already involved in the process. In many cases, agency authority is in principle overlapping, and in many others, agencies' actions influence and impact one another. Additionally, there are the community stakeholders, whose range of interests is not necessarily represented by any governmental entity, as well as labor associated with both refinery operation and site cleanup.

This web of interconnected decision-makers and interested stakeholders at play with respect to the Phillips 66 Refinery includes, at least, the following:

- City councils (with ultimate zoning decision-making).
- City planning and community development departments (responsible for zoning and likely CEQA process lead agencies).
- City building departments (responsible for decommissioning and construction permitting).

- Los Angeles County (together with the City of Carson, having authority over pipeline removal).
- The two CUPAs, City and County of Los Angeles (collectively responsible for storage tank removal, hazardous materials removal, and industrial safety/MOOC requirements).
- DTSC (responsible for previously closed WMUs and associated financial assurance).
- LA Water Board (overseeing the site investigation and cleanup).
- CalOSHA (responsible for enforcing the CalOSHA process safety regulations).
- SCAQMD (with rules governing air emissions impacts associated with decommissioning).
- CEC (with authority over refined products supply, and hence potentially to influence the timing and/or scope of closure and accompanying requirements).
- U.S. EPA and the U.S. Justice Department (prosecuting the criminal CWA violation charges concerning the Carson site, and also with overarching authority over enforcement of cooperative federal statutes).
- Local community-based organizations (multiple, representing various community interests).
- Labor unions (including both those representing refinery operators and maintenance workers and those representing potential site cleanup workers).
- City of Los Angeles Economic and Workforce Development Department (coordinating workforce transition and involvement in redevelopment).
- Development corporations, currently Catellus and Deca.
- Phillips 66 (and any future purchaser of the site).

Given this array, there is a risk that lack of structured coordination could result in paralysis or enable chaos — with evidence of the latter already emerging.[356] Currently, however, there are no collaborative structures in place that are adequate to meet the formidable stakeholder coordination challenge posed by the Refinery closure. An early well-intentioned measure passed by the Los Angeles City Council attempted to create a preliminary structure for coordination, but unfortunately did not include the right players. This motion, passed days after the closure announcement, called upon the city's Office of Petroleum and Natural Gas Administration and Safety and the Los Angeles Bureau of Sanitation Citywide Brownfields Program to present "next steps for remediation and reuse of the site with a timeline and cost estimates and personnel needs to assess, clean up, and revitalize potential impacts onsite."[357] Not only did this motion fail to include any of the key agencies listed above, but the two it did list have no meaningful authority over the closure and redevelopment. The Office of Petroleum and Nat-

ural Gas Administration and Safety has little or nothing to do with refineries, only oil extraction operations and pipeline franchises[358]; and the Brownfields Program is not a primary source of regulatory authority, but rather a small-scale assistance program designed to facilitate redevelopment of vacant and blighted properties.[359]

THERE ARE NO COLLABORATIVE STRUCTURES IN PLACE THAT ARE ADEQUATE TO MEET THE FORMIDABLE STAKEHOLDER COORDINATION CHALLENGE POSED BY THE REFINERY CLOSURE.

There are multiple examples within the City and County of Los Angeles of efforts to develop stakeholder collaboration around the transition away from fossil energy infrastructure, but all so far have focused on redevelopment of closed oil drilling sites. In 2021, the city and County of Los Angeles co-convened a Just Transition task force to develop a strategy around oil well closure. This group — comprising a mix of government and tribal officials, environmental and community groups, labor, academics, and Indigenous partners[360] — generated a report concerning just transition strategy, but was not set up as a collaborative body to address specific transition projects.[361] Redevelopment plans for two specific former drilling sites involved collaborative working groups more akin to the type that might be helpful with respect to refinery sites. The redevelopment process for the former Sentinel Peak well site in Arlington Heights reportedly involved a working group that facilitated collaboration between the Los Angeles City Planning Department and the LA Water Board. In the redevelopment planning for the former AllenCo drill site, the city's Health Department has reportedly invited advocacy groups with a focus on public health, as well as state agencies and local elected officials, into discussions regarding the site's future.[362]

While development of these collaborations represents a positive direction, none of them are a turnkey model for the type of formal cooperation, communication, and co-strategizing needed at a shuttered and contaminated refinery site. The Just Transition task force is a high-level rather than the process- and detail-oriented approach needed for redevelopment of a large and complex site. The two examples of collaboration around well site redevelopment, while a step in the right direction, would need to be expanded and formalized to address the more formidable task of refinery decommissioning and redevelopment.

3.5 LACK OF A TRANSITION SAFETY NET

Any time a major industry abruptly closes down in a community that has come to depend on that industry, economic and social repercussions are foreseeable. It is a story that has played out already in the energy economy when coal mines and coal plants have closed down in response to an economic and energy system that no longer supports them. These transitions invariably impact both workers and communities, inextricably and in tandem, as they struggle together to find new direction in the absence of the industry they were dependent upon. In this and other similar industrial transition contexts, which have been heavily studied, it has been repeatedly made clear that the workers and communities need an economic safety net to bring them through the transition — supporting a training and readjustment for the workers and economic diversification for the community.[363]

At this juncture, it is difficult to predict how this transition will play out in Wilmington and Carson — or in Benicia or other communities that may face refinery closures in the future — because study of these transitions has thus far been limited (see Section 3.6). But we know enough to understand that some significant disruption will occur. 900 refinery workers will be directly displaced and thrown into a market that offers mostly lower-paying jobs for people with their skill sets.[364] Indirect and induced employment will also suffer repercussions. Potentially adding to the re-employment difficulties of the Refinery workers is lack of access to their own training records — refinery operators have sometimes been refusing to provide that information on grounds of business confidentiality, although labor has worked out a partial solution with respect to the Phillips 66 Refinery.[365] In addition to employment impacts from closure, the community may face additional costs (direct and potentially community health-related) if the Refinery site cleanup is not completed or is done improperly. We also know that tax revenues will significantly diminish when the Refinery shutters,[366] although the magnitude of the impact has not been analyzed. The local impact from loss of revenue may potentially be greater for Carson, since Wilmington is part of the larger City of Los Angeles tax base.

There are certainly potential paths forward for both workers and the community. The workers, to the extent they cannot find employment elsewhere in the refinery industry, in many cases have skill sets that are transferrable to utility industries (e.g., a subset of workers may be positioned to shift to power plants or wastewater treatment facilities). But the transition may require training, which in turn requires economic support for the workers (and possibly related support such as childcare) while they are pursuing the training. The communities may be positioned to develop a more diversified economy through incentives and assistance offered for new types of

businesses. But those incentives require funds that the communities may not have, and economic support during the transition to the new economy.

Carson residents discuss the refinery closure at an APEN town-hall. Photo by Anastasia Yulo.

The situation creates a potential vicious cycle. The closure of the refineries results in pressing economic needs for workers and the community, but the diminished tax base makes the community even less able to meet those needs. The cycle is potentially exacerbated by the already economically and environmentally marginal status of the communities. As discussed in Section 1.2.1, Wilmington and Carson are both high scorers in CalEnviroScreen[367] and representative of a typical refinery community demographic.[368] In the energy generating sector, the availability of a ratepayer base offers a potential source of transitional revenue — as reflected in the negotiated closure of the Diablo Canyon reactor, which funded worker and community transition with ratepayer dollars.[369] But no such structures currently exist to pull funds from the refining industry to pay transition costs. While there have been proposals put forth for an infusion of public money to support worker and community transition,[370] thus far funding for such efforts has been at a very small scale.[371]

To their credit, both the City and County of Los Angeles passed resolutions calling for steps to assist refinery workers with transitioning to new jobs following the refinery closure. As discussed in Section 1.3.1, a motion passed by the City of Los Angeles days after the closure announcement (the same motion that attempted to address inter-agency coordination) requested the city's Economic and Workforce Development Department to prepare a worker transition plan[372]; and a motion passed by the county Board of Supervisors similarly directed the county's Department of Economic Opportunity to report back within 60 days with a written action plan to assist affected workers with job training and placement.[373] These steps are valid initial actions (although the County's report appears to have not yet been produced as of this writing). However, the types of assistance referenced, while helpful, do not include the significant funding needed to directly support workers and communities in transition.

3.6 INFORMATION DEFICIT

If information is power, then power to address the Phillips 66 Refinery closure — and refinery closures more generally — is in deficit. While there have emerged occasional broadly framed analyses of the issue of refinery closures generally,[374] and two case studies of other refinery closures,[375] there has been no in-depth technical analysis to date concerning the local impact of refinery closures either on the macro level (statewide or nationally) or specifically concerning Los Angeles-area refineries.

The types of information that are needed to inform an understanding of the Phillips 66 closure, and closures more generally, include the following:

- *Direct employment impacts.* An inventory of the worker positions and skill levels at the refineries, and potential employment opportunities when the workers are displaced.
- *Indirect and induced employment impacts*. Analysis of the jobs that are indirectly supported or induced by the refineries.
- *Tax base impacts*. An inventory of tax revenues generated by the refineries, collectively and individually, and the anticipated impact of the loss of those revenues.[376]
- *Cleanup costs and timeline*. For the reasons discussed in Section 3.2.1, a default estimate of the funds and time needed to complete a site cleanup.
- *Potential new industry*. An assessment of regionally appropriate opportunities to bring new industry into the former refinery community.

The report (Report and Recommendations)[377] and associated technical analyses conducted with respect to Contra Costa County refineries, funded by the California Workforce Development Board's High Road Training Partnerships (HRTP) Program (collectively, Partnership Studies),[378] provide an example of some of these types of analysis. The Partnership Studies evaluate the multiple types of impacts that flow from a refinery closure — including to workers and the tax base — and include in-depth research tracking the actual impact on workers at the Marathon Martinez refinery, shuttered in 2020 in advance of being re-opened as a bioenergy refinery with a greatly reduced workforce.[379]

August toxic tour. Photo by Anastasia Yulo for APEN, CBE.

PART 4: RECOMMENDATIONS

The closure of refineries creates novel and major challenges for communities and workers. But these challenges are not insurmountable. The issues raised by the Phillips 66 Refinery closure, as cataloged in this report, also highlight multiple opportunities at the state and local government level to meet the challenges head-on with policy solutions. Even in the absence of the types of sweeping statewide changes to management of refineries that have been floated by the CEC, such as a state takeover of refinery operations or imposition of a utility model for their operation,[380] there are many more focused approaches that can be taken to blunt the impacts of closure.

The fact that the Phillips 66 Refinery closure has already been announced shortens somewhat the time available for implementing policy strategies, although there are still a number of approaches available. There are even more options available with respect to refineries that are currently operating, but whose eventual closure can be anticipated in the years ahead. Planning for the closures in advance affords multiple opportunities to create a glide path that avoids the issues and pitfalls that can attend a closure announcement, and helps ensure the availability of the resources and information needed to plan for and execute an effective transition.

This Part will list recommendations for action to address the issues defined in Part 3, and will specify with respect to each the level(s) of government with authority to act.

4.1 RECOMMENDATIONS CONCERNING PROCESS SAFETY RISKS IN THE RUNUP TO CLOSURE

Recommendation No. 1: Enact industrial process safety requirements specifically addressing refinery closure.

Government level: state or local

As discussed in Section 3.1.2, while MOOC procedures in the CalARP and CalOSHA statutes arguably apply to refinery closure, they are a shaky fit that could be tightened up to more directly address the situation. Specifically, process safety provisions for refinery closure should be created to achieve the following:

- Apply clearly to closure and long-term idling (as opposed to more generally applying to permanent organizational changes).
- Require planning that takes into account and manages employee departures in the runup to closure.
- Prioritize employee retention as a risk management strategy.
- Develop procedures to address understaffing to the extent it cannot be avoided.
- Require that all refineries develop long-term planning for a hypothetical closure, and require development of a more detailed and situation-specific response to an announced closure.
- Define specific and rigorous risk assessment techniques for use in analysis of closure risks, including HCA.
- Require timely reports made directly to enforcement officials of actions taken with respect to closure preparation, as opposed to mere internal retention of information.
- Define and facilitate rigorous enforcement for non-compliance, including enhanced penalties and injunctive relief.

These changes could in principle be implemented by amendment to the CalARP and CalOSHA process safety regulations, although the immediate window for proposing such amendments may be limited given that the rulemaking to address the changes agreed to in the WSPA settle-

ment has already commenced.[381] They could also be implemented at the local level, through passage by the city or county of an industrial process safety ordinance, as has previously been done by Contra Costa County and the Cities of Richmond and Benicia. While ordinarily local legislation in a field already addressed by state law raises preemption concerns, the California Attorney General supported the legality of the local ordinances with an opinion determining, in response to a request from the Contra Costa County Counsel's office, that the county's proposed industrial safety ordinance raised no preemption concerns because it did not simply duplicate the state ordinances, but went beyond them in its requirements.[382] The provisions suggested in this recommendation would do the same (unless the state were to act first).

Recommendation No. 2: Develop best practices for employee retention in the runup to closure.

Government level: state or local

As discussed in Section 3.1.1, there is currently no consensus concerning a gold standard for ensuring worker retention. To make progress toward developing such a standard, either the state or local government should, in close collaboration with labor representatives, develop a set of standardized best practices for retaining refinery employees during the runup to closure. The incentives offered by Phillips 66 — such as the small quarterly bonuses offered to a subset of employees — were demonstrably insufficient to retain essential staff. Many labor representatives believe, however, that staff could be effectively retained with incentive packages that include both a long severance period and re-training offered during and after that period. The best practices should include, at minimum, the following elements:

- Extended severance periods (potentially longer than one year following refinery closure).
- Job training appropriate for transferring the skill set of the various categories of employees facing layoffs.
- Extended job placement assistance, including guaranteed transfer to the company's other refinery facilities when possible.
- Provision of other types of assistance (e.g., childcare, moving assistance, housing allowance) that will facilitate training and job searching.

Photo by Gissela Chavez for CBE.

4.2 RECOMMENDATIONS CONCERNING UNCERTAINTY AROUND DECOMMISSIONING AND REMEDIATION

Recommendation No. 3: Mandate disclosure of full ARO cost for all refineries.

Government level: state

In the absence of a clear SEC requirement for refineries to disclose their AROs prior to a closure announcement, state government[383] should create a requirement that they do so. To better enable regulators to assess the financial position of refineries, and to ensure communities' ability to prepare for closure and assess, the state should mandate disclosure by all refineries of the full calculated cost of their ARO, based upon defined factors. The mandate should include the following:

- Comprehensive disclosure of ARO costs to the extent they can be even roughly estimated, including both decommissioning costs (removal and safe disposal of refinery infrastructure, etc.) and remediation costs (soil and groundwater remediation, addressing vapor intrusion, etc.).
- Full disclosure of the basis for the ARO calculation, factoring in all reasonable alternative remediation technologies and potential contingencies consistent with the SCP Resolution

and other applicable requirements, and using all available information concerning likely cost and timeline. Where a closure date is not fixed, the estimate should include multiple present value discount assumptions based on an array of possible retirement dates.

- A requirement that the disclosure be developed in an open, collaborative process with any state and/or regional or local agency involved with the cleanup that allows the agency to publicly identify errors and order correction to a draft ARO.
- A near-term deadline for presentation of the disclosure, with a requirement that it be updated annually based upon any new information.

