**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

# Draft Socioeconomic Impact Assessment For:
# Proposed Rule 1165 – Control of Emissions from Municipal Solid Waste Incinerators

## August 2024


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## EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations." Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOC), and their precursors.

Proposed Rule 1165 (PR 1165) has been developed to regulate municipal solid waste (MSW) incinerators within the South Coast Air Basin by establishing emission limits for NOx, PM, and opacity limits for MSW incinerators. PR 1165 would currently be applicable to one facility with three MSW incinerators in the South Coast Air Basin, which is the Southeast Resource Recovery Facility (SERRF) located in Long Beach. However, on February 6, 2024, the City Council of Long Beach voted to decommission the SERRF, which is occurring for reasons other than PR 1165. Currently, there are two possible scenarios: 1) the SERRF is fully decommissioned, and the facility would not incur compliance costs associated with the implementation of PR 1165; or 2) the City of Long Beach seeks to restore the SERRF to operational status and the facility would be regulated under PR 1165 and therefore, would incur compliance costs associated with the implementation of the proposed rule. For the purpose of analyzing the socioeconomic impacts of PR 1165, staff conducted this socioeconomic impact assessment assuming the second more conservative scenario would occur due to the potential to incur all compliance costs associated with PR 1165 implementation in the event that the SERRF is restored to operational status. A socioeconomic impact assessment which relies on these theoretical compliance costs has been conducted accordingly, and the following presents a summary of the analysis and findings.

| | |
|---|---|
| **Key Elements of PR 1165** | The implementation of PR 1165 would reduce NOx and PM emissions from operational MSW incinerators and assist in fulfilling the requirements of the South Coast AQMD's obligations under the 2022 Air Quality Management Plan (AQMP), South Coast Air Basin PM 2.5 Attainment Plan, and the United States Environmental Protection Agency (U.S. EPA) Good Neighbor Plan. |
| **Affected Facility and Industry** | Currently, the SERRF is the only affected facility and is classified under the Solid Waste Combustors and Incinerators industry according to the North American Industry Classification System (NAICS) code 562213. PR 1165 would also be applicable to any future MSW incinerators that meet the applicability requirements in the proposed rule. |
| **Assumptions for the Analysis** | The existing air pollution control system currently utilized at the SERRF, which is comprised of selective non-catalytic reduction (SNCR) technology, is not capable of reducing the NOx and PM emissions from the facility at a level that would attain the emission limits in PR 1165 and as such, would |

need to be replaced with more effective air pollution control equipment. Instead, selective catalytic reduction (SCR) technology has been identified as a feasible replacement for the SNCR as it is capable of meeting the emission limits in PR 1165. As such, this socioeconomic impact assessment relies on the costs associated with installing and operating SCR technology.

The cost analysis uses a forecast period from 2027-2052 to annualize all the costs associated with SCR installation over the 25-year useful life of the equipment. The cost estimates of complying with PR 1165 over the forecast period take into account: 1) the payment of permit fees in 2027; 2) the purchase and installation of the SCR system in 2028; and 3) annual maintenance, electricity, replenishment of the consumable ammonia reagent, replacement of catalyst module, and administrative costs.

**Compliance Costs**

The total present value of the compliance costs of PR 1165 is estimated to be $75.06 million and $48.77 million with a 1 percent and 4 percent discount rate, respectively. The average annual compliance cost of implementing PR 1165 is estimated to range from $2.83 million to $3.38 million, for a 1 percent to 4 percent real interest rate, respectively. The following table presents a summary of the average annual cost of PR 1165 by cost category.

| | **Average Annual Cost of PR 1165 (2027 – 2052)** | |
|---|---|---|
| **Cost Categories** | **1% Real Interest Rate** | **4% Real Interest Rate** |
| **Capital/One-time Costs** | | |
| SCR Equipment | $1,145,709 | $1,568,566 |
| SCR Installation | $343,713 | $470,570 |
| Permit | $293 | $293 |
| **Recurring Costs** | | |
| Maintenance | $165,649 | $165,649 |
| Reagent Replenishment | $559,800 | $559,800 |
| Electricity | $343,733 | $343,733 |
| Catalyst Module Replacement | $263,459 | $263,459 |
| Facility Administration | $4,515 | $4,515 |
| **Total** | **$2,826,870** | **$3,376,585** |

Using a 4 percent real interest rate, this analysis indicates roughly 46 percent of the average annual compliance cost would result from the purchase of SCR equipment, followed by the cost of reagent replenishment (17 percent), SCR installation (14 percent), and annual electricity cost (10 percent).

