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CONSULTING GROUP

THE CAEATFA SALES TAX EXCLUSION PROGRAM

ASSESSMENT OF PROGRAM PERFORMANCE TO DATE

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Prepared by
the Blue Sky Consulting Group on Behalf of CAEATFA

Table of Contents

EXECUTIVE SUMMARY	2
Overview of the STE Program	2
CAEATFA’s Method for Evaluating Manufacturing Projects	2
Program Performance to Date.....	3
Analysis of Program Data Shows Net Benefits.....	3
Non-monetized Benefits	4
Conclusion.....	4
I. INTRODUCTION.....	4
Returns on Business Tax Incentives	5
II. THE IMPORTANCE OF MANUFACTURING AND THE ROLE OF TAX INCENTIVES	5
Perception of California’s Business Climate	6
Other States Compete for Businesses with Tax Incentives	7
Other Incentives for Manufacturers in California.....	7
IV. CAEATFA’S UNIQUE NET BENEFITS TEST	8
Most Programs Do Not Measure the Effectiveness of Tax Incentives	8
CAEATFA’s Method Evaluates Marginal Impact	9
Net Benefits Test.....	9
The Nature of Uncertainty in Making Projections	10
V. ASSESSING THE IMPACT OF THE STE PROGRAM	11
Impact of the STE Program	13
Components of Performance Evaluation	Error! Bookmark not defined.
Selection of Projects for Evaluation	Error! Bookmark not defined.
Analysis of Actual Performance Data Indicates STE Program Has Produced a Net Benefit.....	14
Project Performance: Actual Compared to Projected.....	15
Other Benefits Generated by Advanced Manufacturing Projects	16
Environmental Benefits.....	16
Industry Clusters.....	16
Research and Development	17
Workforce Partnerships	17
Approved Projects Generate Benefits Beyond Those Scored in the Application	17
VII. CONCLUSION	18

About the Data

This report presents an evaluation of the Sales and Use Tax Exclusion (STE) program administered by the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA). Under the STE program, CAEATFA awards up to \$115 million in STE annually as part of a competitive application process to manufacturing industry applicants that purchase qualified equipment for new or expanding operations across the state.

The results of this evaluation are based on financial reports submitted by 102 projects approved during the 2015 – 2021 period. This analysis sample accounts for 56% of all projects approved during this period. Projects were excluded from the analysis sample if, as of December 2023, they had (a) not claimed any STE; (b) not fully ramped up operations; or (c) not submitted complete and accurate financial data to CAEATFA. A detailed explanation of the reasons for excluding projects, and a comparison of excluded projects to analysis sample projects, is provided in “APPENDIX A – Selection of Projects for the Analysis Sample.”

EXECUTIVE SUMMARY

The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) offers financial assistance to California manufacturing businesses in the form of a Sales and Use Tax Exclusion (STE) on property purchased as part of a qualifying alternative energy, advanced transportation, advanced manufacturing, or recycled feedstock project.¹ This report provides key program metrics for applications granted STE from 2015 – 2024 and presents the results of an evaluation of the performance of the Program for projects granted STE from 2015 – 2021,² specifically examining the economic, fiscal, and environmental impacts of the Program.

Overview of the STE Program

CAEATFA's Sales and Use Tax Exclusion Program allows manufacturers, recyclers, and other qualified applicants to make equipment purchases without paying otherwise applicable sales and use taxes.³ In order to qualify for the exclusion, companies must apply to and be evaluated by CAEATFA staff, be approved by the CAEATFA Board, and provide annual reports.

CAEATFA's Method for Evaluating Manufacturing Projects

CAEATFA has developed an application review process that seeks to evaluate the economic, fiscal, and environmental impacts of proposed projects. Using an empirically-derived relationship between taxes and company capital equipment investments, CAEATFA staff estimate the amount of additional capital equipment applicant companies purchase as a result of the incentive provided by STE.⁴ CAEATFA staff then calculate the additional jobs and supplier purchasers that are expected to result from these marginal additional investments, as well as the resulting changes in tax revenue and environmental pollution. Applications are only recommended for approval if the anticipated marginal fiscal and environmental benefits of the project exceed the cost of the STE (in foregone sales tax revenue).⁵

¹ Under authority granted by Senate Bill 71 (Padilla, 2010), Senate Bill 1128 (Padilla, 2012) and Assembly Bill 199 (Eggman, 2015).

² A previous evaluation of the STE Program's performance was published in November 2018. That analysis compared estimated Program performance to actual performance for a sample of projects approved prior to 2018. This report's analysis covers the 2015 – 2021 time period to provide a more up-to-date summary of Program performance, as the composition of Program project types and scoring methodologies have changed somewhat in the years since the November 2018 report.

³ The average sales tax rate is roughly 8.4% statewide, though the actual value of the benefit varies by jurisdiction depending on the applicable sales tax rate.

⁴ CAEATFA's approach is based on research from the Federal Reserve Bank of San Francisco which shows that private sector firm capital investment decisions are responsive to changes in tax rates. See, Chirinko, Robert S. and Daniel J. Wilson, "State Investment Tax Incentives: A Zero-Sum Game?" Federal Reserve Bank of San Francisco Working Paper 2006-47, July 2008.

⁵ In some cases, CAEATFA may recommend a project for approval even if the projected net benefits are not positive if a determination is made that the project is in the state's interest and furthers the purposes of the Program. Because not all benefits can be quantified in dollar terms, fiscal and environmental benefits are monetized, converted to points, and combined with points awarded for other categories of benefits, such as the number of jobs created. The resulting sum of all points awarded is the applicant's final score. Projects with a final score that exceeds the threshold (1000 points, with at least 20 environmental benefit points) are recommended for approval.

The program regulations also direct CAEATFA to preference certain types of projects. For example, manufacturing firms operating in emerging strategic industries (“ESI”) that are determined to be crucial to the state’s environmental and economic objectives receive additional points in the application scoring process. ESIs include lithium extraction and processing, the geothermal industry, manufacturers of batteries for electric vehicles and energy storage, semiconductor component manufacturers, and nanotechnology research and development firms.

CAEATFA’s evaluation method is unique in at least two important respects. First, the evaluation seeks to determine if an applicant’s project is expected to produce net benefits. Most other economic development programs lack this evaluation component. Second, many other economic development programs claim credit for economic activity that would have occurred regardless of the incentive provided. However, CAEATFA’s net benefits test compares the cost of the incentive to the benefits attributable only to the marginal economic activity resulting from participation in the Program.

Program Performance to Date

Since the STE Program began in 2010, CAEATFA’s board has approved 354 projects for a maximum STE of \$1.3 billion through December 2024. Between 2015 and 2021, the Program awarded the maximum of \$100 million in STE available each year. In 2022, under AB 209 (Committee on Budget, 2022), the state allocated an additional \$15 million to the Program for eligible lithium extraction projects. As of December 2024, three projects had received a combined \$31 million in STE awards from this funding source; as a result, in 2022 and 2023, the Program awarded \$115 million annually.⁶

Since 2015, the Program has approved at least 21 projects annually and 282 projects in total. Advanced Manufacturing and Alternative Source projects each account for roughly 40% of the total approved during this period. Advanced Transportation and Recycled Resource Extraction projects together account for the remaining 20%.

Analysis of Program Data Shows Net Benefits

In order to assess the actual performance of the Program, CAEATFA undertook an evaluation of required annual report data submitted by Program applicants. These data reflect actual sales, job creation, supplier purchases, and other metrics. Although applicants must generally demonstrate net benefits, in some cases benefits projected at the time of application may not be realized, whether due to lower than expected sales, a slower than anticipated ramp-up period, the failure of a business, or a move out of state. Additionally, many projects may have been impacted by the COVID-19 pandemic and its disruption of global supply chains during the 2020 – 2022 period.

An analysis of performance data submitted by Projects approved over the 2015 – 2021 period shows that, overall, the 102 applicants for whom complete annual report data were available produced \$373 million in total fiscal benefits, \$26 million in environmental benefits, and net benefits of \$144 million.

⁶ Due to delays in raising capital and securing necessary permits, two of these lithium projects have filed for extensions to the deadlines imposed by CAEATFA for purchasing qualified property eligible for STE. In the absence of an extensions, projects must claim at least 15% of the awarded within 18 months of the project’s approval.