The mandate could be developed via state legislation, which could define the roles of the various relevant agencies (Water Board, DTSC, CUPAs) and set a statewide deadline. An alternative approach would be for a relevant state agency to prepare the ARO analysis: either the Water Board, pursuant to its broad abatement authority and based on its knowledge of the refinery sites and experience with remediation technology; or the CEC pursuant to its SBX 1-2 authority with respect to ensuring a reliable transportation fuel supply, since ARO costs may be a significant factor in determining the financial strength of refinery operators and the timing of refinery closure.

Recommendation No. 4: Develop default technology standards for refinery site remediation.

Government level: state

Although determining appropriate remediation methods and levels is in the end a case-by-case determination, refineries present many commonalities in the types of pollution found onsite. State agencies, including the Water Board in cooperation with DTSC and the CUPAs, should develop a default set of decommissioning and remediation technology standards associated with various types of contamination, together with default timelines for their implementation. Such standards, which should be based on conservative assumptions, would protect communities, give stakeholders a sense of what to expect, and assist with the ARO assessment addressed in Recommendation No. 3.

Recommendation No. 5: Require all refineries to develop a decommissioning and site remediation plan.

Government level: state or local

All refineries, whether they have announced closure plans or not, should be required to develop a publicly available plan for decommissioning and site remediation. While not all details of

site remediation will be known up front, refineries should as necessary make reasonable estimates based upon available information such as existing Water Board orders. In the absence of such orders, they should be required to conduct an initial environmental analysis, such as a Phase II site assessment[384] and any additional investigative work needed to develop the plan.

Recommendation No. 6: Implement stronger financial mechanisms to provide for cleanup costs.

Government level: state or local

The fact that refineries have no obligation to provide financial assurance for decommissioning and remediation (except for WMUs) makes them outliers within the energy industry, which routinely requires bonding, sinking funds, and the like to ensure that cleanup will be paid for in the event of financial insolvency.[385] That outlier status can be ended by creating a requirement that they provide funds upfront to cover ARO costs (as estimated pursuant to Recommendation No. 3).

There are two optimal and complementary strategies to finance cleanup, one at the state and one at the local level:

- **State level:** require creation of an independently managed fund. Refineries can be ordered to create and fund an account designated to pay for decommissioning and remediation, as well as potentially community and labor transition safety net costs. It is essential that the fund be segregated from the company's operating finances and managed by an independent trustee or financial institution.[386] The fund could be structured as a sinking fund in which funds are deposited over time (an approach allowed for nuclear facilities),[387] although the timing of deposits to such a fund would need to take into account the possibly short remaining lifetime of a California refinery. There is a solid argument that a fund of this nature could not be discharged in bankruptcy.[388]
- **Local level:** impose a new or increased tax on refineries. A local government can itself collect revenue from a refinery in anticipation of its eventual closure. The tax may take the form of an increase to an existing tax, e.g., a UUT or business license tax, or the government may introduce a new basis for taxation (including via an existing tax structure), such as a per-barrel tax on petroleum processing. The funds can in principle be specifically designated to pay for transition costs only if the tax is written and passed as a "special tax," as explained below with respect to California taxation law.

There are two associated caveats for each of these strategies. First, California law imposes a public balloting requirement for local taxes. Second, Proposition 218 in 1996[389] imposed a two-thirds majority requirement to both state legislative and local votes on "special taxes," defined as taxes whose revenue is dedicated to a specific purpose. General taxes, i.e., with no

designated use for the revenue, require only a simple majority, but are still subject to the public balloting requirement at the local level.[390] Proposition 26 in 2010[391] expanded the definition of a "tax" to broadly encompass most types of revenue collection.

There are two key limits to California's Proposition 218 and 26 requirements concerning taxes, however, that would allow both the state and local measures proposed above to be passed by a simple majority. First, a local government special tax can lawfully be passed by a simple majority when it is proposed by a voter initiative — that is, a ballot measure set in motion by gathering signatures on a petition — rather than a city referendum launched by city council action alone. A California appellate court decision in 2020 held that the Proposition 218 and 26 requirements did not take precedence over the voter initiative provisions of the California Constitution, which allow for a simple majority vote on initiatives. The court confirmed that this principle applies to votes on special taxes.[392] And second, an independently managed financial assurance fund should not be considered a tax at all, because it generates no revenue for the state. The fund is simply a requirement that a company take steps to ensure it can meet its financial obligations — akin to a requirement to maintain insurance. In an analogous situation, a California appellate court decision held in 2013 that the County of Los Angeles carryout bag charge was not a "tax" for purposes of the California Constitution because the funds collected through the charge are retained by the store and not remitted to the government.[393]

REFINERIES CAN BE ORDERED TO CREATE AND FUND AN ACCOUNT DESIGNATED TO PAY FOR DECOMMISSIONING AND REMEDIATION, AS WELL AS POTENTIALLY COMMUNITY AND LABOR TRANSITION SAFETY NET COSTS.

While the financial mechanisms recommended above are not the only ones available to secure funds for cleanup, they are the most reliable in the context of refineries. In principle, a requirement of bonds or letters of credit could serve this purpose. However, these methods are difficult to implement as a practical matter because third parties may be reluctant to provide assurance for an expense that is both imminent and potentially enormous. In any case, what is most important is that financial mechanisms not be first-party — i.e., a "corporate guaran-

tee" by the refinery owner of ability to pay that is not backed up by an independent third-party guarantor. Such guarantees offer no protection against a bankruptcy discharge or other abrupt changes in financial health, and must be constantly reviewed by regulators in order to have any value at all.[394]

Recommendation No. 7: Encourage use of unionized labor for decommissioning and remediation.

Government level: state or local

It is clearly beneficial on multiple levels for refinery site decommissioning and cleanup to be conducted by highly trained local union labor rather than less-well-trained non-union labor from out of state. There are multiple ways in which government can encourage use of union labor, including the following:

- The legislature can set standards for site cleanups that include an implicit requirement to hire union labor.
- Local governments, including CUPAs with authority over tank removal and hazardous waste facilities, can set safety-based labor standards for cleanup activities that require the rigorous worker training provided by unions such as ILWU Local 56.
- Where public funds are supporting the cleanup and redevelopment, in a public-private partnership or other arrangement of that nature, the governmental partner can tie receipt of the funds to an agreement to use union labor for the decommissioning and remediation — either by requiring a project labor agreement or through another type of contractual arrangement.[395]

Recommendation No. 8: Define requirements for continued storage tank operation.

Government level: state and regional Air District

Given the emphasis in ABX 2-1 on the need to store inventory of petroleum products, there is a real possibility that refineries that close moving forward will want to keep their storage tanks in operation. In the first instance, the decision whether the storage tanks will remain or be decommissioned should ultimately lie with the community and local government, to be decided in the type of zoning and planning processes laid out in Recommendation Nos. 9 and 10. However, to the extent tanks are to remain in operation, it is important that clear notice be provided up front of that intention and a plan be developed to curb emissions to the extent

tank vapors have been used to fuel the refinery. The following two measures would achieve this end:

- The CEC should require that notice of intention to close a refinery, provided a year in advance pursuant to SBX 1-2, include a clear statement as to whether any storage tanks associated with the refinery (including any on an associated wharf) will continue in use after the closure, and whether any vapor recovery from those tanks fuels refinery processes.
- To the extent the notice indicates both that the tanks will continue to operate and that vapor recovery from them fuels refinery processes, the regional Air District should require that a plan be submitted specifying how emissions from the tanks will be controlled following closure of the refinery, without resorting to flaring or venting (e.g., through capture and reuse, or an incinerator system as was implemented at Marathon Martinez to address the flaring).


Wilmington, CA. Photo by Anastasia Yulo for APEN.

4.3 RECOMMENDATIONS CONCERNING COMMUNITY INPUT IN REDEVELOPMENT DECISIONS

Recommendation No. 9: Implement zoning changes in advance of refinery closure.

Government level: local

The default pattern that is emerging in refinery closures gives developers significant control over the type of land use that will replace the refinery. If they choose a use that requires no

Carson neighbors meet at an August town-hall. Photo by Anastasia Yulo for APEN.

rezoning, the local government and community may have limited latitude to influence the redevelopment plan. Even if a zoning change is required for the redevelopment, as explained in Section 3.3, developers are positioned to create bureaucratic momentum that circumscribes the CEQA process and renders it less effective as a tool for community input.

One solution is for local governments hosting refineries to re-zone the refinery property to reflect the desired redevelopment use before any closure is ever announced, leaving the refinery as an indefinite non-conforming use until it closes. However, under zoning regulations governing nonconforming uses, the refinery could not be changed, expanded, or altered, except for minor repairs and the like.

The process communities should follow — which can and should be commenced prior to any closure announcement — would include the following elements:

- Seek an extensive public input process on community goals and desires for redevelopment of the refinery site.
- Develop a community vision for site redevelopment based on the input received and assistance from appropriate design professionals.

- Determine the General Plan and/or zoning code changes that would be needed to permit implementation of the community vision.
- Propose the needed changes in appropriate order, i.e., as needed through General Plan amendments and/or development of a Specific Plan, followed by zoning changes that allow the refinery to continue to operate as a nonconforming use.
- Conduct the required CEQA review concerning the proposal.

Recommendation No. 10: Require a Specific Plan in connection with any proposed site redevelopment (alternative approach).

Government level: local

To the extent a government is faced with a refinery closure before it has had a chance to implement Recommendation No. 9, it can still retain a measure of control over site reuse decision-making through the measure used by the City of Carson: require preparation of a Specific Plan in connection with proposed redevelopment of a refinery site, buying time to implement that requirement as necessary through an interim urgency ordinance that places a temporary moratorium on all redevelopment applications.[396] Ideally, the local government would itself propose the Specific Plan, based on community input. However, even simply placing a requirement on the developer to do so maintains a measure of local government and community influence, and helps ensure the applicability of CEQA.

The process for implementing this recommendation would include the following elements:

- Propose and pass a General Plan and/or zoning code amendment requiring preparation of a Specific Plan in connection with any proposed redevelopment of a refinery site, facilitated as necessary by an interim urgency ordinance.
- Prepare a Specific Plan for site reuse that reflects community vision and values.
- Conduct a CEQA review concerning the Specific Plan.

OR

- Require that any development application be accompanied by a proposed Specific Plan for the refinery site.
- Conduct CEQA review concerning the Specific Plan and accompanying development proposal.

Recommendation No. 11: Require a community benefit agreement in connection with refinery site redevelopment.

Government level: local

A community benefit agreement (CBA) is a tool for bringing developers to the table with community-based organizations, requiring that they hammer out an enforceable agreement. CBAs, an increasingly popular approach whose use was strongly encouraged by the Biden administration on federal renewable energy projects,[397] can implement both benefits (e.g., monetary or in-kind contributions from the developer to the community) and community protections (e.g., operating hours, fenceline monitoring, natural resource protection or restoration, visual buffers). CBAs are not to be confused with less effective host agreements made directly with local government, or community benefits plans, generally referring to a document drawn up unilaterally by a developer.[398] Among these types of documents, CBAs are the gold standard for community protection — although they too have distinct pitfalls that must be avoided in order to ensure that they reflect robust community participation and developer accountability.[399]

Some municipalities — most notably Richmond, California,[400] and Detroit, Michigan[401] — have passed ordinances requiring that developers obtain CBAs in connection with public-private partnership projects, defined as any project receiving financial aid, loans or loan guarantees, tax credits, or infrastructure construction over a threshold amount.[402] Local governments, whether they are currently facing an announced refinery closure or anticipating the possibility of such closure, should pass a community benefits ordinance similar to those in force in Richmond and Detroit.

LOCAL GOVERNMENT SHOULD PASS A COMMUNITY BENEFITS ORDINANCE SIMILAR TO THOSE IN FORCE IN RICHMOND AND DETROIT.

In doing so, local governments should go beyond the requirements included in the Richmond and Detroit ordinances and address the following additional issues:

- The ordinance should specifically be structured to require broad participation by multiple community representatives, to guard against the possibility that a subset of community organizations who do not represent the broader community could wield inordinate influ-

ence in the process of developing a CBA, and hence shut the concerns of other sectors of the community out of the process.

- The local government should consider providing a credit in connection with any developer fee exactions to support a CBA process, akin to the credit offered by the Bureau of Ocean Energy Management in connection with offshore wind energy leases.[403] This credit could encourage use of CBAs even in situations that did not qualify as public-private partnerships. The credit would need to be refunded if a CBA process was not completed in good faith.

4.4 RECOMMENDATIONS CONCERNING LACK OF COORDINATION STRUCTURES

Recommendation No. 12: Launch a task force to coordinate among government agencies and stakeholders.

Government level: state or local

The complexity of refinery cleanup and redevelopment, and the large number of government agencies and stakeholders involved, suggests the process would clearly benefit from formal and regular coordination via a designated task force. Although coordination in the past around oil well site reuse presents an imperfect model as explained in Section 3.4, developing a coordination approach among the stakeholders listed in that section should not be difficult or complicated. The two alternative means of creating a coordination task force would be by either state mandate or local mandate:

- A state mandate would ensure that relevant state and regional agencies (e.g., the Water Board) were required to attend and participate and could set consistent ground rules for the nature of the agencies' participation and consideration of information from other stakeholders.
- A local mandate implemented by the city or the county would require attendance of local agencies within the jurisdiction, and that state agencies be invited — although their attendance could not be compelled. The local mandate could, however, be accomplished more quickly, and could address relevant local circumstances.

APEN Carson town-hall. Photo by Aanstasia Yulo for APEN.

4.5 RECOMMENDATIONS CONCERNING LACK OF A TRANSITION SAFETY NET

Recommendation No. 13: Adopt, at minimum, the worker and community safety net provisions in the HRTP Report and Recommendations

Government level: state and local

The HRTP Report and Recommendations[404] contains extensive recommendations for creation of a worker and community safety net, incorporated here by reference as recommenda-

tions.[405] The financial mechanisms addressed in Recommendation No. 6 can help ensure the availability of funds to support these measures.

Key recommendations include, among others, the following:

- Create a financial support for worker transition through such measures as expanded public fund availability, a "bridge to retirement" program, and peer-to-peer case management programs.[406]
- Address refinery workers' need to share their training and employment records with a third-party certification program and an employer verification requirement.[407]
- Establish outreach and incentive programs to encourage employers to hire impacted refinery workers.[408]
- Establish local community recovery and transition funds.

In addition to these measures, the Asian Pacific Environmental Network, Communities for a Better Environment, and labor unions have recommended support for city and county rapid response resource centers for displaced workers, providing near-term cash support and peer support.

4.6 RECOMMENDATIONS CONCERNING THE INFORMATION DEFICIT

Recommendation No. 14: Fund and conduct studies filling information gaps concerning the local impact of refinery closures.

Government level: state or local

The information gathered in connection with the Partnership Studies paints a valuable picture of the facts on the ground needed to understand how a refinery closure impacts workers and the community. However, the Studies targeted specifically Contra Costa County only. Similar analysis is very much needed for the Los Angeles-area refineries and others outside of Contra Costa County.