**Job Impacts**

Direct costs and corresponding revenues of implementing PR 1165 are used as inputs to the Regional Economic Models, Inc (REMI PI+) model to assess job impacts and secondary/induced impacts for all the industries in the four-county economy on an annual basis from 2027 to 2052.

When the compliance cost is annualized using a 4 percent real interest rate, the REMI analysis forecasted 9 net jobs foregone annually in the four-county economy on average over the forecast period, relative to the baseline forecast. The 9 annual jobs foregone only represent approximately 0.0001 percent of total annual jobs in the four-county area. The largest job impact occurs in 2028, when the REMI analysis forecasts 112 jobs gained relative to the baseline scenario.

**Competitiveness and Price Impacts**

The overall impact of PR 1165 on production cost and delivered prices in the region is not expected to be substantial. In the Waste Management and Remediation industry, which bears all the compliance costs associated with PR 1165, the REMI model projects an average increase in relative delivered prices of 0.036 percent over the forecast period, with a maximum increase of 0.044 percent forecasted in the years 2028 and 2029. The relative cost of production in the Waste Management and Remediation industry is forecasted to increase by a maximum of 0.052 percent relative to the baseline scenario, which is expected to occur in 2028 and 2029.

## INTRODUCTION

Proposed Rule 1165 – Control of Emissions from Municipal Solid Waste Incinerators, establishes emission limits for NOx, PM, and opacity limits for MSW incinerators that combust more than 35 tons of municipal solid waste per day. Three types of incinerators are excluded from the universe of PR 1165: 1) hospital/medical/infectious waste incinerators; 2) pyrolysis units; and 3) gasification units. There is no existing source-specific rule regulating the MSW incineration equipment category, prior to the development of PR 1165.

The implementation of PR 1165 would lead to NOx and PM emission reductions from operational MSW incinerators and will assist in fulfilling South Coast AQMD's obligations under the: 1) South Coast AQMD 2022 AQMP control measure L-CMB-09: NOx Reductions from Incinerators; 2) South Coast Air Basin Attainment Plan for the 2012 Annual PM 2.5 (particulate matter with diameter less than 2.5 microns) Standard control measure BCM-07: Emissions Reductions from Incinerators; and 3) U.S. EPA Good Neighbor Plan for the 2015 Ozone National Ambient Air Quality Standards.

Specifically, PR 1165 seeks to establish requirements for: 1) NOx, PM, and opacity limits; 2) continuous monitoring and periodic source testing to ensure rule compliance; 3) approved cleaning methods to minimize fugitive dust emissions from facility grounds; and 4) recordkeeping requirements.

## LEGISLATIVE MANDATES

The legal mandates directly related to the socioeconomic impact assessment of PR 1165 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

### South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that requires an analysis of the economic impacts associated with adopting and amending rules and regulations that considers all of the following elements:

- Affected industries;
- Range of probable costs;
- Cost-effectiveness of control alternatives; and
- Public health benefits.

### Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;

- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

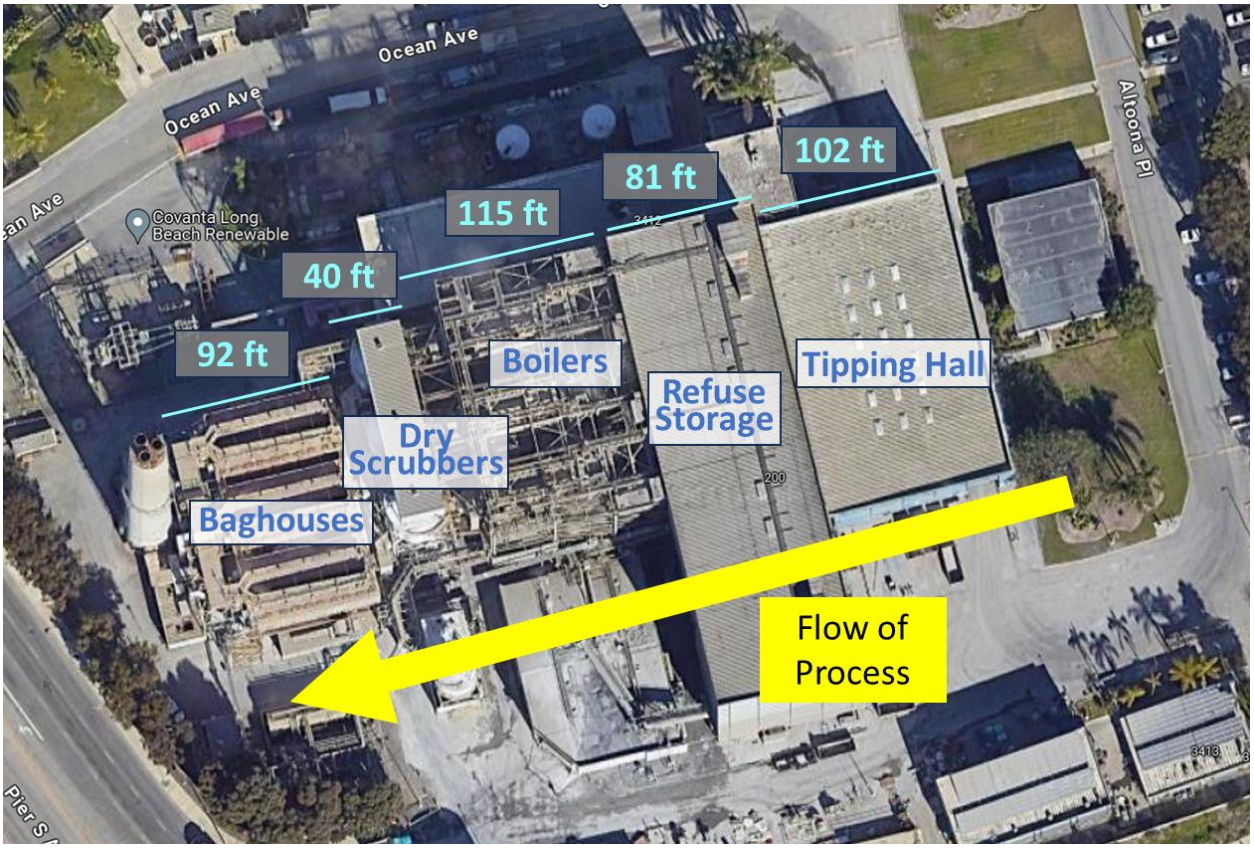
Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, CO, SOx, NOx, VOC, and their precursors. A cost-effectiveness analysis was conducted for PR 1165 and can be found in Chapter 2 of the PR 1165 Draft Staff Report.[1]

[1] South Coast AQMD, Draft Staff Report for Proposed Rule 1165 – Control of Emissions from Municipal Solid Waste Incinerators, https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1165, accessed August 2024.

## AFFECTED FACILITY

PR 1165 would potentially affect one facility with three MSW incinerators in the South Coast Air Basin, the SERRF located at the Port of Long Beach within Los Angeles County. On February 6, 2024, the City Council of Long Beach voted to decommission the SERRF, which is occurring for reasons other than PR 1165. However, for the purpose of analyzing the socioeconomic impacts of PR 1165, staff conducted this assessment assuming the SERRF remains in operation and therefore incurs all compliance costs associated with PR 1165 implementation. The SERRF is classified under the Solid Waste Combustors and Incinerators industry (NAICS 562213). Figure 1 presents an aerial shot of the SERRF with labels identifying multiple components of the facility.[2] Any MSW incinerators installed in the future meeting the applicability of the proposed rule will also be regulated by PR 1165.

**Figure 1**
**Aerial Shot of the SERRF**




## SMALL BUSINESS

The South Coast AQMD defines a "small business" in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. The South Coast AQMD also defines "small business" for the purpose of qualifying for access to services from the South Coast AQMD's Small Business Assistance Office as a business with an

[2] South Coast AQMD, Draft Staff Report for Proposed Rule 1165 - Control of Emissions from Municipal Solid Waste Incinerators, https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1165, accessed August 2024.

annual receipt of $5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD's definition of a small business, the United States (U.S.) Small Business Administration and the federal 1990 Clean Air Act Amendments (1990 CAAA) each have their own definition of a small business.

The 1990 CAAA classifies a business as a "small business stationary source" if it: 1) employs 100 or fewer employees; 2) does not emit more than 10 tons per year of either VOC or NOx; and 3) is a small business as defined by the U.S. Small Business Administration. Based on firm revenue and employee count, the U.S. Small Business Administration definition of a small business varies by six-digit NAICS code.[3] For example, according to the U.S. Small Business Administration definition, a business that earns less than $47 million in firm revenue in the sector of Solid Waste Combustors and Incinerators (NAICS 562213) will be classified as a small business.

