

UC Berkeley

Recent Work

Title

Fossil fuel layoff: The economic and employment effects of a refinery closure on workers in the Bay Area

Permalink

<https://escholarship.org/uc/item/3703c283>

Authors

Parks, Virginia
Baran, Ian

Publication Date

2023-04-26

FOSSIL FUEL LAYOFF

The economic
and employment
effects of a
refinery closure
on workers in
the Bay Area

April 2023

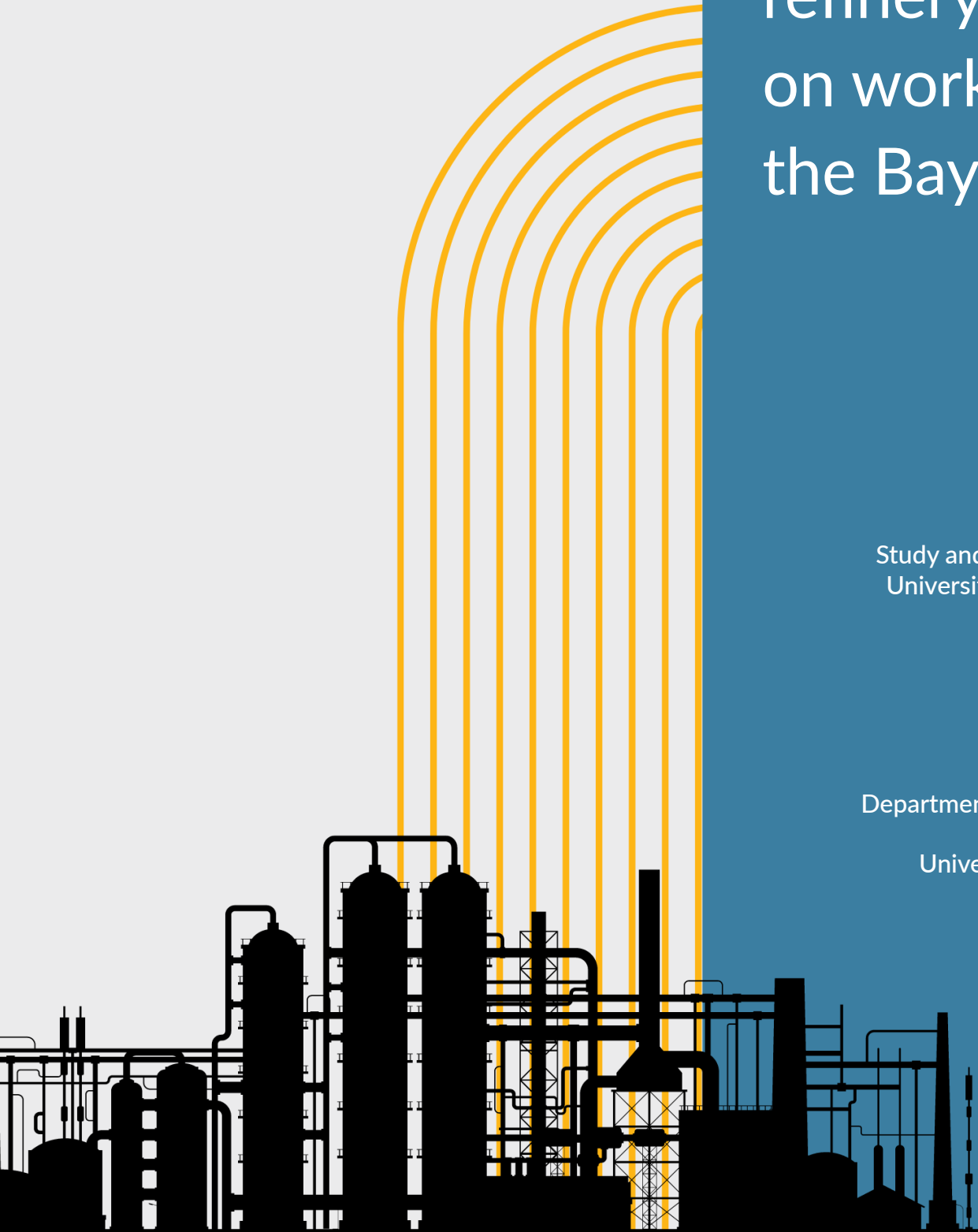
Study and report prepared for the
University of California, Berkeley
Labor Center

by

Virginia Parks, PhD
Ian Baran

Department of Urban Planning and
Public Policy
University of California, Irvine

UC BERKELEY
LABOR
CENTER



About the authors

Virginia Parks, PhD, is a full professor in the Department of Urban Planning and Public Policy at the University of California, Irvine. An urban economic geographer, her research and teaching expertise include labor and employment, urban politics and policy, economic inequality, and local economic development. Professor Parks has published research on a range of labor market issues including job training, low-wage work, the racial wage gap, immigrant employment, workplace diversity, and unemployment insurance.

Ian Baran is a doctoral candidate in the Department of Urban Planning and Public Policy at the University of California, Irvine. His research focuses on race, organized labor, and community development, and how they intersect with the criminal justice system.

Acknowledgments

Kathleen Lara and Megan Quyu-Nhu Do, graduate students in the Master of Urban and Regional Planning Program at UC Irvine, assisted with this research. The authors wish to thank the workers who participated in the survey and generously spent their evenings with us on Zoom interviews, and Sam West for facilitating conversations with the union.

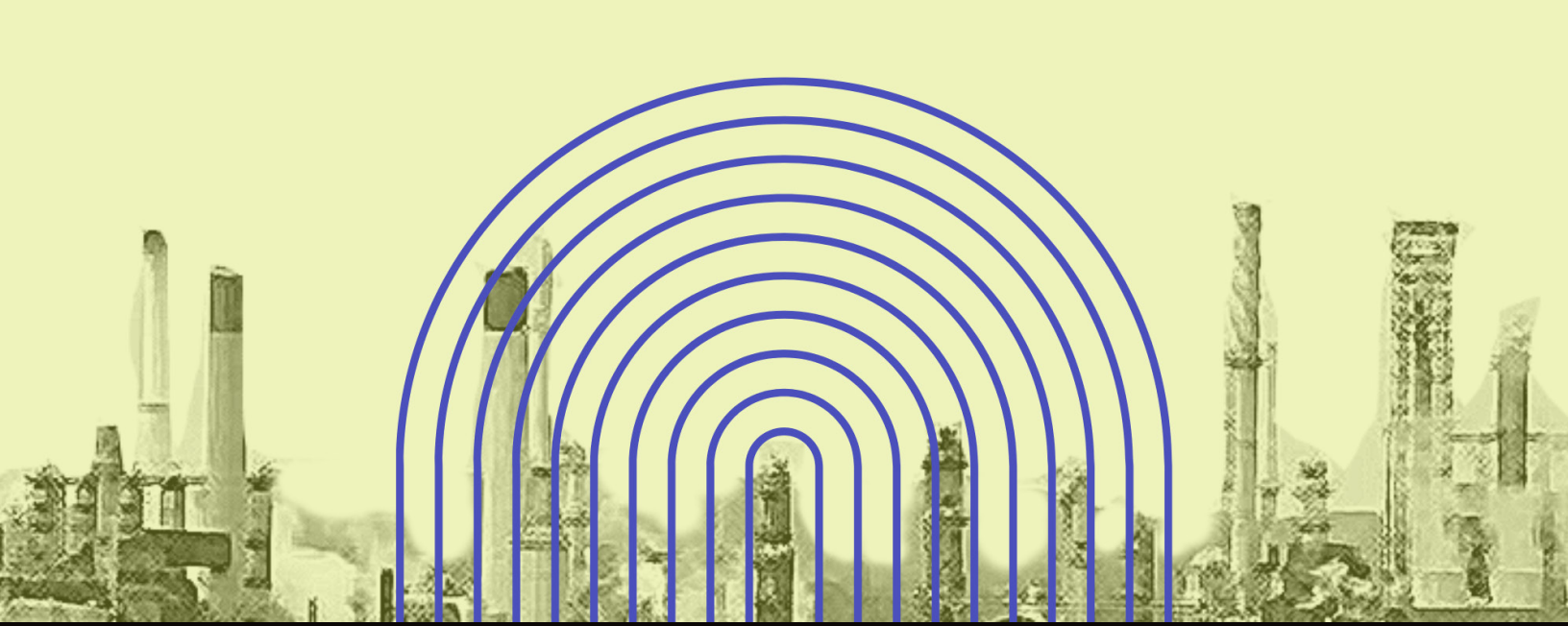
This report was completed as part of the Contra Costa Refinery Transition Partnership, a High-Road Training Partnership funded by the California Workforce Development Board, facilitated by the BlueGreen Alliance Foundation.

Suggested citation

Parks, Virginia, and Ian Baran. 2023. "Fossil fuel layoff: The economic and employment effects of a refinery closure on workers in the Bay Area." Berkeley, CA: UC Berkeley Labor Center. <https://laborcenter.berkeley.edu/fossil-fuel-layoff/>.

Contents

Executive summary.....	4
Introduction	7
Data and methods.....	8
Part 1: Background and worker characteristics	10
Background.....	10
Worker characteristics.....	11
Part 2: Post-layoff employment patterns.....	13
Wage by sector	16
Unionization by sector and wage	16
Working conditions.....	17
Job turnover during the Great Resignation	18
Part 3: In the wake of layoff—emotional shock, job search, and financial insecurity	22
Immediate response to layoff.....	22
Retirement and falling short of early retirement	23
Job search experience.....	24
Problems with UI.....	27
Experiences of the unemployed	27
Stayers and movers	28
Eroding financial security and future plans.....	29
Interest in job training	30
The emotional toll of layoff.....	31
Worker recommendations.....	32
Conclusion	37
Appendix A: Refinery occupations of survey respondents	38



Executive summary

On October 30, 2020, the Marathon oil refinery in Contra Costa County, California, was permanently shut down and 345 unionized workers laid off. We surveyed (n=140) and interviewed (n=21) these refinery workers to document their post-layoff employment experiences. The findings in this report focus on these workers' post-layoff job search, employment status, wages, and financial security. The Marathon refinery's closure sheds light on the employment and economic impacts of climate change policies and a shrinking fossil fuel industry on fossil fuel workers in the region and more broadly.