The needed data collection and analysis includes, among others, the following topics:

- *Tax base impacts of refinery closure.* Study is needed to understand how closure of each of the refineries would affect the local tax base, and by derivation the local government's provision of services. Analysis should also assess strategies for replacing the lost revenues.
- *Indirect and induced employment supported by the refinery*. In preparation for a refinery closure, it is essential to understand not only how many workers directly employed by the refinery would lose their jobs, but how many indirectly supported and induced jobs would be lost or endangered.
- *Local re-employment opportunities*. Workers and communities can prepare in advance for a closure by surveying the types of jobs in the local region that would be appropriate for the skill sets of refinery workers.
- *Local economic diversification opportunities*. Communities hosting a refinery should hire expert help in assessing the types of industries that could potentially be encouraged to locate in the community to build a more diversified economy, and the strategies that could help incentivize them to do so.

August 2025 toxic tour, Wilmington. Photo by Anastasia Yulo for APEN.

CONCLUSION

The prospect of continued abrupt refinery closures has the potential to hit everyone hard. As is already evident in the context of the Phillips 66 Refinery closure, workers will lose hard-to-replace jobs, local governments will take a hit to their tax base, the site cleanups are potentially both costly and underfunded, and communities face a long road of economic restructuring aimed at overcoming their history of dependence on the fossil fuel industry.

But operation of the state's refineries has also been deeply detrimental to their neighboring communities, causing over a century's worth of sickness and premature death. The prospect of the refineries' closure, properly prepared for and handled, presents an opportunity for these communities to be finally free of the pernicious and deadly impact of the pollution they have been living with. The communities, in the absence of the refineries, will have the po-

tential to renew their economies through responsible redevelopment of the refinery site and plans to attract a diversified industrial base.

The key to minimizing the difficult impacts of refinery closure and maximizing the opportunities that arise from it is timely action. With respect to the Phillips 66 Refinery closure — as well as the recently announced Valero Benicia closure — immediate action will be needed on any of the recommendations listed above that are achievable on a relatively short timeframe. In these communities, while it might be difficult at this late stage to, for instance, impose new taxes on the refinery to fund transition or pass MOOC requirements in a process safety ordinance before the refinery closes, leaders are certainly in a position to act as the City of Carson did concerning a Specific Plan requirement for redevelopment, or create a closure and redevelopment task force, or take any of a number of the other recommended measures.

Communities that are home to a refinery that has not announced closure plans have the advantage of time to prepare for such a closure, and would be wise to use it. Those communities should immediately begin to focus on envisioning life after a refinery closure and how to best facilitate that vision — through planning and zoning changes, taxes to support a community transition, and the like. There is no reason to wait to take those steps and a host of reasons not to.

Finally, it is critical that the state turn its focus as soon as possible to helping communities prepare for the possibility of closure of a refinery in their midst, and transition away from a refinery-dependent economy. The level of study and focus that has been devoted to the other potentially costly aspect of our transition away from fossil fuels — the need to plug and abandon idle oil wells — should be applied to refinery closures as well. While local communities are the ones who should ultimately determine their new post-refinery future, it is essential that the state contribute resources, support, and a strong and wise regulatory hand to make that future possible.

TERMS AND ABBREVIATIONS

1994 Abatement Order: an order issued by the LA Water Board to the Phillips 66 Refinery in 1994, which is available at https://drive.google.com/file/d/1x4U-TrqxwaRC9NFZ7yoktMk1yAh-B0qc1/view

Air District: a regional Air Quality Management District

API: American Petroleum Institute

ARB: Air Resources Board

ARO: asset retirement obligation

AST: Aboveground Storage Tanks

BTEX chemicals: benzene, toluene, ethylbenzene, and xylene

CAA: Clean Air Act

CalARP: California Accidental Release Prevention (Program)

CalEPA: California Environmental Protection Agency

CalOSHA: California Occupational Safety and Health Administration

CBA: community benefit agreement

CDP: Coastal Development Permit

CEC: California Energy Commission

CEQA: California Environmental Quality Act

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CLRRA: California Land Reuse and Revitalization Act

CUPA: Certified Unified Program Agency

CWA: Clean Water Act

DTSC: Department of Toxic Substances Control

EIR: Environmental Impact Report (under CEQA)

EPCRA: Emergency Planning and Community Right-to-Know Act

GAAP: Generally Accepted Accounting Principles

HCA: Hierarchy of Hazard Controls Analysis

HRTP: High Road Training Partnerships

HSC: Health and Safety Code

HWG: Hazardous Waste Generators

IFRS: International Financial Reporting Standards

ILWU: International Longshore and Warehouse Union

ISO: Industrial Safety Ordinance

LA Water Board: Los Angeles Regional Water Quality Control Board

MCL: Maximum Contaminant Level

MOC: Management of Change (in Industrial Safety Ordinances)

MOOC: Management of Organizational Change (in Industrial Safety Ordinances)

OSHA: Occupational Safety and Health Act

PAHs: polynuclear aromatic hydrocarbons

Partnership Studies: a set of studies concerning refinery transition in Contra Costa County, as described in note 380

PES: Philadelphia Energy Solutions

PFAS: per- and polyfluoroalkyl substances (also known as "forever chemicals")

Phillips 66 Refinery: the Phillips 66 Los Angeles Refinery, situated on two separate sites, one in Wilmington and one in Carson

Port: the Port of Los Angeles

PRA: Public Records Act

RAP: remedial action plan

RCRA: Resource Conservation and Recovery Act

Report and Recommendations: Report and Recommendations of the Contra Costa Refinery Transition Partnership. *Available at* https://www.bluegreenalliance.org/wp-content/uploads/2025/01/Contra-Costa-Refinery-Transition-Report-and-Recommendations-2025.pdf

SCAQMD: South Coast Air Quality Management District

SCP Resolution: Water Board Site Cleanup Program resolution. *Available at* https://www.waterboards.ca.gov/water_issues/programs/site_cleanup_program/resolution_92_49.html

SEC: Securities and Exchange Commission

TBA: tertiary butyl alcohol

TRI: Toxics Release Inventory

U.S. EPA: United States Environmental Protection Agency

UST: Underground Storage Tanks

UUT: utility user tax

VOCs: volatile organic compounds

WMU: waste management unit

WSPA: Western States Petroleum Association (oil industry lobbying group)

ENDNOTES

1 D. Stewart, "First petroleum refinery is built." *EBSCO, 2023. Available at* https://www.ebsco.com/research-starters/history/first-us-petroleum-refinery-built#:~:text=Kier%20found%20out%20about%20Young's,built%20in%201850%20in%20Pittsburgh.

2 The California Energy Commission (CEC) provides historic information about California refineries, including the date they began operations, at https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/californias-oil-refineries/california-oil (CEC Refinery History).

3 K. McClenagan, "LyondellBasell's Houston-area refinery to begin closure this month." *Houston Public Media, January 23, 2025. Available at* https://www.houstonpublicmedia.org/articles/news/energy-environment/2025/01/23/511770/lyondells-houston-refinery-to-begin-closure-this-month/#:~:text=Energy%20%26%20Environment-,LyondellBasell%27s%20Houston%2Darea%20refinery%20to%20begin%20closure%20this%20month,the%20first%20quarter%20of%202025; B. Powell and N. Risser, "Houston's oldest refinery is shutting. It won't be the last." *The Spokesman-Review, February 17, 2025. Available at* https://www.spokesman.com/stories/2025/feb/17/houstons-oldest-refinery-is-shutting-it-wont-be-th/.

4 "Phillips 66 provides notice of its plan to cease operations at Los Angeles-area refinery." *Phillips 66 News Releases, October 16, 2024 (Closure Notice). Available at* https://investor.phillips66.com/financial-information/news-releases/news-release-details/2024/Phillips-66-provides-notice-of-its-plan-to-cease-operations-at-Los-Angeles-area-refinery/default.aspx.

5 The Bay Area refinery pivots to bioenergy production were preceded by two smaller Southern California refineries having made the same pivot. See T. Bryan, "Renewable diesel's rising tide." *Biodiesel Magazine, January 11, 2021. Available at* https://biodieselmagazine.com/articles/renewable-diesels-rising-tide-2517318. A discussion of policy surrounding bioenergy is beyond the scope of this report, but both APEN and CBE have joined with other environmental and community-based advocates in raising severe concerns with it. For a more complete discussion of those concerns, see the CEQA comments cited in note 15.

6 "Valero announces notice to the California Energy Commission regarding its Benicia, California, refinery." *Valero News Release, April 16, 2025. Available at* https://investorvalero.com/news/news-details/2025/Valero-Announces-Notice-to-the-California-Energy-Commission-Regarding-its-Benicia-California-Refinery/default.aspx.

7 SBX1-2 (Skinner 2023) established the CEC Division of Petroleum Market Oversight and empowered the CEC to establish a maximum refining profit margin. ABX 2-1 (Hart 2024) further authorized the CEC to require refiners to maintain minimum levels of inventory.

8 See, e.g., "California law and refinery closure reflect ongoing challenges for the state's fuel market." *U.S. Energy Information Administration (EIA), December 9, 2024. Available at* https://www.eia.gov/todayinenergy/detail.php?id=63944; K. Hutchings, "Phillips 66 closing its LA Harbor-area refinery; more than 600 jobs at stake." *Daily Breeze,* October 17, 2024 (Hutchings 2022). *Available at* https://www.dailybreeze.com/2024/10/16/phillips-66-closing-its-la-harbor-area-refinery/.

9 Phillips 66 spokesperson Al Ortiz explained, in denying any connection between the closure and the recent legislation, that the closure is related to "the refinery's low profitability compared to other assets in our portfolio" and that "[t]he timing of this announcement is based on consideration of multiple factors including the long-term sustainability of our Los Angeles Refinery and market dynamics, as well as future options for the site as part of Phillips 66's ongoing review of its portfolio of assets." Hutchings 2022, n. 8. See also E. Stone, "Phillips 66 is shutting down its LA refineries. What's next?" *LAist*, October 23, 2024 (Stone 2024) ("A spokesperson for Phillips 66 said in a statement that the decision was primarily related to high-cost operations and a long-term decline in demand for crude oil products"). *Available at* https://laist.com/news/climate-environment/phillips-66-shutting-la-refineries.

10 The concept of "mid-transition" is coined and addressed in E. Grubert and S. Hastings-Simon, "Designing the mid-transition: A review of medium-term challenges for coordinated decarbonization in the United States." *Wires Climate Changes, February 8, 2022. Available at* https://wires.onlinelibrary.wiley.com/doi/10.1002/wcc.768.

11 The CEC, in its June 2025 letter to Governor Newsom regarding economic challenges facing California refineries, stated that "investor confidence in the incumbent [petroleum-based] fuel system is expected to falter and change due to long-term uncertainty about the trajectory and pace" of the transition. Letter dated June 27, 2025 from Siva Gunda, CEC Chair to Governor Newsom (Gunda 2025). *Available at* https://drive.google.com/file/d/17KacqoJtJrOXzQLT3Qcfqcn17oHYkM_k/view. Earlier, the CEC determined that "[t]he demand for gasoline has declined since 2017 due to more people driving electric vehicles and the societal shift with more employees working from home during the COVID-19 pandemic." "What drives California's gasoline prices." *CEC,* September 2022. *Available at* https://www.energy.ca.gov/data-reports/energy-insights/what-drives-californias-gasoline-prices. According to Stillwater Associates, "the main drivers of declining fuel use and GHG emissions are lower population growth, enhanced fuel efficiency, and the proliferation of renewable fuels." Stillwater Associates February 9, 2024, "What is displacing fossil gasoline in California? The answer may surprise you." *Available at* https://stillwaterassociates.com/what-is-displacing-fossil-gasoline-in-california-the-answer-may-surprise-you/.

12 "Short-term energy outlook: Motor gasoline consumption forecasts." *EIA, February 2024, at 2 (stating that gasoline consumption peaked in the U.S. in 2018, falling by 6 percent in 2022 as a result of both rising vehicle fuel efficiency and changes to driving patterns in the wake of the COVID-19 pandemic). Available at* https://www.eia.gov/analysis/handbook/pdf/STEO%20Motor%20Gasoline%20Consumption%20Model.pdf.

13 "Oil market report — April 2025." *International Energy Agency (IEA) (revising global oil demand growth downward). Available at* https://www.iea.org/reports/oil-market-report-april-2025. "Growth in global oil demand is set to slow significantly by 2028." *IEA, June 14, 2023. Available at* https://www.iea.org/news/growth-in-global-oil-demand-is-set-to-slow-significantly-by-2028.

14 Energy analysts Turner, Mason & Company summarized the economic challenges facing California refineries — including declining demand, market isolation, tankage bottlenecks, potential for supply chain disruptions, harbor traffic congestion, and other related factors — and concluded that it is "not a question of 'if,' but 'when' refiners could be forced into difficult decisions such as the one Phillips 66 made on October 16." H. York, "And then there were eight — Phillips 66's decision and the future of California refining." *Turner, Mason & Company*, October 31, 2024. *Available at* https://www.turnermason.com/blog/and-then-there-were-eight-phillips-66s-decision-and-the-future-of-california-refining/.

15 "Global refinery margins fall to multiyear seasonal lows in September." *EIA, October 15, 2024 (showing margins falling across the country, although still higher in California than elsewhere). Available at* https://www.eia.gov/todayinenergy/detail.php?id=63447&utm_source=Twitter&utm_medium=EIAsocial&utm_id=Amplification; R. Harvey, "More European oil refineries to close, convert in the next 10 years, panel says." *Reuters, March 25, 2025. Available at* https://www.reuters.com/business/energy/more-european-oil-refineries-close-convert-next-10-years-panel-says-2025-03-24/; "Oil refiners shut plants as demand losses may never return." *Insights Global. Available at* https://www.insights-global.com/oil-refiners-shut-plants-as-demand-losses-may-never-return/. The CEC's June 2025 letter to Governor Newsom summarized these economic pressures, stating:

Across the nation, petroleum refiners face the conjoined challenges of rising operating costs, softening demand for some refined products, and competition from newer, more efficient mega-refineries in other countries. Geopolitical events and changing federal and foreign government policies are also impacting industry decisions. Further, many national petroleum refineries, including some in California, are well over 100 years old and require substantial financial investments to maintain safe and reliable operations. In recent years, these factors have driven the closure of petroleum refineries in places as diverse as Australia, the United Kingdom, and multiple states, including some that have been perceived as especially profitable settings, like Texas.

Gunda 2025, n. 11, at 7. In-depth case studies of some of these economic pressures on refineries can be found in citizen comments in the California Environmental Quality Act (CEQA) process around the Phillips 66 Rodeo and Marathon Martinez conversions to biofuel refining. See Comments of Asian Pacific Environmental Network et al. on the Marathon conversion. *Available at* https://www.contracosta.ca.gov/DocumentCenter/View/74460/Martinez-Refinery-Renewable-Fuels-Project-FEIR (comments start at .pdf p. 88, relevant discussion starts at .pdf p. 108); and Comments of Asian Pacific Environmental Network et al. on the Phillips 66 conversion. *Available at* https://files.ceqanet.opr.ca.gov/266594-5/attachment/dPruGoHQH5lqISTPI5jyBskWj9y8zEnuoRbRlIx1AcnZnooanfyiBZRhLCM4lJDZg-4NedA6P3KexAHlr0 (APEN et al. Rodeo Renewed Comments) (comments start at .pdf p. 325, relevant discussion starts at .pdf p. 348).