Staff did not conduct a small business analysis for PR 1165 because the sole affected facility (the SERRF) is a government facility co-owned by the City of Long Beach and the Los Angeles County Sanitation District under a Joint Powers Authority, which would not be classified as a small business.[4]

## COMPLIANCE COST

The key requirements of PR 1165 that would have cost impacts for the affected facility include: 1) the purchase and installation of SCR equipment; 2) permitting to install and operate this equipment; and 3) recurring costs for the SCR system, including annual maintenance, electricity, replenishment of the consumable ammonia reagent, replacement of catalyst module, and administrative costs. PR 1165 also has requirements to monitor emissions via a continuous emissions monitoring system (CEMS) and to monitor opacity via a continuous opacity monitoring system (COMS). Since the affected facility has both CEMS and COMS, these technologies were excluded from the compliance cost estimate.

Cost assumptions for PR 1165 were obtained from vendors of SCR technology and the U.S. EPA SCR cost calculation spreadsheet.[5] All the costs discussed in this Socioeconomic Impact Assessment are presented in 2023 dollars. The estimation procedure and assumptions for each cost category are discussed in the following sections.

### Capital or One-Time Costs

#### SCR Technology

The SERRF facility currently has existing SNCR technology to control NOx emissions. SNCR devices inject an ammonia reagent into the incinerator's flue gas stream and are capable of reducing NOx emissions at roughly 60% efficiency. The proposed rule would increase the NOx

[3] U.S. Small Business Administration, 2023 Small Business Size Standards, https://www.sba.gov/document/support-table-size-standards, accessed March 29, 2024.

[4] City of Long Beach, City Managers Department, Memos to Mayor and Council, January 19, 2024 – SERRF Decommissioning Update Memo to Mayor and City Council, pg. 1, https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2024/january-19--2024---serrf-decommissioning-update, accessed June 2024.

[5] U.S. EPA, Economic and Cost Analysis for Air Pollution Regulations, Cost Reports and Guidance for Air Pollution Regulations, https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution, accessed July 2024.

emission control efficiency requirement to approximately 80% which as a practical matter, means that the existing SNCR system would need to be replaced with more efficient technology. Since SCR technology is more efficient than SNCR for controlling emissions from MSW incinerators, this analysis assumes that SCR technology would be installed . According to manufacturer quotes and the U.S. EPA's SCR cost calculation spreadsheet, this analysis assumes that the purchase of SCR equipment will cost $26.5 million, and the installation will cost $8.0 million, resulting in a total cost of approximately $34.5 million. The cost of a new ammonia storage tank was not included in this analysis since facility currently has an existing ammonia storage tank which is expected to be repurposed to support the SCR system, if installed. SCR equipment has an estimated useful life of 25 years and is expected to be installed in 2028 in order to meet the May 1, 2029, NOx compliance deadline.

#### Permitting

Prior to installing and operating the SCR system, a Permit to Construct would need be obtained from South Coast AQMD. The permitting cost is based on the Permit Fee Rate Schedule for Control Equipment presented in South Coast AQMD Rule 301 Table IA, which identifies the SCR system as Schedule C. The permitting cost was then cross-referenced with the fee rates presented in Rule 301 Table Fee Rate-A for Title V Alteration/Modification fees as the subject facility is a federal Title V facility subject to South Coast AQMD Regulation XXX – Title V Permits.[6,7] This assessment assumes that the application seeking a Title V permit revision will be submitted and paid for in 2027, allowing a one-year lag between the date of application submission and when the permit is approved and issued, and is anticipated to cost $7,616 in total.

### Recurring Costs

#### Maintenance

The SCR system will require annual maintenance including clearing the catalyst debris, tuning the ammonia injection system, and other related maintenance activities. Based on estimates from the U.S. EPA's SCR cost calculation spreadsheet, the maintenance cost is approximately $172,000 per year, or $4.31 million over the 25-year equipment lifetime.

#### Electricity

The new SCR technology will require additional electricity to operate. The increase of annual electricity demand is estimated to be 1.99 million kWh. Based on California Energy Commission's industrial electricity rate forecast for the SoCal Edison Service territory over the period 2023-2040, staff assumed an electricity rate of 18 cents per kilowatt-hour (kWh)[8], which leads to an estimated electricity cost of approximately $357,000 per year or $8.94 million over the 25-year equipment lifetime. It is important to note that the affected facility, by design, when operational, produces its own electricity for sale; therefore, this electricity cost estimate may overestimate the net cost. In

[6] South Coast AQMD, Rule 301 – Permitting and Associated Fees, https://www.aqmd.gov/docs/default-source/rule-book/reg-iii/rule-301.pdf, accessed July 2024.

[7] South Coast AQMD, Regulation XXX – Title V Permits, https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xxx, accessed August 2024.

