

Consumer & Fiscal Impacts of SB 222

Preliminary Analysis

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Prepared by

Center for Jobs
& the Economy

OVERVIEW

Senate Bill 222 (SB 222) is a proposed California law that would allow any individual to file lawsuits seeking damages for climate-related events—including extreme weather, wildfires, and rising sea levels—affecting businesses and other entities that have used, sold, or been associated with fossil fuel products. This unprecedented expansion of liability applies retroactively to the year 1965 for businesses and other entities that have sold fossil fuel products and who made statements based on information available over this time. The resulting costs will ultimately be paid by those including consumers who have used or been associated these products. Businesses that legally operated decades ago could now face massive lawsuits for past emissions.

SB 222 effectively turns climate policy into litigation, with damage awards determined through the courts rather than through established regulatory frameworks. The bill's strict liability standard means that defendants would not need to be proven negligent—simply having a historical or indirect connection to fossil fuels, and making statements about their products, could be enough to trigger lawsuits and massive financial penalties. This places an extraordinary legal and financial burden on businesses across industries, threatening economic stability in California.

A Cost of Living Driver for All Californians

SB 222 will **significantly increase the cost of living** in California by raising prices on fuel, electricity, natural gas, housing, and everyday goods. Businesses facing massive litigation costs will pass expenses to consumers, leading to higher energy prices—gasoline could jump 63% to \$7.38 per gallon, diesel 69% to \$8.23, and electricity rates could rise up to 55% for industrial users. Natural gas prices would spike 76% for residential customers, increasing heating and cooking costs.

Housing costs will also climb sharply, with homeowners paying \$1,161 more per year and renters facing an extra \$1,692 annually due to rising utility costs. **Food, transportation, and consumer goods will become more expensive as businesses struggle with higher fuel and operating costs.** Air travel could see dramatic price hikes, potentially making flights to and from California unaffordable.

Overall, **households could lose up to \$6,200 per year in disposable income**, worsening affordability challenges and forcing more residents and businesses to consider leaving the state.

KEY FINANCIAL IMPACTS

Total Damage Claims:

- Estimated **\$124 billion to \$307 billion annually (2026-2030)**.
- Up to **\$1.1 trillion in total claims** over five years.
- **Retroactive claims** from 2000-2022 could total \$2.9 to \$10.8 trillion.

Consumer Cost Increases in 2026:

- Households could face an **annual financial burden of \$6,200** due to rising prices.
- **Housing costs could increase** by \$1,161 per year for homeowners and \$1,692 for renters.
- **Gasoline prices expected to rise 63%**, reaching \$7.38 per gallon.
- **Electricity rates** could increase by 31% for residential consumers and 55% for industrial users.

LITIGATION IMPLICATIONS

Expands Legal Exposure:

- Broad liability definitions mean businesses in energy, transportation, construction, manufacturing, retail, and other industries could face lawsuits.
- Strict liability standard means companies may be held responsible for damages even if they followed existing regulations.
- Joint liability means a litigant could seek to recover all estimated damages from a single company

Creates a Litigation Industry:

- Punitive damages could be up to four times compensatory damages, leading to **annual claims exceeding \$384 billion**.
- Legal fees for plaintiffs' attorneys could amount to billions annually, further incentivizing lawsuits.

BUSINESS IMPLICATIONS

Threatens Business & Investment in California:

- Businesses may face **higher insurance costs, reduced investment, and relocation pressures** due to the unpredictable legal landscape.
- Capital-intensive industries may divert investments out of California to avoid potential lawsuits.

STATE & LOCAL GOVERNMENT IMPACTS

Higher Operating Costs:

- Public agencies are exempt from being sued but will face rising costs for fuel, electricity, and construction.

Revenue Declines:

- Job losses and business closures could lead to a reduction in state GDP by \$42.6 billion annually and lower tax revenues **just from household spending reductions.**

CONCLUSION

SB 222 would impose an unprecedented financial burden on California's businesses and consumers, driving up costs in nearly every sector of the economy. By allowing open-ended climate litigation affecting companies that have used, sold, or been associated with fossil fuel products—even decades ago—this bill effectively functions as a massive carbon fee, with costs determined by the courts rather than policymakers. The result would be a sharp increase in the cost of living, putting additional strain on households already struggling with California's high expenses.

At a time when Californians already pay some of the highest prices for energy, housing, and consumer goods in the nation, **SB 222 threatens to make daily life even more expensive**, accelerating business departures and population decline. If enacted, this legislation could fundamentally reshape the state's economic landscape, making it more difficult for families to thrive and businesses to succeed. Instead of fostering economic growth and affordability, SB 222 would burden consumers with rising costs, deter investment, and drive up the price of nearly everything Californians rely on.

METHODOLOGY

This report uses a data-driven approach to assess the potential economic and cost-of-living impacts of SB 222, relying on a combination of regulatory cost models, industry data, and economic forecasting tools. The analysis estimates potential litigation costs using historical case studies of large-scale environmental lawsuits and applies a 1:1 and 4:1 punitive damage ratio to projected claims. Consumer price impacts, including fuel, electricity, natural gas, and housing costs, are based on California Air Resources Board (CARB) emissions data, energy consumption trends, and expected cost pass-throughs from litigation-driven price increases.

Household financial impacts were derived from IMPLAN input-output modeling, incorporating job losses, wage reductions, and GDP contraction. The report also considers historical price trends in regulated markets and real-world energy cost shifts to provide a realistic projection of how SB 222 could impact California's economy. Given the legal uncertainties surrounding the bill, estimates were presented in a range of scenarios, reflecting best-case to worst-case economic outcomes.

ABOUT THE CENTER FOR JOBS

The California Center for Jobs and the Economy is a research and policy organization dedicated to analyzing the economic impacts of legislative and regulatory proposals on businesses, workers, and consumers in California. The Center provides data-driven insights on key economic issues, including employment trends, business competitiveness, energy costs, and the overall cost of living. By leveraging detailed industry and economic data, the Center helps policymakers, business leaders, and the public understand how proposed policies—such as SB 222—could affect jobs, household expenses, and economic growth in the state. Through its reports and analysis, the Center serves as a resource for fact-based discussions on maintaining a strong and sustainable economy in California.

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Summary

SB 222 would greatly expand litigation opportunities to pursue damages as a result of “a climate disaster or extreme weather or other events attributable to climate change.” The facts and outcome of any such litigation, however, are essentially pre-determined by the language of bill. Fundamentally, only the final damage awards would be left to the discretion of the courts. The bill consequently not so much creates and defines new opportunities for litigation, as it in essence imposes a punitive carbon fee on the use of energy and energy products and byproducts in California, leaving only its size to be determined. The analysis treats the potential costs from this basis.

While the bill attempts to base any such damage claims on “extreme event attribution science” and “impact attribution science,” there are no defining standards in the bill that would shift from the current practice of “pick your science” under which any group or organization could issue a study and then proceed to litigation on this basis. In addition, the current relevant literature is, to put it charitably, mixed, with inconsistent methods, conclusions, and scope of relevant impacts being addressed. There is even less available specific to California. As a result, the estimates in this analysis draw on current regulatory practice that uses Social Cost of Carbon as an approach to measure the broad range of economic and noneconomic effects of global warming emissions. All calculations are based on the cost factors proposed by US EPA in 2023.

Based on the most current emission inventory from Air Resources Board (CARB) and their current reduction goals through 2030, potential damage claims would range between \$124 to \$307 billion in 2026 (current dollars), depending on the level of punitive damages that would be pursued, and average \$85 to \$212 billion annually in the period 2026-2030. These are annual damages that could be pursued, with a total of \$427 billion to \$1.1 trillion in this 5-year period. Estimates are not included in the analysis for subsequent years due to growing uncertainty factors. Litigants would also be able to pursue claims for past damages under this bill, which would range from \$2.9 to \$10.8 trillion for the period 2000-2022 depending on the scale of punitive damages.