16 See generally CEC, "Developing renewable energy," https://www.energy.ca.gov/about/core-responsibility-fact-sheets/developing-renewable-energy. The California Air Resources Board (CARB), in its 2022 Scoping Plan pursuant to California's AB 32 climate legislation, modeled a "phasedown of refining activity in line with petroleum demand." "2022 scoping plan for achieving carbon neutrality," *California Air Resources Board, December 2022, at 106. Available at* https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. The CEC took initial steps to assess the impact of California's shifting transportation fuel economy on refineries in its Transportation Fuels Assessment mandated by SBX 1-2. "Transportation fuels assessment: Policy options for a reliable supply of affordable and safe transportation fuels in California." *CEC, August 15, 2024. Available at* https://www.energy.ca.gov/publications/2024/transportation-fuels-assessment-policy-options-reliable-supply-affordable-and.

17 In April 2025, shortly after the announcement of the Valero Benicia closure, Governor Newsom wrote to CEC Vice Chair Siva Gunda, directing him to take steps to ensure a reliable transportation fuel supply, including asking him to "redouble the State's efforts to work closely with refiners on short- and long-term planning, including through high-level, immediate engagement." Newsom, G to Gunda, S, April 21, 2025. *Available at* https://www.scribd.com/document/853167719/Gavin-Newsom-Letter-to-CEC. The Gunda 2025 letter, n. 11, was a response to the Governor's letter. Analysis of the impact of refinery closures on energy supply, policy measures to address that impact, and the Newsom administration's direction on these matters is beyond the scope of this report. Communities for a Better Environment (CBE) and Asian Pacific Environmental Network (APEN) advocate for measures to manage the inevitable decline in in-state refining capacity to mitigate its impacts on communities, climate policy, consumers, and the environment. CBE prepared a report in 2020, the year the two Bay Area refinery conversions to bioenergy were announced, detailing the need for measures to actively manage the inevitable refinery closures. G. Karras, "Decommissioning California refineries." *Communities for a Better Environment, July 6, 2020 (Karras 2020). Available at* https://www.energy-re-source.com/decomm. Engagement continues on these issues as the broader landscape continues to evolve.

18 See Section 1.3.1, discussing the labor concerns and fallout surrounding the closure and conversion of the Marathon Martinez refinery.

19 For a general description of refinery impacts on community health, see Karras 2020, n. 17, at 22-27.

20 See Stone 2024, n. 9 (quoting the chair of Stillwater Associates, a transportation energy consulting firm, as stating, that he "wasn't surprised Phillips 66 decided to shut down the aging refinery, but he was surprised by the timing").

21 See CEC Refinery History, n. 2.

22 See Section 3.2, describing the decommissioning requirements and regulatory opportunities that exist with respect to other types of energy infrastructure.

23 Sightline Institute put out a report naming the problem of unplanned closures and providing a summary catalog of closures and bioenergy conversions throughout the U.S. E. Moore, "The high costs of unplanned oil refinery closures." *Sightline Institute, December 2022 (Moore 2022). Available at* https://www.sightline.org/wp-content/uploads/2022/11/Report-High-Costs-of-Unplanned-Refinery-Closures.pdf. As discussed in Section 3.6 and elsewhere, there are any number of more focused studies addressing specific and narrow relevant issues — e.g., the Carbon Tracker study addressing oil companies' failure to calculate refinery asset retirement obligations (n. 334), but no body of research pulling these disparate threads together in a manner that can effectively guide action.

24 See Section 3.6 regarding the various High Road Training Partnerships (HRTP) Contra Costa County studies.

25 C. Simeone, "An unrefined ending: Lessons learned from the creation and closure of the Philadelphia Energy Solutions refinery." *Union of Concerned Scientists, March 2023 (Simeone 2023). Available at* https://www.ucs.org/sites/default/files/2023-03/unrefined-ending-pa-energy-solutions-refinery.pdf.

26 L. Klivans, "Richmond's plan to spend $550 million from Chevron considers a future without the oil giant." *KQED, September 25, 2024 (Klivans 2024). Available at* https://www.kqed.org/news/12006203/richmonds-plan-to-spend-550-million-from-chevron-considers-a-future-without-the-oil-giant.

27 In this report, the term "decommissioning" refers to the process of cleaning, removal, and safe disposal of refinery infrastructure; "remediation" refers to the process of cleaning up soil and groundwater contamination at the site and closure of waste management units; and "cleanup" is used more informally to encompass both.

28 State Water Resources Control Board GeoTracker web page concerning the Carson (https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL372402433) and Wilmington (https://geotracker.waterboards.ca.gov/profile_report?global_id=SLT43132130) facilities. See also CEC Refinery History, n. 2; "Phillips 66 — Los Angeles refinery." *Energy, Oil, & Gas Magazine, May 15, 2020 (Energy, Oil, & Gas 2020). Available at* https://energy-oil-gas.com/news/phillips-66-los-angeles-refinery/#:~:text=Located%20around%2015%20miles%20southeast,products%20to%20their%20finished%20state.

29 See CEC Refinery History, n. 2.

30 "Phillips 66 Los Angeles Refinery ultra low sulfur diesel project final environmental impact report," March 2020 at 3-37. *Available at* https://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2020/01-feir-chapters1-7.pdf.

31 *Energy, Oil, & Gas 2020, n. 28.*

32 A 2019 *San Francisco Chronicle* story recapped six major refinery fires and explosions in Contra Costa County alone, including the infamous 2012 fire at the Chevron Richmond refinery that sent as many of 15,000 people to local emergency rooms by some reports. B. Van Niekerken, "A look back at six of the worst refinery incidents in Contra Costa County." *San Francisco Chronicle*, October 15, 2019. *Available at* https://www.sfchronicle.com/bayarea/article/A-look-back-at-six-of-the-worst-refinery-14537296.php; see also Karras 2020, n. 17, at 22. There have been more fires in the county since then, including a May 2025 fire at the Valero Benicia refinery, a February 2025 fire at the PBF Energy refinery in Martinez, and a 2023 fire at the Marathon Martinez refinery. Regarding corporate transitions, a sardonic inside joke among refinery workers is that the corporate logos on their uniforms should be attached with Velcro.

33 Hutchings 2022, n. 8.

34 CEC Refinery History. See S. Gnerre, "South Bay history: Phillips 66 oil refinery has been a Wilmington fixture since 1919." *Daily Breeze, May 9, 2022. Available at* https://www.dailybreeze.com/2022/05/09/phillips-66-oil-refinery-has-been-a-wilmington-fixture-since-1919/.

35 Press release, "Texas-based oil-and-gas company Phillips 66 indicted for alleged violations of Clean Water Act stemming from wastewater discharge." *United States Attorney's Office, Central District of California, November 21, 2024. Available at* https://www.justice.gov/usao-cdca/pr/texas-based-oil-and-gas-company-phillips-66-indicted-alleged-violations-clean-water. The prosecution of the action is ongoing as of this writing.

36 N. Green, "Phillips 66 settles lawsuit with environmental group, agrees to find and fix leaks to prevent gases from escaping." *Daily Breeze, February 20, 2021. Available at* https://www.dailybreeze.com/2021/02/20/phillips-66-settles-lawsuit-with-environmental-group-agrees-to-find-and-fix-leaks-to-prevent-gases-from-escaping/. See "Phillips 66 refineries are poisoning our communities. We're ready to fight back." *Earthjustice, May 13, 2020 (Earthjustice 2020). Available at* https://earthjustice.org/article/phillips-66-refineries-are-poisoning-our-communities-were-ready-to-fight-back.

37 "Phillips 66 company, Los Angeles refinery case settlement." *California Air Resources Board. Available at* https://ww2.arb.ca.gov/phillips-66-company-los-angeles-refinery-case-settlement.

38 "EPA enforcement activity at the Phillips 66 [refinery]." *U.S. EPA. Available at* https://www.epa.gov/enforcement/epa-enforcement-activity-phillips-66.

39 The area was then named San Pedro Township and appears in the 1870 census with a population of 359. Archived U.S. Census. *Available at* https://www2.census.gov/library/publications/decennial/1860/population/1860a-06.pdf.

40 This sense of separation in Wilmington was described by a reporter publishing in *Grist* in 2022 regarding the deep environmental injustice experienced by Wilmington residents. The report notes, "Because Wilmington's city council district is geographically isolated from the rest of the City of Los Angeles, many residents can go their whole lives without ever knowing they're technically LA residents, according to Bryant Odega, a climate organizer with the Sunrise Movement currently running to represent Wilmington on the Los Angeles City Council." A. Mahoney, "Deaths have spiked in this polluted port community. COVID is only part of the story." *Grist,* May 31, 2022 (Mahoney 2022). *Available at* https://grist.org/health/excess-deaths-wilmington-california-covid-pollution/.

41 It is difficult to pinpoint a population number for Wilmington since it is not an independently incorporated municipality but rather a neighborhood within the City of Los Angeles, and hence without well-defined borders. Wikipedia (https://en.wikipedia.org/wiki/Wilmington,_Los_Angeles), drawing on the 2010 U.S. Census, estimates the population at 53,815. The population of zip code 90744, which covers Wilmington residential areas for the most part, is 53,074. See United States Census Bureau search for zip code 90744 (90744 Search). *Available at* https://data.census.gov/all?q=90744.

42 Statistical Atlas of the United States search for Wilmington neighborhood, https://statisticalatlas.com/neighborhood/California/Los-Angeles/Wilmington/Race-and-Ethnicity. It is not readily possible to search for Wilmington data on census.gov, since Wilmington is not separately incorporated from Los Angeles. The 90744 search shows Hispanic or Latino population at 87 percent of the total.

43 Census.gov search for the City of Carson, https://www.census.gov/quickfacts/fact/table/carsoncitycalifornia/PST045224.

44 *Id.*

45 California Senate Bill 535 (DeLeon 2012) directed that at least a quarter of the proceeds from the state's cap-and-trade program go to disadvantaged communities, as defined. The map from which figure 1 is drawn is available online at https://experience.arcgis.com/experience/1c21c53da8de48f1b946f3402fbae55c/page/SB-535-Disadvantaged-Communities.

46 B. Walker, "Postcard from California: Two refineries to close but fenceline communities still besieged by pollution." *The New Lede, December 2, 2024 (Walker 2024). Available at* https://www.thenewlede.org/2024/12/ca/#:~:text=For%20more%20than%20100%20years,-to%20heart%20attacks%20and%20strokes.

47 Mahoney 2022, n. 40.

48 The City of Carson is home to the California State University at Dominguez Hills. "Economic development," *Carson General Plan (Carson Economic Development). Available at* https://ci.carson.ca.us/content/files/pdfs/planning/generalplan/GeneralPlanFinal/10%20Economic%20Development.pdf. In Wilmington, retail industry captures the top spot for percentage of civilian population employed, followed immediately after by manufacturing. "Industries in Wilmington, Los Angeles, California." *Statistical Atlas of the United States. Available at* https://statisticalatlas.com/neighborhood/California/Los-Angeles/Wilmington/Industries.

49 Mahoney 2022, n. 40.

50 Carson Economic Development, n. 48.

51 Mahoney 2022, n. 40.

52 "Historically redlined neighborhoods burdened by excess oil and gas wells." *Columbia Mailman School of Public Health, April 13, 2022. Available at* https://www.publichealth.columbia.edu/news/historically-redlined-neighborhoods-burdened-excess-oil-gas-wells. See *California Reparations Report, Chapter 7, at 286. Available at* https://oag.ca.gov/ab3121/report (notes that Wilmington and other historically redlined communities "continue to have some of the highest average pollution levels in the state").

53 TRI Facility Report for the Phillips 66 LA Refinery Carson Plant. *Available at* https://enviro.epa.gov/triexplorer/release_fac_profile?TRI=90745NCLCR1520E&TRILIB=TRIQ1&V_NA_INDICATOR=.&FLD=&FLD=RELLBY&FLD=TSFDSP&OFFDISPD=&OTHDISPD=&ONDISPD=&OTHOFFD=&YEAR=2020.

54 TRI Facility Report for the Phillips 66 LA Refinery Wilmington Plant. *Available at* https://enviro.epa.gov/triexplorer/release_fac_profile?TRI=90748NCLLS1660W&TRILIB=TRIQ1&V_NA_INDICATOR=.&FLD=&FLD=RELLBY&FLD=TSFDSP&OFFDISPD=&OTHDISPD=&ONDISPD=&OTHOFFD=&YEAR=2021.

55 J. Morris, "'The fear of dying' pervades Southern California's oil-polluted enclaves." *Center for Public Integrity, October 30, 2017 (Morris 2017). Available at* https://publicintegrity.org/environment/the-fear-of-dying-pervades-southern-californias-oil-polluted-enclaves/.

56 "Environmentalists tell Phillips 66 of intent to sue over pollution concerns in Carson, Wilmington." *Daily Breeze, April 29, 2020. Available at* https://www.dailybreeze.com/2020/04/29/environmentalists-tell-phillips-66-of-intent-to-sue-over-pollution-concerns-in-carson-wilmington/. See Earthjustice 2020, n. 36, citing "Emission measurements of VOCs, No2 and SO2 from the refineries in the South Coast Air Basin using solar occultation flux and other optical remote sensing methods." *FluxSense Inc., April 11, 2017. Available at* https://www.aqmd.gov/docs/default-source/fenceline_monitroing/project_1/fluxsense_scaqmd2015_project1_finalreport(040717).pdf.

57 *Id.*

58 See, e.g., K. Christensen, "Phillips 66 refinery in Carson hit by second fire in two months." *Los Angeles Times, May 2, 2019. Available at* https://www.latimes.com/local/lanow/la-me-ln-phillips-66-carson-refinery-fire-20190502-story.html.

59 E. Yee and H. Getahun, "A hot spot for polluted air: By the numbers." *CalMatters, February 1, 2022. Available at* https://calmatters.org/environment/2022/02/california-environmental-justice-by-the-numbers/; "2022 Air Quality Management plan." *South Coast Air Quality Management District, December 2, 2022, at ES-1 (noting that "[t]he 17 million residents of the greater Los Angeles Area have historically suffered from some of the worst air quality in the nation"). Available at* https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16.

60 Pollution from the Wilmington refinery and its impacts was the subject of a thorough analysis by a *Grist* investigative reporter. Mahoney 2022, n. 40. No similar comprehensive health impacts reporting exists for Carson.

61 Morris 2017, n. 55.

62 Walker 2024, n. 46.

63 Walker 2024, n. 46, and Mahoney 2022, n. 40, both citing A. Shaw and L. Younes, "The most detailed map of cancer-causing industrial air pollution in the U.S." *Pro Publica, November 2, 2021. Available at* https://projects.propublica.org/toxmap/.

64 Alicia Rivera (Organizer for CBE), interview, April 9, 2025.

65 *Id.*

66 Hutchings 2022, n. 8.

67 Banning is today celebrated as the community's founder at The Banning Museum, whose website mentions nothing of this arrangement. https://www.thebanningmuseum.org/about-us/.

68 Rivera Interview, n. 64.

69 One resident reports that the refineries "leave a sticky dust on her car and give off an odor 'so heavy that it's unbearable. You even wake up because the smell is so strong — very, very strong, especially in the early morning.'" Morris 2017, n. 55.

70 Morris 2017, n. 55.

71 Walker 2024, n. 46; Mahoney 2022, n. 40; Morris 2017, n. 55.

72 Mahoney 2022, n. 40.

73 Closure Notice, n. 4. The company's third quarter 2024 10-Q indicates that the closure decision was approved on September 20, 2024. SEC Form 10-Q10, October 29, 2024, at 8 (3Q 2024 10-Q). *Available at* https://www.sec.gov/ix?doc=/Archives/edgar/data/0001534701/000153470124000166/psx-20240930.htm.