[8] Electricity rate assumptions are based on the average forecasted industrial electricity rate for the SoCal Edison (SCE) service territory from the California Energy Commission 2023 Integrated Energy Policy Report, Docket 23-IEPR-03 - Electricity and Gas Demand Forecast, CED Baseline Forecast, https://efiling.energy.ca.gov/GetDocument.aspx?tn=254247&DocumentContentId=89615, accessed July 2024.

addition, the affected facility previously operated pursuant to an electricity sellback agreement with the local utility which has expired. In the event that the affected facility returns to operational status, a new sellback agreement would be necessary and the income from those future electricity sales would be expected to offset of a portion or all of the electricity compliance costs estimated in this analysis.

**Catalyst Module Replacement**

The SCR system involves the injection of ammonia (NH3) or urea (which is vaporized into NH3) into the flue gas stream to convert NOx into nitrogen gas (N2) and H2O via the use of catalysts. Catalysts are often comprised as modules, which can either need to be rotated or replaced on a regular basis in intervals in line with their usage. Due to the potential of catalyst poisoning, staff assumed that the catalyst modules would need to be replaced every 10,000 hours, or approximately every 14 months. According to the U.S. EPA's SCR cost calculation spreadsheet, the catalyst module replacement cost is approximately $274,000 per year or $6.85 million over the 25-year equipment lifetime.

**Reagent**

The flue gas used in the SCR system is injected with a reagent consisting of 19% aqueous NH3. The cost estimate for the ammonia used in SCR system may be less than what was previously paid by facility for ammonia used in SNCR system due to improved efficiency of NOx removal via the SCR relative to the SNCR technology. According to U.S. EPA's SCR cost calculation spreadsheet, this reagent is anticipated to cost approximately $582,000 per year, or $14.55 million over the 25-year equipment lifetime.

**Facility Administration**

Lastly, the facility is anticipated to incur incremental costs related to the operation and monitoring of the SCR system. These administration costs are estimated to be approximately $4,700 per year, or $117,000 over the 25-year equipment lifetime.

**Total Compliance Cost**

The total compliance cost includes all the estimated costs over a 26-year period, from 2027 to 2052. The total present value of compliance cost is estimated to be $75.06 million and $48.77 million for a 1 percent and 4 percent discount rate, respectively. The average annual compliance cost of PR 1165 is estimated to range from $2.83 million to $3.38 million for a 1 percent to 4 percent real interest rate, respectively. Table 1 presents the estimated total present value and average annual compliance cost of PR 1165 by cost categories.

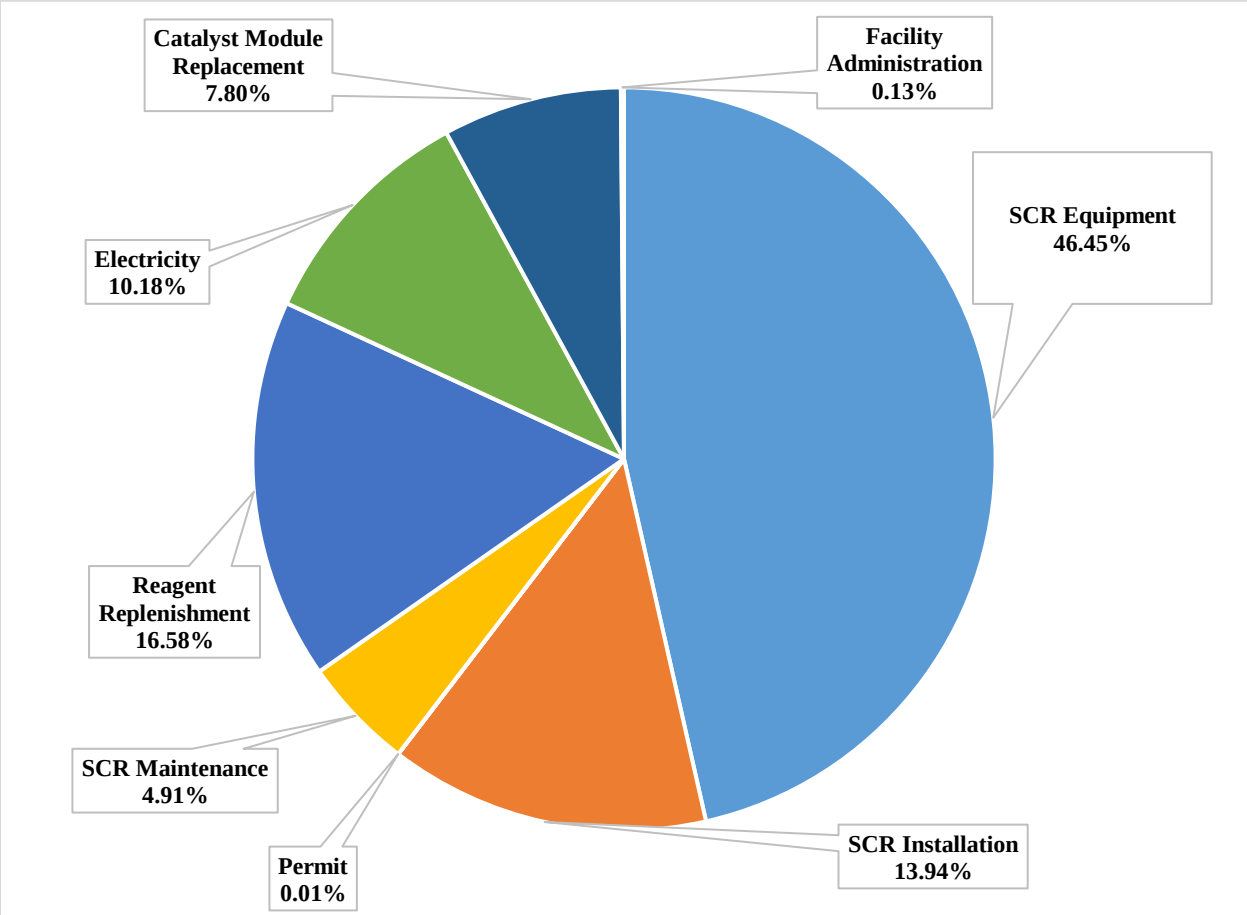
**Table 1**
**Total Present Value and Average Annual Estimated Costs of PR 1165**

