DATE:	July 24, 2026
TO:	Tom Armstrong, Portland Bureau of Planning and Sustainability
FROM:	ECOnorthwest
SUBJECT:	Memo 2: Fuel Price Volatility and Economic Exposure in Oregon

Executive Summary

Fuel is central to the Oregon economy. It powers the freight networks that move goods across the state, supports the agricultural and industrial operations that anchor rural communities, and enables the daily commutes and business activity that sustain the broader labor market. When fuel costs rise, the effects do not stay contained to the pump. They travel through the economy in cascading waves, raising costs for businesses, compressing household budgets, and slowing the circulation of spending that drives employment and output across nearly every sector. Fuel and fuel prices in the economy are influenced by numerous inputs and are complex. This memo covers potential economic impacts to Oregon's economy from fuel cost increases (from any source). It is intended to be a complementary analysis to the questions Memo #1 focuses on related to the proposed policy changes at the CEI Hub specifically. Previous efforts/reports covered impacts of seismic event disruptions on economy (and were not reviewed as part of this engagement).

Oregon's exposure to fuel price volatility is impacted by the structure of its supply system. The Critical Energy Infrastructure Hub (CEI Hub) in northwest Portland serves as the primary entry point for more than ninety percent of the state's fuel supply. Any disruption to the CEI Hub operations, whether from policy changes, infrastructure constraints, or external market shocks, has the potential to affect fuel availability and pricing for consumers and businesses statewide. This concentration of supply infrastructure at a single point makes Oregon more sensitive than many states to the kinds of price volatility that global energy markets have repeatedly demonstrated.

The economic literature is clear that fuel price increases impose real and layered costs on economies. The most direct effects fall on household budgets, where higher fuel prices function as a tax on disposable income, reducing the purchasing power available for other goods and services. These effects are regressive, falling hardest on lower-income households for whom fuel represents a larger share of take-home pay. Secondary effects ripple outward through freight costs, agricultural inputs, and business operating expenses, eventually feeding back into consumer prices and dampening broader economic activity. The severity of these effects depends critically on both the size of the price increase and how long it persists. A temporary shock can be absorbed and reversed. A sustained increase embeds higher costs across the economy in ways that compound over time and are progressively harder to reverse. It is worth noting, however, *that sustained fuel price increases also tend to accelerate*

the structural transitions that reduce long-run exposure to fossil fuel volatility, including greater adoption of electric vehicles, increased use of public transportation, and operational changes in freight-intensive industries. Oregon has already established a policy framework oriented toward this transition through the Climate Protection Program and Advanced Clean Cars II regulation, and the pace of electrification and efficiency gains will meaningfully shape how vulnerable the state's economy remains to fuel price shocks over the analysis period.

To estimate what higher fuel costs could mean for Oregon, ECOnorthwest used REMI PI+, a dynamic regional economic modeling platform, to simulate the economic effects of hypothetical fuel cost increases ranging from modest to severe. Scenarios were modeled as both one-year price shocks, representing temporary disruptions, and sustained increases that persist through 2050. Results were produced separately for the Portland Metro area and the rest of Oregon to capture differences in economic structure, industry composition, and fuel dependence across the state.

The analysis produces several high-level findings.

- Across all scenarios, even modest fuel cost increases carry measurable consequences for employment, output, GDP, and household income.[1]
- Those consequences scale with both the magnitude and the duration of the price change, with sustained increases producing substantially larger and more persistent economic losses than temporary shocks of equivalent size. A comparison of a one-time (e.g., one year) 40 percent shock against a modest 2 percent sustained increase illustrates this dynamic clearly: the severe but temporary shock stabilizes in its cumulative damage as the economy recovers over the following decade, while the small, sustained increase accumulates continuously and over time approaches the economic cost of the far larger one-time event.
- The distribution of impacts is also uneven. Consumers bear a larger initial share of the burden than businesses, and the rest of Oregon faces higher per-capita exposure than the Portland Metro area given its more fuel-intensive economic base and lower average incomes.
- Contextualizing the cumulative results against the scale of Oregon's economy confirms that the range of price scenarios is highly sensitive to small changes extended over the time horizon of the analysis.

A lower bound scenario was created that reflects a sustained 1 percent price shock, and an upper bound reflects a sustained 10 percent increase in the fuel price level. All else equal, Oregon's cumulative GDP could decrease by between $1.15 billion and $10.99 billion over the fifteen-year analysis period. The 10 percent sustained increase when taken as an average annual impact is equivalent to a 0.21 percent decrease of Oregon’s 2025 GDP. When

[1] Economic output measures the total sales or revenue across all the stages of production while GDP measures on the final value of finished goods and services.

evaluating the impact of price increases on jobs, the lower bound scenario of a 1 percent increase annually over the 15-year time horizon would result in an average annual employment decrease of 475 jobs, the upper bound of a 10 percent sustained increased would result in an average annual employment decrease of 4,550 jobs.

Taken together, these findings contextualize the impact of a sustained change in fuel prices on the statewide economy. How quickly Oregon's clean energy transition proceeds will determine the degree to which that vulnerability diminishes over time, but in the near and medium term the economy remains exposed to the dynamics described in this analysis.

Fuel Price Shocks and Economic Implications

Fuel price shocks are not abstract economic events, they are lived experiences that reshape household budgets, business decisions, and regional economies in real time. Oregon's fuel supply is concentrated through a single point of infrastructure, and that concentration reduces supply options and makes Oregon vulnerable to the kinds of fuel price volatility that global energy markets have repeatedly demonstrated. Regardless of their cause, increases in fuel prices impose real costs on consumers and businesses, and understanding the magnitude of those costs is important for informed policy deliberation. This section examines the historical record of major fuel price shocks in the United States and Oregon and draws on the economic as well as other literature to explain how price increases transmit through the broader economy. That context informs the REMI analysis presented in the subsequent section.

Historic and Current Price Shocks

The United States and Oregon are no strangers to fuel price shocks. Because gasoline is the most widely consumed fuel and has the longest continuous price record, it serves as the primary proxy for fuel price conditions throughout this analysis. Gasoline price movements track closely with broader fuel market dynamics, making it a reasonable stand-in for the kinds of cost pressures that affect consumers and businesses across fuel types.

The most consequential price shock in recent memory, prior to the current US-Iran War, was the 1973-74 Middle East Oil Embargo. In October 1973, oil-producing countries in the Middle East cut off exports to the United States, sending gasoline prices up more than 35 percent (NBC26 Northeast Wisconsin 2022). The crisis was severe enough that President Nixon took emergency action, asking Americans to limit home heating, reduce unnecessary lighting, and lower driving speeds. Gas stations began rationing fuel, lines stretched around the block, and widespread complaints of price gouging followed (Linder 2026).

Oregon felt the effects acutely. Fuel stations closed, businesses darkened their neon signs, Portland high schools moved football games to daylight hours, and residents installed locking gas caps to deter theft (Strike 2025). Governor Tom McCall implemented odd-even license

plate rationing, restricting fill-ups to alternating days based on plate number. Freeway traffic in Portland dropped by more than 20 percent. The embargo also arrived at a particularly bad moment for the Pacific Northwest: an ongoing drought had already reduced hydropower production, leaving the region with compounding energy shortfalls (Gourley 2013).

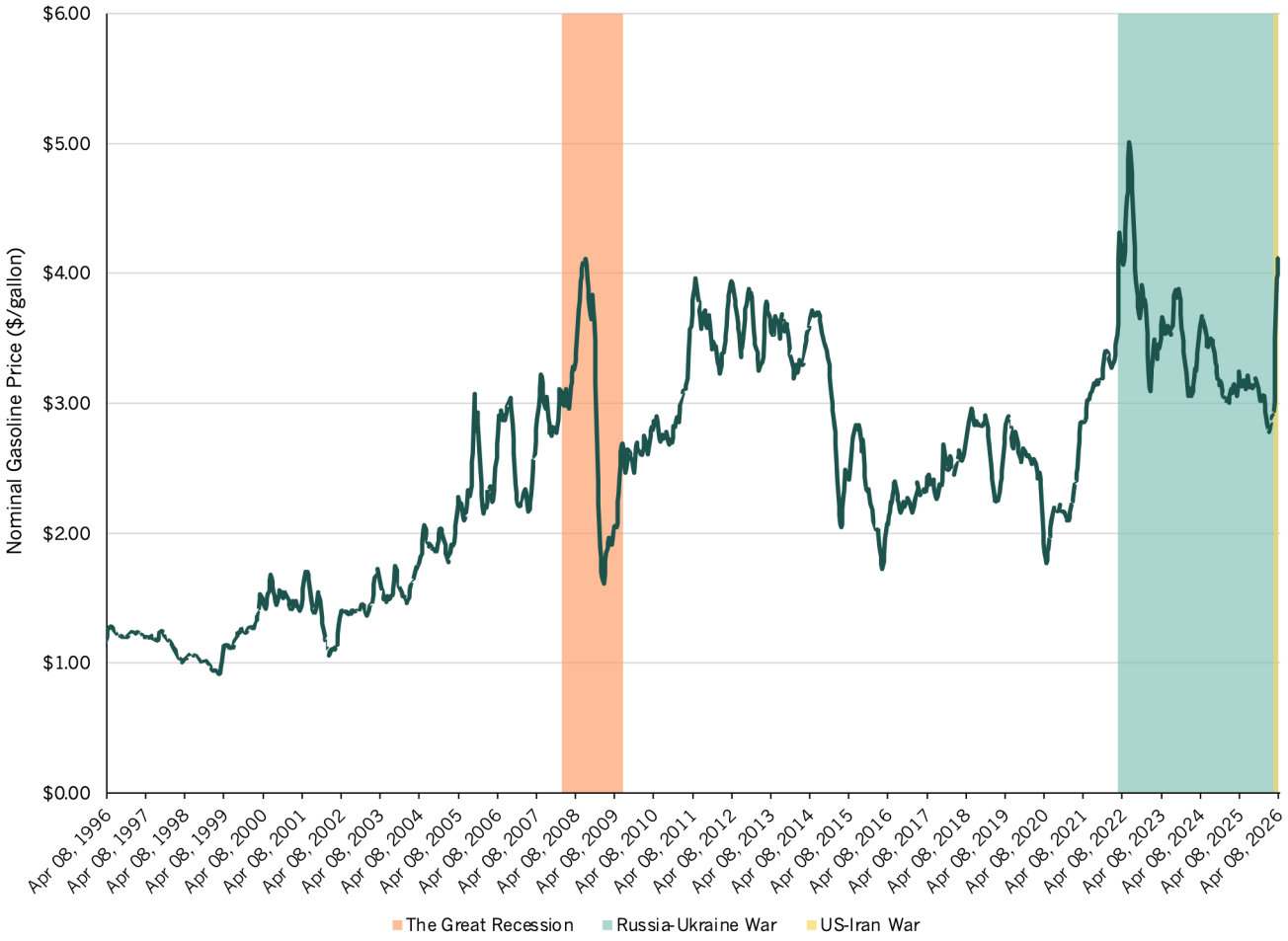
In the decades since, three additional episodes of rapid price increases stand out: the run-up during the Great Recession, Russia's invasion of Ukraine, and the current US-Iran War. National weekly nominal retail gasoline prices over the past 30 years are shown in Exhibit 1, illustrating the pace and magnitude of each episode.

In the first eight months of the Great Recession (December 2007 to July 2008), retail gasoline prices rose 34 percent, climbing from roughly $3.06 per gallon to $4.11 per gallon. As the recession deepened and economic activity contracted, demand fell and prices dropped sharply in response. The next major spike came in February 2022, when Russia launched its full-scale invasion of Ukraine, disrupting international oil markets. Within four months, gasoline prices rose 39 percent from $3.61 per gallon to $5.00 per gallon. Prices eventually retreated, averaging $3.37 per gallon over the four years following the initial shock; still meaningfully higher than the $2.66 per gallon average in the four years before the war began. The Russia-Ukraine episode illustrates an important dynamic: an external shock can reset the price level upward even after the initial spike subsides, embedding persistent inflationary pressure into the economy.

The most recent shock began on February 28, 2026, with the outbreak of the US-Iran War. In the weeks before the war, gasoline averaged $2.85 per gallon nationally. By the week of April 6, 2026, that figure had reached $4.12 per gallon—a 40 percent increase in roughly five weeks (Exhibit 2). That pace of increase surpasses even the 1973 Oil Embargo, making it the largest gasoline price shock on record in the United States. Given both its magnitude and its recency, the US-Iran War serves as the basis for the worst-case fuel cost scenario in the REMI analysis presented in this report.