74 Cal. Pub. Res. Code § 25354(p). This requirement was created by the recent gas price management legislation, SBX 1-2 (Skinner 2023).

75 Closure Notice, n. 4.

76 ABX 2-1 (Hart 2024).

77 The closure will also have impacts on the state's transportation fuel market, particularly if the 2026 closure of the Valero Benicia refinery, announced just one year ahead of time, occurs as well. These statewide impacts are beyond the scope of this report.

78 T. Briscoe, "Phillips 66 refinery closure a welcome surprise to environmental and community activists." *Los Angeles Times, October 17, 2024. Available at* https://www.latimes.com/environment/story/2024-10-17/phillips-66-refinery-closure-a-welcome-surprise-to-activists.

79 Closure Notice, n. 4.

80 See "Report and recommendations of the Contra Costa Refinery Transition Partnership." *Contra Costa Refinery Transition Partnership, January 2025 (Report and Recommendations). Available at* https://www.bluegreenalliance.org/wp-content/uploads/2025/01/Contra-Costa-Refinery-Transition-Report-and-Recommendations-2025.pdf. A companion report summarizes the worker education level at the Marathon Martinez refinery prior to its pivot to bioenergy production. V. Parks and I. Baran, "Fossil fuel layoff: The economic and employment effects of a refinery closure on workers in the Bay Area." *U.C. Berkeley Labor Center, April 2023 (Parks and Baran 2023). Available at* https://laborcenter.berkeley.edu/fossil-fuel-layoff/.

81 D. Riedl and D. Saha, "In a clean energy future, what happens to California's thousands of oil refinery workers?" *World Resources Institute, April 23, 2024 (Riedl and Saha 2024). Available at* https://www.wri.org/insights/ca-oil-refineries-just-transition.

82 "Analysis of work stoppages, 1969." *U.S. Department of Labor, Bulletin 1687. Available at* https://www.bls.gov/wsp/publications/annual-summaries/pdf/work-stoppages-1969.pdf (cited in Riedl and Saha 2024, n. 81).

83 See Employment and Wages Data Viewer, U.S. Bureau of Labor Statistics. *Available at* https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables. The numbers referenced in the text are 2024 data generated using NAICS code 32411 for the petroleum refining industry. See Riedl and Saha 2024, n. 81 (running a similar calculation based, apparently, on 2022 data).

84 Riedl and Saha 2024, n. 81.

85 J. Bivens, "Updated employment multipliers for the U.S. economy." *Economic Policy Institute, January 23, 2019. Available at* https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/.

86 *Id.*

87 One refinery worker interviewed referred to the situation as "a cruel game of musical chairs."

88 Parks and Baran 2023, n. 80, at 13-14.

89 *Id. At 15.*

90 The text of the motion (County Motion) is available at https://file.lacounty.gov/SDSInter/bos/supdocs/197876.pdf.

91 "County will help connect Phillips 66 workers with new jobs, including at the county." Website of Janice Hahn, December 3, 2024. *Available at* https://hahn.lacounty.gov/county-will-help-connect-phillips-66-workers-with-new-jobs-including-at-the-county/.

92 The text of the motion (City Motion) is available at https://clkrep.lacity.org/onlinedocs/2024/24-1314_misc_10-22-24.pdf. The report from the Economic and Workforce Development Department is available at https://cityclerk.lacity.org/onlinedocs/2024/24-1314_rpt_EWDD_6-23-25.pdf. The City Motion additionally included an order that the "Office of Petroleum and Natural Gas Administration, with assistance from the Los Angeles Bureau of Sanitation Citywide Brownfields Program . . . present next steps for remediation and reuse of the site with a timeline and cost estimates and personnel needs to assess, clean up, and revitalize potential impacts onsite." As explained in Section 3.4, this provision is odd in multiple respects — as the Administrator has no authority over refineries, the Planning Department is not mentioned but is the lead player in redevelopment, and the city has very little authority over the cleanup, as that authority is in the hands of the regional water board.

93 The worker noted that Councilmember McOsker indicated he would try to re-do the job fair so workers can attend on paid time.

94 A study is currently being conducted at University of California at Merced analyzing economic impacts of refineries and their closure, but it is unclear at this juncture whether the study will include refinery tax base analysis. Even if it does, the analysis will likely at most be aggregated for the entire county, as individualized data concerning revenue generation associated with individual refineries is very difficult to obtain.

95 Report and Recommendations, n. 80, at 21.

96 The Los Angeles Controller Report in 2014 ranked ConocoPhillips as number 6 in the city in assessed valuation, at 0.15% of total city assessed value, but that Phillips 66 did not make the list for 2023. "Comprehensive annual financial report," *City of Los Angeles, fiscal year ended June 30, 2014, at 345. Available at* https://firebasestorage.googleapis.com/v0/b/lacontroller-2b7de.appspot.com/o/audits%2F2022%2Fcafrforwebsite.pdf?alt=media&token=028ae24b-98b2-4c03-bf70-367a14372d74.

97 Los Angeles County Fire Department, "Voter-approved special tax for the Los Angeles County Fire Department." *Available at* https://fire.lacounty.gov/summary-tax-rates/.

98 The text of the measure is available at https://ci.carson.ca.us/content/files/pdfs/cityclerk/election/11072017/ImpartialAnalysisforMeasureC.pdf.

99 City of Carson, "Annual comprehensive financial report fiscal year ended June 30, 2024." *Available at* https://ci.carson.ca.us/content/files/pdfs/finance/acfr2024/City%20of%20Carson%20Audited%20ACFR%202023-2024%20-%20Final.pdf.

100 City Code § 21.1.4 et seq.

101 Riedl and Saha 2024, n. 81. The referenced analysis is Moore 2022, n. 23.

102 The Catellus website is available at https://catellus.com/

103 The Deca website is available at https://www.decaco.com/

104 A comprehensive analysis in 2018 concluded that the average retail property in the City of Los Angeles carries a rental premium of 28% over the rest of the county "and is substantially pricier than in any other major Southern California city." The analysis also notes that with consumers increasingly reliant on online distribution networks rather than bricks and mortar stores, proximity to the Port of Los Angeles is a key asset. C. Thornberg, R. Kleinhenz, and B. Vanderplas, "City of Los Angeles: A comparative analysis." *Beacon Economics, June 2018, at 18-19 (Thornberg et al. 2018). Available at* https://cao.lacity.gov/debt/2018.06.01%20-%20City%20of%20Los%20Angeles%20-%20Comparative%20Analysis%20Updated.pdf#:~:text=The%20average%20retail%20property%20in%20the%20City,than%20in%20the%20balance%20of%20the%20County.

105 CEC Refinery History, n. 2.

106 42 U.S.C. § 6901 et seq.

107 33 U.S.C. § 1251 et seq.

108 PFAS, which stands for "per- and polyfluoroalkyl substances," are carcinogenic compounds that persist in the environment without breaking down. They tend to be found at refineries because they are released during firefighting and firefighting training exercises (PFAS have fire-retardant properties). See "Basic information on PFAS." *U.S. EPA (historic website snapshot),* https://19january2021snapshot.epa.gov/pfas/basic-information-pfas_.html.

109 This information is drawn from, *inter alia, the docket of a proposed EPA rulemaking to establish financial responsibility requirements for refineries pursuant to § 108 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, sometimes referred to as the Superfund law). The environmental legal organization Earthjustice, on behalf of CBE and other organizations, documented the contamination associated with refineries generally in its comment on the proposal. See "Comments letter on financial responsibility requirements under CERCLA Section 108(b) for facilities in the petroleum and coal products manufacturing industry."* Docket ID No. EPA-HQ-OLEM-2019-0087. *Earthjustice,* February 21, 2020 (Earthjustice Comment). *Available at* https://www.regulations.gov/comment/EPA-HQ-OLEM-2019-0087-0474. Following development of an extensive docket, including a report on contamination associated with refinery operations, EPA decided during the waning days of the first Trump administration not to pursue §108 financial responsibility requirements. 85 Fed.Reg. 77384 (December 2, 2020). See "Petroleum and coal products manufacturing industry practices and environmental characterization." *U.S. EPA Office of Land and Emergency Management, 2019. Available at* https://nepis.

epa.gov/Exe/ZyNET.exe/P101575N.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2016+Thru+2020&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C16thru20%5CTxt%5C00000030%5CP101575N.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

110 The underground hydrocarbons can take the form of either "DNAPL" (dense non-aqueous phase liquid), which is denser than water and tends to sink, or "LNAPL" (light non-aqueous phase liquid), which is lighter than water and tends to float on the surface. Generally speaking LNAPL is somewhat easier to remediate, because it is more readily locatable at the top of the water table.

111 Section 2.3.2.1 describes the overlapping authority governing site remediation.

112 Unocal Los Angeles Refinery — Cleanup and Abatement Order (File No. 85-8). *California Regional Water Quality Control Board, Los Angeles Region, December 22, 1994. Available at* https://drive.google.com/file/d/1x4U-TrqxwaRC9NFZ7yoktMk1yAhB0qc1/view?usp=share_link. The 1994 Abatement Order incorporated and amended earlier orders issued to the Carson and Wilmington sites, and consolidated those orders to address both sites collectively, in recognition that "[b]oth plants effectively operate as one refinery." *Id. at 1.*

113 *Id. at 4.*

114 *Id. at 2.*

115 *Id. at 5.*

116 Fact Sheet and Notice of Opportunity to Comment. *Water Board, August 2018 (2018 Comment Opportunity). Available at* https://drive.google.com/file/d/1PYoBw6flTBx_eszyHdRfjf9SHdb207F5/view?usp=share_link.

117 "California Water Code Section 13267 — Request for technical report, ConocoPhillips Los Angeles Refinery Wilmington plant, 1660 West Anaheim Street, Wilmington (Slic No. 231) (Site ID No. 2040062)." *Water Board, June 28, 2005. Available at* https://drive.google.com/file/d/15DT0OfXYugr4XcHh37z5G4l1zJy8hivu/view?usp=share_link. The report request refers to the Silverado Aquifer as "a major drinking water source in our region." Levels of TBA detected in the Silverado Aquifer on-site sampling wells remained higher than the 12 ug/L health-based level. See Review of Technical Reports, Pursuant to California Water Code Section 13304 Cleanup and Abatement Order 94-139. *Water Board, April 11, 2025, at 7 (April 2025 Order). Available at* https://drive.google.com/file/d/12fM0J4wfCKAOCXf2vbfg2m8WBkg3Fh39/view?usp=sharing.

118 Similar orders were issued to other refineries around the state at that time.

119 Water Code Sections 13267 and 13383 Order WQ 2021-0006- DWQ for the Determination of the Presence of Per- and Polyfluoroalkyl Substances at Phillips 66 Los Angeles Refinery, 1520 East Sepulveda Boulevard, Carson, Los Angeles County, Geotracker Global ID: T10000016449. *Water Board, March 19, 2021. Available at* https://drive.google.com/file/d/1YNbvBbXsiZUmRWvFkaAVKoHBaURcCnMj/view?usp=sharing; "Water Code Sections 13267 and 13383 Order WQ 2021-0006- DWQ for the determination of the presence of per- and polyfluoroalkyl substances at Unocal-Tosco Los Angeles Refinery (Wilmington), 1660 West Anaheim Street, Wilmington, Los Angeles County, Geotracker Global ID: Slt43132130." *Water Board, March 19, 2021. Available at* https://drive.google.com/file/d/1iOv0HkNyR55c-M23K-Kfk_0kGdw00NMef/view?usp=sharing.

120 "Yale experts explain PFAS 'forever chemicals.'" *Yale Sustainability, May 20, 2025. Available at* https://sustainability.yale.edu/explainers/yale-experts-explain-pfas-forever-chemicals.

121 "PFAS preliminary site investigation report, Phillips 66 Los Angeles Refinery, Carson plant, Carson, California." *Trihydro, January 30, 2024 (Carson PFAS Report). Available at* https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/9074876070/SL372402433.PDF; "PFAS preliminary site investigation report, Phillips 66 Los Angeles Refinery, Wilmington plant, Wilmington, California." *Trihydro, March 14, 2023 (Wilmington PFAS Report). Available at* https://drive.google.com/file/d/1_zYsPxx0nTI0femQWLLpMlUIci-JXg-eW/view?usp=sharing. The MCL for the types PFOA and PFOS is 4.0 parts per trillion (ppt, aka ng/L), and the investigation reports detected those chemicals at concentrations as high as 230 ppt in groundwater sampling. Wilmington PFAS Report at 8-1. See also Carson PFAS Report at 8-1.

122 April 2025 Order, n. 117.

123 Records for ConocoPhillips-LARW (80001531) posted at the DTSC EnviroStor Site. *Available at* https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=80001531.

124 Records for Phillips 66 Co. Los Angeles Refinery Carson Plant (CAD980881676) posted at the DTSC EnviroStor Site. *Available at* https://www.envirostor.dtsc.ca.gov/public/hwmp_profile_report?global_id=CAD980881676&starttab=.

125 Covenant to Restrict Use of Property [Carson], July 31, 2013. *Available at* https://www.hwmpenvirostor.dtsc.ca.gov/getfile?filename=/public%2Fsite_documents%2F7859967887%2FPhillips%2066%20Carson%20Refinery%20LUC%20Process%20Water%20Pond%208-23-2013.pdf; Covenant to Restrict Use of Property [Wilmington], July 31, 2013. *Available at* https://www.hwmpenvirostor.dtsc.ca.gov/getfile?filename=/public%2Fsite_documents%2F5195234000%2FPhillips%2066%20Wilmington%20Refinery%20SHB2%20LUC%208-23-2013.pdf.

126 Elevation of Wilmington, CA, and Carson, CA, at USA at Worldwide Elevation Map Finder, https://elevation.maplogs.com/poi/wilmington_ca_usa.330843.html and https://elevation.maplogs.com/poi/carson_ca_usa.40326.html.

127 E. Romero, "How rising sea levels could push up a 'toxic soup' into Bay Area neighborhoods." *KQED, April 8, 2022 (Romero 2022). Available at* https://www.kqed.org/science/1979092/how-rising-sea-levels-could-push-up-a-toxic-soup-into-bay-area-neighborhoods.

128 *Id.*

129 These activities are referenced in the Water Board's online GeoTracker pages for the two sites, but the references are not consistently accompanied by documents. See https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL372402433 (Carson) and https://geotracker.waterboards.ca.gov/profile_report?global_id=SLT43132130 (Wilmington). The descriptions are also based on discussions with Board staff.

130 2018 Comment Opportunity, n. 116.

131 P. Maio, "Cleanup of Phillips 66 refinery sites could take years, LA water board says." *Orange County Register, October 18, 2024 (Maio 2024). Available at* https://www.ocregister.com/2024/10/18/cleanup-of-phillips-66-refineries-could-take-years-la-water-board-says/.

132 *Id. The Board spokesperson noted, "Once all the equipment, piping, substructures, tanks, and other structures are removed, it will be much easier to fully assess the refinery in terms of the contaminated soil, soil vapor, and groundwater."*

133 April 2025 Order, n. 117.

134 See Section 2.3.2.3.1.

135 2018 Comment Opportunity, n. 116.