| | Total Present Value (2024) | | Average Annual (2027-2052) | |
|---|---|---|---|---|
| **Cost Categories** | **1% Discount Rate** | **4% Discount Rate** | **1% Real Interest Rate** | **4% Real Interest Rate** |
| **Capital Costs** | | | | |
| SCR Equipment | $34,869,980 | $22,655,576 | $1,145,709 | $1,568,566 |
| SCR Installation | $10,460,994 | $6,796,673 | $343,713 | $470,570 |
| Permit Fees | $7,392 | $6,770 | $293 | $293 |

| **Recurring Costs** | | | | |
|---|---|---|---|---|
| Maintenance | $3,682,453 | $2,392,548 | $165,649 | $165,649 |
| Reagent Replenishment | $12,444,622 | $8,085,467 | $559,800 | $559,800 |
| Electricity | $7,641,341 | $4,964,700 | $343,733 | $343,733 |
| Catalyst Module Replacement | $5,856,828 | $3,805,273 | $263,459 | $263,459 |
| Facility Administration | $100,364 | $65,208 | $4,515 | $4,515 |
| **Total** | **$75,063,974** | **$48,772,215** | **$2,826,870** | **$3,376,585** |

Figure 2 presents the estimated average annual compliance costs of PR 1165 by cost category. The expense for the SCR equipment accounts for 46 percent – the largest share of the average annual compliance cost, followed by the cost of reagent replenishment (17%), SCR installation (14%), and electricity cost (10%).

**Figure 2**
**Average Annual Estimated Costs of PR 1165 by Cost Category**



## MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Models, Inc (REMI) PI+ v3 model was used to assess the socioeconomic impacts of PR 1165.[9] The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and it is comprised of five interrelated blocks: 1) output and demand; 2) labor and capital; 3) population and labor force; 4) wages, prices, and costs; and 5) market shares.[10]

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed rule on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and were aggregated to the 70-sector NAICS code level to be used as inputs into the REMI model.

### Impact of PR 1165

This assessment is performed relative to a baseline ("business as usual") forecast where PR 1165 would not be implemented. The analysis assumed that the affected facility would finance the capital and other one-time costs described above at a 4 percent real interest rate, and that these one-time costs are amortized over the useful life of each type of equipment.

Direct costs of PR 1165 are used as inputs to the REMI model which uses this information to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis over the 2027-2052 period. Direct effects of PR 1165 include the purchase and installation of the SCR system, permitting fee, and other recurring costs discussed earlier in the compliance cost section.

While the compliance expenditures that are incurred by the affected facility would increase their cost of doing business, the purchase of required equipment and services would increase the sales and subsequent spending of businesses in various sectors, some of which may be located in South Coast AQMD's jurisdiction. Table 2 lists the 70-sector NAICS codes modeled in REMI that would either incur direct cost or directly benefit from the compliance spending.