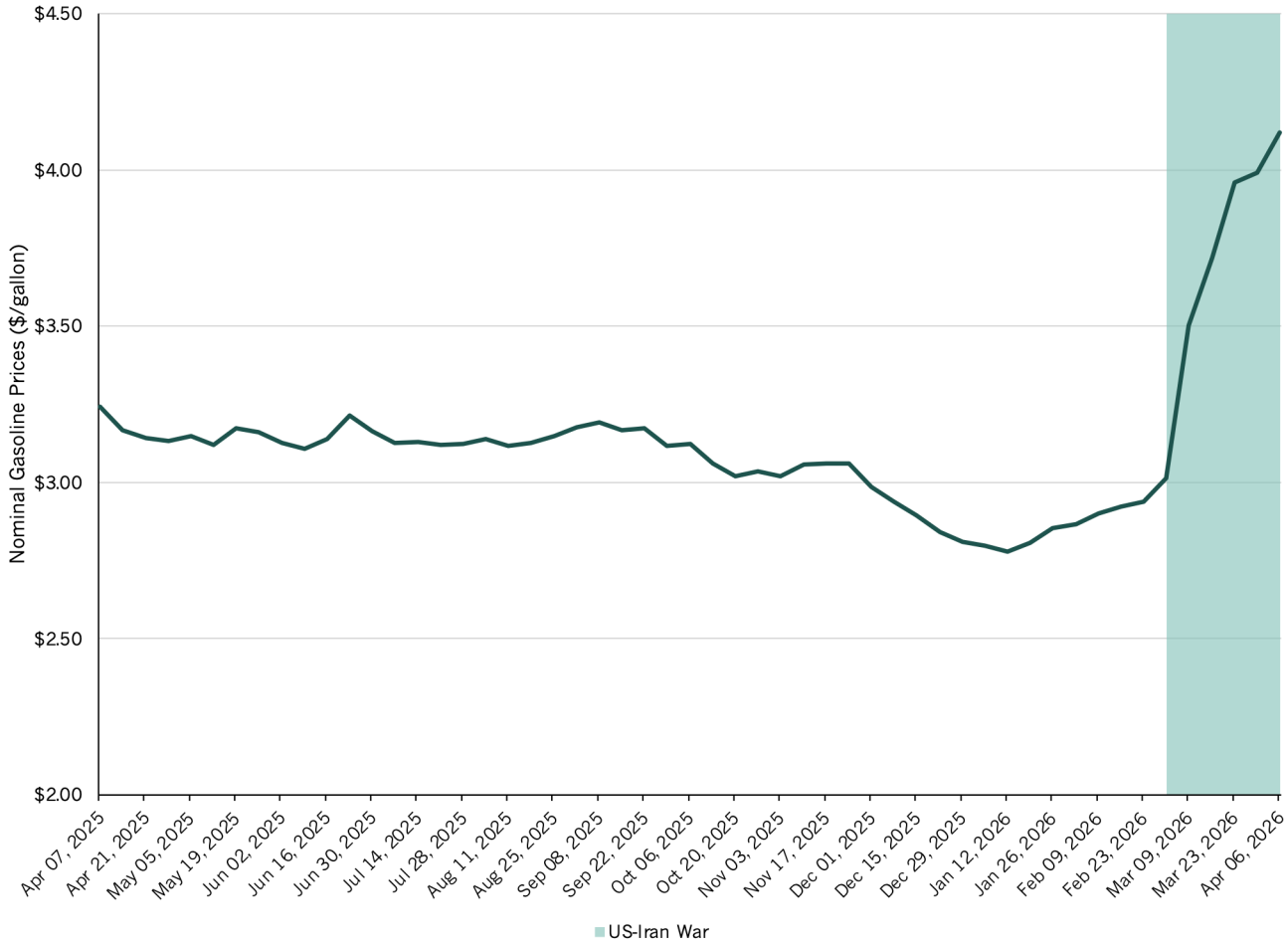
These historical episodes share a common thread: rapid increases in fuel prices do not stay contained to the pump. They transmit through the broader economy, affecting business costs, consumer spending, and regional employment in ways that vary by geography and industry. The next subsection examines those transmission mechanisms and what the economic literature tells us about the scale and duration of fuel price shock effects.

Exhibit 1. Nominal National Weekly Retail Gasoline Prices: April 1996 to Present



Source: (U.S. Energy Information Administration 2026)

Exhibit 2. Nominal Weekly Retail Gasoline Prices: April 2025 to April 6, 2026



Source: (U.S. Energy Information Administration 2026)

Economic Implications of Fuel Price Shocks

The historical episodes described above share a common economic logic: when fuel prices rise sharply, the effects do not stay contained to the pump. They travel through the economy in cascading waves, with each round of impacts feeding into the next. The discussion that follows draws on the economic literature to describe these transmission mechanisms, moving from direct effects on household budgets and business costs through to broader consequences for trade, output, and long-run energy transition.

The most direct effects are on inflation, consumer spending and consumer income (Lynch 2026). Higher oil prices raise the cost of goods made with petroleum products and indirectly raise costs for transportation, manufacturing, and heating which are expenses that businesses tend to pass on to consumers (Federal Reserve Bank of San Francisco 2007). As a rough rule of thumb, a 5 percent increase in oil prices adds approximately 0.1 percent to the inflation rate (Lynch 2026). The diversion of household spending toward fuel also has a meaningful

deflationary effect on the rest of the economy: every dollar spent at the pump is a dollar not spent elsewhere. A $0.50 per gallon increase in gasoline prices, applied across national consumption of roughly 400 million gallons per day, removes approximately $200 million per day from consumer pockets (Lynch 2026). While that amounts to about 0.1 percent of total consumer spending in aggregate, the burden is distributed unevenly. The bottom 60 percent of income earners devote close to 4 percent of their take-home pay to gasoline, compared to roughly 2 percent for the highest earners, meaning fuel price increases are regressive in nature and fall hardest on those least able to absorb the cost (RBC Economics 2026). Even in circumstances when consumers are insulated from higher oil prices, they may still have a psychological effect on consumer sentiment. It's been found that higher oil prices lead to consumers feeling pessimistic about the economy and putting off big-ticket purchases like automobiles. These pessimistic feelings could hurt large durable goods industries (Jaffe 2026).

The secondary effects ripple outward into the broader economy. Higher diesel prices raise freight costs across every sector that moves physical goods, and the farm sector—heavily dependent on diesel for equipment during planting season and harvesting—faces meaningful cost increases that eventually show up in food prices (Lynch 2026). The burden of increased food prices is also unevenly distributed throughout society. The bottom 60 percent of income earners spend 10 percent of their income on groceries. The compounding effect of higher prices at the pump and at the grocery store could be consequential for the lowest income earners (RBC Economics 2026).

Airlines are among the most directly exposed industries, with jet fuel accounting for 20 to 30 percent of operating costs; a 50 percent increase in jet fuel prices is sufficient to eliminate airline profits unless fares are raised, which a weakening economy makes difficult. Reduced air travel in turn weighs on hospitality, tourism, and the broader service economy (Lynch 2026). Domestic and international travel decrease because of sustained increases in oil price, with domestic travel being more affected than international travel. Reductions in travel could reduce revenues of industries reliant on travel (Boto-Garcia 2025). The first order and second-order effects of sustained increases in oil prices could depress the economy. The historical record bears this out: five of the last seven U.S. recessions prior to the Great Recession in 2008 were preceded by significant increases in oil prices (Federal Reserve Bank of San Francisco 2007).

The severity of all these effects on inflation and the economy depends in large part on how long prices remain elevated. A short-term shock tends to generate a one-time inflationary jolt that the economy can reabsorb as prices stabilize. A sustained increase embeds higher costs into the economy, making the damage progressively harder to reverse (RBC Economics 2026). The economy's aggregate vulnerability to fuel prices has declined over time with improved energy efficiency and the rise of online shopping, telecommuting, and electric vehicle adoption—but that does not insulate regional economies with concentrated fuel exposure (Jaffe 2026); (Kliesen 2001). Sustained high prices also accelerate the long-run

transition away from conventional vehicles, as research finds that higher gasoline prices are a significant driver of fuel-efficient vehicles and electric vehicle adoption (Li, von Haefen and Timmins 2009); (Bushnell, Muehlegger and Rapson 2025); (Jaffe 2026).

Moving beyond the literature, the remainder of this memo focuses on using a dynamic economic impact model (REMI) to translates these mechanisms into quantitative estimates of how hypothetical fuel price increases would affect employment, output, and incomes in the Portland Metro area and the rest of Oregon.

Methodology

To estimate the potential economic effects of higher fuel costs on the Oregon economy, ECO used REMI PI+, a dynamic regional economic modeling platform widely used by public agencies and research institutions for policy analysis. REMI integrates input-output relationships, econometric parameters, and general equilibrium adjustments to estimate how changes in key economic variables—in this case, fuel costs—ripple through a regional economy over time. The analysis was conducted separately for the Portland Metro area and the rest of Oregon to reflect differences in economic structure, industry composition, and fuel dependence across the state. The sections below describe the scenario design, variable selection, and key modeling assumptions underlying the results.

About REMI

REMI (Regional Economic Models, Inc.) is an economic research firm that develops dynamic macroeconomic models for policy analysis. Its PI+ (Policy Insights Plus) model is used by government agencies, universities, non-profits, and private entities alike to estimate the economic and demographic effects of policy changes at the local, state, and national level (REMI 2026).

PI+ produces year-by-year forecasts of how a given policy would affect employment, output, personal income, population, and other key indicators, accounting for dynamic feedback effects such as changes in trade flows, migration, and business competitiveness (REMI 2026).

Modeling Approach

Since the relationship between changes in fuel supply conditions and resulting fuel prices is uncertain and depends on numerous factors, including demand elasticity, availability of alternative supply sources, and transportation costs, this analysis does not attempt to predict a specific price outcome. Instead, ECO employed a sensitivity approach by modeling a range of fuel price increases across the state of Oregon to provide a spectrum of potential economic impacts.

Five price increase scenarios were modeled, representing different magnitudes of fuel cost increases above REMI's baseline forecast for Oregon: 1 percent, 2 percent, 5 percent, 10 percent, and 40 percent. Each scenario was modeled in two ways: as a one-year price shock in 2036 and as a sustained increase lasting from 2036 through 2050, the end of the forecast horizon. The year 2036 was selected to model the possible price impacts that might result from the proposed regulatory program that would require the CEI Hub bulk fuel terminals to reduce their storage tank capacity by 2036. separate memos drafted by ECOnorthwest, and *Parametrix Model Review,* analyzes the potential risks that additional regulations could constrain supply that would result in a price increase. There are no direct estimates of price impacts in those analyses. We selected a range of small price impacts to help inform policy makers on how fuel prices changes interact with the broader economy.

Policy Variable Used

Following guidance from the REMI team, two policy variables were used to represent fuel cost increases in each scenario. The Consumer Price variable captures the increase in fuel costs borne by households. The Fuel Cost variable captures the increase in fuel input costs faced by firms in wholesale trade, transportation, and warehousing. Both variables were increased by the same percentage in each scenario, reflecting the assumption that a given change in fuel costs passes through uniformly to consumers and businesses alike.

Elasticity Adjustment

On the consumer side, REMI allows the user to adjust the price elasticity of demand for fuel. The default elasticity in ECO's version of PI+ is -0.52. Based on a review of the relevant literature and professional judgment, this value was replaced with -0.03, reflecting the well-documented inelasticity of consumer fuel demand (U.S. Energy Information Administration 2014). In the short run, consumers have limited ability to reduce fuel consumption in response to price increases, which means higher fuel costs function largely as a tax on household budgets, reducing disposable income and expenditure on other goods and services. On the business side, REMI does not expose a single editable elasticity parameter equivalent to the consumer-side control.

Limitations

This analysis is intended to illustrate the magnitude of economic exposure Oregon faces under various fuel price scenarios, not to predict specific outcomes. The scenarios do not account for broader macroeconomic conditions, geopolitical instability, local or regional factors, or other external influences that will inevitably shape the economic environment between now and 2050. Nor do they attempt to model firm-level responses or industry-specific disruptions. The percentage-based approach is designed to be transparent, straightforward, and adaptable as conditions evolve. The goal is to establish what higher fuel

costs could mean for Oregon's economy under a range of assumptions by providing a basis for informed policy discussion rather than a forecast of any particular outcome.