136 "Financial responsibility review findings — Phillips 66 company Carson plant, 1520 East Sepulveda Boulevard, Carson, California 90745, Environmental Protection Agency identification number CAD980881676, November 5, 2024." *Available at* https://www.envirostor.dtsc.ca.gov/getfile?filename=/public%2Feerppublicdocs%2F2832349479%2FPhillips%2066%20(Carson)%20-%20FRR%2011-5-24.pdf.

137 "Financial responsibility review findings — Phillips 66 Company — Los Angeles Refinery — Wilmington plant, 1660 W. Anaheim Street, Wilmington, California 90744, Environmental Protection Agency identification number CAD008237679, May 24, 2022." *Available at* https://www.envirostor.dtsc.ca.gov/getfile?filename=/public%2Feerppublicdocs%2F8790196061%2FPhillips%2066%20(Wilmington)%20FRR%205-24-22.pdf.

138 As discussed in Section 3.2.2, refineries generally provide no estimates of their asset retirement obligation costs until a closure decision is made.

139 SEC Form 10-Q, September 30, 2024, at 8 (Phillips 66 4Q 10-Q). *Available at* https://www.sec.gov/Archives/edgar/data/1534701/000153470124000166/psx-20240930.htm; see also SEC 2024 Form 10-K, February 21, 2025, at 117, 129 (Phillips 66 10-K). *Available at* https://www.sec.gov/ix?doc=/Archives/edgar/data/0001534701/000153470125000074/psx-20241231.htm.

140 *Id.*

141 "Project Description, Five Points Union Project, Environmental Case No. ENV-2025-3744-EIR." *Los Angeles Department of City Planning, August 13, 2025 (Project Description). Available at* https://planning.lacity.gov/odocument/04028fe3-a8be-4926-8f07-22bc51da0cc4/Five_Points_Union_Project_Description.pdf.

142 *Id.*

143 See Section 2.4.2.

144 Los Angeles Municipal Code (LA Code) § 12.20.

145 Carson Municipal Code (Carson Code) § 9141.1.

146 See Section 2.4.1.

147 See Section 2.4.5.

148 Project Description, n. 141, at 6, 17, 37.

149 See U.S. EPA web page, "What is vapor intrusion?" *Available at* https://www.epa.gov/vaporintrusion/what-vapor-intrusion.

150 General Plan Amendment No. 1-24, adopted by Carson City Council December 3, 2024. *Available at* https://portal.laserfiche.com/Portal/DocView.aspx?id=429645&repo=r-0a9aaa3e. The Amendment changes the relevant General Plan language as follows, in the Land Use and Revitalization Element:

> *Undertake planned development and specific plans for unique projects as a means to achieve high community standards, address neighborhood or significant site-specific issues, ensure compatibility between a number of uses, on large parcels, and when needed as part of a redevelopment or environmental remediation strategy. Require submittal and approval of a specific plan prior to, or concurrently with, approval of development plans and for any redevelopment of the site of an existing oil or petroleum refinery or associated use for a new use following cessation of refinery operations.*
>
> *Such areas that would benefit from a specific plan include the Shell Site, the and South Bay Pavilion, the site of the Marathon/Tesoro oil refinery, and the site of the Phillips 66 oil refinery, if redeveloped.*

151 See Public Review Draft, Carson Revitalization Project Specific Plan. *City of Carson, February 2014. Available at* https://ci.carson.ca.us/content/files/pdfs/planning/Shell_CRP/Shell_CRP_Specific_Plan_DRAFT_0214.pdf. Nothing has yet been constructed pursuant to the Specific Plan, according to City of Carson staff. Note that the Shell refinery site, the subject of the specific plan, is distinct from and roughly 5 miles away from the former Shell tank farm site, on which the Carousel housing development was constructed and subsequently affected by heavy contamination. See J. Gottlieb, "Toxic soil lurks beneath Carson neighborhood." *Los Angeles Times, April 27, 2010. Available at* https://www.latimes.com/archives/la-xpm-2010-apr-27-la-me-carousel-shell-20100427-story.html.

152 Cal. Pub. Res. Code § 21000 et seq. See Section 3.3.

153 Interim Urgency Ordinance No. 24-2416U, "An interim urgency ordinance of the City of Carson, California, extending a temporary moratorium on consideration of applications and approval and issuance of permits and entitlements for commercial or industrial redevelopment and subsequent use of current oil refinery sites within the City of Carson following cessation of refinery operations, and declaring the urgency thereof." Enacted by Carson City Council December 3, 2024. *Available at* https://portal.laserfiche.com/Portal/DocView.aspx?id=428429&repo=r-0a9aaa3e.

154 See Section 2.3.1.2.

155 This appears to be the case notwithstanding the requirement in the Carson zoning code that activities within the MH zone obtain a conditional use permit. Carson Code § 9141.1.

156 33 U.S.C. § 1251 et seq.

157 42 U.S.C. § 7401 et seq.

158 42 U.S.C. § 6901 et seq.

159 29 U.S.C. §§ 651-678.

160 U.S. Constitution Article VI, Clause 2. Supremacy Clause doctrine is complex and multilayered, and an in-depth exploration is beyond the scope of this report.

161 Under California Constitution Article XI Section 7, local governments have power "to make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws." Under Article XI Section 5, a charter city (which both Los Angeles and Carson are) "may make and enforce all ordinances and regulations in respect to municipal affairs" (the home rule doctrine). For examples of jurisdictional skirmishes, see *Chevron U.S.A., Inc. v. County of Monterey (2023), 15 Cal.5th 135 (striking down county ordinance banning certain oil drilling activities on the ground that they were governed by state law); Marquez v. City of Long Beach (2019),* 32 Cal. App. 5th 552 (home rule doctrine did not exempt city from complying with statewide minimum wage laws).
162 California Health and Safety Code (HSC) § 39500 et seq.
163 HSC § 40000 et seq.
164 SCAQMD Rule 1118. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1118.pdf.
165 SCAQMD Rule 1123. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1123.pdf?sfvrsn=4.
166 SCAQMD Rule 1180. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1180.pdf?sfvrsn=27.
167 SCAQMD Rule 1114. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1114.pdf?sfvrsn=4.
168 See SCAQMD Title V Permit Status, https://www.aqmd.gov/home/permits/title-v/title-v-permit-status.
169 SCAQMD Rule 1403 contains notification and procedural requirements for asbestos removal. https://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1403.pdf.
170 SCAQMD Rule 3002(a)(1) provides, "A person shall not construct, modify, relocate, or operate a Title V facility, or equipment located at a Title V facility, without first obtaining a Title V permit or permit revision that allows such construction, modification, relocation or operation." *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xxx/rule-3002-requirements.pdf?sfvrsn=4.
171 There appears to be some situational ambiguity as to when it is appropriate to modify as opposed to terminate a Title V permit upon closure and decommissioning, although it is clear that some type of air emissions permit associated with decommissioning activities is required. Following the PES refinery closure, the City of Philadelphia required a renewal and modification of the facility's Title V permit because "the facility must continue to operate some equipment during the demolition and clean-up process, including emergency engines, tanks, and wastewater treatment processes." Modification and Renewal of Title V/State Operating Permits, City of Philadelphia Department of Public Health Air Management Services, October 7, 2022, p.2. *Available at* https://www.phila.gov/media/20221017094829/PES_CommentResponse.pdf; see also "Q&A regarding Hilco Redevelopment Partners' request for modifications of Title V (air) permits." *Hilco Redevelopment Partners (undated). Available at* https://www.thebellwetherdistrict.com/wp-content/uploads/2023/09/HRP_Philly_TitleV_Modification_QA_Simplified_1.18.22.pdf (Redevelopment company fact sheet explaining reason for its Title V modification application). In the runup to the closure of the Phillips 66 Santa Maria refinery in San Luis Obispo County, the county's air quality specialist determined that, under the rules of the local Air District, "any operations that are not covered by P66's current Title V permit will require APCD permits," including "a decommissioning permit and a remediation permit," but noted that activities that are part of regular operation, such as pipeline purging and tank cleaning, "can be covered under their existing permits." The specialist noted that the county as "waiting to hear from EPA on the status of the facility's Title V permit, which if it is cancelled will change the permitting landscape considerably." "Final scoping report, Phillips 66 Santa Maria refinery demolition and remediation project." *San Luis Obispo County Planning and Building Dept. [CEQA lead agency], July 2023. Available at* https://files.ceqanet.opr.ca.gov/287405-2/attachment/Zft0YNM9JhQlw0LnnqEZ177uicOrVOFpInEDGDGen9pHGjQ2N_NEwFHHuo9b5dt5Nf5SzRYNtBEaCj5h0 (see .pdf 174).
172 Water Code § 174 et seq.
173 The full Act is available from the State Water Board at https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf.
174 42 U.S.C. § 9601 et. seq.
175 42 U.S.C. § 11001 et seq.
176 HSC § 25100 et seq.
177 HSC § 25500 et seq. See "Hazardous materials business plan," webpage of California CUPA Forum, https://calcupa.org/programs/business-program.html.
178 HSC § 25500 et seq. See "Local Emergency Planning Committee," *California Office of Emergency Services,* https://www.caloes.ca.gov/office-of-the-director/operations/response-operations/fire-rescue/hazardous-materials/local-emergency-planning-committee/.
179 The WMU post-closure process being handled directly by DTSC rather than the CUPAs appears to be a legacy arrangement, with the closure having been initiated before the formation of the CUPAs.
180 For an overview of the CUPA system, see California CUPA Forum, https://calcupa.org/about/mission.html.
181 LA Code § 57.105.6.28.
182 Los Angeles County Code (County Code) § 12.52.020.
183 County Code § 12.56.030.
184 See "Improving public and worker safety at oil refineries." *Interagency Working Group on Refinery Safety, February 2014 (IWGRS 2014), at 20 (noting that the requirements of the two programs are very similar "because the same industrial processes affecting workers may also affect public health and the environment," and that the primary difference between them is the CalOSHA regulations' focus on on-site releases versus the CalARP focus on potential for offsite releases requiring emergency response). Available at* https://www.calepa.ca.gov/wp-content/uploads/2016/10/Publications-Reports-2013yr-RefineryRpt.pdf. Following issuance of the IWGRS report, an Interagency Refinery Task Force (IRTF) was convened to bring together ten state agencies, U.S. EPA, and local agencies to continue to address refinery safety issues. See the IRTF website at https://calepa.ca.gov/refinery/.
185 8 CCR § 5189.1. These regulations apply specifically to refineries, pursuant to Labor Code § 7856.
186 19 CCR § 5110.1 et seq. These regulations comprise the Program 4 Prevention Program, applicable to refineries. Similar but less stringent process safety regimes apply to other industries covered by other programs.
187 As discussed in Section 3.1.2, several local jurisdictions — including Contra Costa County and the Cities of Richmond and Benicia — have enacted local process safety ordinances.
188 This language is functionally identical in the CalARP regulations, 19 CCR § 5110.9(a), and the CalOSHA regulations, 8 CCR § 5189.1(n)(1), save for differing Oxford comma choices.
189 8 CCR § 5189.1(t)(2); 19 CCR § 5110.9 (j).

190 *Id.*
191 19 CCR § 5110.9 (k). The wording of the cognate CalOSHA provision, 8 CCR § 5189.1(t)(3), differs slightly but not meaningfully.
192 19 CCR 5110.20.
193 8 CCR § 5189.1(u)(5); 19 CCR § 5110.11. Under the CalARP regulations, there is additionally a triennial inspection that includes a mandatory Risk Management Report (RMP); that report is only required to include the general MOC procedures, not any specific MOOC assessment that may be triggered by specific events such as a closure. 19 CCR § 5070.8(f).
194 19 CCR § 5070.8(f).
195 *WSPA v. California Occupational Health and Safety Standards Bd., Case No. 2:19-cv-01270, "Complaint for declaratory and injunctive relief," July 7, 2019. Available at* https://drive.google.com/file/d/1SQ-SgTAmBFekF4iggxCL9oJ3PtKkDhyy/view?usp=sharing.
196 Settlement Agreement between WSPA et al. and California Occupational Safety and Health Board et al., executed September 10, 2024. *Available at* https://drive.google.com/file/d/1cj9twzIAguVKuVlqqvkBbbvSj_Cf7U3O/view?usp=drive_link.
197 The proposed changes are to 8 CCR § 5189.1(q)(1) and 19 CCR § 5110.13(a)(1).
198 The rulemaking docket is on CalEPA's website at https://calepa.ca.gov/rulemaking/.
199 Government Code § 11346 et seq. Section 13346.9(a)(3) requires that the agency provide, together with the final rule, "A summary of each objection or recommendation made regarding the specific adoption, amendment, or repeal proposed, together with an explanation of how the proposed action has been changed to accommodate each objection or recommendation, or the reasons for making no change."
200 See Section 3.2.
201 Although the site remediation may not itself directly trigger CEQA, site contamination and remediation issues will likely feature prominently in any CEQA analysis of redevelopment.
202 See Section 2.4.5.
203 1994 Abatement Order, n. 112 at 6 ("This enforcement action is being taken for the protection of the environment and, as such, is exempt from the provisions of the California Environmental Quality Act … in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations.") On occasion, in other settings, Water Boards have indicated that CEQA requirements would be triggered by a "specific cleanup proposal." See, e.g., San Francisco Regional Water Board Order No. R2-2014-0004 issued to the Valero Benicia refinery at 9. *Available at* https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/6798222422/R2-2014-0004%20-%20Valero.pdf. In practice, however, CEQA triggered by a Water Board cleanup, with the Water Board as CEQA lead agency, is exceedingly rare. One example of where this occurred was with respect to the PG&E Hinkley Compressor Station. See Draft Class II Surface Impoundments 6R And 7R PG&E Hinkley Compressor Station, Hinkley, CA Initial Study/Mitigated Negative Declaration. *Available at* https://www.waterboards.ca.gov/lahontan/board_info/agenda/2013/jan/pge_ceqa110912.pdf.
204 The record of the CEQA process associated with the decommissioning of the Santa Maria refinery is available on the State's CEQANet site at https://ceqanet.opr.ca.gov/2023050020.
205 Cal. Pub. Res. Code § 30000 et seq.
206 Cal. Pub. Res. Code § 21080.
207 14 CCR § 15381.
208 "Portable Equipment Registration Program," *SCAQMD,* https://www.aqmd.gov/home/permits/equipment-registration/perp.
209 SCAQMD Rule 403. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.
210 See Section 1.4.1.1.
211 SCAQMD Rule 1466. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1466.pdf?sfvrsn=25.
212 SCAQMD Rule 1403. *Available at* https://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1403.pdf.
213 See Section 1.4.1.1.
214 The City of Carson has adopted the county building code by reference. Carson Code § 8100.
215 LA Code § 91.105.1.2, County Code § 106.1 (demolition permit requirement); LA Code § 91.106.1.2, County Code § J103.1 (grading permit required).
216 Asbestos removal: LA Code § 57.324.4, County Asbestos Abatement and Removal Specifications. *Available at* https://riskmanagement.lacounty.gov/wp-content/uploads/2019/04/Asbestos-Removal-Specifications-LAC-Standards-2018.pdf. Dust control: LA Code § 91.108.13, County Code § 2203.3.1.
217 LA Code § 91.106.4.1.
218 LA Code § 91.106.4.5.1.
219 LA Code § 54.02.
220 LA Code § 91.8903.
221 Carson Code § 6852, County Code § 16.52.300.
222 Carson Code § 6852 subsection A; County Code § 16.52.300 subsection A.
223 County Code § 16.52.300 subsection C.
224 Carson Code § 6852 subsection B.
225 Carson Code § 6853 subsection B; County Code § 16.52.310 subsection B.
226 County Code § 106.5.1 (Building Department "shall" issue permits when legal requirements have been complied with and fees paid); City Code § 91.106.3.2.3 (Department shall "place an official stamp of approval" on plans and specifications upon determination that they comply with legal specifications).
227 Water Code § 13050(e).
228 Water Code § 13304.
229 HSC § 25200.1 DTSC additionally has authority under RCRA to bring an action in court to address any "imminent and substantial endangerment" caused by improper handling of waste. 42 U.S.C. § 6973.
230 EPA's 1986 guidance to state RCRA program managers re investigation and corrective action remains in effect. "RCRA facility assessment guidance." *U.S. EPA, October 1986. Available at* https://www.epa.gov/sites/default/files/2016-01/documents/rfaguid.pdf.