Estimated Total Damage Claims

Source: See text; \$billion

	Current Year Dollars	
	1:1 Punitive	4x Punitive
2023	\$154.5	\$384.1
2024	\$149.2	\$370.9
2025	\$139.0	\$345.5
2026	\$123.7	\$307.4
2027	\$105.1	\$261.2
2028	\$85.1	\$211.5
2029	\$65.5	\$162.9
2030	\$47.9	\$119.0

It is important to note that the numbers in the table are not estimates of actual damages that have occurred due to climate change. They are instead estimates of the compensatory damages that could be pursued by future litigants under the broad provisions in SB 222 given the available studies and current practices in “impact attribution science.” The resulting lawsuits in total could file claims for greater or lesser amounts. These estimates also are not necessarily what the courts would award. They, however, provide at least a reasonable basis for the subsequent analyses in this report.

Impacts are assessed from two perspectives. The broader consumer and fiscal impacts are estimated from the damage estimates in the table above (1:1 punitive damages) and the IMPLAN input/output model for California. Based on the average annual damage estimates 2026-2030, California would face the following annual losses in jobs, employee wages and benefits, state GDP, and state and local taxes. These losses result from annual average reduced spending of \$6,200 per household as prices rise due to the fee effects of SB 222. Under the greater 4x punitive damages standard, these losses would be about 3.7 times higher. Expenditure of damage awards within the state would produce some compensating effects, but not likely at a scale sufficient to overcome the totality of these losses. Additional economic effects coming from the proposal—discussed in qualitative terms and not as amenable to input/output modeling—are likely to produce equal or greater losses as well.

Annual Losses, CARB Trends, 2026-2030

Sources: see text

Employment	-299,000
Wages, Salaries & Benefits (\$ billion)	-\$22.3
State GDP (\$ billion)	-\$42.6
State Taxes (\$ billion)	-\$2.6
Local Taxes (\$ billion)	-\$2.2

These impact estimates are based on California meeting the emission reductions in accordance with the 2030 goal. The state currently is not on track to do so. The second perspective instead looks at individual impacts affecting consumers and business/government costs based on current real-world trends. The table below summarizes the effect on energy prices. The total Change column incorporates other factors that will affect prices in this period, including expected easing of crude oil and natural gas prices, increasing LCFS costs due to CARB’s recent actions, and increases in the state excise tax. The table does not include any increase in the Cap and Trade fee due to the governor’s proposal to address this issue in legislation this year, or costs to implement ABX-2 (2024) although current estimates are that implementation will add another 10 cents per gallon. The final column shows the effect on 2024 prices that would come solely from the estimated SB 222 damages (1:1 punitive) in 2026.

Summary Impacts, Current Trends*Sources: see text*

	2024	2026	Change	SB 222 Effect
Gasoline, \$ per gallon	\$4.52	\$7.38	63%	48%
Diesel, \$ per gallon	\$4.88	\$8.23	69%	52%
Natural Gas, \$ per TCF				
Residential	\$19.24	\$33.82	76%	77%
Commercial	\$14.16	\$27.67	95%	105%
Industrial	\$11.48	\$24.72	115%	130%
Electricity, cents per kWh				
Residential	31.70	41.42	31%	13%
Commercial	25.30	32.68	29%	17%
Industrial	21.60	33.45	55%	19%
Transportation	16.50	24.13	46%	25%

California's energy prices are already the highest or near the highest among the contiguous states. In 2024, California average gasoline prices were 30% higher than the rest of the US, and diesel 51% higher. For natural gas, average residential prices were 29% higher, commercial prices 45% higher, and industrial prices 237% higher. For electricity, average residential prices were 105% higher, commercial prices 113% higher, and industrial prices 182% higher. California already faces a substantial gap in its costs of living and costs of doing business. The price impacts from SB 222 would help stretch this into a chasm.

Similar effects were also calculated for jet fuel, but the resulting increase of \$45 a gallon vs. the LAX FOB average cost of \$2.45 a gallon in 2024 likely would make air travel infeasible in the state. Even if airlines attempted to avoid these prospective costs through an accelerated shift to sustainable jet fuel—assuming the required supplies became available—they would still need to raise ticket prices by 30% to afford the higher costs. Their suppliers would also still be subject to lawsuits based on past emissions. The effects on the state's barely-recovered tourism industry would be substantial and would come just in time to affect travel to the 2028 Summer Olympics in Los Angeles.

Based on the most current data from 2023, annual housing costs would increase by \$1,161 a year for owners and \$1,692 for renters.

State and local governments while exempted from becoming a responsible party who could be sued under this bill, will still face significant cost effects both through procurement and through fiscal impacts. The cost estimate for electricity is an example of higher costs that could be incurred by public transit agencies, even though they continue to generate substantial deficits from ridership that remains well below pre-pandemic levels. Additional costs to local governments will accrue as they pay higher prices for fuels, energy, and related products and byproducts, and as revenues are affected by the broader economic effects.

The uncertainties raised by the language in this bill make the analysis in this report necessarily preliminary, with effects calculated more on a scoping level. The results consequently should be

considered more in “up to” terms given the assumptions for each factor. The results, however, also assume damage awards are allocated according to emissions; under the terms of the bill, they don’t have to be. These results are also subject to other changes that are likely to result from this proposal, including the following that are addressed more in qualitative terms but that likely will result in yet additional impacts to consumers, employers, and state and local government finances:

- Competitiveness & Jobs. Price effects at this scale will affect the competitiveness of many California industries and their consequent ability to produce jobs, wages, and related tax payments in the state. While some substitution is possible to reduce the scale of the potential cost impacts coming from purchase of energy and the related byproducts, the available substitutes are themselves higher cost and generally rely on increasingly more expensive electricity.
- Consumer Choice. In addition to retroactive liability under SB 222, businesses will also be concerned about potential liability moving forward. Gasoline and diesel are not the only products produced by refineries and the oil industry. A very broad array of products and byproducts serve as inputs to production and sale of goods throughout the economy. Sellers are likely to reduce sales within the state, both finished goods and components and supplies for production within the state, due to these concerns over the expansive liability standards under the bill. In the process, California consumers are likely to see less choice. The state economy would also be at risk of seeing a replay of the supply restrictions and consequent additional price pressures it just recently experienced during the pandemic.

For example, who would sell even a gallon of gasoline in California after this bill becomes law knowing that this action could expose them to potentially hundreds of billions in damage claims under the joint, several, strict liability standard? The courts are unlikely to award damages at that level in this instance, but getting to that point could take years of legal process and millions in legal costs—precisely the sort of unlevel playing/negotiation field the bill creates in more than one of its provisions.

- Capital Investment. The resulting higher costs along with an increase in the risk premium due to uncertain litigation exposure will reduce the returns required for capital investments in the state. The associated level of investments consequently likely would drop.
- Company Valuations. The entrepreneur culture within California is driven by the prospect of entrepreneurs being able to cash out on their efforts through an initial public offering or acquisition sale, a factor that is also a large determinant as to whether the state budget is in surplus or falls into deficit conditions. The liability risk premium will reduce the potential valuation for many such businesses. The flow of such cash outs and their resulting contributions to state finances are likely to slow if not move to other states.