Non-monetized Benefits

In addition to the fiscal and environmental benefits accounted for in the CAEATFA application scoring process, improved manufacturing processes deployed by CAEATFA applicants are expected to result in reductions in energy and water use, solid waste generation, and emissions of air pollutants. Approved STE Program applicants may also generate additional economic benefits, including patents and related new products, strengthened industry clusters, workforce training and partnerships, production process improvements, and benefits of the advanced manufacturing products themselves, such as cancer treatment and space exploration.

Conclusion

Manufacturing is an important sector of the California economy, accounting for a substantial percentage of the state's output, supporting high wage jobs, and stimulating considerable ancillary economic activity through purchases from supplier firms. California businesses compete on a national and global stage, and while business location or expansion decisions are influenced by many factors, the financial incentives offered to companies comprise one important factor when measuring cost-efficiency. In this context, the CAEATFA STE can assist in incentivizing investment on the part of California manufacturers.

An analysis of the actual performance of approved applicants suggests that the STE Program has generated net benefits for the State of California. Specifically, analysis of a sample of 102 approved projects with complete performance data shows that these projects received sales tax exclusions worth \$255 million but generated fiscal benefits of \$373 million and environmental benefits of \$26 million, for a total net benefit of \$144 million. These projects comprise just over one-half of the projects and 49% of the STE approved between 2015 and 2021.⁷ To the extent these projects are representative of all projects approved during this seven-year period, these results suggest that overall net benefits attributable to the STE Program during this period would be roughly \$318 million.

CAEATFA's STE Program is unique among economic development programs, both in California and nationally, in that projects are only approved if they are expected to produce a net benefit. The results presented in this report show that the STE Program has produced net benefits for the state.

I. INTRODUCTION

The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) was established in 1980 to promote the development and commercialization of alternative energy technologies and products. Under authority granted by Senate Bill 71 (Padilla, 2010), CAEATFA began offering financial assistance to businesses and other entities in the form of an exclusion from sales and use tax (known as a Sales and Use Tax Exclusion, or STE) for tangible personal property purchased as part of a qualifying alternative energy or advanced transportation project.

The state has passed a series of amendments to the Program since its inception. Senate Bill 1128 (Padilla, 2012) expanded the application of the STE to advanced manufacturing projects. The Program was further modified by Assembly Bill 199 (Eggman, 2015), which expanded the CAEATFA Program to recycled feedstock projects. In 2019, under AB 1583 (Eggman, 2019), the Program's sunset date—initially set for 2021—was extended to January 1, 2026. The Legislature also modified the Program's application evaluation process, requiring

⁷ As discussed below (see "V. Assessing the Impact of the STE program"), projects approved during the 2022 – 2024 period were excluded from the analysis.

consideration of the extent to which proposed Projects would result in the loss of permanent employment (AB 176, Cervantes, 2019). Most recently, AB 209 allocated an additional \$15 million of STE to the program, increasing the total allocation cap to \$115 million annually for Project applicants in 2022, 2023 and 2024. This additional funding is restricted to projects that “manufacture, refine, extract, process, or recover lithium” (Committee on Budget, 2022).

Returns on Business Tax Incentives

Previous research on the impact of tax incentives on business location decisions suggests that the effects can be modest; for each location decision influenced by a tax incentive, many decisions go unchanged. In other words, some businesses receiving a tax incentive would still locate or expand in the jurisdiction awarding the incentive even if the tax incentive were not offered.⁸ And, because the costs of tax incentives (in terms of foregone tax revenue) can be high, many business tax incentives may not be worth the cost.

This report seeks to quantify the impact of the CAEATFA STE. Although the STE is a business tax incentive, it has several features which may distinguish its impacts from business tax incentives generally. Specifically, the CAEATFA STE is only available to manufacturers, rather than to both locally serving and exporting businesses. Unlike locally serving (primarily service businesses), most manufacturers export goods outside of the state or produce goods which reduce the need for imports. As a result, sales revenues from manufacturers generally represent new revenue to the state’s economy. In addition, because the STE is used by companies only at the time of equipment investment, companies only receive the incentive if they are investing their own resources in capital equipment. In essence, the STE serves as the “last dollar in” for moving the project forward, after applicants have secured their primary project financing independently. Rather than providing a benefit to companies who would have made these decisions with or without the incentive, CAEATFA’s STE Program encourages companies to invest more than they otherwise would have at the outset.

II. THE IMPORTANCE OF MANUFACTURING AND THE ROLE OF TAX INCENTIVES

The CAEATFA Sales and Use Tax Exclusion Program supports an important sector of the state’s economy by reducing the cost of starting or expanding a manufacturing business, helping the state overcome perceptions of high taxes for businesses, and improving the state’s ability to compete with other states that offer tax incentives to manufacturing businesses.

Manufacturing is an important sector of the California economy. Manufacturers frequently make investments that can lead to innovation, which makes the state’s economy more competitive.⁹ The sector also accounts for a

⁸ For example, according to a 2018 analysis of 34 studies of the effectiveness of business tax incentives, such incentives likely “tip” between 2% and 25% of business location decisions. Timothy Bartik, “‘But For’ Percentages for Economic Development Incentives: What Percentage Estimates Are Plausible Based on the Research Literature?” (July 31, 2018), W.E. Upjohn Institute for Employment Research.

⁹ For the role of research and development in advanced manufacturing, see Cooper, Christine, Shannon M. Sedgwick, and Somjita Mitra, “California’s Manufacturing Industries: Employment and Competitiveness in the 21st Century,” Institute for Applied Economics, Los Angeles County Economic Development Corporation, June 2014, page 20, http://laedc.org/wp-content/uploads/2014/07/California_Manufacturing_2014.pdf (accessed October 2016) and Muro, Mark, Jonathan

substantial fraction of the state's output and a growing share of the national economy. Since 2010, real manufacturing GDP in California has increased 50%, compared to just 26% nationwide, and the state now accounts for nearly 15% of total U.S. manufacturing GDP (up from 12% in 2010).

The manufacturing sector in California also generates a great deal of economic output per job. Indicative of this productivity, as of 2023, the average wage of California's manufacturing sector workers was 41% higher than the statewide average across all private industries; nationwide, manufacturing workers earned just 14% more than average.¹⁰ According to a 2022 analysis, a relatively high share of California's manufacturing firms are in "high-technology" subsectors, such as electronic instruments and aerospace manufacturing.¹¹

Manufacturing firms also purchase relatively more goods and services than many other industries, thus indirectly stimulating more jobs in supplier firms.¹² Finally, most manufacturing firms produce products that are exported outside of California or, if the goods are sold locally, reduce the need for imports. As a result, the sales revenues from manufacturing largely represent an influx of new money into the California economy, in contrast to the sales revenues of primarily locally-serving service industries.

Perception of California's Business Climate

Despite relatively strong growth in California's manufacturing sector, the industry continues to face higher overall tax burdens in California than in most other states. The Tax Foundation ranked California as one of the highest cost states for capital intensive manufacturing firms in 2021 (43rd for a mature firm and 45th for a new firm). These results were based on calculations of the total business tax on a model firm in all 50 states.¹³ The Tax Foundations' 2024 update to its "State Business Tax Climate Index" ranks California's business tax climate 48th overall.¹⁴ Similarly, CNBC's 2024 ranking of "The Top States for Business" places California in 47th in

Rothwell, Scott Andes, Kenan Fikri, and Siddharth Kulkarni, "America's Advanced Industries," The Brookings Institute, February 2015, page 2, https://www.brookings.edu/wp-content/uploads/2015/02/AdvancedIndustry_FinalFeb2lores-1.pdf (accessed October 2016)

¹⁰ U.S. Bureau of Labor Statistics (BLS), *Quarterly Census of Employment and Wages*. Available at: <https://www.bls.gov/cew/>. See also, Cooper et al (2014).

¹¹ "California's Manufacturing Industries," California Manufacturing Technology Consulting (July 2022). The analysis determined that roughly 37% of statewide manufacturing employment is in "high-technology" subsectors compared to 18.5% nationally.