In the aftermath of the refinery shutdown, workers were relatively successful in gaining post-layoff employment but at the cost of lower wages and worse working conditions. At the time of the survey, 74% of former Marathon workers (excluding retirees) had found new jobs. Nearly one in five (19%) were not employed but actively searching for work; 4% were not employed but not looking for a job; and the remaining 2% were temporarily laid off from their current job. Using standard labor statistics measures, the post-layoff unemployment rate among Marathon workers was 22.5% and the employment rate was 77.5%. If workers who have stopped actively searching for work were included, the post-layoff unemployment rate was higher at 26%.

Former Marathon workers find themselves in jobs that pay \$12 per hour less than their Marathon jobs, a 24% cut in pay. The median hourly wage at Marathon was \$50, compared to a post-layoff median of \$38. A striking level of wage inequality defines the post-layoff wages of former refinery workers. At Marathon, hourly pay ranged between \$30 to \$68. The current range extends as low as \$14 per hour to a high of \$69. Workers reported benefits packages comparable to their pre-layoff Marathon benefits.

Workers found jobs in a range of sectors. The single most common sector of re-employment was oil and gas, where 28% of former Marathon workers found post-layoff jobs but at wages 26% lower than at Marathon. These lower rates of pay stem from loss of seniority and non-union

employment. The utility sector (electrical power, natural gas, wastewater management) was the second most common sector of re-employment. Workers reported that utility jobs were a good fit for their skills, reputed as “good jobs,” and highly sought after. The median hourly utility wage was \$41. The third most common re-employment sector was chemical treatment. Less than half (43%) of all post-layoff jobs were unionized.

Overall, workers reported worse working conditions at their post-layoff jobs, even in higher wage jobs. Workers described hazardous worksites, heavy workloads, work speed-up, increased job responsibilities, and few opportunities for advancement. Above all, workers cited poor safety practices and increased worksite hazards as the most significant and alarming characteristics of degraded working conditions.

Workers had difficulty finding jobs that matched their skills when searching for work. They emphasized two primary frustrations: 1) employers’ lack of knowledge about refinery work and refinery workers’ skills and 2) workers’ inability to prove their skill or experience through certifications or a verification process.

Nearly all workers (91%) would consider job training. Approximately half (49%) said they would enroll in a job training program, 42% responded “maybe,” and 9% said they would not. Workers aged 40 to 49 reported the greatest willingness to enroll in training followed by workers aged 30 to 39. Hesitation was highest among workers over the age of 50. Workers’ most prevalent concerns about training were cost, needing to earn while training, and training program length. Many workers were apprehensive about the efficacy of training. Workers were uniformly uninterested in going back to school to earn degrees.

Workers reported increasing financial insecurity after the layoff. A full third of all workers described that they were “falling behind financially” a year following the layoff compared to only 3% before the layoff. Nearly one-third of all workers took early withdrawals from their retirement accounts to make ends meet following layoff. Most re-employed workers did not move to find jobs, likely associated with the high rate of home ownership among Marathon workers (81%). Many expressed deep anxieties about their long-term ability to make mortgage payments.

Laid-off workers are highly motivated to put their skills and experience to use in new jobs, in new sectors. They require coordinated assistance to transition successfully into new jobs and for the region to retain them. Our research findings identify four critical types of assistance that workers need most. First, third-party skill certification would facilitate more efficient and accurate skill matching between jobs and workers in the labor market. Certification would help workers communicate, and verify, their skills to new employers. Certification would aid employers who are unfamiliar with the refinery sector make better decisions about assessing their workforce needs in relation to the skills of former refinery workers.

Workers reported worse working conditions at their post-layoff jobs... including hazardous worksites, heavy workloads, work speed-up, increased job responsibilities, and few opportunities for advancement.

Second, workers require targeted job search assistance that focuses on a broad scope of strategies, including effective job search techniques, resume and online profile preparation, and career counseling. Both workers and job counselors require an up-to-date and nuanced assessment of jobs and industries to which refinery skills transfer.

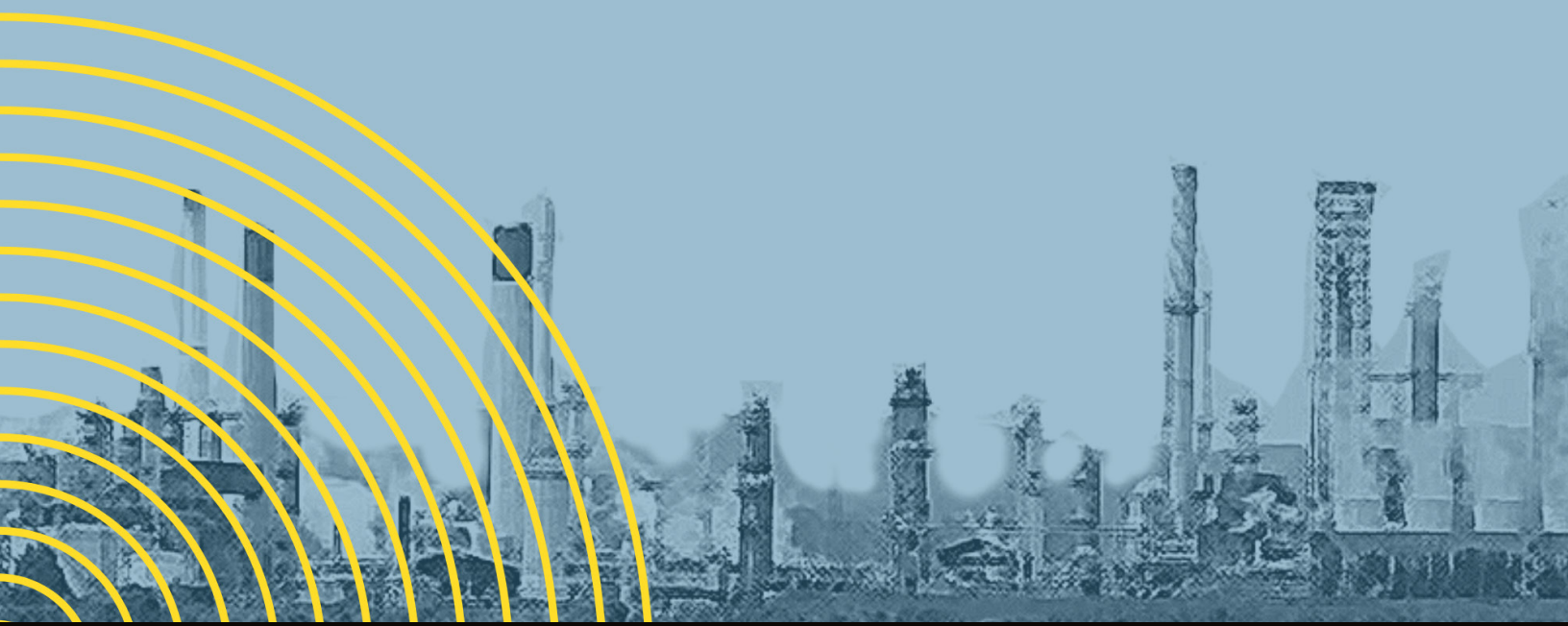
Third, a fair and equitable transition for workers out of the fossil fuel sector depends upon a robust economic development strategy that generates new jobs comparable in quality to the jobs these workers are leaving behind. Successful transition requires both transition assistance and high-road job growth. One without the other will leave workers, and the region, behind.

Lastly, regional economic development strategies aimed at reducing fossil fuel dependency must account for the adverse financial impact these strategies will have on workers and their families. Loss of income will invariably result. A just transition for working Californians needs to include financial support, in the form of cash assistance or wage replacement, to cover losses in wage income.

Regional economic development strategies aimed at reducing fossil fuel dependency must account for the adverse financial impact these strategies will have on workers and their families.

Recommendations to support displaced workers

- Extended cash payments to maintain pre-layoff income levels
- Financial support to cover the 24% average gap in workers' pre-layoff wages and their post-layoff wages
- Bridge-to-retirement funding that provides full retirement benefits to workers eligible for early retirement within one year following layoff
- Third-party certifications to define and verify the skills of refinery workers, and facilitate more efficient and accurate skill matching between jobs and workers in the labor market
- Targeted, individualized job search assistance that focuses on a broad scope of strategies for identifying good job opportunities, and preparing for and applying for those jobs
- Targeted, short-term training for a specific set of occupations and industries, with income support for workers during training
- Short-term, stand-alone training modules to enable workers to maintain certifications they had earned on-the-job at the refinery, such as CPR and HAZMAT training certifications
- Counseling services for workers and their families during layoffs and job transitions



Introduction

In the fall of 2020, amidst the pandemic and historically unprecedented unemployment, a large oil refinery in the Bay Area abruptly shut down after 107 years of continuous operation. Weathering two world wars, the 1918 global pandemic, the Great Depression, and the Great Recession, the economic conditions of 2020 were deemed too hazardous to surmount by Marathon refinery executives. Following the onset of the pandemic in March 2020, the refinery had been idled due to plunging demand for gasoline under the state's stay-at-home order. In August 2020, the company announced that the Martinez, California, facility would cease refining oil altogether. Among the murmured reasons for the plant closure, executives gestured to the impending impact of climate change policy on the fossil fuel industry. The facility, the company announced, would be converted to a renewable diesel processing unit. On October 30, 2020, Marathon executives permanently shut down all oil refining activity at the facility, laying off several hundred workers, including 345 union refinery workers and nearly as many contract and management employees.

Apart from the specific reasons for the Marathon shutdown, the refinery's closure provides an empirical window into the impacts of a shrinking fossil fuel industry on fossil fuel workers more broadly. Put another way, the Marathon plant closure serves as a proxy for climate change policies aimed at transitioning a regional economy away from fossil fuels. Analyzing the socio-economic impacts of the Marathon refinery shutdown on workers provides a baseline of information about the probable impact of economic de-carbonization on a region's fossil fuel workforce. In this case, the refinery's location within Contra Costa County provides sightlines onto a process of transition within a diversified regional economy. Of the three oil refining regions in California, Contra Costa and Los Angeles Counties are similar in this regard. Kern County, by contrast, represents a heavily oil-dependent and non-diversified regional economy.

The aim of this study is to capture and analyze the post-layoff experiences of workers at the Marathon refinery in the Bay Area. In particular, the study focuses on the labor market experiences of laid-off workers, including workers' post-layoff employment status, job search, and wages. How successful were workers in finding new jobs after layoff? In what industries or occupations did they secure employment? How did their refinery skills and experiences translate to new employment opportunities? How do workers' post-layoff wages compare to their pre-layoff wages? Did workers relocate to find new jobs? In short, are workers better or worse off after losing their jobs at the refinery?