Results

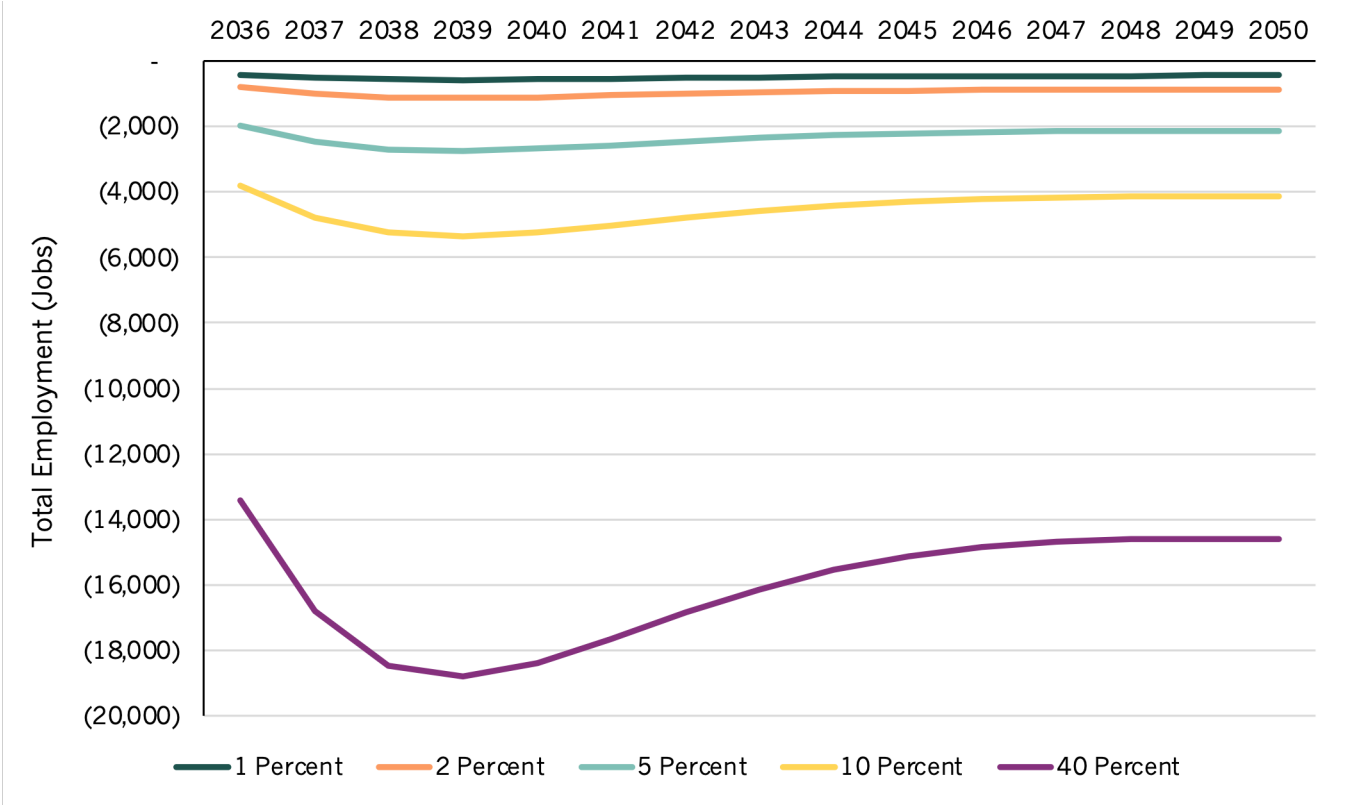
The REMI analysis produces results across five price scenarios, two shock types, and two geographies, yielding a range of outcomes that together illustrate Oregon's economic exposure to higher fuel costs. The findings are presented in three parts. The first subsections reports results for sustained price increases, covering total employment, GDP, economic output, and real disposable personal income, followed in each case by a breakdown of how impacts are distributed between consumers and businesses and between the Portland Metro area and the rest of Oregon. The second subsection contextualizes the cumulative results against the scale of the Oregon economy, situating the modeled outcomes within Oregon's existing fuel price environment and the broader trajectory of the state's energy transition. Finally, a data appendix contains the results from one time price shocks, which are important context for historical patterns, but not as relevant of a lens to apply to a policy that could potentially cause long term impacts.

Sustained Long-Term Price Increases

The sustained price increase scenarios apply the price level shocks (1, 2, 5, 10, and 40 percent) all maintaining the increase continuously from 2036 through 2050. This design reflects a persistent structural shift in fuel costs of the kind that followed Russia's invasion of Ukraine, where prices reset to a higher level and remained elevated for years. The key distinction from the one-year results (presented in the data appendix) is that losses do not recover. Employment, output, GDP, and disposable income decline at the point of the shock and continue to worsen over the analysis period as the cost burden compounds through the economy. The sustained scenarios therefore represent the more consequential case from a policy planning perspective, and their results warrant particular attention in interpreting Oregon's long-run economic exposure.

Under a sustained fuel cost increase maintained from 2036 through 2050, employment losses accumulate over time rather than reversing as in the one-year shock scenario (Exhibit 3). In 2036, the employment impacts are identical to those in the shock scenario, ranging from approximately 400 to 13,500 jobs lost depending on the scenario. However, unlike the shock results, employment losses deepen through the late 2030s and early 2040s as the persistent cost burden compounds through the economy. Under the 40 percent sustained scenario, statewide employment losses reach approximately 19,000 jobs by 2040 and remain in the range of 14,600 to 17,700 jobs through 2050. Under the lower scenarios, losses stabilize at more modest levels; approximately 430 jobs under the 1 percent scenario and 860 jobs under the 2 percent scenario by 2050.

Exhibit 3. Total Employment Impacts (Sustained Price Increase)

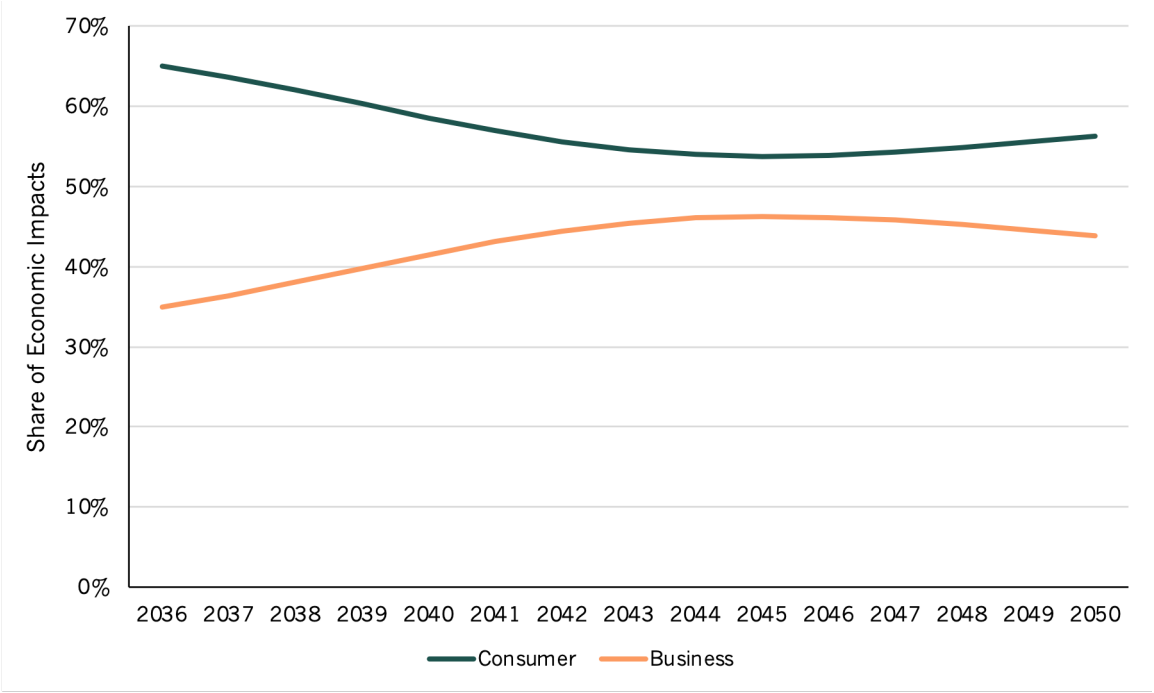


Source: (REMI 2026) and Analysis by ECOnorthwest

Under sustained price increases, the consumer and business shares of employment impacts evolve differently than under the one-year shock (Exhibit 4). The consumer side dominates in the early years, but the business share grows steadily over time as higher fuel input costs persistently reduce firm competitiveness, suppress investment, and weigh on wage growth. By the mid-2040s, the business side accounts for a comparable share of ongoing employment losses, reflecting the cumulative effect of sustained cost pressure on Oregon's traded and freight-dependent industries.

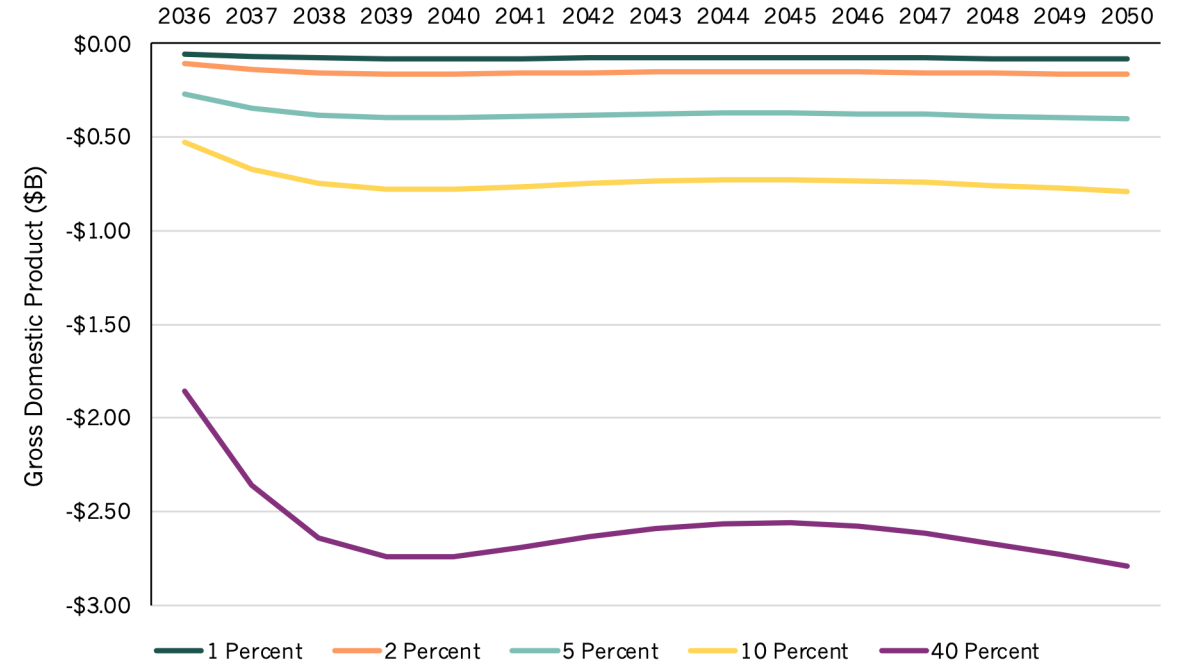
Sustained fuel cost increases produce GDP losses that grow over time, in contrast to the one-year shock results where losses partially recover (Exhibit 5). Under the 1 percent sustained scenario, the GDP impact reaches approximately $80 million by 2040. Under the 10 percent scenario, the annual GDP loss grows from roughly $530 million in 2036 to approximately $790 million by 2050. Under the 40 percent sustained scenario, the GDP loss in the shock year is approximately $1.9 billion, growing to roughly $2.8 billion by 2050 as the persistent cost burden works through the broader economy.