¹² Muro, Mark, Jonathan Rothwell, Scott Andes, Kenan Fikri, and Siddharth Kulkarni, "America's Advanced Industries," The Brookings Institute, February 2015, page 3, https://www.brookings.edu/wp-content/uploads/2015/02/AdvancedIndustry_FinalFeb2lores-1.pdf (accessed October 2016)

¹³ The model's capital-intensive manufacturer is a steel company with 200 positions, \$320 million in capital investment, \$200 million in revenue, a gross profit ratio of 25 percent, earnings before tax of 10 percent, and an equity ratio of 50 percent. The company is fully taxed in the state in which it is located and the sales are distributed to all 50 states according to the relative population sizes of each state. The Tax Foundation, "Location Matters: The State Tax Costs of Doing Business," 2021. Available at: <https://taxfoundation.org/research/all/state/state-tax-costs-of-doing-business-2021/> (accessed January 2025).

¹⁴ Jared Walczak, Andrey Yushkov, and Katherine Loughead, "2024 State Business Tax Climate Index," Tax Foundation, October 2023. Available at: <https://taxfoundation.org/research/all/state/2024-state-business-tax-climate-index/> (accessed January 2025).

“business friendliness” and 45th in “cost of doing business.”¹⁵ And, in B2B Reviews’ 2025 update to their “Best States to Start a Business” ranking, California scored 37th overall and 41st on its tax burden.¹⁶ Regardless of whether California’s business climate is in fact worse than that of other states, the perception of California as an expensive and difficult state in which to do business nevertheless exists. CAEATFA’s STE Program is one tool at the state’s disposal to counter this perception.

Other States Compete for Businesses with Tax Incentives

CAEATFA’s STE Program does not exist in a vacuum. States across the country compete for businesses with tax benefits and other incentives that reduce the costs of starting or expanding businesses. Nationwide, according to the most recent Tax Foundation analysis, 38 states exclude manufacturing machinery from the sales tax.¹⁷

In addition, some states have sought to promote manufacturing with other incentives, such as grants for developing advanced manufacturing training programs, early-stage capital for high-tech companies, and business and occupation tax credits for the aerospace industry.¹⁸ Though tax incentives are one of many considerations in a business location decision, California competes with other states that offer tax incentives. Therefore, reducing the cost for manufacturing companies through the STE Program can improve the state’s competitiveness in attracting and retaining businesses.

Other Incentives for Manufacturers in California

CAEATFA’s sales tax exclusion is just one of several incentives for which California companies may qualify. One of these incentives is a partial exemption from sales taxes for manufacturing and research & development equipment. This program, administered by the California Department of Tax and Fee Administration (CDTFA), is similar in some respects to the CAEATFA STE in that it applies to manufacturing equipment. However, the program differs in several important respects. Under the CDTFA program, equipment is only exempt from a portion of the sales tax (a reduction in the otherwise applicable rate of 3.9375%). In addition, in order to qualify, firms complete a one-page form describing the equipment to be purchased and identifying the purpose for which the equipment will be used. There is no application process, no required annual reporting, and no statutory requirement that the project generate net benefits for the State of California). Companies may use the exemption for up to \$200 million in eligible purchases each calendar year. The STE Program preferences applicants that are not eligible for the CDTFA program.

¹⁵ CNBC, “America’s Top States for Business 2024,” July 2024. Available at: <https://www.cnbc.com/2024/07/11/americas-top-states-for-business-full-rankings.html> (accessed January 2025).

¹⁶ B2B Reviews, “The Best States to Start a Business,” December 2024. Available at: <https://www.b2breviews.com/best-states-to-start-a-business/> (accessed January 2025).

¹⁷ Katherine Loughhead, “Does Your State Tax Manufacturing Machinery?” Tax Foundation, January 2019. Available at: <https://taxfoundation.org/data/all/state/state-tax-manufacturing-machinery-2019/> (accessed January 2025). Note that this analysis includes California among the 38 states with a manufacturing machinery sales tax exclusion even though California manufacturers still incur the local share of the total sales tax rate.

¹⁸ National Conference of State Legislatures (NCSL), “State Tax Incentive Evaluations Database,” updated October 2024. Available at: <https://www.ncsl.org/fiscal/state-tax-incentive-evaluations-database> (accessed January 2025). This database collects all evaluations of state tax incentive programs as they are released and allows the user to filter the available evaluations by the types of incentives assessed (e.g., “capital investment,” “manufacturing,” “technology”).

Another incentive program, California Competes, is administered by the Governor’s Office of Business and Economic Development (GO-Biz), and awards income tax credits to businesses that meet hiring and investment targets. Both manufacturers and locally serving service businesses are potentially eligible for the tax credit. For the Fiscal Year 2024-25 almost \$645 million in California Competes Tax Credit is available for allocation. The California Competes credit may be used concurrently with CAEATFA’s STE.

IV. CAEATFA’S UNIQUE NET BENEFITS TEST

Most Programs Do Not Measure the Effectiveness of Tax Incentives

Historically, most states did not report foregone tax revenues due to tax incentives; California’s legislature was the first state to require tax expenditure reports, starting in 1971.¹⁹ More recently, state legislatures across the country have shown an increasing interest in further analysis by passing laws that require evaluation of the effectiveness of tax incentives in stimulating economic growth. According to a study by the Pew Charitable Trust, as of 2013, only six states had developed policies to require the regular evaluation of their incentive programs. By 2017, that number had climbed to 28,²⁰ and as of the latest update to this analysis in 2022, 34 states had such a policy.²¹

Many of these evaluations of tax incentives, however, overestimate the effectiveness of programs by reporting the total number of jobs and capital investment associated with the new or expanded project, rather than the marginal benefit attributable to the incentive. For example, Massachusetts’ annual report on the state’s Economic Development Incentive Program provides the number of new jobs created after a firm receives the tax incentive, the number of jobs retained, and the total private investment in the project, but does not adjust these numbers for the economic activity that would have occurred without the tax incentive.²² Similarly, Florida’s evaluation of four economic development projects reports the total number of new jobs, jobs maintained, and capital investment in each approved project, but does not estimate the marginal effects of the incentives.²³

¹⁹ Connolly, Katrina D. and Michael E. Bell. (2012) “The Need for a Property Tax Expenditure Budget” State Tax Notes, 64(8), May 21. As of 2015, the Governmental Accounting Standards Board is requiring all state and local governments to report tax abatements in their comprehensive annual financial report (CAFR); Francis, Norton, “GASB 77: Reporting Rules on Tax Abatements,” Economic Development Strategies Information Brief 1, Urban Institute, October 2015, <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/2000474-GASB-77-Reporting-Rules-on-Tax-Abatements.pdf> (accessed October 2016).

²⁰ The Pew Charitable Trusts, “How States Are Improving Tax Incentives for Jobs and Growth,” October 2017. Available at: https://www.pewtrusts.org/-/media/assets/2017/05/edti_how_states_are_improving_tax_incentives_for_jobs_and_growth.pdf (accessed January 2025).

²¹ John Hamman, “How states evaluate tax incentives and use evaluations to inform policy,” The Pew Charitable Trusts, August 2022. Available at: <https://www.lbo.mn.gov/TERC/meetings/2022/20220811/PewTERCPresentation2022-08-11.pdf> (accessed January 2025).

²² Massachusetts Office of Business Development, “Economic Development Incentive Program Fiscal Year 2024 Annual Report,” Economic Development Incentive Program (EDIP), September 2024. Available at: <https://www.mass.gov/doc/edip-fy2024-annual-report/download> (accessed January 2025).

²³ Office of the Florida Legislature, “Florida Economic Development Program Evaluations – Year 11,” *Report No. 23-14*, January 2014. Available at: <https://oppaga.fl.gov/Documents/Reports/23-14.pdf> (accessed January 2025).

Additionally, while some state program evaluations acknowledge that incentives are not always necessary to attract business investment, many of these studies either do not attempt to quantify incentives' marginal impacts or utilize unreliable methods for doing so. For example, Kansas' evaluation of its Angel Investor Tax Credit program simply relies on a survey of tax credit recipients to show the importance of the tax credit program relative to other investment decision factors.²⁴ These reports may quantify the number of new jobs, but they lack analysis of the extent to which those jobs would have existed without the tax incentive.