The experience of these workers sheds light on future transition experiences of fossil fuel workers. An informed understanding of these experiences can assist policy makers, workforce development agencies, labor, and others in designing policies and programs that effectively support workers through periods of economic transition. This study makes a unique and highly significant contribution to this endeavor—most notably because its findings are drawn from workers' actual experiences of job loss and transition. This study offers a rare empirical look at how workers navigate the constraints and opportunities of the labor market during a period of transition. It captures both the behavior of workers (what jobs they seek and take) and employers (what jobs they offer and workers they hire). Other studies of fossil fuel workers and transition provide information about workers' aspirations and desires or simulate job matching in a local economy. Albeit illuminating, the clearest, most unequivocal information about how workers will fare during a transition—and what decisions they will make or are forced to make—comes from analyzing behavior, decisions, and outcomes during an actual economic transition. The Marathon refinery shutdown provides just such a case.

The Marathon plant closure serves as a proxy for climate change policies aimed at transitioning a regional economy away from fossil fuels.

Data and methods

The study's findings are drawn from a survey of 345 laid-off refinery workers and semi-structured interviews with a subset of survey respondents carried out between December 2021 and March 2022. The survey response rate was 41% (n=140). The survey was administered primarily online (88% of completed surveys). Workers who did not complete the online survey after the first two requests were mailed a paper survey (12% of completed surveys). Twenty-one workers participated in follow-up Zoom or telephone interviews (median length=69 minutes).

All 345 workers employed at the Marathon Martinez plant in August 2020 when the shutdown was announced were contacted by the union on the researchers' behalf in December 2021 by email or mail with information about the online survey. Workers were given a unique identifying

code, ensuring that only eligible workers could access the survey. The last survey question asked respondents if they were interested in participating in a follow-up interview via Zoom or over the phone. Respondents were given a grocery gift card for completing the survey and a second gift card if interviewed. Survey collection continued through March 2022; paper surveys were mailed mid-February. Interviews were carried out over the same period on a rolling basis. Researchers periodically reviewed completed surveys to identify potential interview participants. Researchers selected cases for interviews that were roughly representative of survey responses (e.g., by age, occupation, employment status) as well as cases for which an interview could provide more detailed information (e.g., the job search experience of unemployed workers). All survey responses were de-identified and interview responses anonymized.

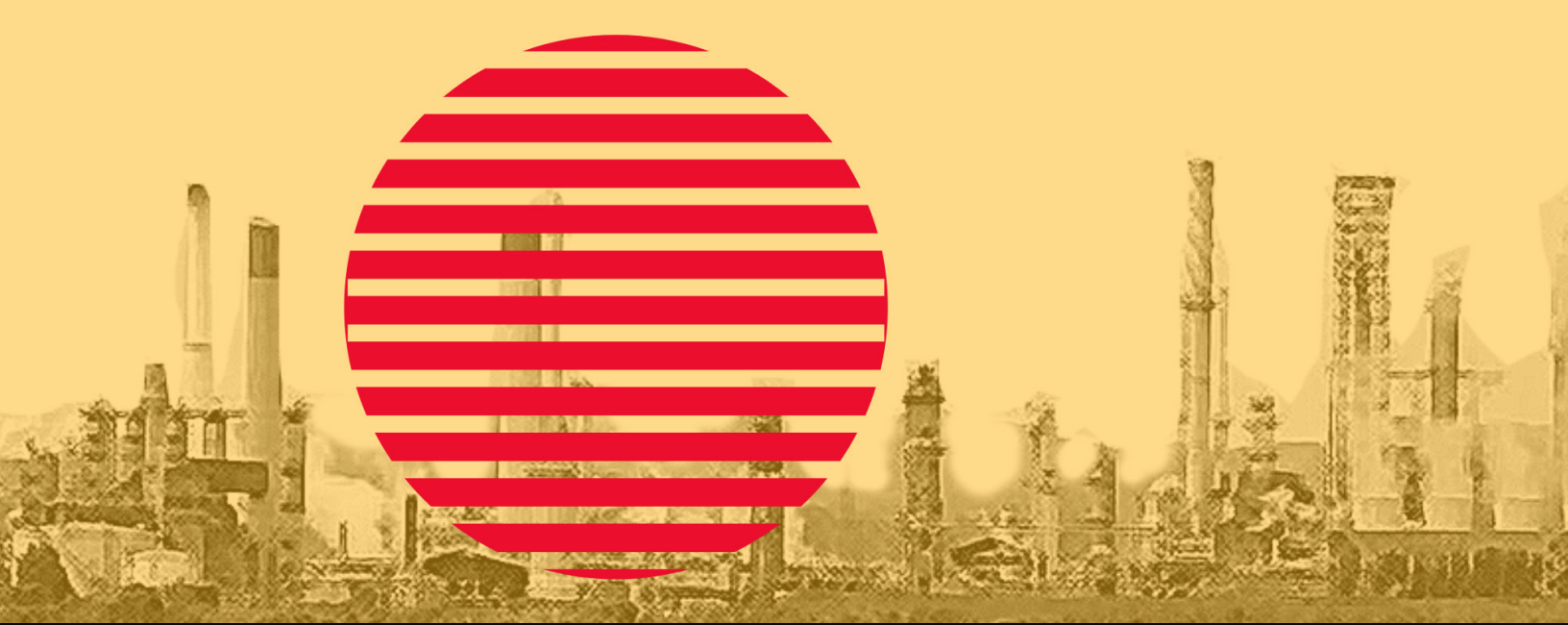
The report is organized into three parts:

Part 1: Background and worker characteristics

Part 2: Post-layoff employment patterns

Part 3: In the wake of layoff—emotional shock, job search, and financial insecurity

The clearest, most unequivocal information about how workers will fare during a transition—and what decisions they will make or are forced to make—comes from analyzing behavior, decisions, and outcomes during an actual economic transition.



Part 1: Background and worker characteristics

Background

The Marathon refinery, located in Martinez, California, in Contra Costa County, first began operating in 1913 as the Avon Refinery. The refinery has changed ownership several times in recent decades. Marathon acquired ownership in 2018 from Tesoro. Company owners before Tesoro include Ultramar (which merged with Valero) and Tosco. The Marathon refinery was one of five major refineries in the area: Phillips 66 Rodeo San Francisco Refinery, Chevron Richmond Refinery 841, PBF Refinery/Martinez Refining Company (bought from Shell in 2020), and Valero Benicia Refinery. The Marathon facility, at maximum capacity, processed 160,000 barrels of crude oil per day. Workers described the Martinez facility's unique capacity to refine the "dirtiest crude" among area refineries.

In 2020, shortly after the onset of the pandemic, Marathon idled refinery operations but kept workers on. Several months later, in August 2020, Marathon announced the refinery's shutdown and plans to convert the facility to a renewable diesel processing plant. As a closed shop, all permanent positions at Marathon were unionized. Contract bargaining with the refinery's union, the United Steel Workers Local 5, began immediately and continued for weeks. On October 30, 2020, all 345 permanent workers at the refinery were laid off. Several hundred management employees and contract worker also lost their jobs. The union secured severance pay packages based on seniority and extension of health, vision, and dental benefits for six months following the layoff. The severance pay package provided a maximum of two weeks of severance for each

year of service with a maximum of 62 weeks of pay. Workers with less than two years of service received one week of pay for each \$10,000 of annual base pay.

Despite not securing straight seniority re-hire provisions in the contract for the few dozen future jobs at the renewable diesel facility, the union did negotiate a recall hiring process based on seniority plus qualifications. The company refused bridge-to-retirement provisions and the agreement included a one-year “no-hire” clause that barred workers from applying for jobs at other Marathon facilities and with their contractors.* (We interviewed one worker who encountered this no-hire policy when he applied to an out-of-state Marathon refinery within a year after layoff.)

Jobs at the Marathon Martinez refinery were highly paid, unionized jobs. Job benefits included robust retirement plans, family health benefits, and several weeks of paid vacation. Shift schedules were grueling but came with both overtime and multiple days off between shifts. The union facilitated a worker-to-worker model of formal and informal training across a broad scope of refinery operations, including basic protocol, health and safety, and emergency response. Highly specialized training opportunities included the fire brigade’s annual participation in an industrial firefighting exercise at Texas A&M. In short, workers could start a position with few skills and little knowledge about refinery operations but develop a highly specialized skill set over time. Workers could “bid” for job openings to advance and were guaranteed pay increases for job tenure and job advancement. As a result, workers made lifetime careers at the refinery. On average, workers had been employed at the Martinez refinery for 11 years when it shut down.

At the Marathon Martinez refinery, workers could start a position with few skills and little knowledge about refinery operations but develop a highly specialized skill set over time.

Worker characteristics

Workers at the Marathon refinery tend to be older than the regional workforce at large, reflecting conditions of stable employment in the unionized refinery sector that translate to long-term employment among workers. The median age of survey respondents was 43 years (half were older, half younger). The average age was 45 with a range of 22 to 69. Nearly three-quarters (74%) had children under the age of 18 living with them.

Workers tend to be white and male. Among our survey respondents, 73% identify as White, 12% as Asian/Pacific Islander, 9% as Latino/a, and 7% as African American/Black. Reflective of the male-dominated industry at large, 92% of respondents identify as male, 7% as female, and 1% as non-binary.

* The union strongly objected to the no-hire clause but was not able to keep it out of the final agreement.

A majority of Marathon workers have educational experience beyond high school. More than half (52%) have some college experience but no degree (the largest educational attainment group). Twelve percent have an associate degree, and 17% are college graduates with a bachelor’s degree. Eighteen percent are high school graduates with either a diploma or GED. Two percent hold a graduate degree. The youngest workers (age 20 to 29) have the highest levels of educational attainment, e.g., 29% have bachelor’s or graduate degrees (Table 1).

Table 1. Age by educational attainment
Reported as percentage of age cohort by education

	Age cohort				
	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69
Less than high school	0.0%	0.0%	0.0%	0.0%	8.3%
High school or equivalent (GED)	14.3%	21.2%	18.5%	8.0%	16.7%
Some college, no degree	28.6%	42.4%	51.9%	64.0%	50.0%
Associate degree	28.6%	21.2%	18.5%	4.0%	8.3%
Bachelor’s degree	14.3%	15.2%	7.4%	24.0%	16.7%
More than bachelor’s	14.3%	0.0%	3.7%	0.0%	0.0%
Total	100%	100%	100%	100%	100%

Among our respondents, 26% are veterans. One veteran described his refinery layoff “transition” as a familiar experience, comparable to his first transition out of the armed forces into the civil labor force after 20 years of military service. At that time, he experienced great difficulty in securing well-paid, skilled employment, prompting him to return to school to earn a BA. In his view, his bachelor’s degree was instrumental in getting a chemical analyst job in the refinery sector, but he had been younger and the degree less expensive then.