Background

[SB 222 \(Weiner & Muratsuchi\)](#) as introduced would do the following:

- Any person may file a civil lawsuit claiming damages as a result of “a climate disaster or extreme weather or other events attributable to climate change.” With few to no guardrails limiting the bill’s reach, this bill conceivably would allow someone (or groups of someones) to file a lawsuit simply because the weather ruined their weekend wedding plans.
- Creating a monopoly for the Plaintiffs Bar, the bill would not allow these lawsuits to be filed by state and local government entities, with one exception as discussed below.
- Lawsuits may be filed against any responsible party doing business in the state or having even a tangential business relationship to the state since 1965.
- Responsible parties are any person or entity “that engaged in misleading and deceptive practices, including intentional lies, or the provision of misinformation or disinformation about the connection between its fossil fuel products and climate change and extreme weather or other events attributable to climate change.” In other words, any environmentally positive statement made over the course of the past 6 decades could now be construed as “misinformation or disinformation” simply because the information base regarding global climate has evolved over that time.
- Fossil fuel products are very broadly defined as “crude petroleum oil and all other hydrocarbons, regardless of gravity, that are produced at the wellhead in liquid form by ordinary production methods, natural, manufactured, mixed, and byproduct hydrocarbon gas, refined crude oil, crude tops, topped crude, processed crude, processed crude petroleum, residue from crude petroleum, cracking stock, uncracked fuel oil, fuel oil, treated crude oil, residuum, gas oil, casinghead gasoline, natural-gas gasoline, kerosene, benzine, wash oil, waste oil, blended gasoline, lubricating oil, and blends or mixtures of oil with one or more liquid products or byproducts derived from oil or gas.” While the intended target of the bill is obviously the oil and gas industry, this definition is broad enough to also include at least service stations, repair shops, convenience stores, utilities, new and used vehicle dealers including electric vehicles that use oil-based lubricants or plastics, other retail and wholesale operations, construction companies, and a wide range of other business operations selling products incorporating byproducts derived from oil or gas.
- Responsible parties are jointly, severally, and strictly liable for damages, the same liability standard that ensured Superfund sites throughout the US remained mired in litigation for decades rather than being cleaned up and restored to beneficial use within their communities. This standard also means that a small business unable to afford a defense against such lawsuits could potentially be liable for billions in claims. This type of uneven legal standing previously promoted a “legal extortion” environment under the state’s Private

Attorney General Act (PAGA). Recent reforms to PAGA substantially reduced this problem. This bill would restore the demand letter opportunities under a different issue.

- Responsible parties cannot include federal, state, and local entities even though many have engaged in oil and gas activities over the past 6 decades. For example, State Lands Commission tidelands leases in essence place the state in the role of a partner, reserving and on occasion exercising an option to take their royalty share in the form of crude oil. Long Beach operates its own natural gas utility. The state has shared in substantial revenues from federal offshore oil and gas activities under Section 8(g) of the Outer Continental Shelf Lands Act. Other local governments have generated revenue from oil and gas leases. More broadly, a wide range of state and local laws, rules, and permit decisions specifically allowed the subject activities to take place and none would have occurred without those approvals. Yet, any such responsibility under the otherwise very broad “joint, several, and strict” standard is exempted. The bill acknowledges the potential devastating impact on state and local finances. It shows far less concern for the consequences to jobs, costs of living, and the California economy.
- The bill declares that any connection found between “a climate disaster, extreme weather or other events attributable to climate change, or harms resulting from long-term changes to the climate system” and states that alleged injuries “shall be deemed an injury in fact for all residents of this state who are harmed by that event.” The bill, however, does not limit any such injuries to what happens in the state. For example, studies claiming to connect climate change to a rise in cocoa prices in Africa could be used to support a claim, as could a recent study claiming that climate change has affected the [taste of beer](#).
- The bill attempts to base its foundations on “science” by requiring that climate disasters, extreme weather, or other events attributable to climate change be determined by “extreme event attribution science” and “impact attribution science.” The bill, however, gives no standard for which “science” among the many inconsistent and in many cases conflicting sources should be used, and instead promotes a pick-your-science standard under which any group or institution could issue a report to be used as the basis for these lawsuits. For instance, [World Weather Attribution](#) rushed out a study [linking](#) the recent Los Angeles fires to climate change even before the fires were contained or their causes determined. A publicly funded group was just established at [UC Berkeley](#) to develop studies that could be used to support lawsuits of this kind. In essence, the bill borrows the “fair argument” standard that expanded the scope and cost of CEQA from its original limited application to its current almost universal requirement underlying a multi-billion-dollar litigation practice.
- Adding a kangaroo court aspect to the proposed lawsuits, the bill bars a long list of potential defenses that otherwise could be used against any actions brought under its provisions. By limiting the legal defenses, the bill rather than just opening up an opportunity for litigation in essence is imposing a fee, the size of which will be determined later only after the Plaintiffs Bar has had their revenue opportunity on the issue. The facts and outcome of any litigation are essentially pre-determined by the language of bill. Only the final damage awards will be left to the discretion of the courts. The bill consequently would in essence impose a punitive carbon fee on steroids, and the analysis treats the resulting costs from this basis.

- Claims may cover the “full extent of noneconomic, compensatory, and punitive damages allowable” rather than just actual damages. Any awards are to be offset by payments from insurance or from a public body (e.g., disaster relief payments), but insurance companies are then allowed to recover any such payments through a subrogation action. Lawsuits under this bill could still proceed on any presumed compensatory damages shown in a study but not documented and covered by insurance along with noneconomic damages and punitive damages.
- The bill further provides a significant financial incentive to insurance companies to expand the potential litigation even further through subrogation actions. In an exemption to the prohibition on state agencies pursuing claims under the bill’s provisions, the state’s FAIR Plan is given the right of subrogation to recover any payments from a responsible party under the climate change link. In addition, any assessments to the member insurance companies to restore the Plan’s claims-paying capacity after “a climate disaster or extreme weather or other events attributable to climate change” are reduced by 10% if the member company pursues a subrogation lawsuit and raised by 10% if they do not.
- In a rare bit of tort reform, anyone challenging this bill, should it be enacted, or any related laws and regulations is liable (jointly and severally) for paying all attorney fees and costs related to any such challenge. Taking tort reform through the looking glass, this provision, however, only applies to the persons (and law firms) bringing the challenge and not to the other side.

Assumptions

The broad scope of this proposal potentially ensnares a large share of California businesses in addition to those in other states and countries who have previously acquired a California business over the past 6 decades along with its potential liability under this bill. The potential costs similarly are unbounded depending on, among many other factors: (1) which “extreme event attribution science” and “impact attribution science” is used; (2) whether the costs are based on California estimates or extended to estimated national and global effects as well under the “extreme weather” or “other events attributable to climate change” aspects; (3) whether responsible parties subject to these lawsuits pay for all estimated damages under the joint, several, and strict standard or are allocated a portion under some historical emissions-based calculation; and (4) the amount of associated damage awards allowed for punitive costs and attorney fees.

In order to be able to do an impact assessment even at a preliminary, scoping level, the following assumptions have to be made.

Previous Relevant Science

Existing studies on the economic costs of global warming emissions and global warming in general are highly variable, and are inconsistent in the various damage topics, methods, and data sources they cover. A selection of some of the broader scope studies are discussed below.

Global Estimates are more available, generally developed to estimate Social Costs of Carbon (see below) or to develop a base of comparison for various global emissions control strategies. Recent examples include:

- Barrage & Nordhaus¹ is one of the more recent studies by a long-time researcher on this topic, estimating that current emission trends will decrease global GDP by 4.4% by 2100. Using other data in the paper, this amount is equivalent to an average of \$4.3 trillion over the 80-year period. To put this number into perspective, however, in this same period, global per capita GDP (real, purchasing power parity basis) would grow by 420% under the study’s assumptions.