Exhibit 4. Consumer & Business Share of Employment Impacts (Sustained Price Increase)



Source: (REMI 2026) and Analysis by ECOnorthwest

Exhibit 5. Impacts to GDP (Sustained Price Increase)

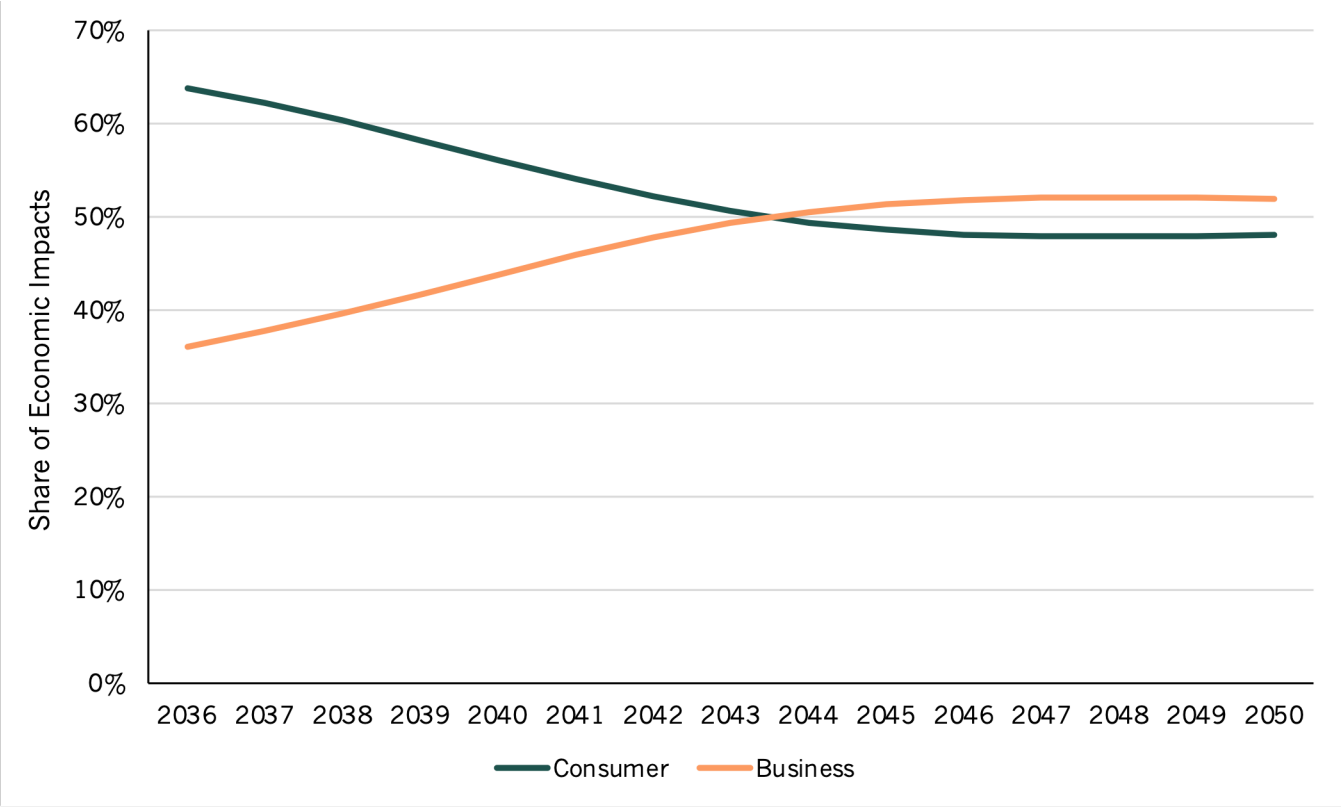


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

The consumer share of GDP losses declines as a proportion of the total over the analysis period under the sustained scenarios, while the business share grows (Exhibit 6). This reflects the dynamic adjustment of the economy to a new, higher cost environment: households adapt over time through behavioral changes such as reduced driving and shifts in spending patterns, while businesses face ongoing input cost pressures that are more difficult to fully absorb or pass through. By 2050, the business side accounts for a growing majority of the GDP impact.

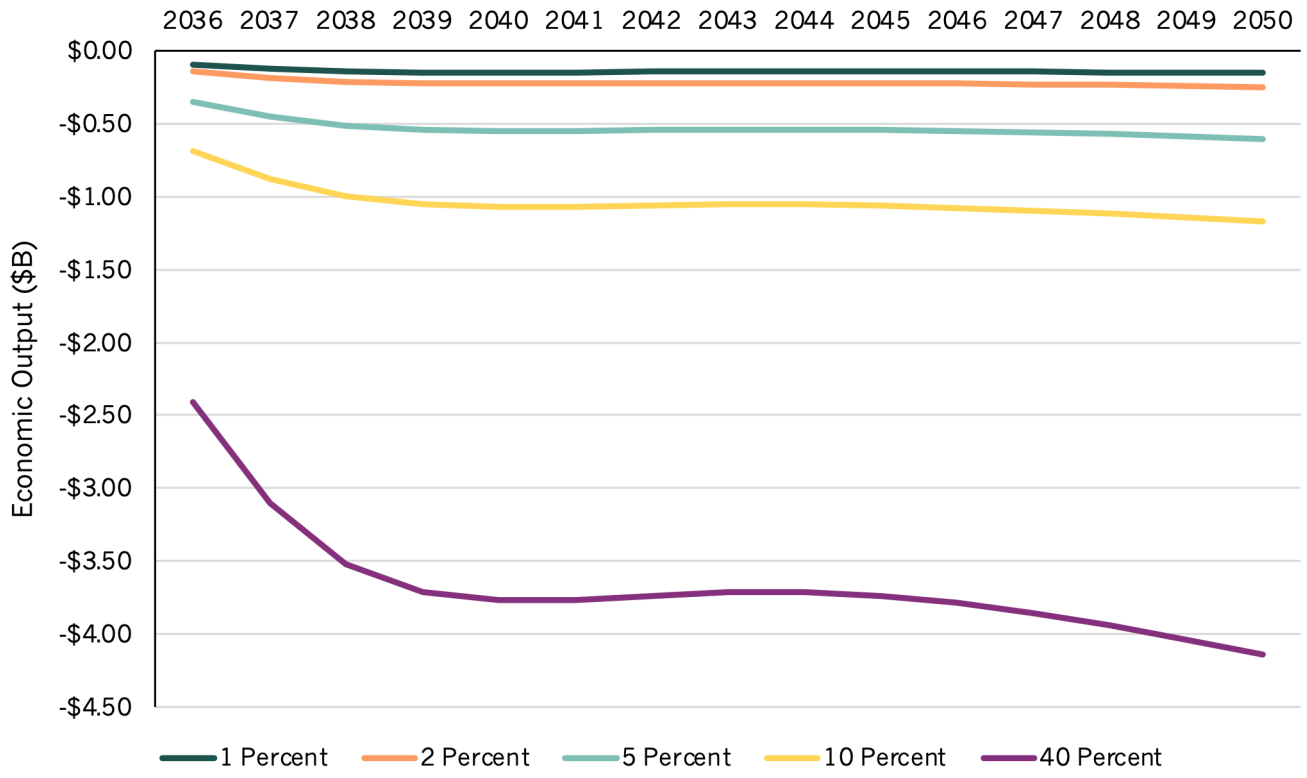
Exhibit 6. Consumer & Business Share of GDP Impact (Sustained Price Increase)



Source: (REMI 2026) and Analysis by ECOnorthwest

Output losses under the sustained scenarios are substantially larger than under the one-year shock and grow throughout the analysis period (Exhibit 7). Under the 5 percent sustained scenario, output losses rise from approximately $35 million in 2036 to roughly $60 million by 2050. Under the 40 percent scenario, output losses begin at $2.4 billion in 2036 and grow to approximately $4.1 billion by 2050 as the cumulative economic drag of persistently higher fuel costs compounds across sectors. The divergence between the shock and sustained results is most pronounced for output, reflecting the sensitivity of production activity to ongoing cost pressures in transportation, logistics, and freight-intensive industries.

Exhibit 7. Impact to Economic Output (Increased Price Increase)

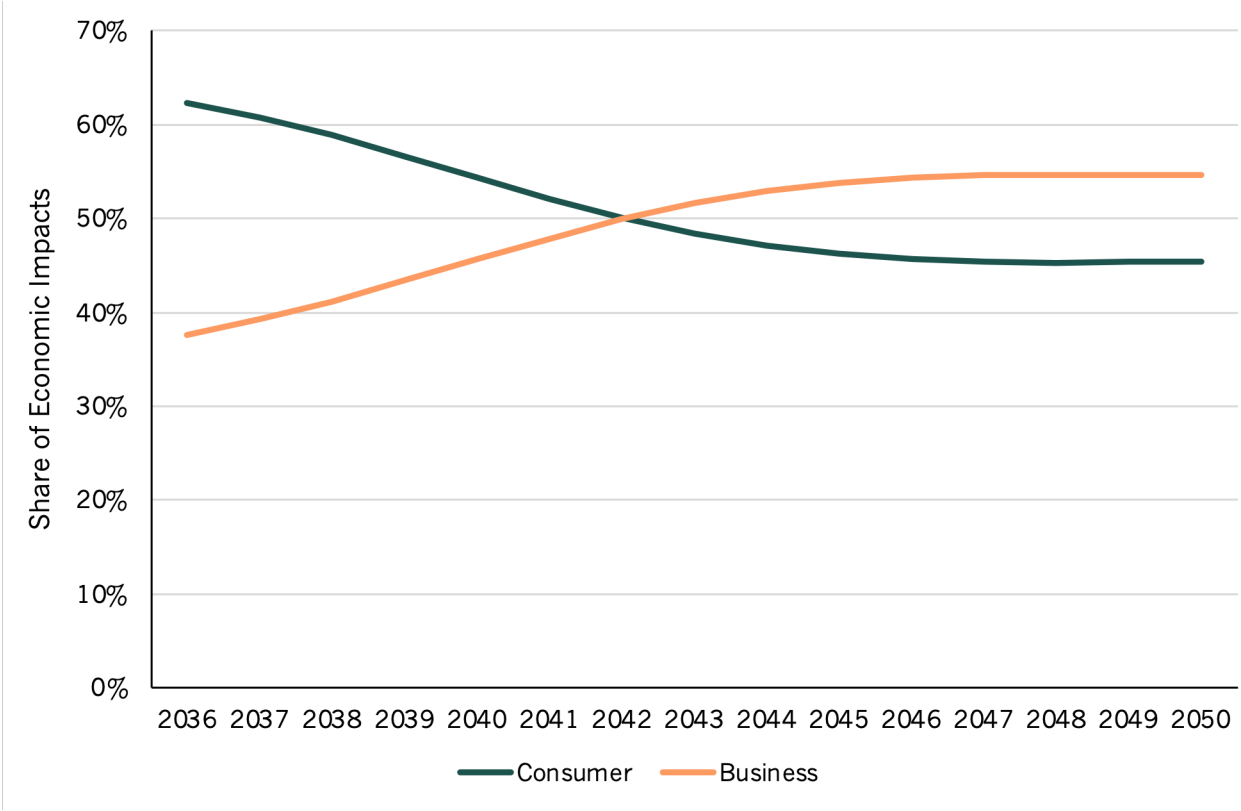


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

The business side accounts for a larger and growing share of output losses under sustained price increases relative to the one-year shock, consistent with the persistent exposure of freight, wholesale trade, and warehousing industries to elevated fuel input costs (Exhibit 8). By the early 2040s, the business side exceeds the consumer side in its contribution to total output losses under all sustained scenarios, and this gap widens through 2050. This pattern underscores the importance of the business transmission channel when evaluating the economic consequences of prolonged rather than temporary fuel cost increases.

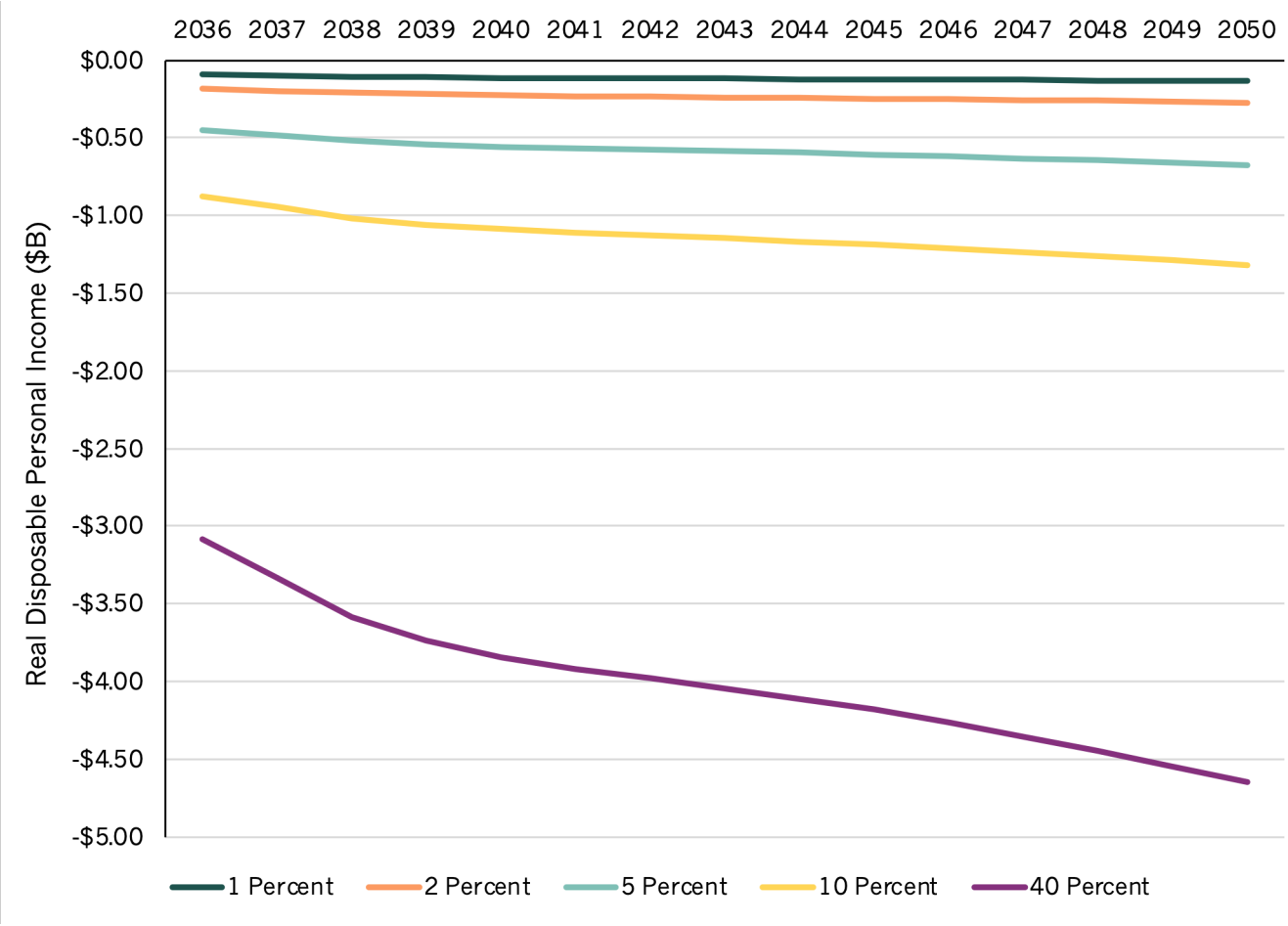
Exhibit 8. Consumer & Business Share of Impact to Economic Output (Sustained Price Increase)



