

# Economic Benefits of BAAQMD Proposed Rule 6-5

*Proposed refinery pollution rule would protect community health and create jobs*



*FCCU at Chevron Richmond Refinery*

If adopted, the Bay Area Air District's Proposed Rule 6-5 would set a national precedent for reducing particulate matter emissions from fluidized catalytic cracking units (FCCUs) at regional petroleum refineries. The Proposed Rule would likely require the affected refineries to install a wet gas scrubber (WGS) unit to abate their FCCUs, resulting in substantial, community-protecting reductions in particular matter exposure throughout the East Bay. **Chevron's FCCU is the single largest point source of particulates in the City of Richmond.**

In addition to the substantial community health benefits, a jobs and economic analysis conducted by the UCLA Luskin Center, Inclusive Economics, and Communities for a Better Environment shows that the rule would also be a significant producer of jobs. Findings from this analysis are summarized below.

**Finding 1: Refineries have multiple economically feasible compliance options, and impacts to customers would be minimal, if any.**

Refineries likely can and should absorb the compliance costs under the Proposed Rule. The impacted facilities have a combined annual economic output of **\$16.6 billion**. The total annualized cost of the Proposed Rule would be \$79 million, representing **0.48%** of their total annual output.

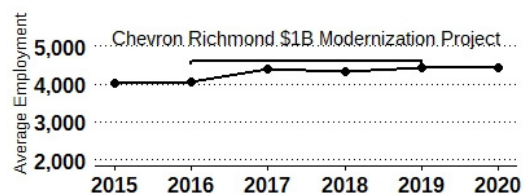
Another option would be for the facilities to pass compliance costs on to consumers, which would result in minimal wholesale gas price increases. Chevron could recover the full rule costs with a **\$0.01 per gallon** increase, and PBF could recover the rule costs with a **\$0.02 per gallon** increase. These are well within normal annual gas price fluctuations and, due to the weak relationship between price and demand of gasoline (i.e. gasoline is highly price inelastic), will have negligible impact on consumption.

***As a result, the refineries have multiple economically viable options for complying with this rule without requiring any job losses*** – the path chosen is ultimately a business decision.

**Finding 2: Historically, refinery upgrades, including WGS installations, have not yielded job losses for California refineries, and instead have often been associated with job increases.**

Between 2007 and 2008, five Los Angeles refineries were required to comply with increased FCCU standards under the South Coast Air District's Rule 1105.1. This included multiple ESP upgrades (a less effective abatement alternative to WGSs) and a conversion to a combined ESP/WGS system for ConocoPhillips. During this period, employment across Los Angeles refineries **increased by 7.3%**.

Since 2014, total refinery employment across Contra Costa refineries has remained stable (barring the 2020 job losses associated with COVID-19 demand destruction). Meanwhile, over the period in which Chevron invested nearly \$1 billion into its Modernization Project between 2016 to 2019, Contra Costa refining employment **increased by 8.8%**. See right.



Refinery Employment in Contra Costa County, 2015 to Present

### Finding 3: The capital upgrades required in the rule would result in thousands of additional jobs, not evaluated in BAAQMD's analysis.

The procurement and installation of wet gas scrubbers will yield thousands of engineering, construction, and other installation jobs, **upwards of 4,600 jobs between the two refineries**. While BAAQMD has not analyzed these job creation benefits (as they are not required under state law), these are regional, community-supporting jobs that would be created through the passage of this proposed rule.

#### Job Creation from WGS Installation at Chevron Richmond Refinery

|              |                           |
|--------------|---------------------------|
| Direct       | 614 – 1,101 jobs          |
| Indirect     | 316 – 566 jobs            |
| Induced      | 336 – 603 jobs            |
| <b>Total</b> | <b>1,265 – 2,271 jobs</b> |

#### Job Creation from WGS Installation at PBF Martinez Refinery

|              |                           |
|--------------|---------------------------|
| Direct       | 649 – 1,165 jobs          |
| Indirect     | 334 – 599 jobs            |
| Induced      | 355 – 638 jobs            |
| <b>Total</b> | <b>1,338 – 2,402 jobs</b> |

**Total Jobs Created Through Implementation of Proposed Rule 6-5:** Direct jobs are positions that would directly implement the installations; indirect jobs would provide equipment and supply inputs; and induced jobs would provide goods and services to workers with direct and indirect jobs when they spend their income. Numbers shown represent job years.

In addition to these jobs created, particulate matter emissions reduced under the Proposed Rule will yield substantial community health benefits with their own economic benefits. For example, Air District analysis shows the public health benefits to be valued at upwards of \$27.4 million per year, due to reduced mortality risk and recovered work days, among other health benefits.

### Sources and Notes

- Employment estimates were determined using Quarterly Census of Employment and Wages (QCEW) data from the California Employment Development Department (EDD) for the industrial NAICS code 324110 for 2015 to the present. 4th Quarter 2020 data were not available; hence COVID-19 related job impacts are not shown. Average shown is for the first 3 quarters in 2020.
- Job impacts were calculated with IMPLAN, an input-output model, using IMPLAN Industry 60: Maintenance and Repair Construction of Nonresidential Structures and wet gas scrubber installation costs. Installation costs were estimated from BAAQMD published cost estimates and US EPA Air Pollution Control Cost Manual for wet gas scrubber cost breakdowns, resulting in installation costs of \$134.3M for Chevron and \$113.3M for PBF. Ranges reflect modeling installation costs only, rather than the total capital costs. Thus, these job estimates are conservative.
- BAAQMD Staff Report + Appendix C for Proposed Amendments to Rule 5, Regulation 6: Particulate Emissions from Petroleum Refinery Fluidized Catalytic Cracking Units
- <https://richmond.chevron.com/our-businesses/refinery-modernization>
- <https://www.eia.gov/todayinenergy/detail.php?id=19191>
- <https://www.kqed.org/news/11831607/shutdown-of-marathons-martinez-refinery-prompts-calls-for-just-transition-for-oil-workers>
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