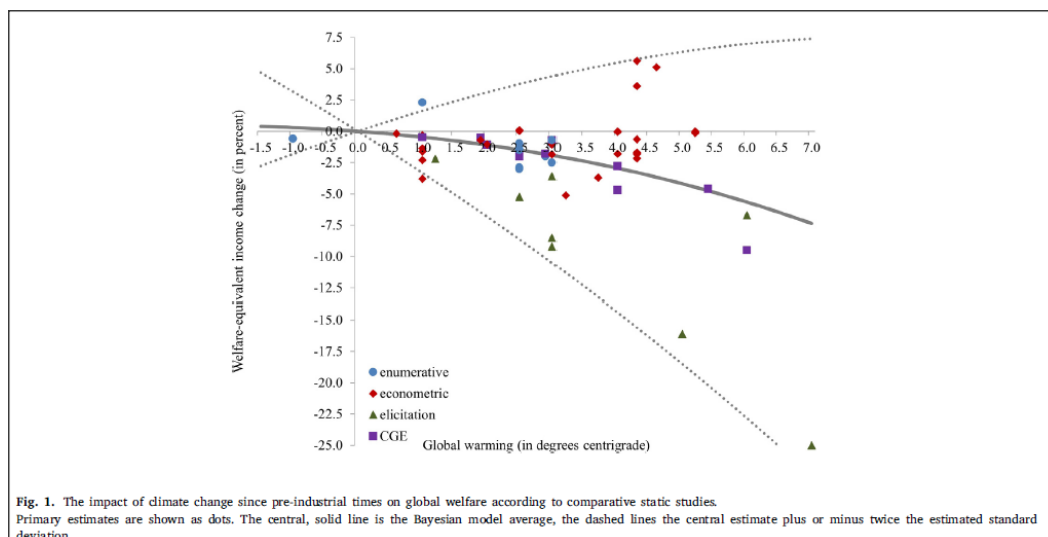
Using US Environmental Protection Agency (EPA) state estimates² for a consistent data base, California in 2022 contributed 0.7% of global GHG emissions.³ Based on this share, California’s costs under this estimate would average \$32 billion a year. This amount only covers the associated costs from emission impacts under current reduction trends, and does not represent a full cost estimate from total emissions as would be the case of lawsuits allowed under the proposed bill.

¹ Lint Barrage and William Nordhaus, Policies, Projections, and the Social Cost of Carbon: Results from the DICE-2023 Model, PNAS, January 2024.

² US Environmental Protection Agency, Greenhouse Gas Inventory Data Explorer, accessed February 7, 2025.

³ Hannah Ritchie, Pablo Rosado, Max Roser, Greenhouse Gas Emissions, Our World in Data, revised January 2024.

- Tol⁴ provides a meta-analysis review, assessing 69 estimates contained in 39 studies. While the central estimate in this update is higher than in previous similar meta-analyses, the confidence interval is much wider, indicating the extent to which recent studies have become more variable in their impact estimates. The summary chart from the Tol paper below illustrates these conclusions, with the solid line showing the mean decline in GDP estimated in the various studies at different temperature change points and the dotted lines showing the confidence interval within which the expected results likely lie. For studies estimating the costs associated with a 3-degree rise, the economic costs averaged a 3.6% drop in GDP, but ranged from a 0.7% loss to a 9.2% loss. The confidence interval around those estimates ranged even higher, ranging from a loss of around 11% to a gain of over 4%. Scaling to California, the mean estimate is equivalent to a loss of \$117 billion in 2023, but ranges from a loss of \$23 to \$299 billion. Again, these estimates cover only the increase in GHG emissions and not the total damages that could be pursued under the proposed bill.



Source: Tol, 2023

- Kikstra, et al.⁵ is another recent study that shows the extreme range these studies can take. This paper estimates that global GDP would be up to 37% to 51% lower by 2100 than it would in the absence of global warming impacts, with the effects primarily in the Global South. The estimated Social Cost of Carbon is also much higher than in previous studies, at \$3,000 a tonne compared to the \$51 factor previously used by federal agencies in regulatory assessments. Applying the Kikstra factors again to the 2023 numbers, this outcome is equivalent to a loss of \$1.2 to \$1.7 trillion for California, although this extrapolation is even less relevant in this case given the disparate geographic effects in this study's results.
- Newman and Noy⁶ address the costs of extreme weather, breaking out the portion that they attribute to climate change. Also using a meta-analysis of previous studies, their results

⁴ Richard SJ Tol, A Meta-Analysis of the Total Economic Impact of Climate Change, Elsevier, December 2023.

⁵ Jarmo Kikstra, Paul Waidelich, James Rising, Dmitry Yumashev, Chris Hope, Chris Brierley, The Social Cost of Carbon Dioxide Under Climate-Economy Feedbacks and Temperature Variability, Environmental Research Letters, 2021.

⁶ Rebecca Newman and Ilani Noy, The Global Costs of Extreme Weather that are Attributable to Climate Change, Nature Communications, September 2023.

show an average of \$143 billion a year globally due to climate change, ranging from \$23.9 billion to \$620 billion in the period 2000-2019. The methodology, however, assigns virtually all of these damages to climate change, with average total damages in the same period at \$154 billion. This study also notes that this damage component is missing from a number of previous economic impact assessments, including many covered in the Tol meta-analysis.

California-Specific Estimates are relatively sparse:

- California's 4th Climate Assessment⁷ in large part ducks the issue, talking about economic impacts in more general terms while noting the paucity of California-specific studies, the lack of analyses on specific impact issues, and inconsistencies in what studies are available. In a summary table listing costs from a selection of the available studies, annual identifiable costs from climate change are put at about \$113 billion a year. The report, however, notes that the estimates are incomplete and that inconsistencies among the methodologies and data sources make it difficult to even sum the individual results together in this manner.
- Paci, Newman and Gage⁸ estimate wildfire costs in the state for the period 2017-2021. Direct losses averaged \$11.4 billion and indirect losses \$106.0 billion, for a total of \$117.4 billion annually. This amount covers total losses and not just that portion attributable to climate change, a factor this study addresses only in qualitative terms.
- National Centers for Environmental Information⁹ tracks billion-dollar (inflation adjusted) disasters in the US. Between 1980 and 2024, California experienced 46 such events, ranging from a low of no qualifying disasters in 1986, 1994, and 2024, to a high of \$44.1 billion in 2012 and an annual average of \$9.7 billion. The Centers state that while climate change has been a factor, "increases in population and material wealth over the last several decades are an important factor for higher damage potential. These trends are further complicated by the fact that many population centers and infrastructure exist in vulnerable areas like coasts, river floodplains and the wildland urban interface, while building codes are often insufficient in reducing damage from extreme events." Estimates from the 2025 Los Angeles fires are still preliminary, but a recent analysis from UCLA Anderson Forecast¹⁰ puts property and capital losses at \$95 to \$164 billion, a \$4.6 billion decline (0.48%) in Los Angeles County GDP in 2025, and total wage losses of \$297 million.

Social Cost of Carbon is an aggregated cost metric used by CARB as well as other state and federal agencies when attempting to posit a net positive economic benefit from proposed regulations. This measure is also the basis for many of the periodic proposals to impose a carbon pricing fee on the cost of goods. As used in CARB's 2022 Scoping Plan,¹¹ the cost (\$2021) of CO₂ at a 3% discount rate ranged from \$68 per tonne in 2030 to \$94 in 2050. The cost of CH₄ ranged from \$2,188 to

⁷ State of California, 4th Climate Assessment, Summary Report, August 2018.

⁸ James Paci, Matthew Newman, Tim Gage, The Economic, Fiscal, and Environmental Costs of Wildfires in California, Gordon and Betty Moore Foundation, June 27, 2023.

⁹ NOAA National Centers for Environmental Information, Billion-Dollar Weather and Climate Disasters, accessed February 7, 2025.

¹⁰ William Yu, UCLA Anderson Forecast, Economic Impact of the Los Angeles Wildfires, 2025.

¹¹ California Air Resources Board, 2022 Scoping Plan, Appendix C, AB 197 Measure Analysis, November 2022.

\$3,419. Federal agencies previously have used a Social Cost of \$51 per tonne for CO₂, but a US Environmental Protection Agency (EPA) report¹² published towards the end of the Biden Administration proposed raising that value to \$190. That report also proposed that values for CH₄ and N₂O be much higher as well.