Source: (REMI 2026) and Analysis by ECOnorthwest

Real disposable personal income losses under sustained price increases grow continuously through the analysis period, with no recovery trajectory (Exhibit 9). Under the 1 percent scenario, statewide disposable income is reduced by approximately $90 million in 2036 and grows to roughly $140 million by 2050. Under the 10 percent scenario, the annual loss grows from approximately $870 million to nearly $1.3 billion over the same period. Under the 40 percent scenario, disposable income losses reach approximately $3.1 billion in 2036 and grow to roughly $4.7 billion by 2050. These figures reflect the compounding burden of sustained fuel costs on household budgets as higher prices persist, and population adjustments reduce the state's labor force and tax base over time.

Exhibit 9. Impact to Disposable Income (Sustained Price Increase)

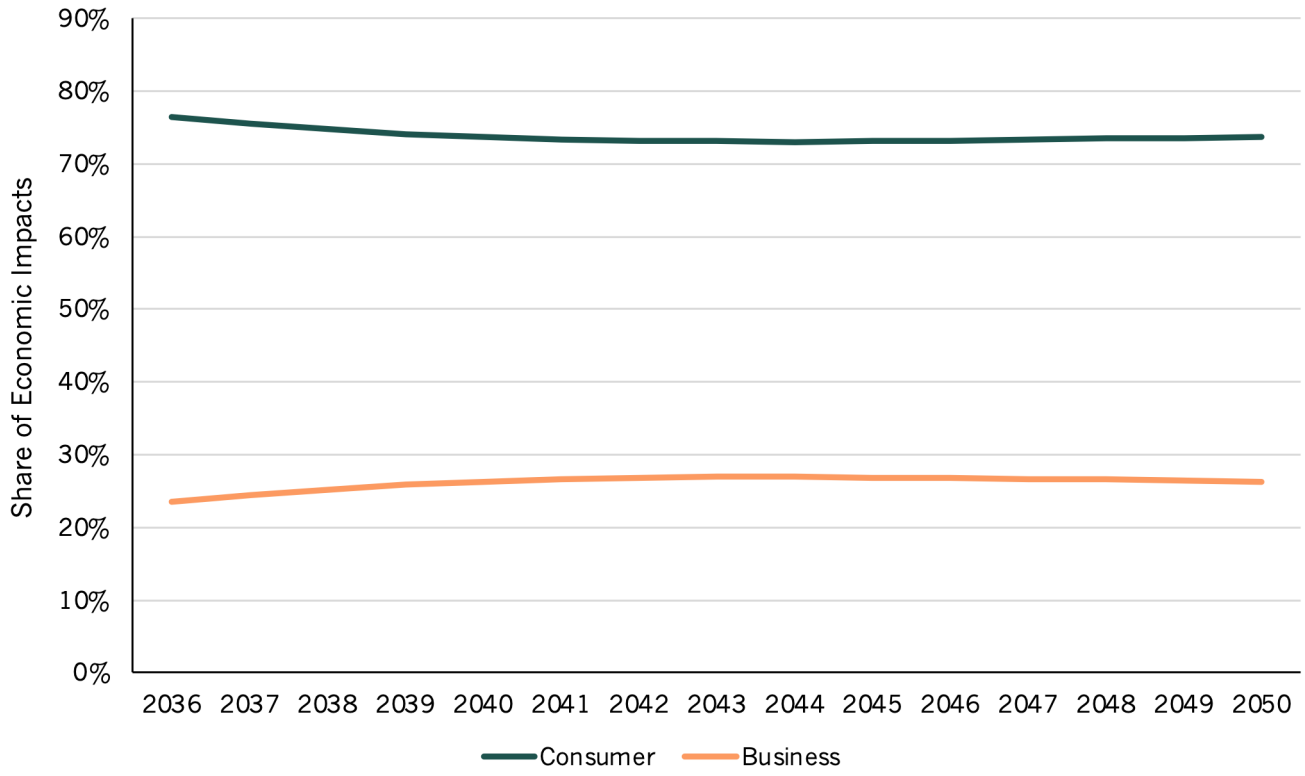


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

Consumers account for the dominant share of disposable income losses throughout the analysis period under sustained price increases, consistent with the direct effect of higher fuel prices on household purchasing power (Exhibit 10). However, the business share grows over time as reduced business activity translates into lower wages, reduced hiring, and weaker income growth for Oregon workers. By 2050, the business side accounts for a slightly larger share of disposable income losses than it does in the early years of the analysis, reflecting the slow accumulation of indirect income effects from persistently higher fuel costs.

Exhibit 10. Consumer & Business Share of Impacts to Disposable Income (Sustained Price Increase)

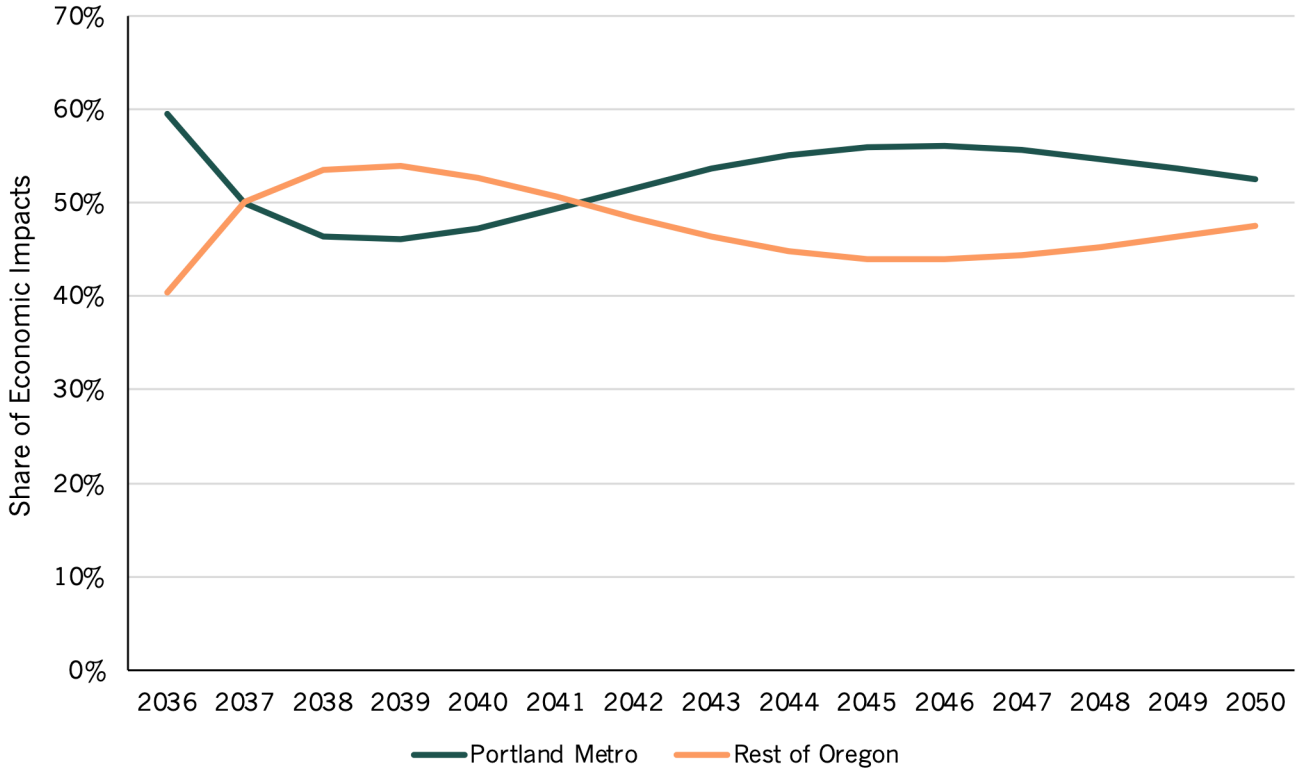


Source: (REMI 2026) and Analysis by ECOnorthwest

Regional Burden

The geographic distribution of consumer-side has a larger impact in the Portland Metro, absorbing a larger share in absolute terms due to its larger population and consumer economy (Exhibit 11). However, the rest of Oregon's share is larger on a per-capita basis, particularly in later years of the analysis as population migration effects reduce the rest of Oregon's workforce more substantially under the sustained cost burden.

Exhibit 11. Average Share of Economic Impacts (Consumer-Side)

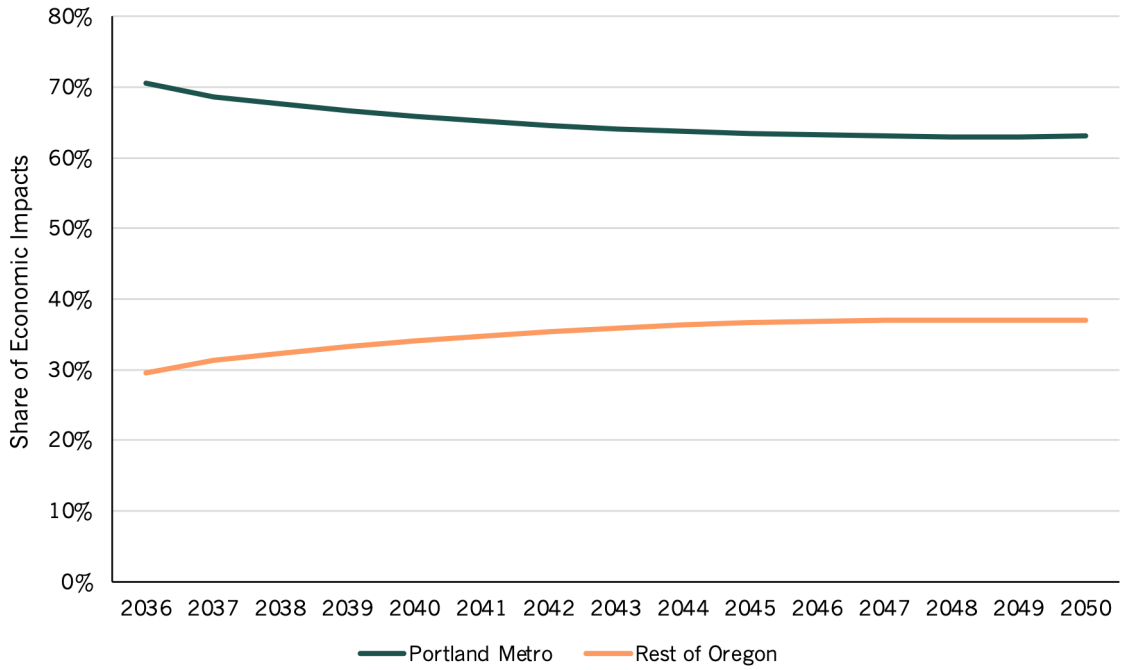


Source: (REMI 2026) and Analysis by ECOnorthwest

The rest of Oregon accounts for a smaller share of business-side impacts under the sustained scenarios compared to its consumer-side share (Exhibit 12). This pattern is more pronounced under the sustained scenarios because the industries most exposed to fuel input costs—freight, agriculture, and manufacturing—continue to face cost pressure throughout the analysis period without the relief that comes when a one-year shock dissipates.