CAEATFA's Method Evaluates Marginal Impact

When it approved SB 71, the Legislature required CAEATFA to evaluate projects based on a number of factors, including expansion of manufacturing in California, job creation, environmental and fiscal benefits, and overall net benefits (Public Resources Code Sec. 26011.8). Based on these requirements, CAEATFA developed an application scoring process that requires projects to document net benefits to the state in order to be recommended for approval. These net benefits are calculated on a marginal rather than an aggregate basis. In other words, the cost of the project in terms of foregone sales tax revenue is compared to the benefits attributable just to the marginal economic activity resulting from the incentive effects of the STE.

In addition to general information about the applicant's project, manufacturing process, and product, CAEATFA requires applicants to provide specific business plan data, including the expected cost for the capital equipment that will be purchased; projections on the number of units that will be sold each year; price, materials, and labor costs per unit; and full time-equivalent jobs at the facility, among other factors. Based on this information, CAEATFA analyzes the data provided to ensure that the anticipated revenues, profit margin, labor costs and other factors are both internally consistent and reasonable.²⁵ CAEATFA also requires detailed information about the projected environmental performance of the product and the production process (where relevant). These data are likewise checked for internal consistency and plausibility.

Net Benefits Test

Once the application data have passed CAEATFA's due diligence review, CAEATFA estimates the marginal additional economic output resulting from the STE's reduction in the cost of purchasing capital equipment. CAEATFA's estimate of the extent of these additional capital equipment purchases is based on a study conducted by the Federal Reserve Bank of San Francisco.²⁶ This study analyzed the responsiveness of firms to changes in the cost of capital equipment stemming from tax changes. Using this study, CAEATFA is able to estimate how much additional equipment each applicant will purchase based on the reduction in equipment cost stemming from the STE.

Staff calculate any increase in economic output due to the STE and estimate the resulting economic, fiscal, and environmental benefits, including increased economic activity, increased purchases of capital equipment and raw materials from suppliers, and increased sales of the applicant's product(s). These estimated increases have secondary effects, such as increased employment at supplier firms; increased property, income, and sales tax

²⁴ Kansas Legislative Division of Post Audit, "Evaluating the Angel Investor Tax Credit Program," February 2024. Available at: <https://documents.ncsl.org/wwwncsl/Fiscal/evaluationDB/EvaluatingtheAngelInvestorTaxCreditProgram.pdf> (accessed January 2025).

²⁵ For example, CAEATFA may compare the application's average employee salary to typical industry wages, or verify that the estimated per-unit sales price for a manufactured good is similar to its typical sale price.

²⁶ Chirinko, Robert S. and Daniel J. Wilson, "State Investment Tax Incentives: A Zero-Sum Game?" Federal Reserve Bank of San Francisco Working Paper 2006-47, July 2008.

revenues; and increases in environmental benefits, such as reductions in emissions of greenhouse gases and air pollutants. Together, all of these direct and indirect effects of the STE result in economic, fiscal, and environmental benefits to the state.

Marginal projected benefits attributable to the STE Program are estimated from an economic model developed by CAEATFA that estimates the size of the various fiscal and environmental benefit streams over the life of the project, monetizes non-monetary benefits, such as reductions in greenhouse gas emissions, and applies discounting of future benefits in order to estimate its net present value. In order for a project to be approved by the CAEATFA Board, the project must be projected to produce STE-induced fiscal and environmental benefits that exceed the cost of the STE in reduced sales tax revenues.²⁷ Calculating the net benefits on a marginal rather than an aggregate basis ensures an apples-to-apples comparison of project costs and benefits and reduces the risk of overestimating project benefits.

Project scoring criteria are generally consistent across application types in terms of fiscal benefits. However, due to the different eligibility criteria, Advanced Manufacturing projects are scored differently from Advanced Transportation, Alternative Source, and Recycled Feedstock projects in terms of environmental benefits. For non-Advanced Manufacturing projects, the products themselves produce environmental benefits, whereas the products produced by an Advanced Manufacturing process need not necessarily produce environmental benefits. Instead, for Advanced Manufacturing applicants, environmental benefits generally stem from improvements to the manufacturing process itself. As a result, the environmental benefits for Advanced Manufacturing projects are not monetized in the application scoring process as they are with Alternative Source, Advanced Transportation and Recycled Feedstock projects. Instead, points are awarded for specific environmental process improvements and these are incorporated into the project's final benefit score.

The Nature of Uncertainty in Making Projections

Despite the rigorous nature of the net benefits test developed and applied, there remain some uncertainties associated with estimating the impact of the STE Program.

First, CAEATFA performs the net benefits prospectively based on information provided by applicants during the application process as well as due diligence performed by CAEATFA. However, the estimated costs and benefits of a project can change as the project evolves under real-world market conditions and individual project contingencies. These projected costs and benefits therefore may overstate or understate actual costs and benefits; as a result projects may not achieve their full potential or may perform better than anticipated at the time of application.

Second, estimating the future fiscal and environmental benefits of projects based on currently available information requires economic modeling, which in turn requires assumptions regarding discount rates, multiplier effects, and the monetary value of environmental protection benefits. CAEATFA relies on estimates standard in economic modeling literature for these and other input parameters for the net benefits test, but the appropriate (future) values for these factors are nevertheless uncertain.

In order to monitor applicant performance after approval, CAEATFA requires applicants to file annual reports on their projects' status, both to ensure that applicants are complying with the conditions for receiving the STE and

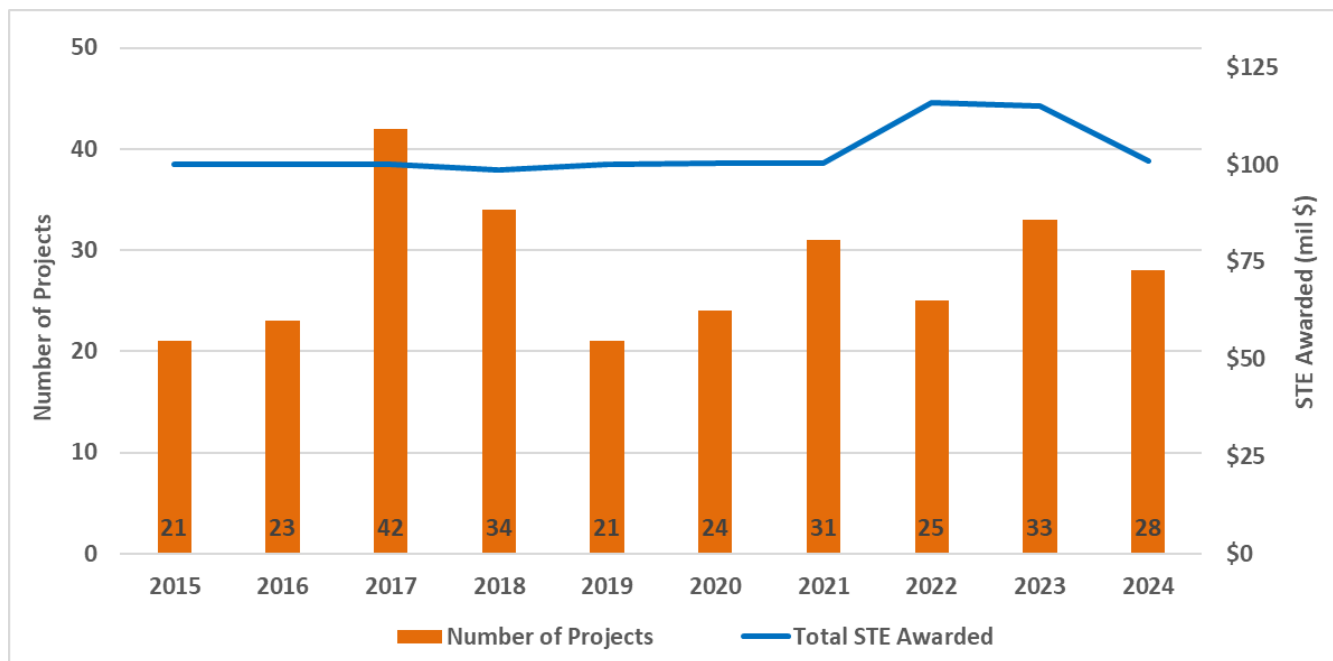
²⁷ Note that in addition to points for fiscal and environmental benefits, projects may be awarded points for such things as creating new jobs, locating in an area with high unemployment, or adding to a local industry cluster. These other benefits are added to the total fiscal and environmental benefits, and, in some cases, are the deciding factor in determining whether a project has produced a net benefit.

also to determine whether there have been any material changes to projects that could affect STE Program costs or benefits.