The refinery occupational distribution of the survey sample resembles that of the Marathon workforce at large. The vast majority of workers were operators (59%), ranging from entry-level to advanced operator positions across both the oil and chemical operations at the refinery. The remaining positions comprise a diverse set of occupations, including mechanics, pipefitters, electricians, custodians, health and safety representatives, and lab analysts. (See Appendix A for a full list of respondent refinery occupations.)

Refinery workers were, on average, long-term employees. The average number of years worked at the refinery was 11 years, 2 months. The median years of employment was 10 years, 8 months: half of all workers had been employed at the Martinez refinery for more than 10 years and 8 months, and half had been employed for less. The most senior worker had worked at the Martinez refinery for 43 years, since 1977. The most recently hired worker, and the youngest, had worked at the refinery for 8 months.



Part 2: Post-layoff employment patterns

Two-thirds of all laid-off Marathon workers were employed at the time of the survey. Ten percent had retired. Excluding retirees, 74% of workers had found new jobs after the layoff (Table 2). Nineteen percent of workers responded that they were not employed but looking for a job. Four percent were not employed but not looking for a job. The remaining 2% were temporarily laid off from their current job.

Labor market statistics define workers as unemployed when they are either actively looking for work or are temporarily laid off. The unemployment rate is the number of these workers divided by the total number of workers active in the labor force (employed plus unemployed). By this definition, the post-layoff unemployment rate among former Marathon workers was 22.5%. The employment rate was 77.5%.

However, we gleaned information from interviews that at least some workers who are not actively searching for jobs want to work. These workers are defined as discouraged workers. Including these workers in unemployment calculations drives the unemployment rate higher. If all Marathon workers not actively looking for a job are discouraged workers then the unemployment rate among former Marathon workers was 26%. The corresponding employment rate was 74%. (Counting discouraged workers as unemployed includes them, by definition, in the total count of employed plus unemployed workers, or active in the labor force).

Table 2. Post-layoff employment status, excluding retirees

Employed	74.4%
Not employed, looking for a job	19.2%
Not employed, not looking for a job	4.0%
Temporarily laid off	2.4%
Total	100.0%

The relatively high post-layoff employment rate among Marathon refinery workers likely reflects their competitive position in local hiring queues. Refinery workers are highly skilled industrial workers with experience working in highly regulated, complex, and dynamic industrial environments. These workers also possess a broad array of substantive and tacit skills, ranging from safety protocols to mechanical know-how. Local employers clearly valued these skills and experience. Despite initial low levels of hiring among employers due to Covid shortly after the Marathon layoff, workers likely benefited from the tight labor conditions that came to characterize the labor market in 2021.

Yet getting a job meant taking a worse job. Post-layoff jobs did not compare in pay or working conditions to Marathon refinery jobs. Former Marathon workers found themselves in jobs that paid \$12 per hour less than their Marathon jobs, a 24% cut in pay (Table 3). The median hourly wage at Marathon was \$50, compared to a post-layoff median of \$38. A striking level of wage inequality defines the post-layoff wages of Marathon workers. At Marathon, hourly pay ranged between \$30 to \$68. The current range extends as low as \$14 per hour to a high of \$69. By and large, workers reported benefits packages comparable to their pre-layoff Marathon benefits.

Table 3. Hourly wage before and after layoff

	Current job	Marathon
Lowest	\$14.00	\$30.00
Highest	\$69.00	\$68.00
Median	\$38.00	\$50.00

Workers found jobs in a range of sectors, although the oil and gas sector was the most common sector of re-employment, accounting for 28% of all employed workers (Table 4). With four other refineries in the Bay Area, workers were able to vie successfully for open positions that were nearly perfect matches to their skill set. A few workers moved out of state to take refinery jobs. The utility sector (electrical power, natural gas, wastewater management, steam) was the

second most common sector of re-employment. Interviews revealed that jobs in this sector were highly sought after by workers (especially jobs in the regional unionized gas and electric utility company) and a good match to worker skills and experience. We include wastewater management in this sector. Workers described how their skills as a refinery operator readily transferred to wastewater and other water processing tasks: “We are skilled *process* operators. Doesn’t matter if it’s crude oil, wastewater, or beer. It’s all about operating processing equipment and monitoring a conversion process.” The third most common re-employment sector was chemical treatment, particularly in plants producing agricultural chemical products.

But with many workers chasing the same job openings, workers outnumbered jobs. Laid-off Marathon workers then sought jobs in other, more tangentially related, sectors. Some workers leveraged their experience on the refinery fire crew and safety response teams to secure work as firefighters or EMTs. Others were successfully hired into emergency services jobs with the Sheriff’s office or as a corrections officer; these workers referenced the security of unionized, public-sector employment. The remaining sectors of employment were diverse, representing

Table 4. Post-layoff employment sector and wages

Sector	Percent of workers	Median hourly wage
Oil and gas	28%	\$37
Utility (e.g., electrical power, natural gas, wastewater, water processing, steam)	19%	\$41
Chemical treatment (e.g., chemical and industrial agriculture)	12%	\$42
Manufacturing (e.g., steel, auto, food)	9%	\$42
Emergency services (e.g., sheriff, corrections officer, dispatcher, firefighter, EMT)	6%	\$29
Laboratory/biotechnology	4%	\$49
Transportation (air & rail)	4%	\$45
Construction/civil engineering	4%	\$42
Retail/sales (e.g., real estate, auto, grocery)	3%	\$14
Electrical distribution and maintenance*	2%	–
Food processing*	1%	–
City maintenance*	1%	–
Miscellaneous (engineering services contractor, commercial driver, instrumentation/analyzer tech, mechanic, custodian, worship ministry director)	6%	\$29

* sample size too small

matches in aptitude, prior work experience (e.g., construction, food services, air mechanic), or convenience. Among interviewees employed in these sectors, many expressed ambivalence about their new jobs. Several described taking jobs far down their preference list, unable to find work in the refinery sector or in a field better aligned with their skills (e.g., one worker who had served on the refinery fire brigade has been unable to get a job in emergency services, their job of choice).

Wage by sector

Strikingly, workers who returned to the oil and gas sector for employment did so at much lower rates of pay: these workers earned \$13 less per hour than they did at Marathon (a post-layoff median wage of \$37 compared to \$50 at Marathon). Drawing from interviews, these lower rates of pay likely stem from loss of seniority and non-union employment. One interviewee explained, “Yeah, I know a bunch of people that went to [Refinery X] in [City A]. Also, [Refinery Y] in [City B], and yeah they’re starting off at the bottom. And so, these are like 20-, 25-year people that have to start off at the bottom. I’m still kind of fortunate that I was able to sort of pick up where I left off.”

Workers employed in manufacturing and the utility sector fared better, earning a median hourly wage of \$42 and \$41, respectively. Median wages were highest for workers in the laboratory/biotechnology, transportation, construction, and chemical sectors, with the caveat that small numbers of survey respondents in these sectors guard against generalizations (e.g., higher wages may be due to random factors other than sectoral differences). Larger sample sizes in oil and gas, manufacturing, and the utility sectors allow for more robust comparisons between sectors.

Lastly, median wages were lowest for workers in service sector jobs (e.g., retail, sales, food service), with the lowest in retail at \$14. Workers in emergency services fared better with a median hourly wage of \$29, but well below their counterparts in the above-mentioned higher paying sectors.

Post-layoff jobs did not compare in pay or working conditions to Marathon refinery jobs. Getting a job meant taking a worse job.

Unionization by sector and wage

Workers successfully found union jobs at a much higher rate than the labor market average. At the time of the survey, 43% of employed workers held union jobs; 57% did not. This pattern was primarily driven by workers finding jobs in the oil and gas sector: 53% of those with union jobs were employed in oil and gas jobs, primarily as operators. The next largest concentration of

union jobs was in the utility sector: 24% of workers who found union jobs were employed in this sector. Lastly, 13% of workers who got union jobs were employed in the public sector and 11% in construction.

The union wage advantage is clear: workers employed in union jobs earn \$3.50 more per hour than their non-union counterparts.

Working conditions

Working conditions were described in interviews as uniformly worse than at the Marathon refinery, even in other union refineries. We detail complaints about working conditions in the following section as these led to high quit rates from post-layoff jobs. Safety was the most prevalent complaint. Workers also described an overly rapid pace of work, expanded job responsibilities, and few opportunities for advancement. Additionally, several described low levels of cooperation among new co-workers and an opaque workplace environment, ranging from not knowing pay levels to seemingly non-existent practices and procedures. A few workers tied these issues directly to the non-union status of their new jobs. One worker, despite quibbles with his former union at the refinery, noted the salience of worker voice as it relates to safety issues. He described a job he eventually quit because of safety concerns:

“I wish that plant, if it goes union, I think it would be better at so much and make it so much safer, because people were afraid to speak out and everything because of, you know, you could be let go at any time. I didn’t have a filter when I was there. You know, I came from union, so I was like yeah who cares because if something happens, I’ve already been in the same boat, so I told him flat out what I thought it was [pointing out an unsafe situation to a supervisor].”

Generally workers preferred the schedules of their new jobs and were relieved to leave grueling overtime behind. Many had liked the refinery’s shift scheduling practices, especially the multiple consecutive days off, but they also expressed relief at not being constantly “on call.” Importantly, these workers nearly always referenced the high rate of pay and the security of their former refinery jobs that had made these shift schedules “worth it.”

Overall, workers described their new benefits packages as on par with their refinery employment benefits. The small number of exceptions were for the lowest paying jobs (but not all low-paying jobs were without benefits: one is with a small family-owned company that offers health and retirement benefits).

Job turnover during the Great Resignation

Workers unknowingly participated in the Great Resignation in response to unsatisfactory wage and working conditions, quitting jobs and finding new ones in an attempt to improve their individual employment situations. Of workers who worked at least one job since layoff (a time period of approximately 14 months), 54% worked two or more jobs (Table 5). Nearly one in six (16%) worked three or more jobs. Five respondents reported working five jobs since layoff. Job turnover surfaced as a topic in many interviews.