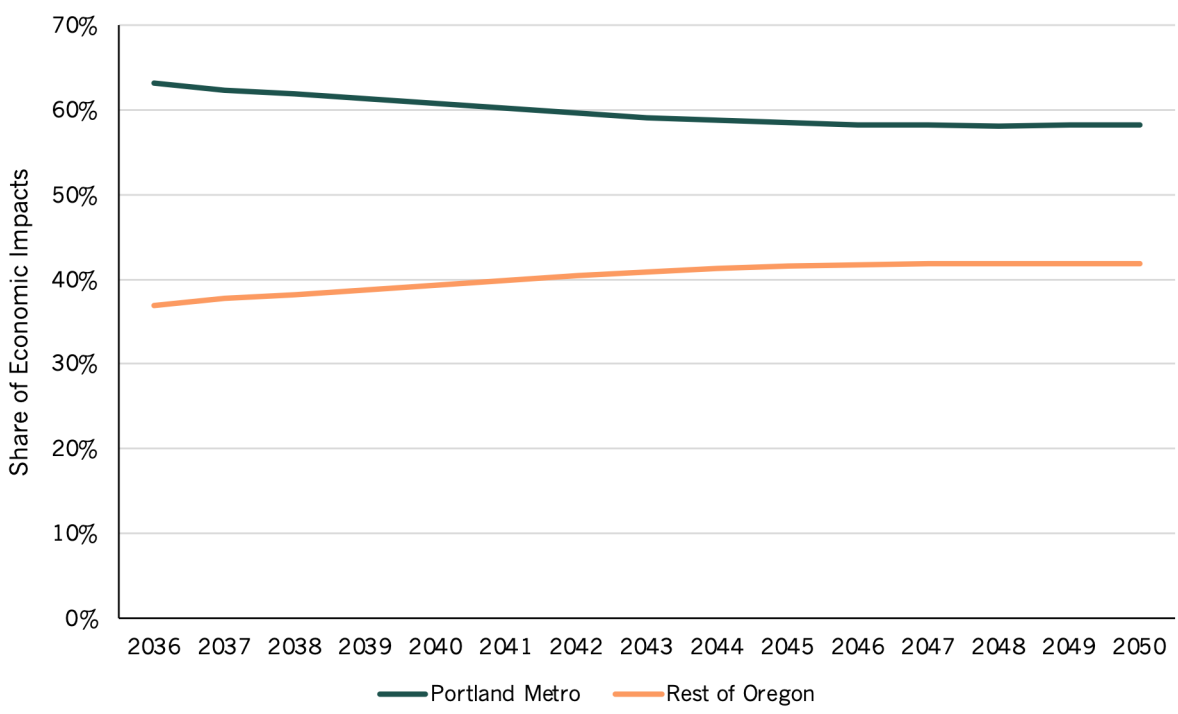
The combined regional distribution of sustained price increase impacts is broadly consistent with the one-year shock findings, with Portland Metro absorbing approximately 60 percent of total statewide impacts and the rest of Oregon bearing roughly 40 percent (Exhibit 13). The sustained scenario amplifies the significance of this distribution: because losses grow over time rather than recovering, the cumulative burden on the rest of Oregon over the 2036 to 2050 period is substantially larger in absolute terms than the one-year shock results suggest. Communities outside the Portland Metro area, which tend to have lower incomes, less economic diversification, and higher per-capita fuel dependence, face a disproportionate long-run exposure under scenarios where elevated fuel costs persist.

Exhibit 12. Average Share of Economic Impacts (Business-Side)



Source: (REMI 2026) and Analysis by ECOnorthwest

Exhibit 13. Average Share of Economic Impacts (Consumer + Business)

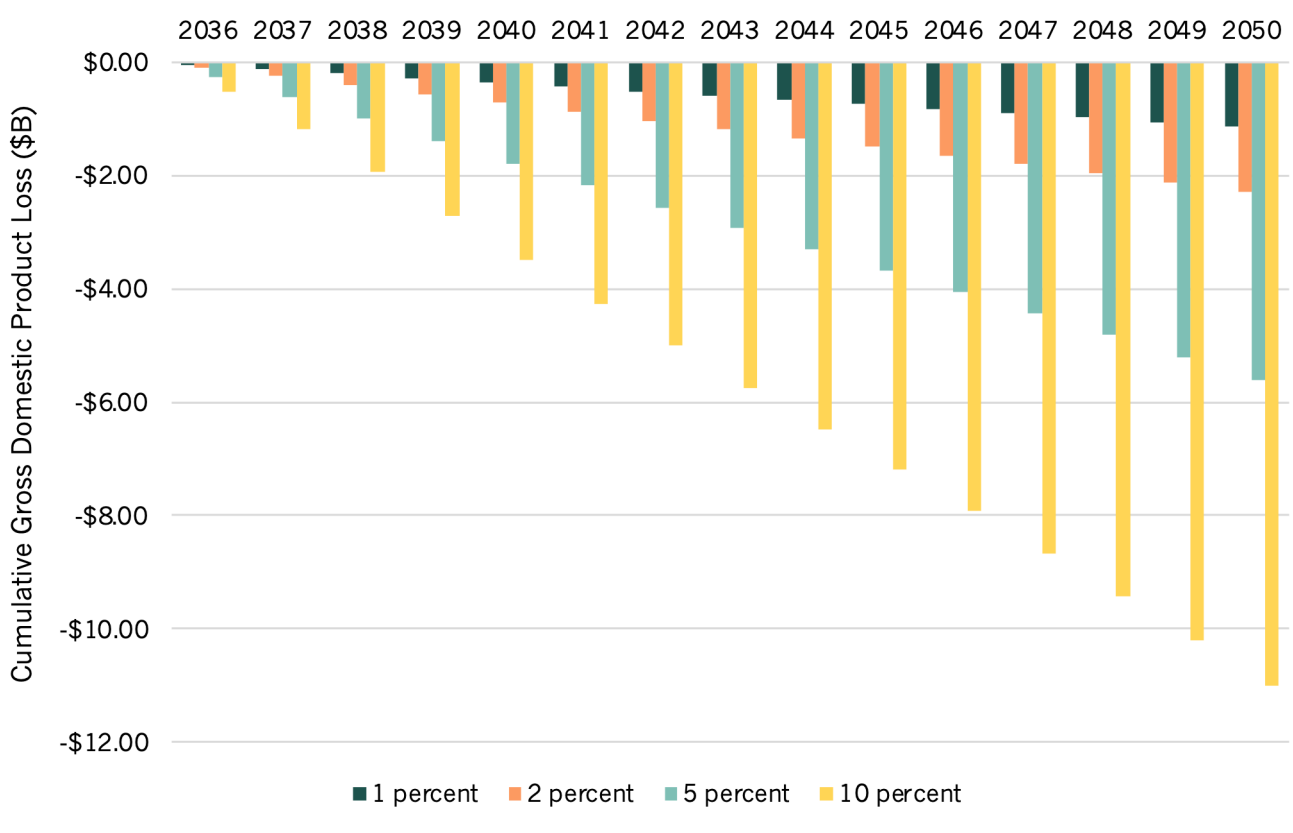


Source: (REMI 2026) and Analysis by ECOnorthwest

The Compounding Cost of Sustained Fuel Price Increases

Exhibit 14 presents the cumulative GDP losses for Oregon across all five price scenarios with sustained price increases for the entire 15-year time horizon. increases. Under the sustained scenarios, cumulative losses grow continuously from 2036 through 2050, including for the modest price impact scenarios, where cumulative GDP losses that expand over time.

Exhibit 14. Cumulative GDP Losses by Scenario: Sustained Price Increases (2036-2050)[2]



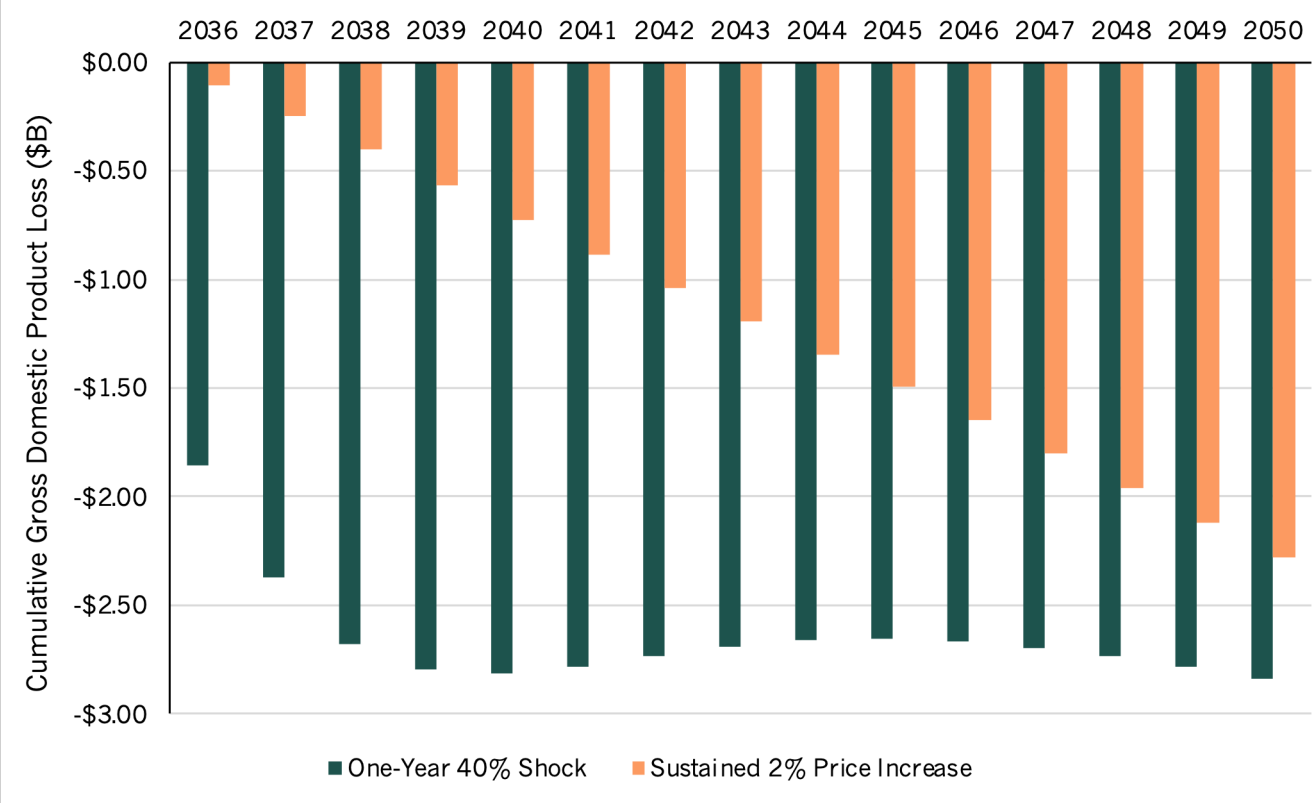
Source: (REMI 2026) and Analysis by ECOnorthwest
Note: All dollar values are in billions of dollars and are in 2025 dollars.

Exhibit 15 isolates two scenarios that might initially appear to have little in common: a one-time 40 percent fuel cost shock in 2036 and a modest 2 percent sustained increase maintained from 2036 through 2050. The one-time 40 percent shock is severe in the year it occurs, but because it does not persist, the economy recovers and cumulative damage stabilizes over time. The 2 percent sustained increase, by contrast, begins as a barely perceptible drag on economic output but accumulates continuously, and by the mid-2040s its cumulative GDP losses begin to rival and eventually approach those of the far larger one-

[2] The 40 percent sustained scenario is excluded from this exhibit. A fuel cost increase of that magnitude maintained over a fifteen-year period is considered an unlikely outcome.

time shock. This is the central analytical takeaway of the results section: a temporary disruption, however large, allows the economy to recover once the pressure lifts. A sustained shift in the fuel cost environment does not, and its consequences grow heavier with each passing year. This pattern holds across all scenarios modeled in this analysis, with the numbers scaling to the size and duration of the price change but the fundamental dynamic remaining the same.

Exhibit 15. Cumulative GDP Losses: One-Year 40 Percent Shock vs. Sustained 2 Percent Price Increase



Source: (REMI 2026) and Analysis by ECOnorthwest
Note: All dollar values are in billions of dollars and are in 2025 dollars.