V. ASSESSING THE IMPACT OF THE STE PROGRAM

Since its creation in 2010, the STE Program has awarded \$1.3 billion in sales tax exclusions to 354 qualified applicants through December 2024. As shown in Figure 1 (below), though the number of annual project approvals has varied over the last 10 years, annual STE allocations were largely unchanged, as the Program typically awards the total allocation available. Prior to 2022, this cap was set at \$100 million; for the last three calendar years (2022 – 2024), the Program was authorized to award an additional \$15 million annually to lithium extraction projects, bringing to total annual allocations to \$115 million in 2022 and 2023.²⁸

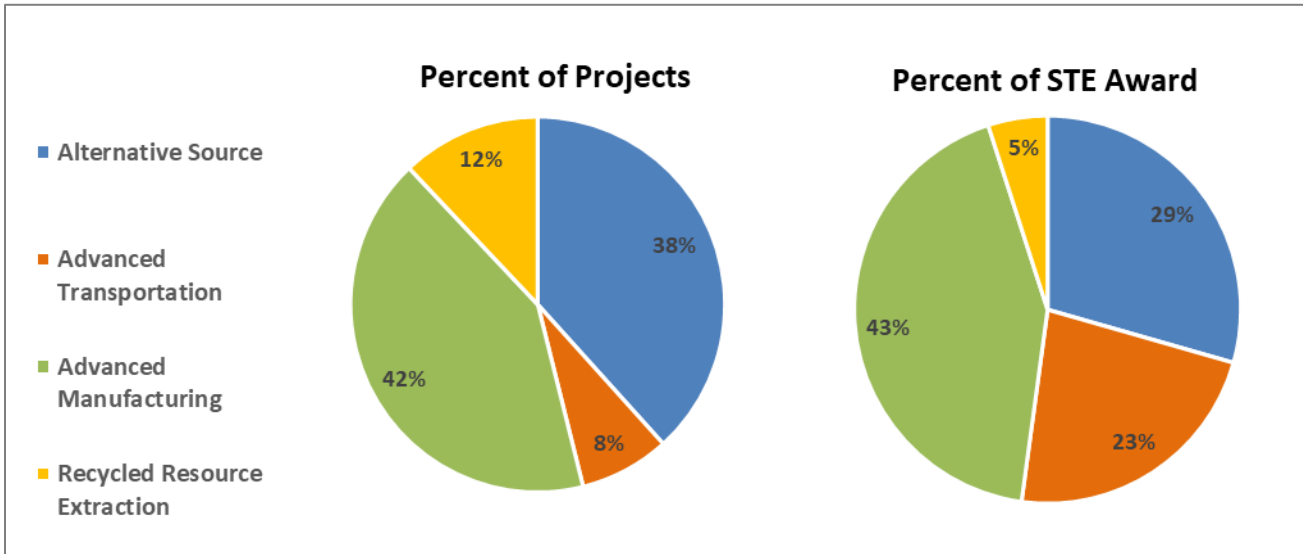
Figure 1: Number of Approved Projects and Amount of STE (2015 – 2024)



Over the last 10 years (2015 – 2024), 282 Projects have been awarded STE totaling \$1.03 billion. Figure 2 (next page) presents the distribution of approved projects by type. During this period, Advanced Manufacturing projects were the most common project type, accounting for 42% of all approvals and 43% of the STE allocated. Alternative Source projects comprised 38% of approvals and 29% of the STE awarded. The Advanced Transportation and Recycled Resource Extraction categories together accounted for the remaining 20% of approvals and 28% of the STE awarded.

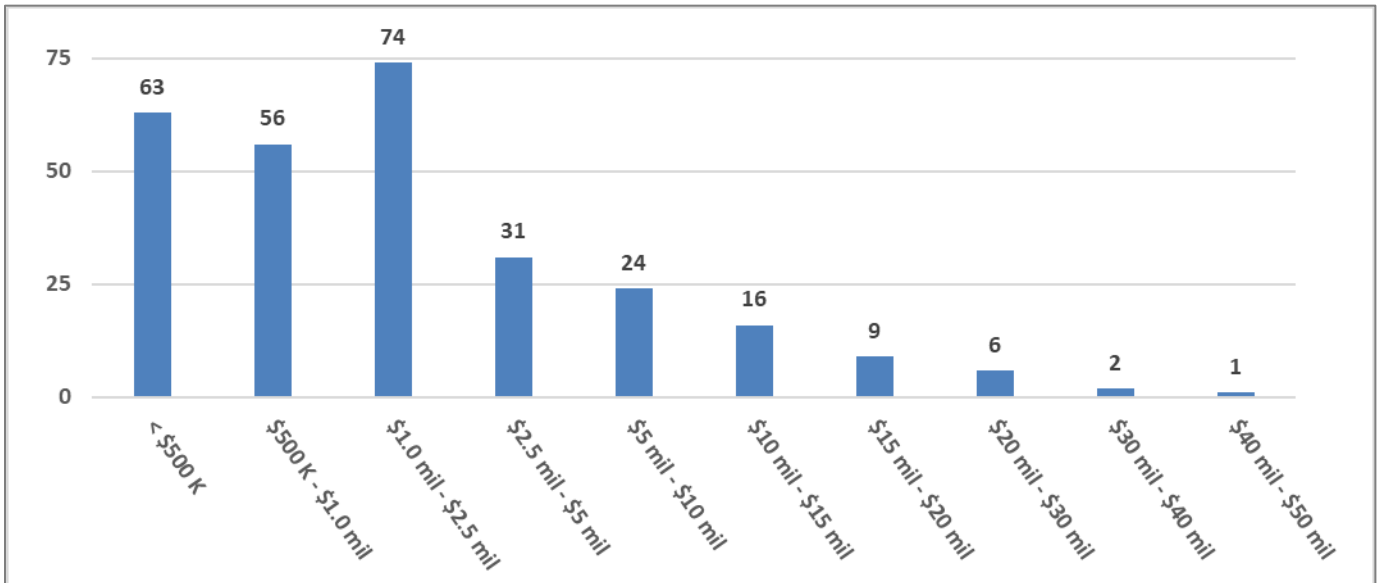
²⁸ Only \$1 million of STE was awarded from the lithium projects funding pool in 2024. As a result, the STE Program allocated \$14 million less than its total \$115 million cap.

Figure 2: Share of Approvals and STE Allocation by Project Type (2015 – 2024)