As detailed in the EPA report, Social Cost of Carbon attempts to estimate both economic and noneconomic damages that include “the value of all future climate change impacts (both negative and positive), including changes in net agricultural productivity, human health effects, property damage from increased flood risk, changes in the frequency and severity of natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services.” Rather than definitive “impact attribution science,” these numbers are an evolving target, with the 2023 proposed increases producing damage estimates that are about three times as high as those using the 2021 vintage.¹³

Cost Estimates Used in the Analysis consequently rely on Social Cost of Carbon as the basis for the impact estimates. As indicated in the short reviews above, this approach is consistent with current regulatory practices, covers the range of economic and noneconomic damages potentially recoverable under the bill, covers a method for estimated damages associated with total emissions rather than just an increase in emissions, and derives from a generally more reviewed method rather leaving the outcomes up to a pick-your-science approach.

Costs are estimated using the CARB GHG emissions inventory¹⁴ covering direct use of oil, natural gas, and the primary associated products. Annual emissions are estimated on a simple straight-line basis under the assumption that CARB’s Scoping Plan is successful in reducing included emissions to 260 MMTCO₂e by 2030. The estimates cover both included and excluded emissions. For ease of computation, excluded emissions (federal sources such as planes, trains, and ships) also are assumed to decline proportionally. The potential compensatory damages are estimated using the Social Cost factors from the 2023 EPA report. All costs are calculated in \$2023 based on the 2% discount rate, as well as presented in current dollars. The analysis only covers potential damage claims through 2030 given even more uncertainty in the outlying years.

¹² US EPA, Final Report on the Social Cost Greenhouse Gases, November 2023.

¹³ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990, February 2021.

¹⁴ California Air Resources Board, California 2000-2022 GHG Inventory Data (2024 Edition).

Estimated Compensatory Damage Claims

Source: See text; \$billion

	Constant (2023) Dollars	Current Year Dollars
2023	\$76.5	\$76.5
2024	\$72.2	\$73.9
2025	\$65.3	\$68.8
2026	\$56.6	\$61.2
2027	\$46.9	\$52.0
2028	\$37.0	\$42.1
2029	\$27.8	\$32.4
2030	\$19.8	\$23.7

It is important to note that the numbers in the table are not estimates of actual damages that have occurred due to climate change. They are instead estimates of the compensatory damages that could be pursued by future litigants under the broad provisions in SB 222 given the available studies and current practices in “impact attribution science.”

The numbers in the table cover primarily prospective compensatory damage claims, but the bill does not preclude litigants from pursuing claims due to past emissions as well. Using the same approach and applying the 2023 factors, the applicable CARB emissions inventory for 2000-2022 results in an estimated \$2.9 trillion in potential compensatory damage claims alone. Bonding these costs over 30 years at 4.4% (an unlikely assumption given changes to the likely issuers’ credit ratings) results in potential additional compensatory damage claims of up to \$178 billion a year. Given the enormous uncertainty surrounding each of the assumptions and the preliminary nature of this analysis, these additional compensatory claim amounts are not addressed in the impact analysis, which focuses instead on the numbers in the table above.

Cost Estimate Scope

By using the Social Cost approach, the estimates are agnostic as to where the damages actually occur. SB 222 only requires that someone in the state is affected by damages of at least \$10,000, and then automatically includes the rest of the population within the affected area as potential class action participants.

Derived from the CARB inventory, the numbers in the table above are limited to emissions ultimately occurring within the state, including emissions from activities located within the state, a portion of emissions originating outside the state primarily from electricity imports, and the current excluded (federal) sources. The potential liability estimates do not cover additional businesses in other states and nations selling products, either finished goods or components and supplies used as production inputs, into the state that could trigger liability under the very broad definition of responsible party. These additional potential damage claims are more speculative, but the state’s prior history of exploding litigation under previous measures such as CEQA, Proposition 65, PAGA, and American Disabilities Act gives an indication of the likelihood they will occur.

Damage Share

The analysis is based on the direct emissions attributable to oil and gas and related key product use in the most recent Air Resources Board (CARB) emission estimates. Note that this approach does not address the full range of oil and gas byproducts used as inputs or components for other goods produced and sold in the state (e.g., “embedded” emissions in products imported into the state). Based on CARB’s most recent inventory,¹⁵ direct use of oil, natural gas, and the primary associated products are associated with an average 82% of included and excluded emissions in the period 2000-2022.

Share of GHG Emissions from Direct Oil & Gas Product Use

Source: CARB; average included and excluded emissions 2000-2022

	Total Emissions	Oil & Gas Product Emissions
Oil & Gas, inc. Refineries	12%	
Passenger Vehicles	29%	33%
Electric Power	17%	19%
Air & Water Transportation	14%	16%
Heavy Duty Vehicles	9%	11%
Residential Fuel Use	7%	8%
Other Industrial	6%	7%
Commercial	3%	4%
Agriculture	1%	2%
Rail & Other Transportation	1%	1%
Military Fuel Use	1%	1%
Total	100%	100%

These emissions by sector are shown in the table above. The first column (Total Emissions) shows the relative importance of each sector as a potential litigation target, either directly as a primary purveyor of an affected product or indirectly after suppliers to each sector likely would pass on their higher costs due to any litigation. The second column uses the same emissions data, but instead is a general illustration of how higher costs imposed on oil and gas products would be allocated across the California economy. State and local governments are incorporated into several of the sectors, including vehicles, commercial (water and sewerage utilities), electric (publicly owned utilities), and air and water transportation (airports and seaports).

Associated Damage Awards

This component is more difficult to estimate due to the wide variability that could occur depending on whether lawsuits under the provisions of this bill if enacted move forward to negotiated settlements or are subject to a jury trial. Legal fees in class action lawsuits often are based on a percentage of any damage awards, but larger class actions have seen these costs determined by the courts separately. Punitive damages similarly vary widely and depend on a number of different factors, including the ability of the losing parties to pay. Some recent Ninth Circuit decisions in Roundup cases, however, have stated that punitive damages up to about 4 times compensatory damages are at the outer edge of what is Constitutionally permissible.

¹⁵ California Air Resources Board, California 2000-2022 GHG Inventory Data (2024 Edition).

As a somewhat related example, the 2016 multi-state/US case concerning Volkswagen’s emission testing and disclosures ended in a negotiated settlement of \$14.7 billion, of which \$10 billion went to compensate consumers and the other \$4.7 billion was instead spent on agency-directed priorities. Instead of additional punitive damages, further settlement negotiations resulted in Volkswagen paying another \$4.3 billion in federal civil/criminal penalties, and a total of \$239.6 million in civil and criminal penalties to California (as well as additional amounts to other states). This settlement only covered Volkswagen, while other lawsuits addressed the company’s contractors. Of these amounts, the \$10 billion is the only compensation provided directly to consumers. Combining the other amounts and treating them as equivalent to punitive damages, the total punitive share was 93% or nearly a 1:1 ratio.

The courts in this case subsequently awarded \$175 million to the plaintiff lawyers, or just under 2% if measured by the \$10 billion amount.

Estimated Total Damage Claims

Source: See text; \$billion

	Constant (2023) Dollars		Current Year Dollars	
	1:1 Punitive	4x Punitive	1:1 Punitive	4x Punitive
2023	\$154.5	\$384.1	\$154.5	\$384.1
2024	\$145.8	\$362.4	\$149.2	\$370.9
2025	\$131.9	\$327.9	\$139.0	\$345.5
2026	\$114.3	\$284.1	\$123.7	\$307.4
2027	\$94.7	\$235.3	\$105.1	\$261.2
2028	\$74.8	\$185.8	\$85.1	\$211.5
2029	\$56.2	\$139.6	\$65.5	\$162.9
2030	\$40.0	\$99.5	\$47.9	\$119.0

These ratios are used in the analysis to estimate the additional damages proposed under the bill: punitive damages at 1:1 and legal costs at 2% of compensatory damages. The resulting total potential damage awards using the 2023 Social Cost factors are shown in the table above. While the impact analysis below uses the 1:1 punitive damages estimate, the table also shows a possible upper range under the 4 times compensatory damages standard in order to illustrate a potential upper bound to awards at least at the initial, trial court level.