Implications for Oregon's Economy

Oregon's economy already operates at a higher fuel price level than the national average. Using regular gasoline as a proxy for broader fuel price conditions, Oregon ranks as the fourth most expensive state in the country, with an average price of $5.10 per gallon as of April 28, 2026, compared to a national average of $4.18 per gallon—roughly 22 percent lower than Oregon's average. As shown in Exhibit 16, Oregon's fuel prices are broadly in line with its regional neighbors, suggesting that the state competes within a high-cost Pacific Coast environment. The hypothetical price increases modeled in the preceding analysis, ranging from 1 to 40 percent, would place the price of a gallon of regular gasoline between

approximately $5.15 and $7.14 per gallon using current prices as a reference point.[3] This range is offered as context for interpreting the breadth of economic outcomes modeled in this analysis, not as a forecast of prices under any particular scenario.

Exhibit 16. Top Ten Most Expensive States for Gasoline - April 28th, 2026

STATE	REGULAR ($/GAL)	GAS TAX ($/GAL)
California	$5.965	$0.596
Hawaii	$5.641	$0.16
Washington	$5.513	$0.494
Oregon*	$5.101	$0.40
Nevada	$5.069	$0.23805
Alaska	$4.827	$0.09
Arizona	$4.635	$0.18
Illinois	$4.450	$0.470
Idaho	$4.381	$0.33
District of Columbia	$4.303	$0.235
Federal	**$4.176**	**$0.184**

Source: (AAA 2026) and (Federation of Tax Administrators 2025)

Notes: Gasoline prices are quoted averages from AAA on April 28, 2026. In addition to state gasoline taxes, California and Illinois charge sales tax on top of the excise tax.

To aid with interpretation, we took the bounded range of cumulative economic impacts to Oregon from 2036 through 2050, then compared the results against the scale of the state's economy. The lower bound reflects the one-year 1 percent price shock, and the upper bound reflects a sustained 10 percent increase in the fuel price level. The 40 percent sustained scenario, while modeled, is treated as an unlikely outer limit rather than a planning benchmark.

All else equal, Oregon's cumulative GDP could decrease by between $1.15 billion and $10.99 billion over the fifteen-year analysis period. The 10 percent sustained increase when taken as an average annual impact is equivalent to a 0.21 percent decrease of Oregon's 2025 GDP. When evaluating the impact of price increases on jobs, the lower bound scenario of a 1 percent increase annually over the 15-year time horizon would result in an average annual employment decrease of 475 jobs, the upper bound of a 10 percent sustained increased would result in an average annual employment decrease of 4,550 jobs.

[3] It is important to note that we are currently experiencing a massive shock in the price of fuel nationwide due to the conflict with Iran and the supply disruptions, and these prices are purely illustrative. Current fuel prices withstanding, Oregon does remain one of the most expensive fuel states in the US.

Taken together, these figures illustrate that even within a plausible range of fuel price outcomes, the economic stakes for Oregon are not insignificant and merit consideration in long-run energy infrastructure planning.

A temporary disruption, however sharp, allows the economy to recover once pressure lifts. A sustained increase does not, and its costs compound with time. That said, persistent increases in fuel prices tend to accelerate structural adaptation within the economy, including greater use of public transportation, accelerated electrification of the vehicle fleet, and operational changes in freight-intensive industries that reduce fuel dependence over time. Oregon has already established a policy framework oriented toward this transition, including the Climate Protection Program and Advanced Clean Cars II regulation, both of which are designed to reduce the economy's reliance on fossil fuels over the coming decades. The pace of that transition is uncertain, and the degree to which Oregon's economy remains exposed to fuel price volatility in the near and medium term depends heavily on how quickly those structural shifts take hold. Understanding the economic stakes of that exposure is a necessary input to any policy analysis of infrastructure that affect how reliably and flexibly Oregon's fuel supply can respond to unknown future market conditions.

Conclusions

Fuel is not merely an input to Oregon's economy. It is the connective tissue that holds it together. It moves goods from farms and warehouses to consumers, gets workers to their jobs, and enables the freight and logistics networks that link Oregon businesses to regional and national markets. When fuel costs rise, the burden transmits broadly and unevenly: households lose purchasing power, businesses face higher input costs, and the broader economy slows as spending that would otherwise circulate through local markets is diverted toward energy expenditure. The historical record reviewed in this memo makes clear that these dynamics are not hypothetical. Oregon has lived through repeated episodes of fuel price disruption, and the economic consequences have been real and measurable each time.

The REMI analysis translates these transmission mechanisms into quantitative estimates of what higher fuel costs could mean for Oregon under a range of scenarios. Three findings stand out:

1) The economic consequences of fuel cost increases scale with both magnitude and duration. A temporary shock imposes a meaningful but recoverable burden on employment, output, and household income, while a sustained increase compounds over time, embedding higher costs across the economy in ways that are progressively harder to reverse. The comparison of a one-time 40 percent shock against a modest 2 percent sustained increase makes this dynamic tangible: over a long enough horizon, even a small, sustained increase can impose cumulative economic costs that rival those of a far larger but short-lived disruption.

2) The distribution of impacts matters as much as the aggregate. Consumers bear the initial and larger share of the burden, particularly lower-income households for whom fuel represents a disproportionate share of take-home pay, and the rest of Oregon faces higher per-capita exposure than the Portland Metro area given its more fuel-intensive economic base.

3) Oregon enters this analysis from a position of elevated baseline exposure. The state consistently ranks near the top in fuel prices across states. Localized increase in the price level have competitive implications that extend beyond Oregon's borders and fall on an economy that has less cushion to absorb additional cost pressure.

Oregon's exposure to fuel price volatility is a function of its geography, its economic structure, and the concentration of its fuel supply infrastructure at a single point of entry. The long-run trajectory of the state's energy transition, supported by policies like the Climate Protection Program and Advanced Clean Cars II, points toward reduced fossil fuel dependence over time. But the pace of that transition is uncertain, and in the near- and medium-term Oregon's economy remains meaningfully exposed to the dynamics described in this memo. The analysis presented here does not assert that any particular policy will cause any specific price outcome. Rather, it provides background that provides context on what would higher fuel costs mean for Oregon’s economy, with nuance around whether those price increases are temporary or persistent. The analysis does establish that the stakes are not insignificant, that the costs of sustained disruption grow over time. Understanding Oregon's economic vulnerability to fuel price volatility provides foundational context for the future policy deliberations.

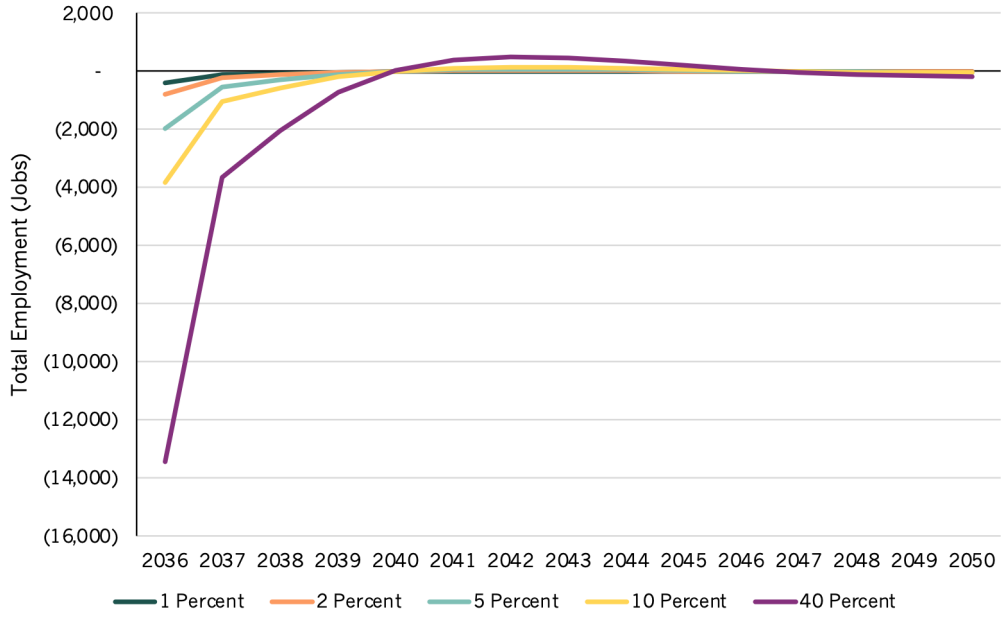
Data Appendix

One-Year Price Shocks

The one-year shock scenarios model a fuel cost increase that occurs in 2036 and does not persist into subsequent years. This design isolates the economic response to a temporary disruption of the kind Oregon has experienced repeatedly in its recent history, most recently with the onset of the US-Iran War in early 2026. Results are reported for price increases of 1, 2, 5, 10, and 40 percent, applied simultaneously to the consumer and business sides of the model. The defining characteristic of the one-year results is a sharp initial impact followed by gradual recovery, with most of the employment and output losses reversing by the early 2040s. The 40 percent scenario, calibrated to the magnitude of the current conflict-driven price shock, anchors the upper bound of the analysis.

A one-year fuel cost increase would produce an immediate but temporary drag on statewide employment (**Error! Reference source not found.**). In 2036, the year of the shock, the range of price scenarios would reduce employment in Oregon by approximately 400 to 13,500 jobs. Recovery is relatively swift. By 2040, employment losses under the moderate scenarios have largely reversed, and under the 40 percent shock the state returns to near-zero net employment change by 2041 before settling into a modest persistent drag of roughly 100 to 200 jobs from 2047 through 2050. This pattern reflects the nature of a one-time price shock. Consumer-facing industries bear the initial burden, but once the price effect dissipates the economy reabsorbs most of the loss.

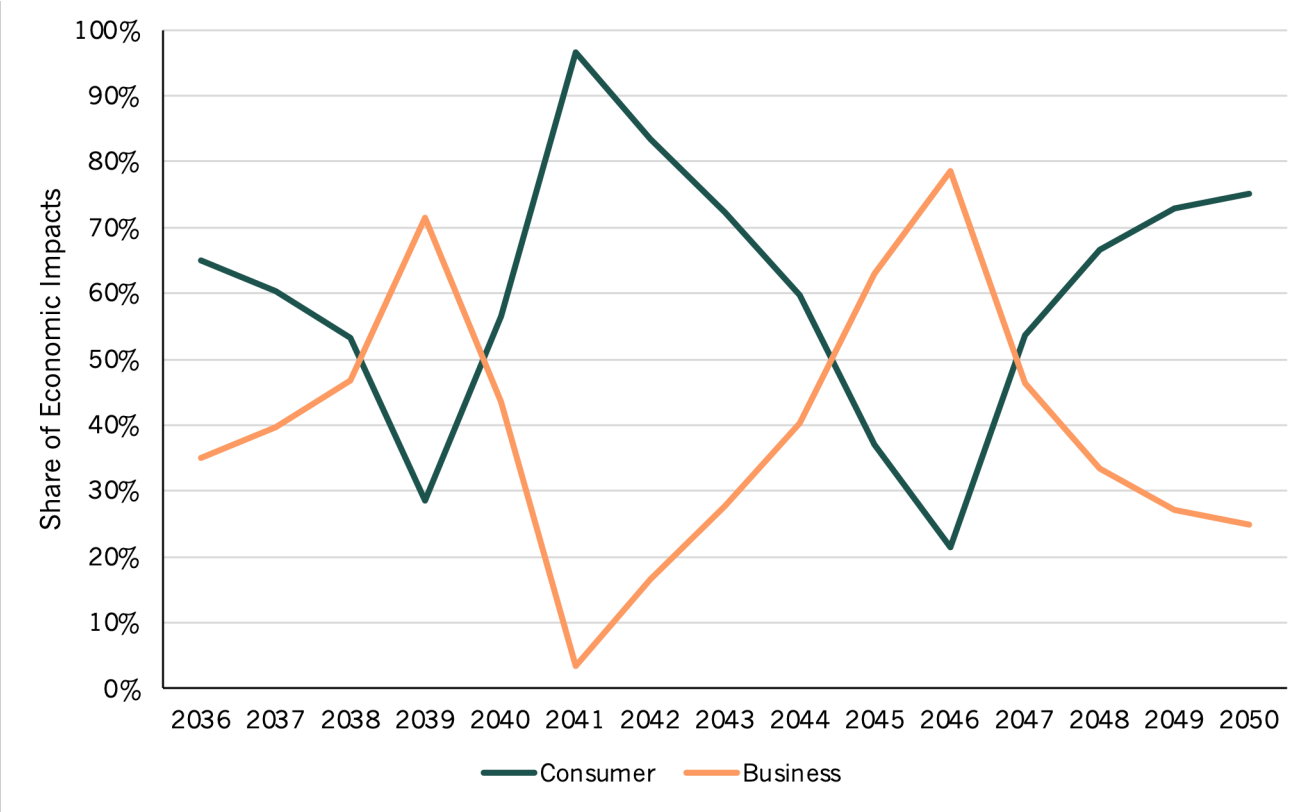
Exhibit 17. Total Employment Impacts (One-Year Price Shock)



Source: (REMI 2026) and Analysis by ECOnorthwest

In the immediate aftermath of the shock, consumers absorb a larger share of the employment impact than businesses (**Error! Reference source not found.**). This reflects the direct hit to household purchasing power and the speed with which reduced consumer spending translates into job losses in retail, hospitality, and other consumer-facing sectors. As the price shock fades and the economy normalizes, the consumer and business shares converge and begin to alternate in dominance (i.e., which side bears more burden), consistent with the ordinary dynamics of the business cycle rather than a sustained fuel cost effect.