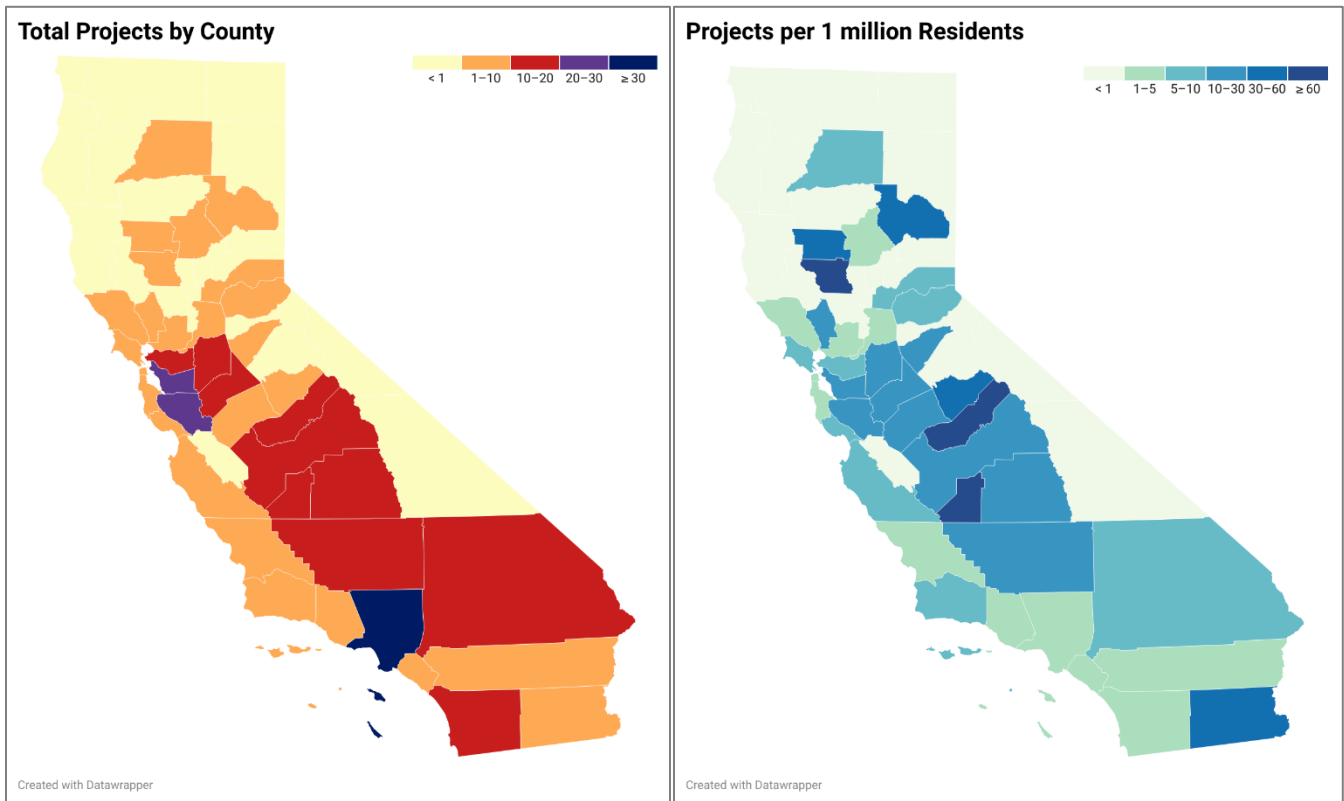
While some projects have received large STE awards in excess of \$10 million, awards are typically smaller. As shown in Figure 3 (below), 63 projects (roughly 22% of the 282 projects between 2015 and 2024) have received an STE of less than \$500,000 and an additional 56 projects (20%) have received an STE of less than \$1 million. Three percent of the projects received awards exceeding \$20 million: six projects received between \$20 and \$30 million, two received between \$30 and \$40 million, and one received between \$40 and \$50 million.

Figure 3: Distribution of Projects by STE Amount (2015 – 2024)



As shown in Figure 4 on page 13, CAEATFA projects are located throughout the state. Though the state’s more populous urban counties have received a greater number of STE awards (see left visual), more inland counties typically receive more project approvals on a per capita basis (see right visual). Over the last 10 years, 38 counties have received at least one STE award; these counties have received \$27.1 million in STE across all county projects, on average.

Figure 4: Total Project Approvals and Approvals Per 1 million Residents (2015 – 2024)



Impact of the STE Program

As shown above, over the last 10 years, CAEATFA has provided financial assistance in the form of a sales tax exclusion to 282 projects located throughout the state. At the time of application, each of these projects demonstrated anticipated fiscal and environmental benefits that would exceed the cost of the foregone sales tax revenue.²⁹ In some cases, however, benefits projected at the time of application may not be realized, whether due to lower than expected sales, a slower than anticipated ramp-up period, the failure of a business, or a move out of state. The assessment of Program performance based on actual project data rather than application projections provides a clearer demonstration of the extent to which the STE Program has produced net benefits.

Performance Evaluation Process

On an annual basis, approved applicants must report to CAEATFA certain key financial and operational data for their projects, including actual sales, number of employees, wages paid, and purchases from supplier firms. The estimation of actual STE Program net benefits is based on analysis of the annual report data submitted as of

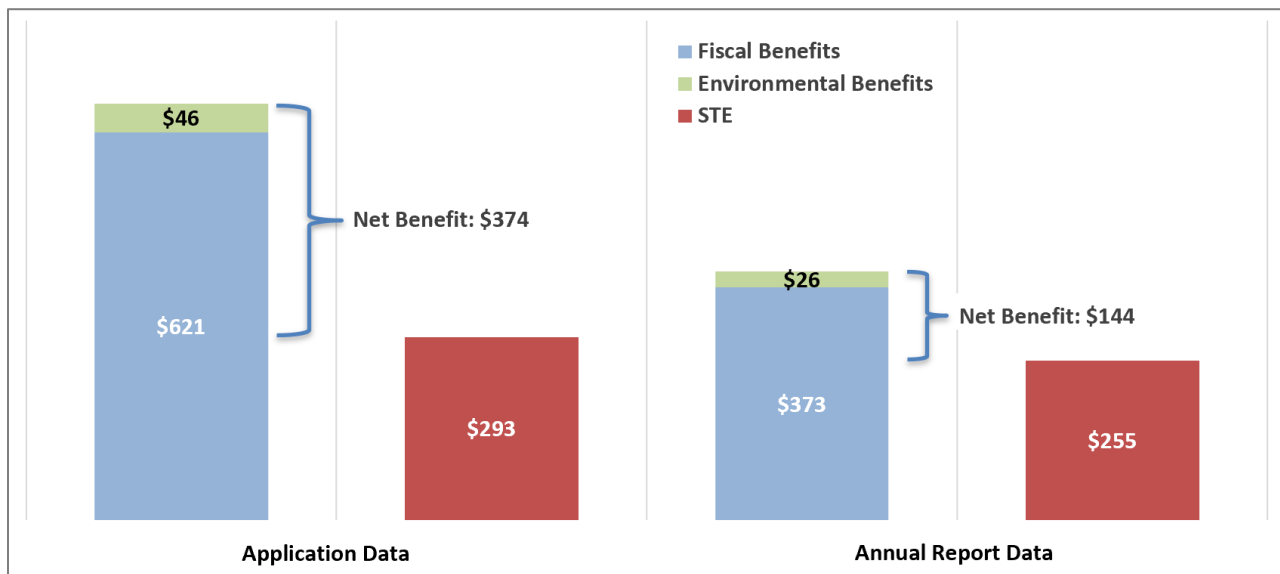
²⁹ Note that in some cases projects achieve the net benefits threshold because of supplemental benefits points attributable to, e.g., a project’s location in a high unemployment area or its contribution to a local industry cluster.

December 31, 2023 for 102 projects approved during the 2015 – 2021 period (the “Analysis Sample”).³⁰ The Analysis Sample excludes all projects approved after 2021 because the substantial majority of these applicants had purchased only small amounts of qualified property as of December 31, 2023, and had therefore not fully ramped up operations. Additionally, some projects approved during the 2015 – 2021 period are excluded from the Analysis Sample; as a result, the sample accounts for 56% of all projects, and 49% of the total STE claimed. Further detail on the methodology for excluding projects from the Analysis Sample is provided in *APPENDIX A – Selection of Projects for the Analysis Sample*.

Analysis of Actual Performance Data Indicates STE Program Has Produced a Net Benefit

The 102 projects included in the Analysis Sample employed 46,108 full time equivalent workers (FTEs) at a median salary of \$72,796, purchased \$23.3 billion in supplies, and sold \$55.2 billion in goods. Some of this activity would have occurred, however, without the sales tax exclusion. CAEATFA’s scoring methodology allows for estimates of the portion of this activity attributable to the tax incentive (on average about 10 percent based CAEATFA’s application of the San Francisco Federal Reserve Bank study). Applying this methodology suggests that the STE Program stimulated \$226 million in equipment purchases, the creation of 1,770 new FTE positions, \$507 million in purchases from suppliers, and generated \$1.4 billion in additional sales. The total STE utilized by these applicants was about \$255 million, with total fiscal benefits of \$373 million. Environmental benefits comprised an additional \$26 million, for total benefits of \$399 million and net benefits of \$144 million. Figure 5 presents the results of the analysis of actual Program performance data for the Analysis Sample. To the extent the Analysis Sample projects are representative of all projects approved during the 2015 – 2021 period, these results suggest that the STE Program overall has produced a net benefit of \$318 million.