To put these numbers into perspective, the total market capitalization at the end of 2024 for the 5 largest companies operating refineries in the state was \$854.7 billion. The average annual potential damage claims in 2026-30 (1:1 punitive, constant dollars) are 2.0% of total state GDP in 2023. In current dollars, the average annual claims represent \$6,200 per household, or to put it in related terms, up to a \$6,200 per household rise in the cost of living but potentially much higher depending on the level of punitive damages that would be allowed.

Note that the numbers in the table are an effort to estimate the damages that could result under SB 222. The resulting lawsuits in total could file claims for greater or lesser amounts. These estimates

also are not necessarily what the courts would award. They, however, provide at least a reasonable basis for the subsequent analyses in this report.

Also note that these estimates also assume the state is successful in reducing emissions in line with its 2030 goals. It is not on track to do so. While the programs to date have produced some reductions, the major drops came as the result of economic downturns beginning in 2008 and again during 2020-21. The programs instead have generated significant increases in the costs of living and costs of doing business without yet achieving their intended emission results, as evidenced most recently by a stall-out in electric vehicle sales and the distinct possibility the state will miss its targets in 2026 and 2030. This underperformance is not unique to California. An extensive 2024 review¹⁶ of 1,500 climate policies implemented in 41 countries during 1998 to 2022 concluded that only 63 were successful in producing significant reduction results. While still using the generalized results from this assumption, the next section also looks at individual components based not on these theoretical trends but on current real world trends.

¹⁶ Annika Stechmessen, et al., Climate Policies that Achieved Major Emission Reductions: Global Evidence from Two Decades, *Science*, August 23, 2024.

Impact Assessment

A complete impact assessment is difficult to complete due to the high potential effect on prices coming from this proposal. Most impact methodologies such as input/output models are based on several assumptions including fixed production functions, no substitution, no supply constraints, and no changes in prices. Carbon pricing—such as what this bill fundamentally proposes to impose—is specifically designed to alter each of these components. By substantially increasing the cost of traditional fossil fuels, carbon pricing is intended to push a shift to other energy technologies that otherwise would not be cost-competitive in a market environment. For instance, the rapidly rising costs of electricity substantially undercut the state’s policies intended to force Californians into more costly electric vehicles. Absent true reform to electricity costs, this effect can only be countered by raising the cost of gasoline and diesel as well, such as through CARB’s recent adoption of higher Low Carbon Fuel Standard (LCFS) fee requirements, proposed increases to Cap and Trade costs, and the provisions of this bill.

The potential cost impacts, consequently, are assessed by looking at various individual components, with each one considered at a scoping level rather than a detailed modeling.

Household Income & Consumers

As indicated earlier, the various restrictions sprinkled throughout the bill make it less of a litigation opportunity and more of carbon fee, only the size of which would be determined by the courts. The analysis assumes these costs would then be passed on to customers as would any other such fee as is currently done with the Cap and Trade fee and the LCFS costs currently passed on in the price paid for gasoline and diesel and other energy sources in the state. These higher costs are paid directly as consumers or indirectly as energy sales to other businesses and governments are incorporated into higher prices/reduced labor payments for their goods and services as well.

Only a portion of the incidence of any such tax/fee is ultimately passed on in this manner to households as consumers in California. Some part is absorbed by capital, although the potential scale of these new costs makes this shift far less likely. Another part is generally exportable to other states and countries through travel/tourism and exports of goods, although again the potentially large price effects are more likely to reduce this component and the associated business activity due to a serious loss in competitiveness for these markets. For this analysis, the total amount consequently is adjusted by the tax incidence factor¹⁷ normally applied in similar Center studies, in order to estimate the portion remaining in the state and having an effect on disposable household incomes.

As an upper estimate using the previous numbers and using the most recent 2023 data, average household spending could be reduced by up to \$7,400 due to higher prices based on the 2026 damage estimate (current dollars), and by an annual average of \$5,100 in the period 2026-2030.

¹⁷ Robert Cline, Andrew Phillips, Joo Mi Kim, Tom Neubig, The Economic Incidence of Additional State Business Taxes, Federation of Tax Administrators, January 2010.

Keeping in mind the caveats on input/output modeling discussed above, these kinds of cuts in household spending would have the following full direct, indirect, and induced effects of the state economy. These effects were analyzed by distributing the potential total impacts by household income levels using the 2023 American Community Survey microdata accessed through IPUMS¹⁸ along with the IMPLAN spending patterns by household income, and applying the IMPLAN¹⁹ application for California using 2023 input/output data.

Annual Losses from Damage Awards, 2026-2030

Sources: see text

Employment	-299,000
Wages, Salaries & Benefits (\$ billion)	-\$22.3
State GDP (\$ billion)	-\$42.6
State Taxes (\$ billion)	-\$2.6
Local Taxes (\$ billion)	-\$2.2

Using the period 2026-30, this level of reduced household income would reduce state employment by up to an average of 299,000 annually, worker compensation by \$22.3 billion, state GDP by \$42.6 billion, and state and local taxes by \$4.8 billion. All numbers are in \$2025.

These effects, however, could be reduced by a number of factors, including the extent counterbalancing economic activity would be generated by any of the damage awards being spent in the state:

- Households, businesses, and government agencies presumably would share in any of the compensatory damage awards. The extent to which these payments would cover the expected income reductions would of course depend on the ability to distribute payments to every household and business in the state and accurately match their estimated costs.
- Income redistributions of this type have high transaction costs. Administrative costs can reduce funds available for compensation in the 5-10% range. As reflected in the Volkswagen settlement, large portions of class action suits especially punitive damages in environmental cases do not go directly to victim compensation. A substantial portion instead goes to agency-directed expenditures and to NGOs for activities that may or may not occur in the state and provide off-setting economic activity.

In another example, a portion of the state's households receive compensation for the higher Cap and Trade related costs embedded in electricity and other energy prices in the state. These payments through utility bills, however, cover only a small if any portion of what each household pays. Administrative costs take a bite when the Cap and Trade fee is imposed and collected, and another bite when the limited refunds are distributed. The bulk is retained for state government spending on programs with few to no direct effects reducing the costs of living in California, including continued payments that barely keep pace with the cost overruns announced annually for High Speed Rail.

¹⁸ IPUMS USA, University of Minnesota, www.ipums.org.

¹⁹ For more information on the IMPLAN modeling process, go to IMPLAN.com.

- Timing is a factor. Higher prices are likely to occur more rapidly, while compensation payments will be delayed by eligibility determinations, processing, and intervals between damage payments, claim submissions, and compensation disbursements. Households and businesses will still need to buy energy goods even as prices rise. Compensation payments are likely to come after the fact.
- Fraud is another aspect that would reduce effective household compensation. The Employment Development Department admitted²⁰ to an 11% fraud rate in the expanded unemployment insurance payments during the pandemic. EDD's estimate is based on \$20 billion in fraudulent payments. Later estimates put the total much higher at \$30 billion, or a fraud rate of over 16%. With fraud inducements at a similar scale, any compensation scheme is likely to encounter this type of diversion as well.
- Substitution is likely to occur particularly in face of price increases at this level. Households, however, will still face up to equivalent higher costs as they switch from fossil-fuel vehicles, appliances, and other equipment to higher priced electric versions or to no versions and become susceptible to health and other costs related to the consequent conditions such as lack of air conditioning in the interior regions. Electricity prices associated with running these substitutions, however, will also be subject to this cost-induced effect as natural gas prices rise to absorb any damage awards. In the substitution process, households and employers may instead trade one source of cost inflation for another.
- At least a portion of legal fee awards will remain within the state economy to the extent they are earned by California firms. The risk-reward balance under SB 222, however, is more than likely to spark interest in firms located in other states.
- Price increases at this scale will also affect business competitiveness. Businesses ceasing or pulling back on operations in the state as a result are likely to produce other negative household income effects that conversely would offset some or all of any potential spending effects coming from the damage award proceeds.