Workers were dissatisfied with their lower wages, but emphasized working conditions as the primary reason for quitting. Workers expressed frustration at discovering limited opportunities to advance in their new jobs, particularly opportunities to advance to a position better matched to their skill and experience. Those at jobs with opportunities for advancement, albeit limited, expressed dismay when they realized how long they must wait for a promotion opportunity (one worker mentioned a years-long wait). Workers also referenced increased pace of work, increased scope of responsibilities (especially at their new lower wage rate), and non-union employment practices including lack of pay transparency, training, and/or grievance processes. In short, workers found they were doing more at their new jobs for less pay under more difficult, sometimes hazardous, conditions. Quitting became the most efficient individual strategy for raising job standards.

Workers expressed frustration at discovering limited opportunities to advance in their new jobs, particularly opportunities to advance to a position better matched to their skill and experience.

Table 5. Number of jobs worked since layoff

Number of jobs	Percent of workers*
1	46.3%
2	30.5%
3	15.8%
4	1.2%
5	6.0%

*Workers who have worked at least one job

Above all other complaints, safety concerns were paramount in workers' stories. Numerous workers raised safety concerns when we asked why they had quit a post-layoff job. Others raised safety concerns about the jobs they were currently working, concerns that were

frequently shared unprompted by interviewers. Workers described a “union safety culture” that was lacking at their current non-union workplaces. They detailed unsafe working conditions they had experienced at their new jobs, contrasting those to the practices at the Marathon refinery. Workers also referenced the specific safety culture at Marathon, a culture they viewed as emerging over time and with deliberate care and involvement of workers and the union. Several workers cited the four worker deaths that occurred at the Martinez refinery in 1999. A few interviewees had been employed at the time; others knew about these deaths through workplace lore. All recited the story gravely. A few commented, “That could have been any of us.” Nearly every interviewee commented on and credited the response of the union and the direct involvement of rank-and-file workers in crafting and implementing a culture of safety that was heeded day-in, day-out at the Martinez refinery.

These stories were shared with interviewers in tones of reverence and exasperation—the former when recounting a lost safety culture workers credited with protecting life and limb; the latter when describing the shock at encountering its complete absence in their new workplaces. One worker compared safety practices at his new job at a large industrial facility to those at the refinery:

“No matter what processing plant you’re at, if you don’t feel safe you don’t do the job. There’s been several times where I’m like, ‘Hey man, I don’t feel safe doing that. I am not going to do that. I’m sorry, but the information I got from the trainer said that we’re not supposed to do it that way, but if you’re going to do it that way, that’s fine. But I’m not going to let you train me to do it that way because I don’t feel safe doing that.’ I’ve had to say that a lot more in the nine months that I’ve been there than I ever did in thirteen and a half years at Marathon.”

He eventually left this job, mentioning that a couple of other former Marathon workers also left:

“I started there in May, and I was there till December. It just was I didn’t feel safe with their safety process practices at that job. Because of my background I knew what the safety standards were. ... There’s a lot of guys when the refinery closed actually went to [employer X] and I think we all felt the same. There are two guys who left like a month after I got there. Everybody that had just got there was starting to leave because their [employer’s] safety practices were really outdated like from the ‘70s. They didn’t make sense. It didn’t feel safe to us from what we were used to, we had a lot of training and we knew what should, how we should do stuff to make it safer and easier. It just didn’t, didn’t sit well with us. They were used to people that didn’t know the standard or didn’t know what was safe or anything. And so I, yeah, December [date], I decided to leave.”

We spoke with more than one worker who quit a job after only one week. One did so because of safety concerns, another because of an overly fast and stressful pace of work. More frequently, workers left a job after one month. A couple of workers left after one year and after securing a job they were confident was an improvement over their current position.

Many workers noted a need to find employment that struck a better balance in their lives, often described as work they “liked” or that better balanced work and family. The shock at losing their job at Marathon made these aspects of work more important than ever before. One worker explained why they had quit at least two jobs since the Marathon layoff:

“Our standards have changed, where we want to be happy with our job. We want to like it, we want to feel safe at it, because I know other co-workers that say the same thing, ‘It’s like I don’t feel safe at a certain job’ or ‘I’m not happy with it, it’s not...’ We have no hesitation now to be able to leave where in previous jobs, like, let’s just wait it out.”

Another described their most recent quit and current part-time employment status as family-driven decisions:

“And the long hours we used to work—a ton of hours, long hours, night shifts, 12-hour shifts, 15-hour shifts—I didn’t know if I want to go back to that anymore. So that’s why, and I have three young kids so that whole shutdown kind of changed my mentality of what I wanted, what would best benefit our family. I took it kind of like, well, it’s time for a change.”

This worker continued, poignantly connecting their new approach to work and family to the shock of the refinery shutdown:

“So I think it’s a mentality for everybody that’s definitely changed. Like I said, company and loyalty, you know you’re replaceable. You can be thrown out anytime. So there’s no more, ‘Oh, I owe this company.’ Because they’re not gonna owe me anything and it’s kind of our mentality, for at least the ones [co-workers] that I know, that has changed a lot because big companies are not going to care about you very much. I put a quote on my Facebook, it was: ‘When you die, they’ll replace you within a week. But you’re not replaceable at home.’ So don’t kill yourself for a job that’s going to replace you within a week.”

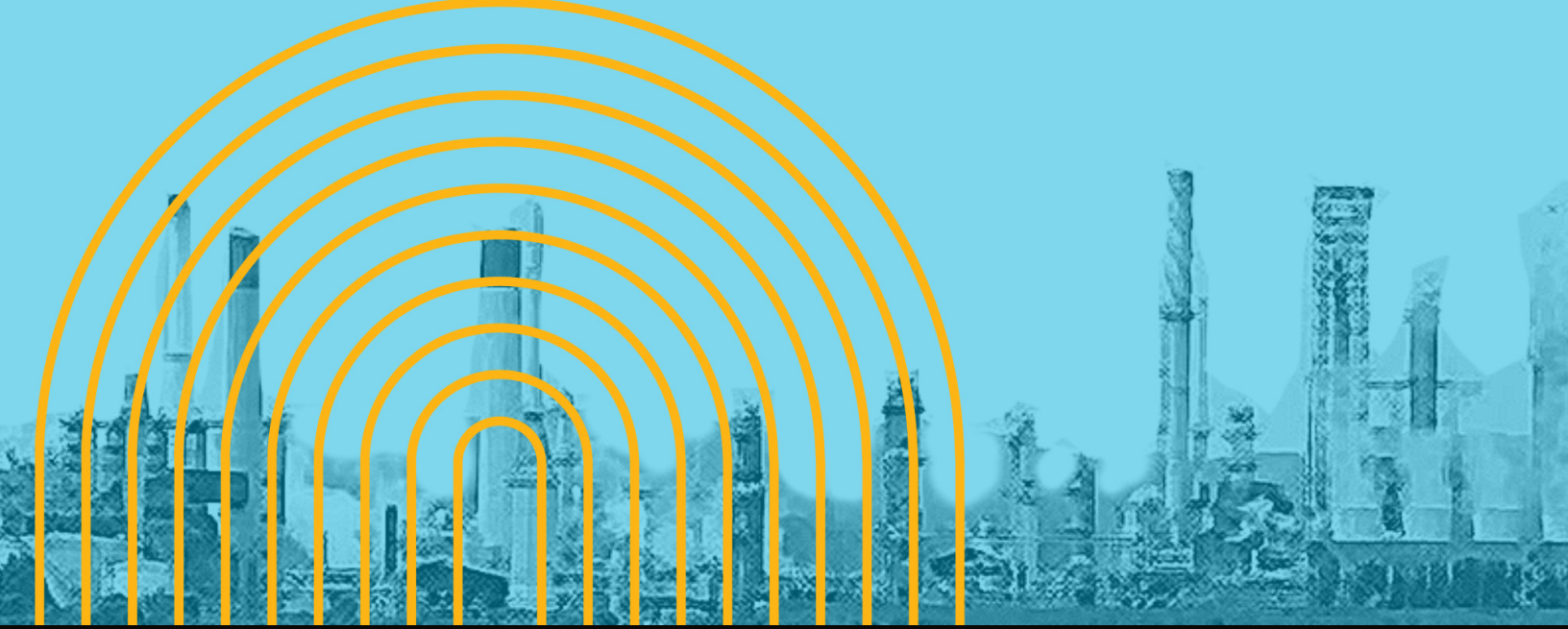
This worker had spent her entire working career at the refinery. The primary breadwinner in her family, she noted that she did not make this mental shift lightly. Many workers, male and female, expressed similar sentiments about their changing attitudes about work relative to family.

We asked workers about their plans for the next year and received the following survey responses (Table 6):

Table 6. What are your plans for the next year?

Response	Percent
Stay in current job	35%
Find a better job	43%
Retire	11%
Go back to school	1%
Other	10%

In line with the pronounced pattern of job quits during the Great Resignation, 43% of workers plan to find a better job (and quit their current job). Only 35% intend to stay in their current job. Another group intends to retire (11%). Barely 1% have plans to go back to school. About one-third of workers would like to find jobs in the fossil fuel industry (35%); the remaining 65% are indifferent, reporting interest in working in “any industry.”



Part 3: In the wake of layoff— emotional shock, job search, and financial insecurity

Immediate response to layoff

Workers were overwhelmingly shocked by the company's decision to lay them off. Many felt blindsided, powerless, and depressed. Despite feelings of trepidation when the plant initially idled, workers nonetheless felt the layoff announcement had, in the words of one worker, "knocked the wind out of my sails." Following the initial announcement, workers described feeling in the dark as they were not getting additional information about the layoff. One worker described his bafflement and dismay, "I mean, it was totally right out of left field. We had no clue whatsoever what was coming down. Nobody knew who was gonna be kept, what the procedure was going to be, you know, how they were going to do it. And it... I was like, 'Well, crud.'" The lack of clarity and direction heightened anxiety for many.

Workers describing feeling disoriented and unsure of immediate next steps to take, although this was felt more drastically for some. Workers, on their own or through support of family and friends, started gathering the necessary materials needed for applying to jobs, such as preparing resumes and online job search profiles. However, many were too stunned emotionally to begin looking for work immediately. For example, one worker talks about how depressed they felt after receiving the news:

“I was, for about three months, kinda depressed. Thinking like that, my world came tumbling down. I can’t get my kids what they want anymore. I really gotta watch my budget. We’re on a one budget now. Mentally, yeah, I just was not all there. And there was really no way for me to reach out to anyone. Other than my spouse, telling me: ‘everything is going to be ok.’ ‘Don’t worry, you’ll get back.’ ‘I got it.’ Stuff like that. Which was great. And it took me three months, four months, of being able to clear my head. And figure out that hey man this ain’t the end of the world. I can still work. I’ll just figure it out and continue to apply and figure it out.”