Figure 5: Overall Program Performance Based on Analysis Sample Annual Report Data (mil \$)

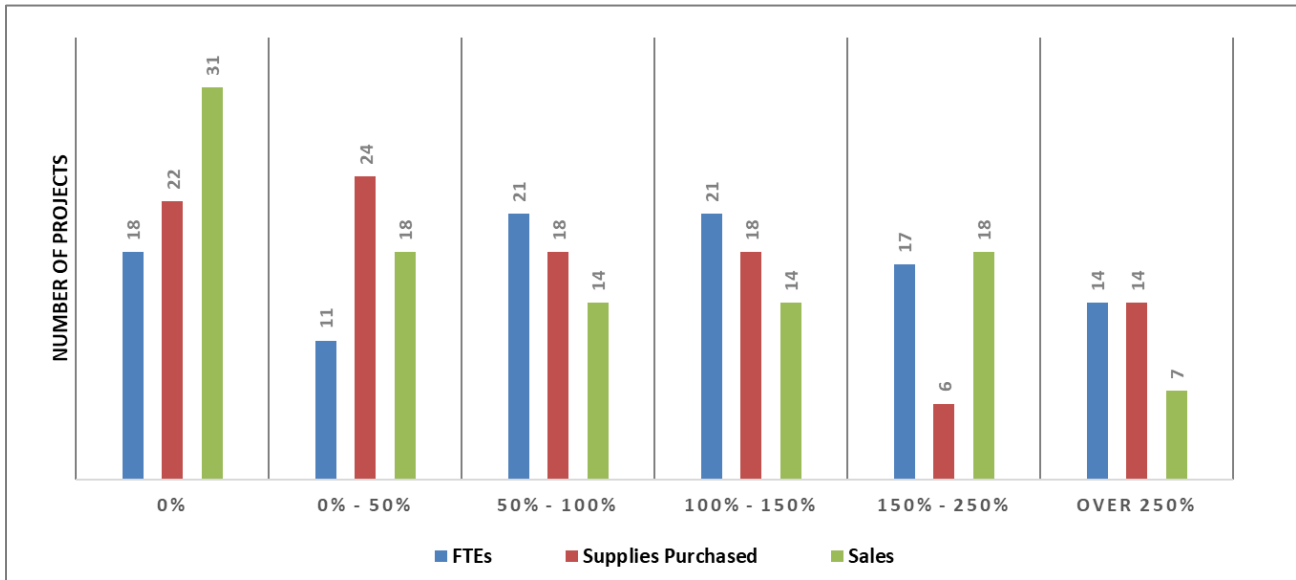


³⁰ The study sample excludes projects approved during the 2022 – 2024 period because the substantial majority of these applicants have purchased only small amounts of qualified property and have therefore not fully ramped up operations. For each applicant, this analysis was based on the most recent annual report submission available. Most often, therefore, the analysis relied on 2023 annual report data, though for many applicants prior year data was used either because no 2023 report was submitted to CAEATFA or because their 2023 report contained unusable or missing data.

Project Performance: Actual Compared to Projected

As shown above, the Analysis Sample projects produced a net benefit for the State of California, though the magnitude of these benefits was lower than anticipated at the time of application. By way of comparison, at the time of application, these applicants were expected to produce \$621 million in fiscal benefits, \$46 million in environmental benefits, and about \$374 million in net benefits. The 102 projects analyzed based on annual report data created 101% percent of the positions expected, purchased 63% of expected supplies, and made 70% of expected sales.

Figure 6: Analysis Sample Performance Metrics – Actual Jobs, Sales Volume, and Supply Purchases Compared to Application Estimates



As shown in Figure 6, when examining the performance of these companies at a more granular level, the variation in company performance becomes apparent. Specifically, some companies failed to produce any benefits, while others produced more than 100 percent of the jobs, supply purchases, and sales anticipated at the time of application. As shown in Figure 6, 14 projects employed more than 250 percent of the FTEs anticipated in their application, 14 projects purchased more than 250% of their anticipated supplies and seven projects generated over 250% of their anticipated sales volume. Most projects produced at least 100% of the anticipated jobs.

These results notwithstanding, there were also some companies that failed to produce any benefits or produced less than the anticipated benefits. As shown in Figure 6, 18 of the 102 companies in the Analysis Sample did not report any current employees in California, 22 reported no supplier purchases, and 31 reported no sales. These companies were either sold, went out of business after receiving the STE award, or moved out of state. Most of these companies did employ workers for at least a period of time, and many also purchased supplies and sold some products. However, without ongoing operations in California, the benefits for these companies were assumed to be zero. In addition, CAEATFA regulations require that if a company moves out of the state after receiving an STE, it must pay back a portion of the benefits received. Because these repayments are not reflected in the fiscal benefit calculations presented above, the net benefits estimated can therefore be considered conservative.

Other Benefits Generated by Advanced Manufacturing Projects

In addition to creating jobs and generating fiscal benefits, approved STE Program applicants may also produce environmental benefits and additional economic benefits, including patents, industry network or cluster benefits, spin-off companies, workforce training and partnerships, location in economically distressed communities with high unemployment rates, production process improvements, and benefits of the advanced manufacturing products themselves, such as cancer treatment and space exploration. The application credits applicants with additional points in the scoring process associated with these types of benefits.

Environmental Benefits

Many advanced manufacturing applicants have deployed improvements in their manufacturing processes that reduce their environmental impact. The application scoring process awards points for specific environmental process improvements. These environmental improvements may include reductions in water or energy use, use of hazardous chemicals, waste generation, and emissions of air pollutants. For example, Monolith Materials, Inc. replaces crude oil as the energy source for producing carbon black with natural gas, which reduces carbon dioxide emissions during the manufacturing process and nearly eliminates nitrous oxide and sulfur dioxide emissions.³¹ Similarly, MP Materials, a 2021 STE recipient, is a global producer of rare earth materials from its mining and processing facilities at its Mountain Pass location in California. MP Materials' introduced several improvements to its mineral extraction processes to reduce groundwater contamination, water consumption, and hazardous waste generation.³²

Industry Clusters

The application scoring process also allocates points to projects for additional economic activities that contribute to growth in the advanced manufacturing sector. By locating in an area considered an industry cluster, a manufacturing facility contributes to the geographic aggregation of firms in the same industry (i.e. "clustering"). Clustering contributes to economic growth because it drives increased investment and encourages business formation through the accumulation of resources such as information spillover, local training programs, a skilled workforce, local supply chain density, and specialized suppliers. An indicator of clustering, and thus a region's competitiveness, is advanced manufacturing employment as a proportion of regional employment.³³ Using this metric, California hosts two of the largest advanced manufacturing clusters nationwide in San Jose and San Diego.³⁴

³¹ Monolith, "The Future of Carbon Black." Available at: https://carbonblack.monolith-corp.com/pdf-viewer/monolith_plasmablack_brochure.pdf (accessed January 2025).

³² MP Materials, "2024 Sustainability Report." Available at: https://mpmaterials.com/downloads/MPMaterials_2024_Sustainability_Report.pdf?cchid=21086981995831721edbc41ef700af (accessed January 2025).

³³ Cooper, Christine, Shannon M. Sedgwick, and Somjita Mitra, "California's Manufacturing Industries: Employment and Competitiveness in the 21st Century," Institute for Applied Economics, Los Angeles County Economic Development Corporation, June 2014, page 20, http://laedc.org/wp-content/uploads/2014/07/California_Manufacturing_2014.pdf (accessed October 2016).

³⁴ Waterloo EDC, "Mapped: North America's Top Advanced Manufacturing Clusters," February 2023. Available at: <https://www.waterloeedc.ca/blog/mapped-north-america-top-advanced-manufacturing-clusters> (accessed January 2025).

Though CAEATFA does not explicitly model the STE Program’s impact on industry clusters, the STE Program supports the development of these clusters to the extent that the Program stimulates economic activity that would otherwise not exist in California. Many of the companies in the STE Program are part of an industry cluster that has been identified by a California state or local government entity or regional economic development authority. Several companies are located in the southern California aerospace industry cluster, identified as such by the Los Angeles Economic Development Corporation. Some of these companies include nanoPrecision, Hi-Shear Corporation, The Monadnock Company, Orbital ATK DES/Northridge, Rolls-Royce High Temperature Composites, Inc., Space Exploration Technologies Corp, Weber Metals, Inc., GKN Aerospace Chem-Tronics, Millennium Space Systems, Inc., and The Gill Corporation.