Fuel Prices

While the joint, several, and strict liability standard means the totality of the estimated costs could hit anywhere, cost impact estimates for fuel price effects and the following topics are based on the distribution of emissions by fuel in the CARB inventory. Emissions are calculated for each fuel/end user, and the resulting damages are estimated as previously. Additional steps to estimate the price impacts are as follows. Note that because these estimates address the individual components separately and take account of current state trends rather than CARB's theoretical reductions, they differ somewhat from the implicit changes embedded in the aggregate amounts estimated previously.

²⁰ Employment Development Department, Employment Development Department Issues Unemployment Insurance Program Updates, news release, October 7, 2022.

- Fuel sale quantities are from Department of Tax and Fee Administration (CDTFA) using November 2023 through October 2024 as the 2024 total due to the lag in this data. Gasoline and diesel show few changes in these two months over the past two years, while jet fuel shows growing use which indicates the 2024 total from this approach is likely slightly low for this fuel. Aviation gasoline is not included due to its much smaller sales volume.
- Total potential damages related to each fuel are estimated as before using the emissions by GHG gas from the CARB inventory, with the 2022 emissions adjusted to 2024 and 2026 based on fuel sales from the CDTFA sales data and projections from US Energy Information Administration (EIA).²¹ Because electric vehicle sales have stalled in the state and CARB has withdrawn a number of federal waiver requests recently, gasoline and diesel consumption is assumed to keep slowing along the current trend in the CDTFA data. Jet fuel is assumed to follow a lower rise by using the EIA national projection rather than the higher current in-state trend.
- Base values for total per gallon price and the various other components are taken from Energy Commission sources including the SB 1322 data tables as well as CDTFA tax rate information. All 2024 amounts are based on unweighted averages of this data. Sales Tax does not include other district tax rates. Projections to 2026 for base prices are from the change rates in the EIA report. EIA expects the base gasoline price on the West Coast to show only minor changes in 2026 as the result of declining crude prices, while prices for both diesel and jet fuel are expected to fall due to this factor as well. Crude price savings, however, will be counterbalanced in California as usual by rising taxes and fees.
- And other state taxes and fees will be rising in this period. State fuel taxes are adjusted in the calculations based on the CPI forecasts from Department of Finance. Incorporating the recent regulation changes increasing the LCFS costs, LCFS cost projections for gasoline are from Cullenward,²² an update that projected LCFS costs based on CARB's changes completed after but still using the methodology applied in CARB's Standardized Regulatory Impact Assessment (SRIA) for the original proposed regulation. Cullenward's projections show gasoline LCFS costs rising further in this period, growing to up to \$1.50 a gallon by 2035, and up to over \$2.00 a gallon by 2040. Due to the absence of a comparable revised estimate reflecting CARB's final changes, LCFS costs for diesel and for jet fuel are based on the originally proposed regulations as analyzed in CARB's SRIA.²³ Cap and Trade costs are not adjusted as this additional increase to gasoline and other fuel prices has not yet been finalized by CARB and likely will be the subject of legislation this year as proposed in the governor's January Proposed Budget. Additional costs under ABX2-1 from last year also are not included because the details have not yet been set, but previous estimates put the eventual cost at about another 10 cents a gallon.

As shown in the table, the per gallon price of gasoline would rise by 63% in 2026 to \$7.38 a gallon.

²¹ US Energy Information Administration, Short-Term Energy Outlook, January 14, 2025.

²² Danny Cullenward, California's Low Carbon Fuel Standard, Kleinman Center for Energy Policy, October 2024.

²³ California Air Resources Board, Low Carbon Fuel Standard 2023 Amendments, Standardized Regulatory Impact Assessment (SRIA), September 8, 2023.

Estimated Effect on Gasoline Price*Source: see text*

	2024	2026
Production & Distribution	\$3.11	\$3.11
Taxes & Fees		
Federal Excise Tax	0.18	0.18
State Excise Tax	0.59	0.62
Sales Taxes	0.10	0.14
Underground Storage Tank Fee	0.02	0.02
Environmental Fees		
State Fuel Regulations	0.13	0.13
Cap & Trade	0.30	0.30
LCFS	0.09	0.69
SB 222		2.17
Total Average Price	\$4.52	\$7.38

Because the Energy Commission does not provide the same detailed cost breakdown for diesel, the price impact is estimated through incremental changes as shown. EIA expects diesel prices nationally to fall somewhat between 2024 and 2026 again due to falling crude prices. This rate is applied to core diesel price net of fixed state assessments. The 2024 average California price is from GasBuddy.com. The LCFS and SB 222 components are calculated as above.

The resulting 2026 price estimate shows a similar 69% rise to \$8.23 a gallon. This increase to what is still the primary fuel used in food production and in the movement of goods throughout the state would have a direct and substantial effect on costs of living within the state.

Estimated Effect on Diesel Price*Source: see text*

	2026
2024 Average Price	\$4.88
Base Change @ EIA rate	-0.38
State Excise Tax Change	0.02
Sales Tax Change	0.28
LCFS Change	0.74
SB 222 Change	2.52
Estimated 2026 Price	\$8.23

A similar exercise can also be performed for jet fuel, but the results suggest that air travel would no longer be feasible in the state, as the SB 222 element alone would increase costs by \$45 a gallon (along with an estimated LCFS fee of \$0.66 a gallon). Such an increase is prohibitively high when

compared to an estimated LAX FOB average cost of \$2.45 a gallon in 2024²⁴ and an overall 2024 US average cost of \$2.55 a gallon for all airline fuels (all services).²⁵

Airlines could avoid this penalty—meaning the associated damage awards would instead be transferred to other petroleum product end users—by a greatly accelerated shift to sustainable fuels, although jet fuel sellers would still retain liability under SB 222 for past sales and likely would seek to recover some of this cost from their airline customers in order to remain in business. However, sustainable fuels by themselves currently cost more than twice conventional jet fuels.²⁶ Based on the first three quarters of 2024,²⁷ aircraft fuels make up 22.4% of total passenger airline operating costs. Even if airlines were able to access sufficient supplies of sustainable jet fuel, they still would have to increase ticket prices by an estimated 30% in order to maintain profit margins that have finally recovered from the pandemic downturn.

This level of increase, however, and certainly the much higher increase under SB 222 would still lead to a drop in overall airline travel to and within the state, affecting the tourism industry as well as business and personal travel. This change would also affect air cargo, with significant effects on the industries that depend on this goods movement mode including agriculture and large portions of manufacturing. For example, in 2024, USTrade Online indicates that measured by value, LAX alone handled more cargo than the Port of Long Beach, at \$148.7 billion (imports and exports) vs. \$115.3 billion.

Natural Gas Prices

Price effects are based on the EIA consumption data for the three end user groups shown in the table both to estimate emission changes between 2022 and 2024 and to distribute the associated natural gas related emissions coming from the CARB inventory. Due to a lag in the data availability, years are defined as the 12 months ending November, as previously. Missing months are extrapolated based on prior year relationships. Projections to 2026 are based on the EIA national results expecting no net change in total natural gas consumption in this period, but shifts within the individual end user groups. Price changes are based on the change in end user rates in California between 2022-2024, generally consistent with the EIA projections, except for utility fuel costs which follow the EIA projections.

²⁴ Estimated from various Airlines for America reports.

²⁵ US Bureau of Transportation Statistics, Airline Fuel Cost and Consumption (US Carriers – All), January 2000-December 2024

²⁶ Airlines for America, Daily Jet Fuel Price Comparison: Sustainable vs. Conventional Jet Fuel (Five-Day Rolling Avg.), accessed February 10, 2025.

²⁷ Airlines for America, The State of US Commercial Aviation, updated February 10, 2025.