[9] Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

[10] Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at http://www.remi.com/products/pi.).

**Table 2**
**Industries Incurring and Benefitting from Compliance Costs/Spending**

| Source of Compliance Cost | REMI Industries Incurring Compliance Cost (NAICS) | REMI Industries Benefitting from Compliance Spending (NAICS) |
|---|---|---|
| SCR Equipment | Waste and Remediation Services (562) | *Capital & Recurring:* Machinery Manufacturing (333) |
| SCR Maintenance | | |
| Catalyst Module Replacement | | |
| SCR Installation | | *Capital:* Construction (23) |
| Reagent Replenishment | | *Recurring:* Wholesale Trade (42) |
| Electricity | | *Recurring:* Utilities (22) |
| Permitting | | *Capital:* Local Government (92) |
| Facility Administration | | *N/A** |

*The wage income earned by employees conducting facility administration is modeled as an increase in compensation for employees in the Waste and Remediation Services industry and thus does not directly benefit a single industry.

## Regional Job Impacts

When the compliance cost is annualized using a 4 percent real interest rate, the REMI model projects that there will be 9 foregone jobs annually on average over the 2027 – 2052 period, relative to the baseline forecast. The sector of Waste Management and Remediation Services (NAICS 562) is expected to forego two jobs annually, on average relative to the baseline forecast, while the Machinery Manufacturing sector is anticipated to gain one job annually on average. Table 3 presents the forecasted jobs foregone or added for selected years in the sectors with the largest magnitude of average annual job impacts. The "Other Industries" row in Table 3 shows the sum

of job impacts for all other industries excluding the 12 selected industries presented in the table.

**Table 3**
**Projected Job Impacts of PR 1165 for Selected Industries and Years**

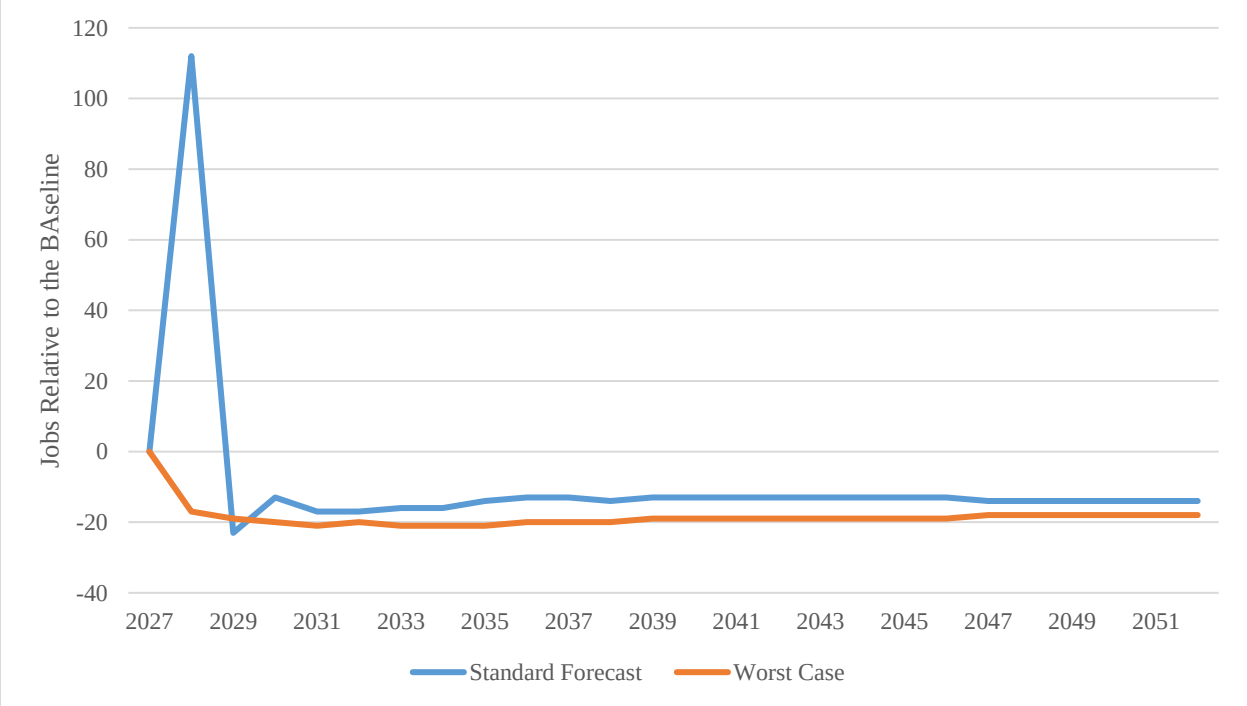
| Industry | 2028 | 2038 | 2048 | 2052 | Annual Average (2027-2052) | Baseline Number of Jobs | % Of Baseline |
|---|---|---|---|---|---|---|---|
| **Waste Management and Remediation Services (562)** | -1 | -2 | -2 | -2 | -2 | 24,913 | -0.00726% |
| **Retail Trade (44-45)** | 6 | -1 | -1 | -1 | -1 | 811,466 | -0.00011% |
| **Social Assistance (624)** | 1 | -1 | -1 | -1 | -1 | 544,124 | -0.00016% |
| **Personal and Laundry Services (812)** | 2 | -1 | -1 | -1 | -1 | 342,016 | -0.00026% |
| **Securities, Commodity Contracts, Investments, and Funds and Trusts (523, 525)** | 2 | -1 | -1 | -1 | -1 | 269,974 | -0.00031% |
| **Real Estate (531)** | 4 | -1 | -1 | -1 | -1 | 569,772 | -0.00015% |
| **Food Services and Drinking Places (722)** | 3 | -1 | -1 | -1 | -1 | 701,054 | -0.00012% |
| **Ambulatory Health Care Services (621)** | 5 | -1 | -1 | -1 | -1 | 647,324 | -0.00012% |
| **Professional, Scientific, and Technical Services (54)** | 5 | -1 | -1 | -1 | -1 | 1,001,359 | -0.00007% |
| **State and Local Government (NA)** | 4 | -1 | -1 | -1 | -1 | 962,980 | -0.00007% |
| **Construction (23)** | 44 | -2 | -1 | -1 | 0 | 534,428 | -0.00003% |
| **Machinery Manufacturing (333)** | 13 | 0 | 0 | 0 | 1 | 25,227 | 0.00198% |
| **Other Industries** | 24 | -1 | -2 | -2 | 0 | 5,262,560 | 0.00000% |
| **All Industries** | **112** | **-14** | **-14** | **-14** | **-9** | **11,697,198** | **-0.00008%** |