In interviews, workers repeatedly described the magnitude of what the layoff meant in their lives: they were losing a job they had thought they would hold until retirement. They were being laid off from their lives.

Retirement and falling short of early retirement

Ten percent of Marathon workers retired immediately at the time of layoff. Most made this decision ambivalently. In interviews, retirees reported that they had planned to continue working for a few more years. One worker described assistance from an extended family member trained as a financial advisor in making his decision. Once he felt certain he would be financially secure, he decided to retire. Two other retired workers expressed that they were financially unprepared for retirement and would likely look for work to augment their retirement income. These workers had moved out of state, citing the high cost of living in California.

Workers were overwhelmingly shocked by the company’s decision to lay them off. Many felt blindsided, powerless, and depressed.

Four workers reported in the survey that they fell short of qualifying for early retirement by six months. In an interview, one of these workers expressed bitterness at being within six weeks of qualifying for early retirement. This worker was unemployed and unwilling to relocate because of caregiving responsibilities they had taken on for an elderly parent. Missing out on the continuation of health benefits at the same affordable pre-layoff rate was an overriding concern for this worker.

Other workers who were close to retirement age, but ineligible, spoke with resignation about the lack of career opportunities for them given their age.

Job search experience

Workers described their post-layoff job search as challenging, frustrating, and opaque. Search durations varied. All workers, including those who found new jobs quickly, described feeling unprepared, unsupported, and ultimately alone in navigating the process. Many interviewees remarked on the radically changed process of job searching since the last time they searched for work (a decade or more), particularly the dominant role of online search platforms. Yet workers adapted quickly, collectively applying for hundreds of jobs in the first year after layoff. Sixty percent of survey respondents applied for 10 or more jobs; 31% applied for 30 or more jobs; and 19% applied for over 50 jobs (Table 7).

Table 7. Job applications submitted per worker

Number of applications	Percent of workers
1 - 2	8%
3 - 6	20%
7 - 10	12%
10 - 15	14%
16 - 30	15%
30 - 50	12%
50+	19%

In survey responses and interviews, workers highlighted two unexpected frustrations: 1) employers' lack of knowledge about refinery work and refinery workers' skills and 2) workers' inability to prove their skill or experience through certifications or a verification process. These themes emerged again and again, often raised in angry disbelief or exasperation. A few write-in survey responses emphasized these concerns with all capitals or underlining. Workers clearly were not expecting to grapple with these challenges in addition to the many other unknowns inherent within the job search process.

In part, workers' anger stemmed from a belief that these problems should have a relatively straightforward, structural solution. Why couldn't an outside entity, such as the union or the state, vouch for their skills? For that matter, why couldn't the refinery owner do so? Why couldn't workers direct employers to a website that described their skills and range of tasks carried out at the refinery? Why couldn't workers apply for a certification for their job class at the refinery, issued by the employer, the union, or the state?

Workers were outraged that Marathon refused to verify their employment for their full tenure at the refinery. Many workers emphasized this point in both survey responses and interviews. Marathon had taken ownership of the refinery in 2018 and would only verify employment to this date. Workers with more than two years of employment at the refinery (the vast majority of the workforce) were forced to find old paystubs or tax returns to prove to new employers their years of service at the refinery. Many employers did require this degree of verification, as we discovered through both write-in survey comments and in interviews.

Describing and explaining their specific skills and procedural expertise (e.g., collaborative workflow, emergency response, troubleshooting) to new employers was a shared challenge. Workers repeatedly found themselves explaining for employers the range of complex tasks they had carried out at the refinery or the complexity of the decisions they made, many with lives at stake. Sometimes their explanations were met with disbelief or complete incomprehension. One employer even accused a worker of lying, "I don't believe you. I've never seen a boiler that large [pounds under pressure]," when the worker described the boilers and pressure gauges he monitored and adjusted at the refinery. The employer was a food processor.

Workers repeatedly described the magnitude of what the layoff meant in their lives: they were losing a job they had thought they would hold until retirement. They were being laid off from their lives.

Two interviewees compared their lack of skill verification to the apprenticeship and journeyman certification of the building trades, wondering why their union could not provide a similar certification process. One expressed frustration at the fact that the refinery received certifications based on the skill level, preparedness, and knowledge of the workforce. Why did the company get to carry that certification, but not the workers? Sometimes the interviewees turned the question back on the researchers, "Do you know how we can get our skills verified? What options do you know about?"

Workers who felt that their new employers did understand their skills described employers who were already somewhat familiar with the refinery industry or had prior experience hiring former refinery workers. Others described their active role in educating potential employers. One worker described a lengthy job interview with an employer who asked many detailed questions about the tasks this worker had carried out at the refinery. The worker noted that the employer was willing to engage him in this series of questions, but also explained that he had been practicing his responses. He described "simply getting better at explaining my refinery job" after undergoing several interviews and by practicing his answers with his wife at home.

Certification of already-acquired skills was the single most common response to our question, "What would have helped you most during your job search?" Workers are open to new job training, but they are most interested in finding a way to document their current skills in a way that is transparent, clear, and meaningful to future employers. In one worker's words:

“So that’s the real, what I found to be, the tragic aspect of this, is everything that I did in the refinery, whether it was manipulating 600-pound steam boilers, level A HAZMAT suit work, the confined space, the high point rescue... I could do it in the refinery. I have no certifications from them, I have no... Tell you the truth, we have no records, we were provided nothing at the end.”

This worker has found new employment, but not the emergency services job he had hoped for. He expressed resignation but also disbelief that the fire-rescue and emergency response skills he had acquired over years at the refinery had no currency in the open labor market for jobs requiring exactly those same skills.

For all refinery workers except the most recently hired (as recently as February 2020), the job search process was initially daunting. Many commented on the new environment of online job searching, and many had never used LinkedIn or Indeed previously (survey responses identified these as the most common online job sites used by workers). Word-of-mouth traveled quickly among laid-off workers, with workers sharing tips about different search engines and even sharing job posts on a Marathon Workers FaceBook page. Workers were unsure how to prepare their resumes or what to include in cover letters. They found describing their skill sets particularly challenging. When asked about a resume workshop offered shortly after layoff (by the union, but most workers could not identify who sponsored the workshop), the vast majority of workers were unaware that it had been offered. Only one worker recounted attending the online workshop and found it unhelpful—too general with no opportunity to get individualized feedback.

Workers expressed great dissatisfaction with the State of California’s job search engine, noting its clunky nature. One worker provided highly specific feedback: they noted that the search engine did not support searching for a compound term such as “refinery operator” or “process operator” only “operator.” After wading through numerous job postings for “forklift operator,” this worker quickly discerned that this search engine would uncover few, if any, relevant job posts.

Workers expressed frustration with a lack of information about possible job matches to their refinery skills, especially operators. They expected to use this information as a starting point, expecting that the state unemployment office might offer such a resource, or the union. Most identified possible job matches simply through their own knowledge of industrial facilities located near Martinez in the Contra Costa County region (many mentioned the steel mill, the chemical fertilizer facility, PG&E, and Anheuser Busch) or through personal networks. They also scoured job search engines for industrial jobs broadly, as well as jobs they thought may interest them, e.g., emergency services. A few spent hours researching probable job options, simply by “googling [X job]” to learn more about the nature of the work and skill requirements.

Workers are open to new job training, but they are most interested in finding a way to document their current skills in a way that is transparent, clear, and meaningful to future employers.

Problems with UI

Nearly a quarter (24%) of Marathon workers encountered problems applying for and/or receiving unemployment insurance (UI). Another quarter did not apply for UI at all, including retirees. Problems ranged from application difficulties (e.g., the state rejecting applications on the basis of employment verification or personal identification technicalities), not receiving UI promptly, not receiving UI for the full eligibility period, not receiving correct payment amounts, to not receiving UI at all. The extent of these challenges is surprising given the regular nature of these workers' jobs and their clearly defined eligibility for UI—layoff. These refinery jobs were formal employment arrangements, on record with the state for over 100 years, that met all the standard pre-Covid eligibility requirements for unemployment insurance. Additionally, all workers who encountered problems with UI had been employed at the refinery for at least two years or longer. None were recent hires (in fact, recent hires reported no problems with UI or did not apply for UI).

Experiences of the unemployed

Among working-age respondents (i.e., excluding retirees), 22.5% were unemployed at the time of the survey. All reported increasing financial insecurity. Nearly all reported making at least one emergency financial decision to make ends meet including tapping savings, taking early withdrawals from retirement funds, selling a vehicle, and/or increasing debt. All reported changes in daily household spending and budgeting, such as cutting back on kids' extracurricular activities, eating out less or not at all, ending subscriptions for cable and other services, and canceling vacation plans. One described actively researching any and all assistance programs, such as subsidized phone and internet service (especially given his children's increased reliance on these services during the pandemic for school), but refraining from considering food assistance and other low-income benefits because "other people really need those programs more than we do right now." This individual voiced most anxiety about being unable to re-finance his home mortgage and potentially losing his home.

These individuals diligently applied for and monitored their unemployment insurance status. They were well aware of when their pandemic payments ended and their child tax credit checks arrived. Noting that every extra bit helped, they stressed the fundamental significance of their severance pay-out. Without this money, they argued, they would have quickly found themselves in dire straits financially. Several mentioned that keeping their homes was their top priority; their severance was their primary means of paying their mortgage. They were becoming more anxious as time elapsed and their severance funds were depleting.

Unemployed workers were discouraged by how few jobs matched their skills or their interests and at much lower pay rates. One worker described his Marathon job as his "dream job," a job he looked forward to every day and which brought fulfillment on many levels—he found

it mentally challenging, varied enough to remain interesting over the years, and financially rewarding. He began his refinery job after several years working low-wage, dead-end jobs and now could not fathom returning to one of those jobs.

These workers described several competing factors when looking for work, including family members with health issues, balancing place of residence and long commutes, and additional stresses related to the pandemic, such as children remote-schooling at home. For a few, all of these factors converged: they owned homes in places further from available jobs, requiring lengthy and costlier commutes with gas prices on the rise. They had families who were connected to the community, through schools, sports teams, and churches. They had loved ones with health issues who required caregiving, and who were connected to local medical care networks. The prospect of starting a new job, further away, at a lower rate of pay in the midst of the pandemic was daunting. For most, the possibility never materialized—new job offers were not forthcoming.