Estimated Effect on Natural Gas Prices

Source: see text; \$ per TCF, 12 months ending November

	Residential	Commercial	Industrial
2024 Average Price	\$19.24	\$14.16	\$11.48
Price Change to 2026	-0.29	-1.36	-1.63
SB 222 Change	14.87	14.87	14.87
Estimated 2026 Price	\$33.82	\$27.67	\$24.72

Offsetting expected savings in the cost of natural gas itself, SB 222 would push prices up by between 76% for residential end users to 115% for industrial. In the most recent data for the 12 months ending November 2024, EIA data shows average residential prices were already 29% higher than the rest of the US, commercial prices 45% higher, and industrial prices 237% higher. These cost of living and cost of doing business gaps would grow even more.

Electricity Prices

Assuming these costs are passed as the equivalent of a fee (i.e., no mark-up) and that subsequently merchant power plants and utilities also pass on the costs directly, increases in electricity are calculated from the potential damages associated with natural gas use for electricity. Prices and consumption (emissions) are assumed to continue changing in accordance with rates in 2024 (12 months ending November due to the data lag), except for Transportation which instead uses the two-year change since 2022 due to the significantly higher price jumps in 2024. All other calculations are done as in the prior energy sources, with the associated damages distributed across end users based on sales.

Estimated Effect on Electricity Prices

Source: see text; cents per kWh, 12 months ending November

	Residential	Commercial	Industrial	Transportation
2024 Average Price	31.7	25.3	21.6	16.5
Price Change to 2026	5.5	3.2	7.7	3.4
SB 222 Change	4.2	4.2	4.2	4.2
Estimated 2026 Price	41.4	32.7	33.4	24.1

Assuming electricity prices otherwise would continue along the path they rode in 2024, electricity prices would keep rising higher through 2026, ranging from 29% for commercial to 55% for industrial end users. The SB 222 fee would be responsible for a third to over a half of these increases. Residential would rise 31%, of which 43% would come from the SB 222 fee.

California already has the highest electricity rates among the contiguous states and DC. In the most recent data for the 12 months ending November 2024, EIA data shows average residential prices were already 105% higher than the rest of the US, commercial prices 113% higher, and industrial prices 182% higher. As would be the case with natural gas, these cost of living and cost of doing business chasms would grow even more.

While SB 222 bans public agencies from being named as responsible parties, many are significant energy and energy product consumers and will be vulnerable to cost impacts arising from the substantial remaining litigation pool as they buy energy products and byproducts that have been subject to damages imposed pursuant to SB 222. Electricity is a case in point. Public transit agencies are a source of growing demand for electricity, particularly as state rules require a shift to electric transit vehicles. While a select few such as San Francisco would be able to avoid these costs through their primary reliance on a single source (Hetch Hetchy hydropower), the vast number of those remaining would not due to their dependence on the grid and its continuing fossil fuel base. These added costs would be on top of the diesel-related cost spikes discussed above along with acquisition of lubricants and other petroleum-based products and byproducts. These added costs further would come at a time most systems are posting significant deficits, with ridership still substantially below pre-pandemic levels.

Housing Costs

While discussions of the state's housing crisis often revolve around rents and housing prices, monthly housing costs encompass a number of other elements. In addition to rent or mortgage, monthly housing costs also cover property taxes, insurance, and utilities as well as potentially other smaller items such as HOA dues.

Analysis of the housing cost effects begins with the most recent data from the 2023 American Community Survey, with median monthly costs from US Census Bureau and the utility components calculated using the 2023 microdata accessed through IPUMS.org. The estimated change to utility costs is calculated by using the estimated SB 222 effects on natural gas and electricity in 2026 from above and deflating the estimates to \$2023. The percentage change to natural gas and electricity components were calculated based on the resulting effect of SB 222 on the average California residential prices for both utilities in 2023. The results for all components were then inflated to \$2025 for the table below.

Estimated Effect on Median Monthly Housing Costs

Sources: see text; \$2025

	Owners		Renters	
	US	CA	US	CA
Median Monthly Cost	\$1,375	\$2,226	\$1,464	\$2,075
SB 222 Change to Utilities		97		141
Monthly Cost with SB 222		\$2,322		\$2,216
% Change		4.3%		6.8%

As indicated, SB 222 effects would increase owner utility costs by the equivalent of \$97 a month (\$1,161 a year) and renter costs by \$141 a month (\$1,692 a year). The resulting increases are 4.3% monthly for owners and 6.8% for renters, and these additional consumer costs would come on top of already much higher housing cost levels. As indicated in the table, median monthly owner costs were 62% higher in California than in the US. Median renter costs were 42% higher.

Other Impacts

Additional effects discussed in more qualitative terms include the following:

Competitiveness & Jobs. Price effects at this scale will affect the competitiveness of many California industries and their consequent ability to produce jobs, wages, and related tax payments in the state. While some substitution is possible to reduce the scale of the potential cost impacts coming from purchase of energy and the related byproducts, the available substitutes are themselves higher cost and generally rely on increasingly more expensive electricity:

- High Tech may be less affected. Most of this industry’s energy intensive operations already are located in other states and nations, and new ones in particular energy-intensive data centers are going to other states with more reliable and less costly electricity. Based on the Center’s industry definition, High Tech, however, while being the primary mover of the state’s fiscal health only provided an estimated 9.9% of California wage and salary jobs in 2024, down a total of 81,000 jobs from the prior year. Additional effects on this industry, however, could still occur. As the manufacturing component is induced to move out of state by rising costs, so will much of the related R&D operations dependent on “hands-on” access to production lines. The potential scale of consumer impacts especially on already-high housing costs is also likely to see an increase in internal lobbying by various operating units to shift them to less expensive emerging tech centers elsewhere in the US.
- California remains the number one manufacturing state, but its relative share has dropped as these operations already have become less competitive, going from 10.4% of the nation’s manufacturing jobs in 2018 to 9.8% in 2024.
- Using US Department of Agriculture, Economic Research Service data, agricultural production expenses potentially affected by price increases due to SB 222 damage awards made up 16% of the total in California in 2024. California also remains the leading agriculture state, but its total share of US production also has dropped, going from producing 12.9% of the nation’s food and fiber by value in 2018, to 11.3% in 2024 due to rising costs of operating in the state.
- The potential price spikes on air travel and other transportation modes will affect the ability of tourism to compete with other destinations, and the price effects from SB 222 likely would engage prior to an otherwise expected bump from the 2028 Summer Olympics in Los Angeles. In real dollars, tourism spending as measured by Visit California has only grown by an average annual rate of 1.1% since 2019.
- California’s Trade Cluster has become a critical source of blue-collar, middle-class wage jobs nearly equal in number and wage levels to manufacturing in 2024. These jobs already have been under competitive pressure as other states especially along the Gulf and Atlantic Coasts have invested heavily in port expansions, intermodal operations, and new distributions centers. California’s share of these jobs went from 11.5% in 2018 to 10.9% in 2024.

Consumer Choice. In addition to retroactive liability under SB 222, businesses will also be concerned about potential liability moving forward. Gasoline and diesel are not the only products produced by refineries and the oil industry. A very broad array of products and byproducts serve as inputs to production and sale of goods throughout the economy. Sellers are likely to reduce sales within the state, both finished goods and components and supplies for production within the state, due to these concerns over the expansive liability standards under the bill. In the process, California consumers are likely to see less choice. The state economy would also be at risk of seeing a replay of the supply restrictions and consequent additional price pressures it just recently experienced during the pandemic.

Capital Investment. The resulting higher costs along with an increase in the risk premium due to uncertain litigation exposure will reduce the returns required for capital investments in the state. The associated level of investments consequently likely would drop.

Company Valuations. The entrepreneur culture within California is driven by the prospect of entrepreneurs being able to cash out on their efforts through an initial public offering or acquisition sale, a factor that is also a large determinant as to whether the state budget is in surplus or falls into deficit conditions. The liability risk premium will reduce the potential valuation for many such businesses. The flow of such cash outs and their resulting contributions to state finances are likely to slow if not move to other states.