231 Water Code § 13267.
232 HSC § 25270.9.
233 HSC § 25204.6.
234 "California environmental framework for the implementation of Health and Safety Code Section 25204.6(b) (Senate Bill (SB) 1082)." *Available at* https://www.waterboards.ca.gov/water_issues/programs/land_disposal/sb1082frame.html.
235 DTSC's EnviroStor database reveals no RCRA corrective action orders issued by DTSC. See n. 123 and 124.
236 See n. 117.
237 "Resolution No. 68-16, statement of policy with respect to maintaining high quality of waters in California." *State Water Resources Control Board, October 28, 1968. Available at* https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf.
238 "Resolution No. 92-49, policies and procedures for investigation and cleanup and abatement of discharges under Water Code Section 13304." *State Water Resources Control Board, June 18, 1992 (amended April 21, 1994 and October 2, 1996). Available at* https://www.waterboards.ca.gov/water_issues/programs/site_cleanup_program/resolution_92_49.html.
239 HSC § 25356.1.
240 23 CCR § 2907.
241 The SCP Resolution, n. 239, states that HSC § 13304 (authorizing abatement orders) "authorizes Regional Water Boards to require complete cleanup of all waste discharged and restoration of affected water to background conditions." It also requires remediation to "[c]onform to the provisions of Resolution No. 68-16" and to ensure "attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored."
242 The SCP Resolution lays out the feasibility definitions as follows, in Section H.1:

a. Technological feasibility is determined by assessing available technologies, which have been shown to be effective under similar hydrogeologic conditions in reducing the concentration of the constituents of concern. Bench-scale or pilot-scale studies may be necessary to make this feasibility assessment;
b. Economic feasibility is an objective balancing of the incremental benefit of attaining further reductions in the concentrations of constituents of concern as compared with the incremental cost of achieving those reductions. The evaluation of economic feasibility will include consideration of current, planned, or future land use, social, and economic impacts to the surrounding community including property owners other than the discharger. Economic feasibility, in this Policy, does not refer to the discharger's ability to finance cleanup. Availability of financial resources should be considered in the establishment of reasonable compliance schedules.

243 The SCP Resolution, n. 239, requires at Appendix Section (I)(4) that an application for use of a containment zone include either land use or engineering controls necessary to address health and environmental risks.
244 The only express statutory use of the term "remedial action plan" pertains to hazardous materials release sites on DTSC's "Cortese List" (HSC § 25356.1(b)) — which does not include either the Wilmington or Carson site (https://dtsc.ca.gov/dtscs-cortese-list/). Water Code § 13307(a).
245 SCP Resolution, n. 239, Section III.
246 HSC § 25356.1(e).
247 SCP Resolution, n. 239, Section II.A.1.c.
248 April 2025 order, n. 117.
249 Water Code § 13307.5(a).
250 2018 Comment Opportunity, n. 116.
251 Water Code § 13307.5(a).
252 SCP Resolution, n. 239, Section H.8.
253 Water Code § 13307.6(a).
254 HSC § 25395.60 et seq.
255 HSC § 25395.109.
256 Los Angeles passed an ordinance in 2015 known as "Clean Up Green Up" (CUGU), defining certain requirements associated with oil refineries in parts of Wilmington. LA Code § 12.24. CUGU is of no relevance to redevelopment of the Wilmington site, however, as it does not extend to cover that site (and, in any event, only pertains to construction of new refineries and expansion of existing ones).
257 Government Code § 65860; LA Code § 556.
258 Government Code § 65302.
259 See n. 45.
260 Government Code § 65302(h).
261 Government Code §§ 65302.3, 65454.
262 Government Code § 65451.
263 See generally "What is a Specific Plan?" *Planopedia. Available at* https://www.planetizen.com/definition/specific-plan#:~:text=Community%20Plans%20and%20Specific%20Plans,separate%20from%20the%20General%20Plan.
264 The City of San Rafael has posted a description of the different types of planning documents, explaining their similarities and differences. "What are the differences between a Specific Plan, Precise Plan, Master Plan, a Community Plan and a Neighborhood Plan? How do each of these Plans relate to the citywide General Plan?" (San Rafael). *City of San Rafael*. *Available at* https://www.cityofsanrafael.org/question/what-are-the-differences-between-a-specific-plan-precise-plan-master-plan-a-community-plan-and-a-neighborhood-plan-how-do-each-of-these-plans-relate-to-the-citywide-general-plan/#/city/answers/pda-2020/what-are-the-differences-between-a-specific-plan-precise-plan-master-plan-a-community-plan-and-a-neighborhood-plan-how-do-each-of-these-plans-relate-to-the-citywide-general-plan.
265 Government Code § 65458(a).

266 According to San Rafael, n. 265, the term "Master Plan" is a catch-all that is alternately used to reference the local General Plan or a local planning tool.
267 Government Code §§ 65854-57.
268 The City of Los Angeles form for applying for a zone change is available at https://planning.lacity.gov/odocument/0a7df-fae-f2b4-4fd5-af40-3483fc40904b/CP13-7774_Zone_Change_11.13.23.pdf.
269 LA Code § 558. In Carson, the hearings are mandatory. Carson Code § 9172.13 subsection C.
270 Government Code § 65358.
271 LA Code § 555. The City of Carson appears to follow a general set of text amendment procedures for amending the General Plan. Carson Code § 9172.11.
272 LA Code § 558(a)(2).
273 The City of Los Angeles uses the same form for General Plan and Specific Plan amendments. The form is available at https://planning.lacity.gov/odocument/3ca8a548-966e-4285-8f67-a957ca6d46cc/CP13-7723.1_Plan_Amendment_Specialized_Requirements_05.2023.pdf.
274 See *Avco Community Developers, Inc. v. South Coast Regional Commission (1976), 17 Cal.3d 785.*
275 Government Code § 65864 et seq.
276 Project Description, n. 141, at 37.
277 Government Code § 65858. See Carson Code § 9172.12.
278 Carson Code § 9182.02.
279 Carson Code § 9182.05 (allows for limited extensions on any imposed time limit); LA Code § 12.1.2. The Los Angeles Code provisions governing nonconformity are set out in their entirety at https://zoning.lacity.gov/sites/default/files/zcode_download/article_12.pdf.
280 Public Resource Code (PRC) § 21065.
281 *Union of Medical Marijuana Patients, Inc. v. City of San Diego (2019),* 7 Cal. 5th 1171 (while declining to find that all zoning changes categorically require CEQA, court held that a change in the zoning code concerning the location of marijuana dispensaries would have potential to cause indirect physical effects by allowing a use not previously allowed, and therefore qualified as a "project" requiring CEQA review). The exception to this general principle would be changes to planning or zoning documents that create new requirements but do not themselves make physical change likely — which includes the City of Carson's General Plan amendment requiring a Specific Plan for redevelopment of a refinery site (see n. 150).
282 Project Description, n. 141, at 1.
283 14 CCR § 15063.
284 14 CCR § 15083.
285 14 CCR § 15087(i).
286 14 CCR §§ 15088.5, 15089.
287 See "New zoning code (Chapter 1A)," *City of Los Angeles Planning. Available at* https://planning.lacity.gov/zoning/new-code.
288 "New zoning code: Phase 1, public review draft." *City of Carson, March 2024. Available at* https://ci.carson.ca.us/content/files/pdfs/planning/docs/00%20Compiled%20Carzon%20Zoning%20March%2019%20CC.pdf.
289 "Los Angeles General Plan annual progress report." *City of Los Angeles 2023. Available at* https://planning.lacity.gov/odocument/bc444fd2-7e32-4850-97b0-e2676a9ba96c/2023_General_Plan_APR.pdf.
290 See Carson 2040 website, https://www.carson2040.com/.
291 City of Carson Resolution adopting General Plan Amendment No. 1-24, n. 150.
292 Interim Urgency Ordinance No. 24-2416U, n. 153.
293 "Wilmington-Harbor City Community Plan," *City of Los Angeles. Available at* https://planning.lacity.gov/odocument/1fbe8e13-5c84-42cd-913e-5fc659a4241a/Wilmington-Harbor_City_Community_Plan.pdf.
294 "Wilmington-Harbor City Community Plan proposed plan — Winter 2024." *City of Los Angeles Planning. Available at* https://planning.lacity.gov/odocument/76edafed-ac2d-46ea-8f8a-5c805c0d4470/WHC_CPU_Policy_Document_Winter_2024_Proposed_Plan.pdf (Wilmington Proposed Plan).
295 Wilmington Proposed Plan at 47.
296 "Warner Center 2035 Specific Plan." *Los Angeles City Planning. Available at* https://planning.lacity.gov/plans-policies/overlays/warner-center-2035-specific-plan.
297 "Cornfield Arroyo Seco Specific Plan (CASP) Update." *Los Angeles City Planning,* https://planning.lacity.gov/plans-policies/casp-update.
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299 J. Van Derbeken, R. Campos, A. Rutanashoodech, M. Villarreal, "Years after massive fire, Chevron refinery still being cited for safety violations." *NBC Bay Area, August 3, 2017. Available at* https://www.nbcbayarea.com/news/local/years-after-massive-fire-chevron-refinery-still-being-cited-for-safety-violations/28078/.
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303 Karras 2020, n. 17, at 22.

304 Buhl 2016, n. 301.

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310 J. Hammerling, W. Toaspern, L. Schmahmann, "Refining transition, a just transition economic development framework for Contra Costa County, California." *UC Berkeley Labor Center,* January 2025 (Hammerling et al. 2025). *Available at* https://laborcenter.berkeley.edu/wp-content/uploads/2025/01/Refining-Transition.pdf; Simeone 2023, n. 25, at 28-29.

311 A PRA Request to CalOSHA has thus far yielded no documents suggesting an inquiry or investigation concerning compliance with MOOC requirements triggered by the closure decision.

312 8 CCR § 5189.1(l); 19 CCR § 5110.4(c).

313 IWGRS 2014, n. 184, at 21.

314 8 CCR § 5189.1(u)(5); 19 CCR § 5110.11(e).

315 19 CCR § 5070.8(f).

316 IWGRS 2014, n. 184, at 21.

317 *Id.*

318 See U.S. Department of Labor OSHA Inspection Detail for the Phillips 66 Los Angeles Refinery, https://www.osha.gov/ords/imis/establishment.inspection_detail?id=1625093.015&id=1561652.015&id=1343061.015.

319 Contra Costa County Code Chapter 450-8.

320 City of Richmond Code Chapter 6.43.

321 City of Benicia Code Title 8 Chapter 8.55.

322 IWGRS 2014, n. 184, at 20.

323 See Decision Approving Retirement of Diablo Canyon Nuclear Power Plant, California Public Utilities Commission Application No. 16-08-006 (Diablo Canyon Settlement). *Available at* https://docs.cpuc.ca.gov/publisheddocs/published/g000/m205/k090/205090240.pdf. Plans to shutter the nuclear power plant have been postponed by the California Legislature. SB 846 (2022).

324 10 C.F.R. § 50.2. The definition of "decommission" is to "remove a facility or site safely from service and reduce residual radioactivity" to levels allowing either restricted or unrestricted future site use.

325 10 C.F.R. § 50.75.

326 Cal. Pub. Res. Code §§ 3204-05. Unfortunately, the bonding levels are inadequate to ensure full coverage of plugging and abandonment obligations. See J. Boomhower et al., "Orphan wells in California." *California Council on Science & Technology, November 2018 (Boomhower 2018). Available at* https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf.

327 14 CCR § 1723 et seq.

328 See E. Baran, "Issue brief: Wind decommissioning — policies in the West." *Western Interstate Energy Board, January 2020. Available at* https://westernenergyboard.org/wp-content/uploads/2020/01/01-14-2020-Wind-Decommissioning-Issue-Brief.pdf; E. Apadula, "The state of solar decommissioning policy: Then and now." *DSIREinsight, October 29, 2023. Available at* https://www.dsireinsight.com/blog/2023/10/27/the-state-of-solar-decommissioning-policy-then-and-now.

329 D. Purvis, "There will be blood: Decommissioning California's oilfields." *Carbon Tracker, May 18, 2023. Available at* https://carbontracker.org/reports/there-will-be-blood/; "The $23 billion question: What created California's orphan and idle well crisis?" *Sierra Club,* December 2023. *Available at* https://www.sierraclub.org/sites/default/files/2023-12/Idle%20Wells%20Report.pdf. Boomhower 2018.

330 There have also been multiple analyses of the process and costs associated with coal plant decommissioning. See J. Lessick, B. Tarekegne, and R. O'Neil, "Business models for coal plant decommissioning." *Pacific Northwest National Laboratory,* August 2021. *Available at* https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-31348.pdf; "Coal plant decommissioning." *U.S. EPA,* https://www.epa.gov/sites/default/files/2016-06/documents/4783_plant_decommissioning_remediation_and_redevelopment_508.pdf.

331 See, e.g., "Contaminated site clean-up information" (CLU-IN), *U.S. EPA. Available at* https://clu-in.org/; "Leaking underground fuel tank guidance manual." *California Water Resources Control Board, September 2012. Available at* https://www.waterboards.ca.gov/ust/luft_manual/manual_dec2015.pdf.

332 Clean Air Council suggested comment to the Pennsylvania Department of Environmental Protection. *Available at* https://cleanaircouncil.salsalabs.org/hilcolifesciencesearthmoving/index.html?eType=EmailBlastContent&eId=89fbfd2b-0537-4512-b373-ecf2dc77aca5.

333 C. Guy-Knapp and R. Schuwerk, "Off the record: Accounting loophole leaves billions in decommissioning obligations unaccounted for." *Carbon Tracker,* December 3, 2024 *(Guy-Knapp 2024). Available at* https://carbontracker.org/reports/off-the-record/.

334 *Id., citing Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 410-20-15- 2(a).*

335 See J. Smokelin, "Legal update: Have you crossed the FIN-ish line? FIN 47 — Big or small company, this interpretation applies to YOU." *Reed Smith,* March 2006*. Available at https://www.reedsmith.com/en/perspectives/2006/03/have-you-crossed-the-finish-line-fin-47--big-or-sm.*

336 Compare Valero's 2024 Form 10-K statement that "we believe that assets at our refineries and plants have indeterminate lives for purposes of estimating asset retirement obligations because dates or ranges of dates upon which we would retire such assets cannot reasonably be estimated at this time" with its estimate of an ARO of $337 million associated with "the fair value of estimated costs for certain legal obligations to decommission the assets based on a range of potential settlement dates." See Valero 2024 Form 10-K, p. 79. *Available at* https://s23.q4cdn.com/587626645/files/doc_financials/2024/q4/VLO-10K-Q4-2024.pdf, and Valero first quarter 2025 Form 10-Q, p. 7. *Available at* https://www.streetinsider.com/SEC+Filings/Form+10-Q+VALERO+ENERGY+CORPTX+For%3A+Mar+31/24681842.html.