In line with their employed counterparts, the unemployed expressed disbelief and shock at the suddenness of the layoff from jobs they had expected to work until retirement. But their concerns about the future were palpably different; in part because they had not yet found a new path of employment, but also of more consequence because of the longer duration of their financial and emotional stress. One worker described his unemployment as a profound loss of family security, a theme that ran throughout his interview:

“I mean this [layoff] has had a tremendous impact on, you know, my life personally because now that I’m at this crossroads, it’s different. Because now I’m married, I have two kids. I was always fortunate enough to where... My wife has some health complications, so we’re fortunate enough to have this previous career that I had. I was able to support all of us, and she could stay home and she could be healthy and she could take the kids to school. You know, all that kind of good stuff, and we don’t have that.”

He expressed utter uncertainty about the future. He and his wife owned their home and lived close to family—“all we’ve got right now.” An added difficulty was his skill in a building trades craft, a skill he honed on the refinery shopfloor and not through a building trades union apprenticeship program. He had attempted to apply to the relevant building trades union, but it had closed its “book,” or apprenticeship sign-up list, during the pandemic and was not accepting new applicants.

Stayers and movers

Most re-employed workers did not relocate for their new jobs, likely due to their high rate of home ownership (81%). The diversified regional economy also helped make staying possible. In interviews, workers expressed strong connections to their local communities, especially for those

with families. Workers also expressed fears of never being able to afford a house in California again if they were to sell their current home, making them reluctant to consider relocating, even within the state.

Asked if they would consider moving for a new job, 68% responded no. Among those willing to move (32%), most indicated they were willing to move anywhere, including outside of California. One-quarter of potential movers indicated they would only move within California.

At least 10 people did leave California to find another job. From interviews, we know that people moved to Colorado, Nevada, Louisiana, and Tennessee. These workers overwhelmingly spoke of the rising costs of California and the lack of job opportunities for similar pay as their reasons for moving. Some also mentioned way of life and pending retirement plans. Although some people who moved for jobs were successful in finding well-paid opportunities, others were less successful in finding re-employment, particularly in the fossil fuel industry, and could only find low-wage opportunities.

Unemployed workers were discouraged by how few jobs matched their skills or their interests and at much lower pay rates.

Eroding financial security and future plans

Despite high re-employment rates, laid-off refinery workers described falling behind financially. We asked workers to describe their financial situation before and after the layoff using a closed-response question commonly used in economic surveys. Workers could choose one of three possible responses: "falling behind financially," "making just enough to maintain my standard of living," or "getting ahead financially" (Table 8). Workers reported a significant change in their financial situation and security post-layoff. A full third of all workers described that they were "falling behind financially" a year following the layoff compared to only 3% before the layoff. Half (50%) described "making just enough to maintain my standard of living" post-layoff compared to 19% before the layoff. Strikingly, a large percentage (78%) described their financial situation before the layoff as "getting ahead." Following the layoff, this percentage plummeted to 17%.

Table 8. What best describes your financial situation?

	Before layoff	Currently
Falling behind financially	3%	33%
Making just enough to maintain my standard of living	19%	50%
Getting ahead financially	78%	17%

Nearly all workers reported at least one financial decision made in the wake of the layoff to either reduce expenses or shore up cash resources, including selling a vehicle, deferring home maintenance, postponing home improvement projects, canceling vacation plans, and reducing children’s extracurricular activities, such as sports. One family withdrew their children from a local private elementary school. Significantly, nearly all reported tapping savings, and 32% of all workers took early withdrawals from their retirement accounts.

These survey results correspond to worker anxieties about financial security expressed during interviews. Workers described changes to spending habits, as well as more structural household changes such as a spouse entering the labor market or increasing hours. Many workers described frugal habits before the layoff that meant smaller lifestyle adjustments post-layoff. However, these workers also described new long-term plans, such as the need to postpone retirement. Several workers expressed great anxiety about their long-term ability to pay their mortgage. One particularly prescient worker with prior real estate experience immediately refinanced their mortgage when they first received the layoff news, two months before the actual layoff. Another worker mentioned that he should have refinanced his mortgage while still at the refinery, but he had been overwhelmed by searching for work and managing immediate household expenses. And he had never imagined he would experience such a long spell of unemployment.

Interest in job training

Nearly all workers (91%) would consider job training. Asked if they would enroll in a job training program, half of all workers (49%) said they would, 42% responded “maybe,” and 9% said they would not. Workers aged 40 to 49 reported the greatest willingness to enroll in training (64% responded they would enroll, 32% said “maybe”) followed by workers aged 30 to 39 (56% said “yes” and 33% “maybe”). Hesitation was highest among workers over the age of 50 (“maybe” responses were more prevalent than “yes” responses by 2-to-1). While hesitant, these older workers were not opposed to training.

We asked workers to identify concerns they may have about job training from a prescribed list. Workers could select more than one concern. Cost was the most cited concern, identified by 70% of the respondents. Needing to earn while training (63%) and training program length (62%) were the next most prevalent concerns. Location (59%) and schedule flexibility (57%) were identified by over half of the respondents. Nearly half (48%) were concerned about whether a job training program would lead to a better job.

Two respondents provided write-in responses. One was concerned about the difficulty of finding training programs that are not “cash grab scams.” This calls attention to the need for workers to

Workers were open to the prospect of training—some eagerly—with the caveat that training provide a clear pathway to a specific job or set of jobs within an industry.

identify verified training programs. Another worker wrote about worries that they would dislike a job in a new industry for which they would re-train. This concern points to the utility of targeted career counseling services for laid-off workers.

Interviews elicited more hesitation among workers about job training. On the whole, workers were open to the prospect of training—some eagerly—with the caveat that training provide a clear pathway to a specific job or set of jobs within an industry. Interviewees emphasized the opportunity costs of training: they needed to earn an income while training, or training needed to be short-term or intermittent. A few rued the lost opportunity to enroll in training immediately following layoff, especially given uncertain conditions created by the pandemic. No worker expressed interest in a formal, multi-year degree program.

A few workers mentioned current certifications that were about to expire or had recently expired. This prompted researchers to ask if workers would be interested in “pop-up” training courses, or micro-short-courses offered over a weekend or the course of a few evening sessions. These could be tailored to specific state and/or federal certifications, such as CPR or HAZMAT. We began asking workers about their interest in such training opportunities after approximately one-quarter of the interviews had been conducted. All workers responded enthusiastically.

The emotional toll of layoff

The primary purpose of this research project was to examine the post-layoff employment experiences and outcomes of refinery workers following a plant shutdown. But we were reminded, poignantly, of the human toll of sudden job loss that defies quantification. Workers shared openly and candidly with us the emotional struggles they faced, and continue to face, in the wake of losing their jobs during a global pandemic. We are grateful for their trust. In kind, we share comments from several different participants without editorial comment.

“Like I said, I kept looking for a job. I took some time off because I was really stressed out. I needed to regroup, mentally. I didn’t know anything else. I felt that, you know, well what I’ve done, it’s all I ever knew, it’s what I’ve been doing for the last 20 years. Never had another job for the last 20 years. So, to get thrown out of my element, was yeah, it mentally... mentally, I was not there. I was depressed.”

“I’m not somebody—before this pandemic and before, you know, this mass exodus [layoff]—I have not been somebody that has had, I guess, a struggle with mental health. But I feel like all of this has created this crazy amount of anxiety, you know. So basically, when they said... when it [layoff] was like a for sure thing, and they made an announcement saying, ‘Yeah, we’re making a huge layoff. Basically, get ready.’ At first, I was pretty frantic.”

“You weren’t getting any calls to see how you were doing—have you found any jobs yet, you know, how are you doing mentally, how are you doing, how’s your family? Hey, do you need psychological help? Are you depressed? Like, there was none of that. You have to deal with it on your own. It was hey, you know, like you get home and then you tell your family what’s happening. There [pause] kids are crying. It was an emotional wreck.”

“No, it was an utter shock. It was hard for me. It was my 10-year mark. You know, when you get into that particular refinery, the goal is you work as much as you can for 10 years and then you hit that magical 10-year mark, and all of a sudden you got four weeks’ vacation.... You can’t ask for better and yeah, all that was gone. So what did I do? I got really depressed, I think everybody did. Yeah it was rough, and there was, there was no help provided. They gave us access to a kind of a job resume writing, it was a company. All they did for me was send me information about janitorial work.”

Worker recommendations

On the survey and in interviews, we asked workers what would have helped them most after layoff. We purposefully asked the question in an open-ended manner, allowing workers to interpret “help” in their own way. Workers mentioned job search assistance most often, but they also identified an array of different kinds of help from mortgage assistance to counseling services. We detail specific recommendations workers described to us below, summarizing their comments for brevity but retaining their core meaning.

1. Cash support

- Many workers stated bluntly that what they needed was more money. One respondent wrote how crucial additional financial assistance was for younger and newer hires who did not have enough money saved, did not yet own homes, and had received much smaller severances. Workers recommended larger severance packages or additional cash payments that would make up the difference between their prior wage income and their current wage income. Several workers pointed to unexpected expenses and the financial decision-making autonomy, as opposed to applying for earmarked funds, that cash supports allows.