*Totals may not sum due to rounding.

In addition, in 2013, South Coast AQMD contracted with Abt Associates Inc. to review the South Coast AQMD socioeconomic assessments for Air Quality Management Plans and individual rules

with the goal of providing recommendations that could enhance South Coast AQMD's socioeconomic analyses. In 2014, Abt Associates Inc. published a report which included a recommendation for South Coast AQMD to enhance socioeconomic analyses by testing major assumptions through conducting a scenario analysis. As such, South Coast AQMD generally includes an alternative worst-case scenario in Socioeconomic Impact Assessments which analyzes a scenario that assumes the affected facilities would purchase all feasible emission control equipment and services from providers outside the South Coast AQMD's jurisdiction.[11] In short, this alternative worst-case scenario only models the impacts of the costs of compliance with the proposed rule and excludes any market benefits associated with revenue realized by service providers in the four-county region. This hypothetical scenario is designed to test the sensitivity of the embedded assumptions in the REMI model about how compliance costs and revenues would be distributed inside and outside of South Coast AQMD's jurisdiction. Permitting fees and facility administration revenues were included in this scenario, as these are provided by South Coast AQMD and the facility employees, respectively. In practice, materials and labor for installation are more likely to be provided by local suppliers. This worst-case scenario would result in an annual average of approximately 18 jobs foregone, relative to the baseline scenario. The 18 jobs foregone represent a negligible portion of the average forecasted baseline jobs in the regional economy at an estimated 0.0002 percent. Figure 3 presents the projected regional job impacts over the 2027 – 2052 period for both the standard and the worst-case forecasts.

**Figure 3**
**Projected Regional Job Impact, 2027 – 2052**




[11] Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf, accessed April 2, 2024.

**Price Impact and Competitiveness**

The impact of implementing PR 1165 on production costs and delivered prices in the region is not expected to be substantial. In the Waste Management and Remediation industry, which bears all the compliance costs associated with PR 1165, the REMI model projects an average increase in relative delivered prices of 0.036 percent over the forecast period, with a maximum increase of 0.044 percent forecasted in the years 2028 and 2029. The relative cost of production for the Waste Management and Remediation industry is forecasted to increase by 0.042 percent on average relative to the baseline scenario, with a maximum increase of 0.052 percent expected to occur in 2028 and 2029. Given the minimal potential increase in delivered prices and cost of production, the implementation PR 1165 is not expected to significantly affect the ability of local firms to compete with producers located outside South Coast AQMD's jurisdiction.

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