Research and Development

The application scoring process also awards points for facilities engaged in research and development (R&D) related to the approved project. Such investment can contribute not only to growing the firm itself, but also to growing the state’s economy to the extent that new products or production processes are the result.³⁵ The advanced manufacturing industry invests a relatively high proportion of revenues in research and development compared to other industries. Many of the advanced manufacturing companies in the STE Program perform research and development related to the product or production process in California. For example, The Gill Corporation’s facility in California, which supplies commercial aircraft and aerospace industries with high performance composite products, engages in research, materials development, and testing as well as efforts to improve its manufacturing processes and tooling using Computer Aided Design (CAD) and non-destructive testing methods.

Workforce Partnerships

The application also allocates extra points to companies that have local partnerships with educational institutions for the purpose of training current workers or assisting in the training of potential future workers. These partnerships contribute to local employment by developing a match between the skills of the local labor pool and those needed by local employers. Many applicants have these types of partnerships. For example, Weber Metals, Inc. received its STE for machinery used to produce Hand and Die Forged Metal, which is a supply for aerospace manufacturers, and has partnerships with several colleges and universities in California. For their current employees, Weber partners with El Camino College to provide on-site training. For potential future employees, Weber partners with WYO Tech Trade School to cultivate new technicians, and also participates in job fairs such as CalPoly San Luis Obispo Winter Career Fair and Cerritos College job placement fair. Weber is also a major sponsor for the Paramount Education Partnership, an alliance between the City of Paramount, the Paramount Unified School District, and the Paramount Chamber of Commerce, which is “dedicated to providing programs and services that increase the academic achievement and educational expectations of the City’s residents.”³⁶

Approved Projects Generate Benefits Beyond Those Scored in the Application

Some of the benefits to the state extend beyond those captured by the application process. The approved projects pass the net benefits test according to those benefits captured by the scoring process, but they likely

³⁵ Cooper, Sedgwick, and Mitra, page 20-21.

³⁶ City of Paramount, “Paramount Education Partnership (PEP),” <http://www.paramountcity.com/ps.educationpartnership.cfm?ID=29> (accessed October 2016).

generate additional benefits as well, such as patents, spin-off companies, production process improvements, and benefits of the advanced manufacturing products themselves.

By supporting manufacturing process improvements, the STE Program also supports the technological advancement of a wide range of products that benefit society, such as cancer treatment, shuttles for space exploration, and satellites for world communications.

VII. CONCLUSION

The STE Program represents a distinctive approach to economic development. Though business location or expansion decisions are influenced by many factors, the relative tax burden companies face is one important factor, particularly in the manufacturing industry, where firms may compete on a national or global stage. CAEATFA's prospective evaluation of applicant projects' estimated fiscal and environmental benefits helps ensure that public funds are directed toward projects that deliver measurable value to California and continue to strengthen the state's manufacturing industry.

An analysis of actual program performance from 2015 to 2021 indicates that the STE Program has successfully driven investment in California's manufacturing sector while generating positive fiscal and environmental returns. The reviewed projects, representing over half of all approved during this period, claimed \$255 million in STE but collectively yielded \$373 million in fiscal benefits and \$26 million in environmental benefits, generating a net benefit of \$144 million.

In addition to the fiscal and environmental benefits quantified, approved projects likely also deliver benefits that are not directly traceable to projects' performance data. The STE Program's projects promote the state's workforce development, encourage manufacturing industry clustering, and spur the deployment of more environmentally sustainable manufacturing processes, strengthening California's position as a leader in advanced manufacturing.

APPENDIX A – Selection of Projects for the Analysis Sample

The analysis presented in this report uses annual report data to estimate the actual fiscal and environmental benefits, as well as STE costs, of each project. By substituting the actual annual report data for projections prepared at the time of application, it is possible to analyze whether projects have produced a net benefit using CAEATFA’s application scoring methodology.

An accurate evaluation of the STE Program’s net benefits requires accurate data that is representative of the project facility’s long-run financial performance. As a result, based on an assessment of each project’s annual report data, 102 of the 182 projects approved during the 2015 – 2021 period were included in the Analysis Sample, with 80 projects excluded. Excluded projects fall into three categories:

- *Program participation*: Eighteen projects were excluded from the Analysis Sample because they had not purchased any qualified property as of December 31, 2023. Because these projects have not claimed STE, they have not imposed costs on the state. Their inclusion in the Analysis Sample would not affect the sample’s estimated net benefits.
- *Full ramp-up*: An additional 17 projects were excluded from the Analysis Sample because their annual report data suggested that they had not fully ramped up operations. Projects were only excluded on this basis if both (i) they had not yet claimed 85% of the STE they had been awarded; and (ii) they purchased qualified property in 2023.
- *Completeness and accuracy of annual report data*: Finally, 45 projects were excluded because their annual report data was either incomplete or otherwise unusable. Some of the projects in this category submitted annual reports that did not provide the metrics necessary for evaluation (i.e., total payroll, FTEs, sales, or supplier purchases). Annual report data was also excluded if either (a) it appeared that the annual report data comprised activity that did not benefit from the STE;³⁷ (b) the California corporate or LLC income tax reported for the project was inconsistent with the project’s reported sales volume; or (c) the project’s reported sales volume was inconsistent with the supplier purchase amount reported.³⁸

Figure 7 – Excluded Projects by Exclusion Basis, Project Count and Estimated Net Benefit

Basis for Project Exclusion	Project Count
<i>Program Participation</i> -- Project has not claimed STE	18
<i>Ramp-Up</i> -- Project has not yet reached full-scale operations	17
<i>Completeness and accuracy</i> -- Project's annual reporting is inconsistent or incomplete	45
Total Excluded	80

Figure 8 (next page) compares the distributions of Analysis Sample project approvals and STE claims to date to these distributions for all projects approved 2015 – 2021. Given 182 project approvals during this period, the exclusion of the 80 projects described above resulted in an Analysis Sample of 102 projects, or 56% of the total

³⁷ For instance, projects were excluded if their annual reports provided the applicant’s total global sales volume instead of the sales value attributable only to the facility that had purchased qualified property.

³⁸ Projects were excluded if they reported supplier purchase amounts that exceeded their total sales volume, as such projects may not prove financially sustainable. Similarly, projects were excluded if their “value add” share (i.e., the share of its sales volume that remains after subtracting supplier purchases) differed significantly from the share estimated in the project’s application and appeared unreasonable given the project industry.

approved. As of December 31, 2023, Analysis Sample projects had claimed \$255 million of STE, or 49% of the \$522 million claimed by all 182 projects.

As shown in Figure 8, Advanced Manufacturing projects accounted for 47% of the analysis sample and 46% of all projects. In terms of STE used, Advanced Manufacturing projects are somewhat overrepresented in the Analysis Sample; this project type accounts for 67% (\$171 million) of total Analysis Sample STE claims but 49% (\$257 million) of the total amount claimed across all projects approved during the 2015 – 2021 period. By contrast, Advanced Transportation projects are underrepresented in the Analysis Sample, in terms of STE used. This category accounts for 9% (\$23 million) of total Analysis Sample STE claims but 33% (\$148 million) of the total amount claimed across all projects.³⁹

Figure 8 – Comparison of Projects Included in Analysis Sample to Excluded Projects

Project Approvals, by Project Type	Analysis Sample		All Projects (2015 - 2021)	
	Count	% of Analysis Sample	Count	% of All Projects
Advanced Manufacturing	48	47%	84	46%
Advanced Transportation	3	3%	11	6%
Alternative Source	33	32%	58	32%
Recycled Resource Extraction	18	18%	29	16%
Total	102		182	

STE Claimed (mil \$), by Project Type	Analysis Sample		All Projects (2015 - 2021)	
	STE Claims	% of Analysis Sample	STE Claims	% of All Projects
Advanced Manufacturing	\$171	67%	\$257	49%
Advanced Transportation	\$23	9%	\$171	33%
Alternative Source	\$46	18%	\$76	15%
Recycled Resource Extraction	\$15	6%	\$18	3%
Total	\$255		\$522	

³⁹ Tesla’s facility in Fremont accounts for six of the 11 Advanced Transportation projects. These projects were excluded from the Analysis Sample because their annual reports provided the company’s global sales volume instead of the sales attributable to the qualified property purchased at the Fremont location.