2. Financial subsidies

- Many workers identified specific financial needs they had and recommended that special funds be created to serve these needs. Worker recommendations:
 - » Financial assistance fund, like a disaster relief fund, created by the union
 - » Child expense fund, particularly to help with schooling and extracurricular expenses; one worker mentioned help with college savings
 - » Health care expense fund

3. Skill verification

- Workers needed help explaining, translating, and verifying their skills and experience. Worker recommendations:
 - » Verification of employment from the company, going back to initial hire date (require of company during collective bargaining)
 - » Skill verification from the company or union which describes workers' formal skill and experience, as well as certifications and trainings that the workers completed at the refinery
 - » Agreement with other local unions to recognize skills of Marathon workers
 - » Identify or create technical classes with formal certifications that are recognized within the refining industry

4. Job search assistance

- A majority of survey respondents and interviewees wanted help searching for work. Most workers had not looked for a job in many years, and therefore had little knowledge about the contemporary job search process. Many people wanted one-on-one assistance with using online job search engines, preparing resumes and LinkedIn profiles, and practicing mock interviews. Workers wanted information about jobs and industries to which their skills transferred. Some wished there were more attempts for intercompany or intra-industry placement or opportunities for hire. Workers wanted the following kinds of help:
 - » Assistance from a job counselor or recruiter finding job opportunities that matched their skills
 - » Tips and tricks workshop on how to search for jobs online, including creating profiles and identifying keywords to use in resumes and as search terms
 - » Free resume assistance and consultation by professionals familiar with the fossil fuel industry and other heavy industry employers

- » Interview training and preparation, especially to help workers better explain how their skill sets translate to different industries and jobs
- » More and better job fairs that include real opportunities for hire and pathways to a different industry
- » More information on how refinery worker skills relate to other industries
- » Company- or union-provided letters of recommendation
- » Information sessions about potential training opportunities available in other unionized industries
- » One worker stated, "Marathon could have provided more opportunities for inter-company transfers, or help finding similar industry job openings."
- » Company assistance in moving to other positions nationwide within the company or industry
- » Union-retained staffing firm to assist workers, including one-on-one meetings to educate workers about modern online HR recruiting methods
- » Union-provided Journeyman certifications and refinery skill descriptions specific to different units within the refinery

5. Training programs

- Most workers expressed interest in completing a job training program. Cost, length, and employment success rates were primary concerns raised by workers. Worker recommendations:
 - » Identify or create subsidized training programs targeted to refinery workers that build on skills and provide inroads to new careers; subsidies should include fees, stipends, and COBRA cost assistance
 - » Pay workers during training period
 - » Hire career counselors to provide one-on-one assistance identifying careers and training opportunities (a military veteran described a gold-standard program offered through the armed services to disabled veterans that should be emulated)
 - » One worker wanted training for green jobs that will replace oil jobs "so that there are comparable union jobs in the industries that will be prioritized going forward."

6. State program navigation assistance

- Workers wanted help navigating state assistance programs and unemployment insurance. Worker recommendations:
 - » Case workers assigned to individual workers by the union
 - » Assistance with preparing UI applications before layoff, so that applications could be submitted immediately upon layoff and UI payments could begin as soon as possible
 - » Improve responsiveness of state office processing UI claims; workers want to speak to a person without having to stay on the phone for hours
 - » Information sheet sent to workers from the union identifying different state assistance programs, such as COBRA, Covered California, Medical, CalFresh, etc.
 - » Information sessions before and after layoff about available government programs and how they work

7. Retirement preparation assistance

- Retirement was abrupt for most retirees, and many made their decision to retire quickly and under duress. They wanted help making sense of the severance offer and guidance about the logistics of the retirement process. Worker recommendations:
 - » Retirement preparation assistance targeted to laid-off Marathon workers, through both small group workshops and one-on-one advising
 - » Negotiate a way to bridge the gap for workers who are near, but fall short of, early retirement eligibility

8. Financial planning assistance

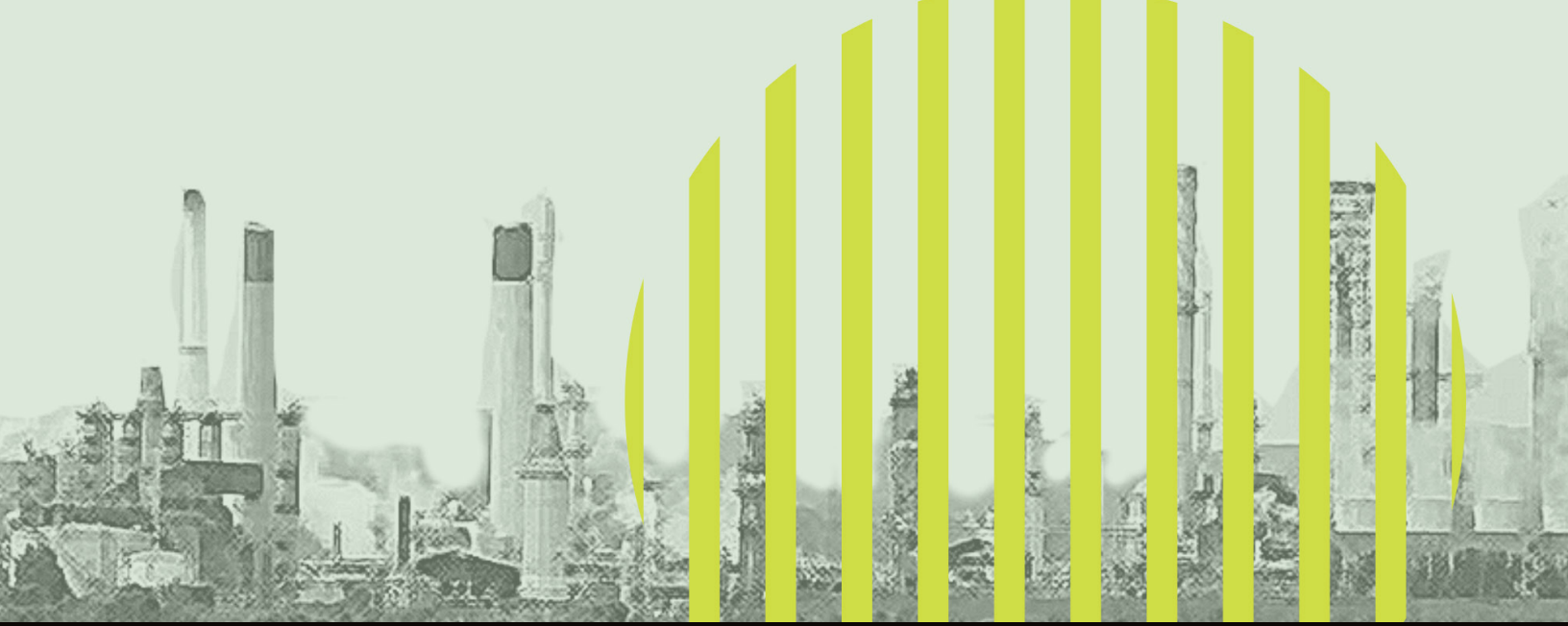
- Workers wanted access to immediate and medium-term financial planning advising, particularly when weighing decisions about immediate next steps following layoff. Worker recommendations:
 - » One-on-one financial advising available to workers *before* and following layoff
 - » Financial information sessions before layoff focused on what workers could do immediately to prepare for the layoff, e.g., refinance home mortgages
 - » Financial information sessions after layoff
 - » Referrals to vetted financial advising professions; drop-in session to meet advisors

9. Mental health and counseling support

- Workers needed more mental health and emotional support during this period, but did not know how to seek support or felt overwhelmed. Worker recommendations:
 - » Provide support and make it easy to access, e.g., give workers a voucher for 10 hours of free therapy to use with a designated list of professionals
 - » Hire case workers who call every worker to ask how they are doing and to help connect them to counseling support, if needed
 - » Provide access to family counseling services

10. Communication

- Frequently, workers told us they simply wished someone would have checked up on them and asked them how they were doing. Workers especially wanted to hear from the union.
- Examples of the ways in which respondents talked about union communication:
 - » There should have been “better communication from the union, and assistance networking with other unions to find employment.”
 - » “They should have sent *something*—gift card, gift certificate—during Christmas and New Year 2020/21.”
 - » They should have “helped us with payments and food vouchers as they did during our strike.”



Conclusion

The survey results provide a clear and unequivocal picture of the effects of a mass layoff on the economic and employment prospects of fossil fuel workers in the Bay Area. In the aftermath of a refinery shutdown, workers were relatively successful in gaining post-layoff employment but at a cost. Despite years of experience, these skilled industrial workers could not secure jobs at wage levels comparable to their refinery wages. On average, former Marathon workers earned 24% less at their post-layoff jobs. They also face worse working conditions. Workers described a host of issues related to degraded working conditions, but emphasized poor safety practices and hazardous worksites as the most alarming features of their post-layoff employment.

Workers changed jobs frequently as a strategy to improve their employment situation. Contra Costa County's diversified regional economy provided many job opportunities for workers to pursue, but few that could match workers' prior refinery jobs in terms of pay and working conditions. Further, jobs in only a few sectors provide union coverage and worker voice protections.

Laid-off workers are highly motivated to put their skills and experience to use in new jobs, in new sectors. Most are willing to enroll in job training programs that provide a clear pathway to specific jobs and industries. But training is only successful if good jobs exist at the end of the pathway. A fair and equitable transition for workers out of the fossil fuel sector depends upon a robust economic development strategy that generates new jobs comparable in quality to the jobs these workers are leaving behind. Successful transition requires both transition assistance (e.g., wage replacement, job search support, training) and high-road job growth. One without the other will leave workers, and the region, behind.

Appendix A

Refinery occupations of survey respondents

Operator #1	14%
Operator #2	21%
Super Operator #1	14%
Advanced Operator #1	1%
Head Utility Operator	1%
Operator	2%
Operator Helper Trainee	1%
Senior Operator #1	2%
Chemical: Operator A	2%
Chemical: Head Operator	2%
Mechanic 1st Class - Pipefitter	2%
Health & Safety Representative	1%
Fire Marshal over 18 Mos	2%
Health & Safety Inspector	3%
Lab Analyst Step 3	7%
Utility Yardman (48-60 Mos)	1%
Mechanic 1st Class - Machinist	2%
Laborer II - Custodian	1%
Inspector III - Level 3 (Premium)	2%
Mechanic 1st Class - Electrician	1%
Mechanic 1st Class - Heat Exchanger	1%
Chemical: Specialist	1%
Training Coordinator	1%
Material Handler (Over 36 Mos)	2%
Specialist, Pipefitter/Builder	1%
Specialist, Welder/Metals	1%
Specialist, Machinist Field/Shop	2%
Specialist, Heat Exchanger/Pipefitter	1%
Specialist, Analyzer/Instrument	2%
Designer (Over 48 Mos)	1%
Lab Analysis Step 1A	1%
Specialist, Analyzer/Instrument	2%
Process Safety Representative	1%
n=137 (3 non-responses)	

Institute for Research on Labor and Employment
University of California, Berkeley
2521 Channing Way
Berkeley, CA 94720-5555
(510) 642-0323
laborcenter.berkeley.edu



UC Berkeley Center for Labor Research and Education

The Center for Labor Research and Education (Labor Center) is a public service project of the UC Berkeley Institute for Research on Labor and Employment that links academic resources with working people. Since 1964, the Labor Center has produced research, trainings, and curricula that deepen understanding of employment conditions and develop diverse new generations of leaders.

The analyses, interpretations, conclusions, and views expressed in this report are those of the authors and do not necessarily represent the UC Berkeley Center for Labor Research and Education, UC Berkeley Institute for Research on Labor and Employment, the Regents of the University of California, or collaborating organizations or funders.