337 Phillips 66 4Q 10-Q, n. 139, at 8; see also Phillips 66 10-K at 117.

338 See n. 131 and accompanying text.

339 Valero first quarter 2025 Form 10-Q, n. 337, at 7.

340 The dearth of data and information concerning AROs makes it impossible to determine whether the estimate includes any remediation costs in addition to decommissioning costs. See Guy-Knapp 2024, n. 335, at Appendix 2.

341 Guy-Knapp 2024, n. 334, at 1.

342 *Id. at 11-12.*

343 R. Vincent, "'It's a tremendous opportunity.' Developers see gold in closure of Phillips 66 oil refinery in South Bay." *Los Angeles Times,* November 11, 2024*. Available at* https://www.latimes.com/business/story/2024-11-11/closure-of-phillips-66-refinery-in-south-bay-has-developers-licking-their-lips#:~:text='%20Developers%20see%20gold%20in%20closure,refinery%20in%20Wlimington%20in%202022.&text=The%20South%20Bay%20is%20in,reimagine%20the%20prime%20real%20estate.

344 A. Cantu, "There's a 'lake' of oil under L.A.'s soon-to-close refinery. Who's going to clean it up?" *Capital and Main,* August 19, 2025 *(Cantu 2025). Available at* https://capitalandmain.com/theres-a-lake-of-oil-under-l-a-s-soon-to-close-refinery-whos-going-to-clean-it-up. See S. Kolhatkar, "Paul Singer, doomsday investor." *The New Yorker,* August 27, 2018 (noting that "[i]n the press, Singer and similar investors have been compared to vultures, wolves, and hyenas"). *Available at* https://archive.is/B9oPZ#selection-863.318-863.413.

345 As noted in Section 1.4.1, although there are financial assurance requirements around closure of WMUs at refinery sites, those sites are a small fraction of the overall environmental cleanup costs associated with refineries.

346 See discussion at n. 109.

347 Simeone 2023, n. 25, at 22.

348 J. Malone and T. Winslow, "Financial assurance: Environmental protection as a cost of doing business." *North Dakota Law Review, Vol. 93 No. 1, January 1, 2018 (Malone and Winslow 2018). Available at* https://commons.und.edu/cgi/viewcontent.cgi?article=1072&context=ndlr. Note that a company emerging from bankruptcy will retain their liability for sites they own. See "Recovering costs from parties in bankruptcy." *U.S. EPA,* https://www.epa.gov/enforcement/recovering-costs-parties-bankruptcy.

349 See the Local 56 website, https://www.ilwulocal56.org/.

350 "Air District fines Marathon Martinez refinery $5 million." *Bay Area Air District,* October 2, 2024*. Available at* https://www.baaqmd.gov/en/news-and-events/page-resources/2024-news/100224-ymarathon-penalty.

351 LA City Code § 12.20 A.1 (allowing in M3 any use permitted in the M2 zone; the M2 zone contains a similar incorporation of M1 zone uses); Carson Code § 9141.1.

352 SB 131 (2025, Wiener).

353 PRC § 26003.

354 As noted in Section 1.4.2.1, the developer Catellus has initiated conversations with community members to solicit input regarding redevelopment, but it is unclear how they are selecting those members and whether they are genuinely representative of community opinion.

355 The amendments to CEQA enacted in June 2025 via SB 131 exempt from CEQA any "advanced manufacturing" developments on sites zoned for such developments. "Advanced manufacturing" is very broadly defined in PRC § 26003 to include at least some uses that are consistent with the existing zoning and hence would not trigger CEQA due to a zoning change.

356 Cantu 2025, n. 345.

357 City Motion, n. 92.

358 See the Los Angeles Department of Public Works description of the Office at https://dpw.lacity.gov/commissioners-boardroom/office-petroleum-and-natural-gas-administration-and-safety.

359 See the Program's website at https://sanitation.lacity.gov/san/faces/home/portal/s-lsh-es/s-lsh-es-si/s-lsh-es-si-b?_afrLoop=17608416065970002&_afrWindowMode=0&_afrWindowId=null&_adf.ctrl-state=oghl4pqmz_1#!%40%40%3F_afrWindowId%3Dnull%26_afrLoop%3D17608416065970002%26_afrWindowMode%3D0%26_adf.ctrl-state%3Doghl4pqmz_5.

360 The Task Force roster is available at https://preview-assets-us-01.kc-usercontent.com/0234f496-d2b7-00b6-17a4-b43e-949b70a2/3c3ed101-1035-46ed-a50d-7efb7990d886/Final%20Roster.pdf.

361 The Task Force website is available at https://cso.lacounty.gov/the-plan/cso-current-initiatives/just-transition-strategy/.

362 An interagency task force was created previously to facilitate agency collaboration around addressing violations at the AllenCo site and explore closing it down. An analysis of the potential future of former urban oil infrastructure sites recommends development of a formal task force of this nature focused on redevelopment. E. Silber, "What comes next? Envisioning the future of oil sites in Los Angeles," April 10, 2023, at 52. *Available at* https://www.oxy.edu/sites/default/files/Silber_Final%20Draft.pdf.

363 See, e.g., B. Tarekegne, K. Kazimierczuk, R. O'Neil, "Coal-depending communities in transition." *Pacific Northwest National Laboratory,* September 2021. *Available at* https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-31909.pdf; B. Brey, V. Rueda, "The persistent human costs of deindustrialization: Lessons from the collapse of the British coal industry." *CEPR,* September 1, 2024. *Available at* https://cepr.org/voxeu/columns/persistent-human-costs-deindustrialisation-lessons-collapse-british-coal-industry#:~:text=Finding%202:%20Pit%20closures%20are,worse%20health%20outcomes%20over%20life; "Managing coal mine closure: Achieving a just transition for all." *World Bank Group*, November 2018. *Available at* https://documents1.worldbank.org/curated/en/484541544643269894/pdf/130659-REVISED-PUBLIC-Managing-Coal-Mine-Closure-Achieving-a-Just-Transition-for-All-November-2018-final.pdf; C. Strambo, M. Aung, "Five lessons from past mining closures." *Stockholm Environment Institute,* September 20, 2019. *Available at* https://www.sei.org/features/five-lessons-from-past-mining-closures/.

364 See Section 1.3.1.

365 Pending legislation, SB 513 (Durazo), would require employee access to such records.

366 See Section 1.3.3.

367 See Section 1.2.1.

368 Karras 2020, n. 17, at 25-26.

369 Diablo Canyon Settlement, n. 324.

370 R. Pollin, J. Wicks-Lim, S. Chakraborty, C. Kline, and G. Semieniuk, "A program for economic recovery and clean energy transition in California." *Political Economy Research Institute, June 2021 (Pollin 2021). Available at* https://www.cft.org/sites/main/files/file-attachments/pollin-report.pdf.

371 The Displaced Oil and Gas Worker Fund (DOGWF), created by Unemployment Insurance Code § 9920 et seq., provides funding for organizations (not individuals) supporting workers in transitioning sectors.

372 City Motion, n. 92.

373 County Motion, n. 90.

374 Moore 2022, n. 23.

375 Simeone 2023, n. 25; Report and Recommendations, n. 80; Parks and Baran 2023, n. 80.

376 As explained in n. 94, while researchers at U.C. Merced are preparing a report on fossil fuel transition impacts, it remains unclear whether the report will include tax base impacts from closure of refineries.

377 Report and Recommendations, n. 80.

378 The Partnership Studies include the Report and Recommendations, n. 80, Parks and Baran 2023, n. 80, Hammerling et al. 2025, n. 311, and C. Simeone and I. Lange, "San Francisco Bay Area refinery transition analysis." *The BlueGreen Alliance Foundation, 2022. Available at* https://www.bluegreenalliance.org/wp-content/uploads/2025/01/San-Francisco-Bay-Area-Refinery-Transition-Analysis.pdf.

379 Parks and Baran 2023, n. 80.

380 CEC's 2024 Transportation Fuels Assessment Report analyzed a broad array of theoretical options for ensuring a supply of transportation fuels in the state. Among the many options considered were a short list of "highly complex implementation policies," which included, *inter alia,* a "cost of service model" in which California would actively regulate the petroleum fuel market in a manner similar to the current regulation of electric utilities, and a "state-owned refineries" approach in which the state would purchase refineries in the state as a means of managing the supply of gasoline. The analysis identified benefits but also very significant obstacles to both concepts. See "Commissioner's report — Transportation fuels assessment." *CEC*, August 15, 2024, *at 73-74*. *Available at* https://www.energy.ca.gov/publications/2024/transportation-fuels-assessment-policy-options-reliable-supply-affordable-and.

381 See Section 2.2.2. The legislature could, in principle, enact statutory provisions requiring that these changes be made to the regulations.

382 Attorney General Opinion #00-405, August 31, 2000. *Available at* https://oag.ca.gov/system/files/opinions/pdfs/00-405.pdf. See "A.G. tells counties that they may implement own safety ordinances." *California Environmental Insider, 14 No. 7 Cal. Envtl. Insider 2, September 15, 2000.*

383 Local municipal governments do have the power to conduct legislative proceedings that could, in principle, be used to obtain information concerning a refinery's ARO. See Government Code § 37104. However, such proceedings might prove unwieldy, as the process of seeking information concerning ARO would itself require fairly deep technical knowledge on the part of local officials to know what questions to ask.

384 See "Assessing Brownfield sites." *U.S. EPA,* https://www.epa.gov/sites/default/files/2020-07/documents/assessing_brownfield_sites.pdf. A Phase I site assessment is an initial review based on desktop sources (available records and government databases) and a visual site inspection. A Phase II assessment digs deeper, including sampling to identify chemicals of concern and development of cleanup plans.

385 See Section 3.2.

386 The account could either be a cash account or a third-party trust fund. See J. Boyd, "Financial responsibility for environmental obligations: Are bonding and assurance rules fulfilling their promise?" *Resources for the Future,* August 2001, at 25 (Boyd 2001). *Available at* https://ideas.repec.org/p/ags/rffdps/10809.html. There would need to be a requirement in place that the funds can be released only upon approval of a regulator.

387 10 C.F.R. § 50.75(3)(1)(ii). The provision requires that the fund be structured such that "the total amount of funds would be sufficient to pay decommissioning costs at the time permanent termination of operations is expected."

388 Boyd 2001, n. 387, at 50.

389 California Constitution Article XIII A Sections 3-4. See "California Proposition 218, voter approval requirement for local tax increases initiative (1996)." *Balletpedia. Available at* https://ballotpedia.org/California_Proposition_218,_Voter_Approval_Requirement_for_Local_Tax_Increases_Initiative_(1996).

390 The City of Richmond, home to the Chevron Richmond refinery, proposed via referendum in the summer of 2024 imposing a tax increase on oil refining via a business license tax, which was treated as a simple-majority general tax measure rather than a special tax, since the referendum did not specify a use for the new revenues. Richmond City Council Resolution No. 63-24, July 18, 2024, https://www.ci.richmond.ca.us/ArchiveCenter/ViewFile/Item/14022. The city subsequently withdrew the referendum from the ballot after a settlement resolution was reached with Chevron. Richmond City Council Resolution No. 97-24. *Available at* https://www.ci.richmond.ca.us/ArchiveCenter/ViewFile/Item/14164.

391 "California Proposition 26, supermajority vote to pass certain new taxes and fees (2010)." *Ballotpedia. Available at* https://ballotpedia.org/California_Proposition_26,_Supermajority_Vote_to_Pass_Certain_New_Taxes_and_Fees_(2010).

392 *City and County of San Francisco v. All Persons Interested in the Matter of Proposition C*, 51 Cal.App.5th 703 (2020). A 2024 statewide voter initiative that would have retroactively eliminated this exception and required that special tax voter initiatives pass by a two-thirds vote was rejected by the California Supreme Court before it could be voted upon. *Legislature of the State of California v. Weber* (2024), 93 Cal. App. 5th 1112.

393 *Schmeer v. County of Los Angeles,* 213 Cal. App. 4th 1310 (Ct. App. 2013). *Accord National Association for Gun Rights, Inc. v. City of San Jose,* 643 F.Supp.3d 1088, 1101 (N.D. Cal. 2022); *National Association for Gun Rights, Inc. v. City of San Jose,* 618 F.Supp.3d 901, 922-23 (N.D. Cal. 2022). See C. Segal, *"Just transitions for oil and gas communities." Virginia Environmental Law Journal Vol. 39:177, 2021,* at 219-221. *Available at* http://www.velj.org/uploads/1/2/7/0/12706894/39.2_va_envtl_l.j._segall_177_232.pdf (discussing why *Schmeer* applies to allow an independent fund mandate for refineries without a two-thirds vote). Note that key to the applicability of *Schmeer* is the degree to which the parameters for expenditure of the fund are defined by the legislature*. Howard Jarvis Taxpayers Assn. v. Bay Area Toll Authority (2020),* 51 Cal.App.5th 435, 452-53.

394 Malone and Winslow, n. 349, provides a good general overview of various types of environmental financial assurance.

395 The City of Los Angeles Department of Public works provides information concerning project labor agreements at https://bca.lacity.gov/pla_information#:~:text=Historically%2C%20Project%20Labor%20Agreements%20have,conflict%20involvement%20free%20project%20completions.

396 See Section 2.4.3.

397 See L. Bedsworth, K. Hoff, M. Johnson, "Community benefits tools and California clean energy projects." *Berkeley Law Center for Law, Energy, & the Environment (CLEE),* October 2024 (Bedsworth 2024). *Available at* https://www.law.berkeley.edu/wp-content/uploads/2024/10/Community-Benefits-Tools-and-California-Clean-Energy-Projects_CLEE-Report_Oct24.pdf.

398 A full set of resources concerning community benefits tools is available on the CLEE website, at https://www.law.berkeley.edu/research/clee/research/law-of-the-sea-institute/california-offshore-wind/community-benefits-agreements-resources/#bb0-definitions-and-overview-0.

399 See "Common challenges in negotiating community benefits agreements and how to avoid them." *Partnership for Working Families, January 2016. Available at* https://www.datocms-assets.com/64990/1657040054-effective-cbas.pdf.

400 Richmond Municipal Code § 15.04.816.010 et seq.

401 Detroit Municipal Code § 12-8-1 et seq. (codifying the Detroit community benefits ordinance. *Available at* https://detroitmi.gov/sites/detroitmi.localhost/files/2020-01/Community%20Benefits%20Ordinance.pdf).

402 Richmond Municipal Code §§ 15.04.816.020(d), 15.04.816.030; Detroit Municipal Code §§ 12-8-1, 12-8-2.

403 Bedsworth 2024, n. 398, at 24.

404 Report and Recommendations, n. 80

405 The referenced recommendations being adopted by reference include those in Section II (Worker Safety Net and Transition) and Section IV (Refinery Community Support and Transition) and Section IV (Refinery Community Support and Transition). This report takes no specific position on other recommendations in the document.

406 Report and Recommendations, n. 80, at 27-28.

407 *Id.*

408 *Id.*

APEN
ASIAN PACIFIC ENVIRONMENTAL NETWORK

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