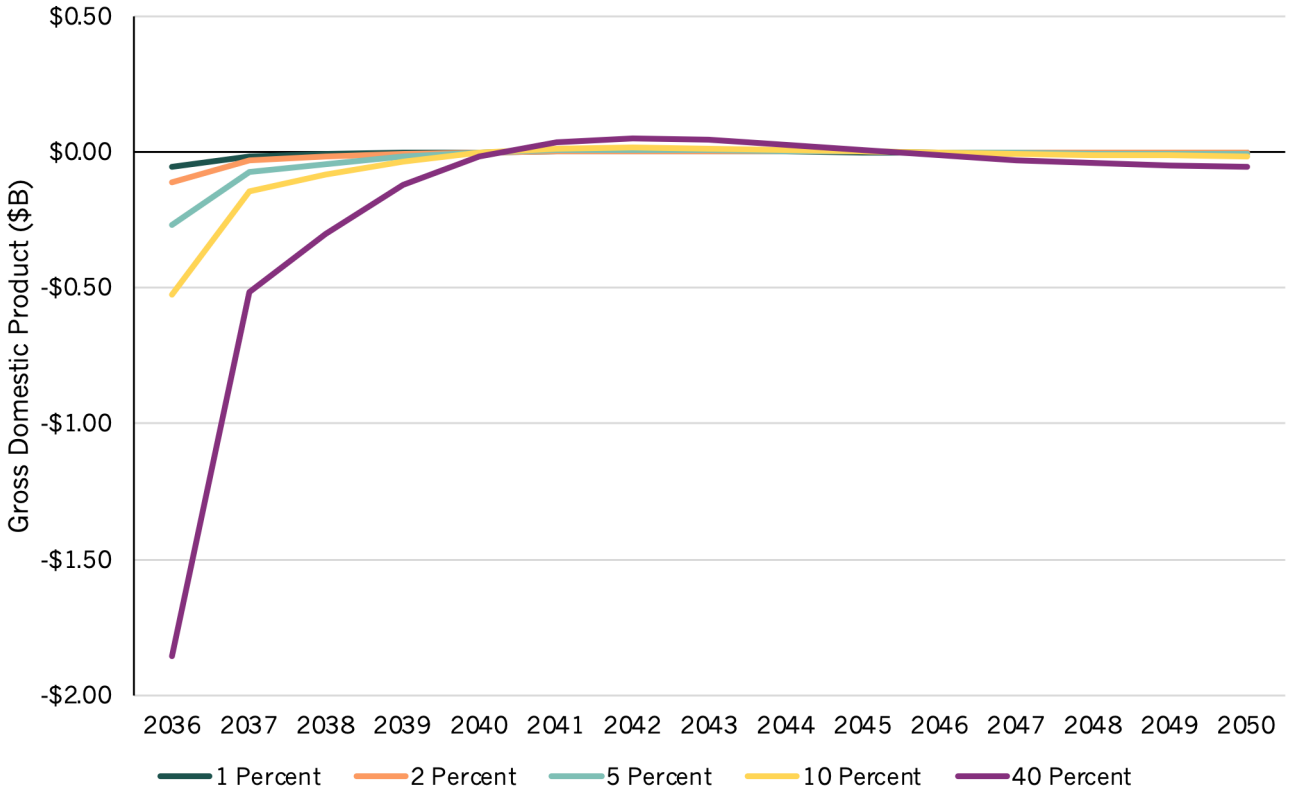
Exhibit 18. Consumer & Business Share of Employment Impacts (One-Year Price Shock)



Source: (REMI 2026) and Analysis by ECOnorthwest

A one-year fuel cost increase would reduce Oregon's GDP in the year of the shock, with effects ranging from approximately $60 million under the 1 percent scenario to $1.9 billion under the 40 percent scenario, all in 2025 dollars (**Error! Reference source not found.**). As with employment, the GDP impact peaks in 2036 before recovering. Under the lower scenarios, the GDP effect is negligible by 2040. Under the 40 percent scenario, a modest residual drag persists through 2050, though it is substantially smaller in magnitude than the initial shock-year impact.

Exhibit 19. Impacts to GDP (One-Year Price Shock)

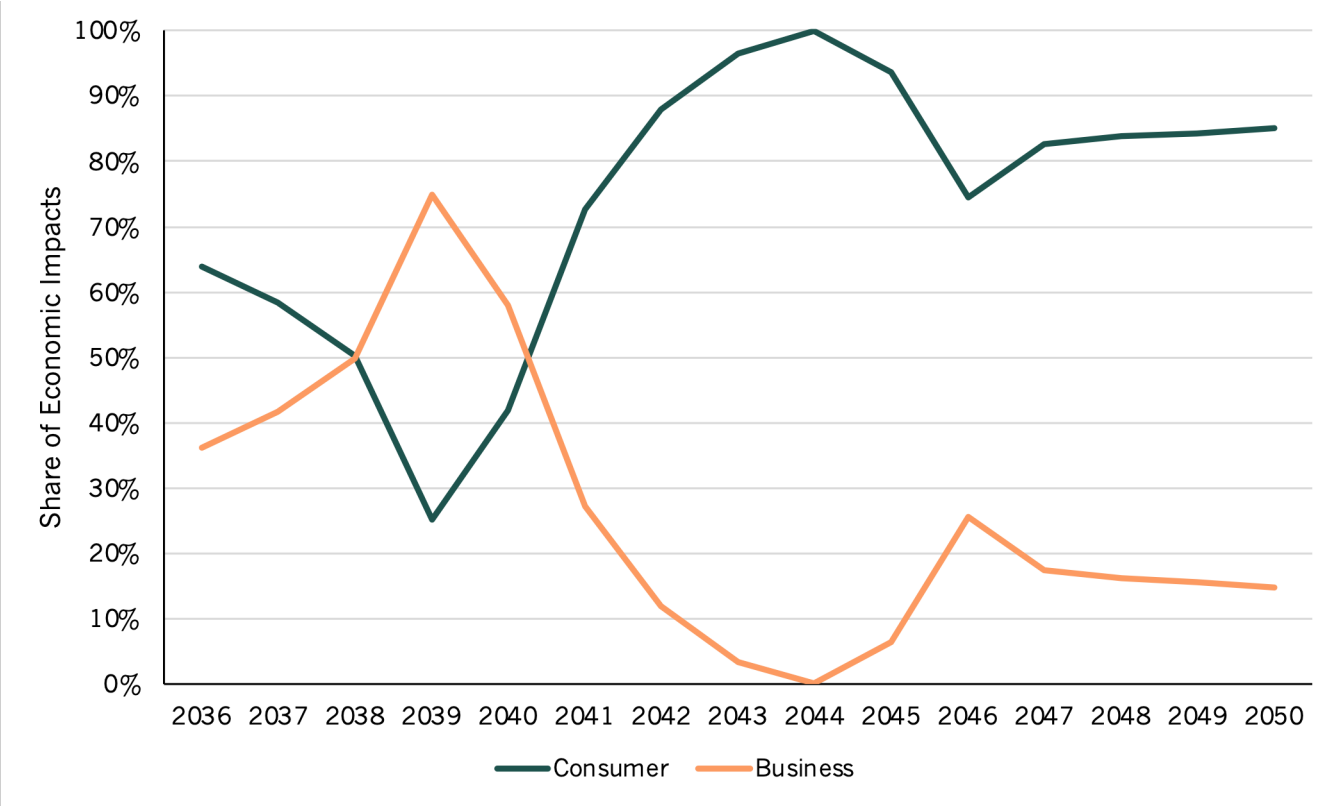


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

Consumers account for the larger share of the GDP impact in the shock year, driven by the immediate compression of household spending. The business share grows relative to the consumer share in subsequent years as supply chain adjustments and input cost pressures work through the economy more slowly. By the mid-2040s, the two shares are roughly comparable under most scenarios, reflecting the diminishing but more evenly distributed residual effect of the initial shock.

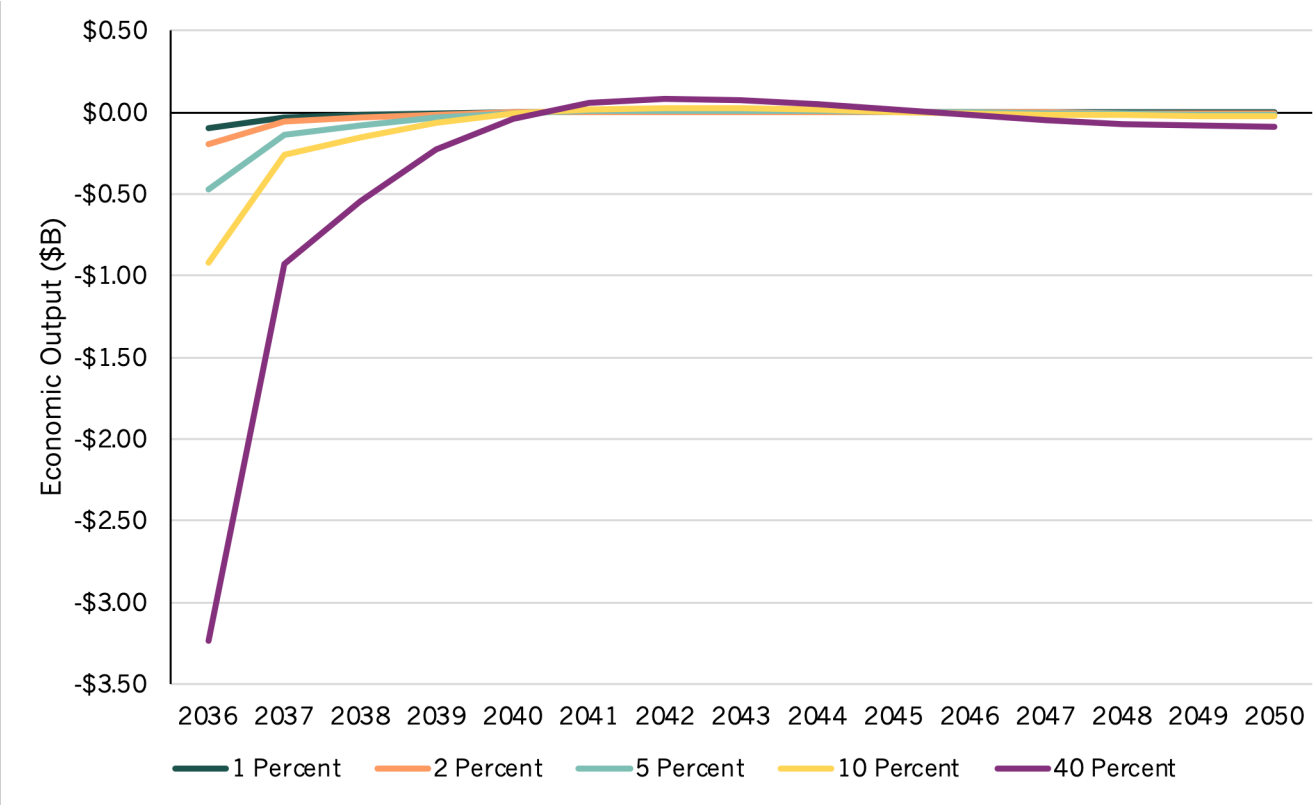
Exhibit 20. Consumer & Business Share of GDP Impact (One-Year Price Shock)



Source: (REMI 2026) and Analysis by ECOnorthwest

Economic output follows a similar pattern to GDP but with somewhat larger magnitudes, reflecting the broader measure of total production activity including intermediate goods and services. In the shock year, output losses range from approximately $100 million under the 1 percent scenario to $3.2 billion under the 40 percent scenario. The recovery trajectory is consistent with the employment and GDP findings. Most of the loss reverses by 2039 to 2040, with a small persistent decrease under higher scenarios through 2050.

Exhibit 21. Impact to Economic Output (One-Off Price Shock)

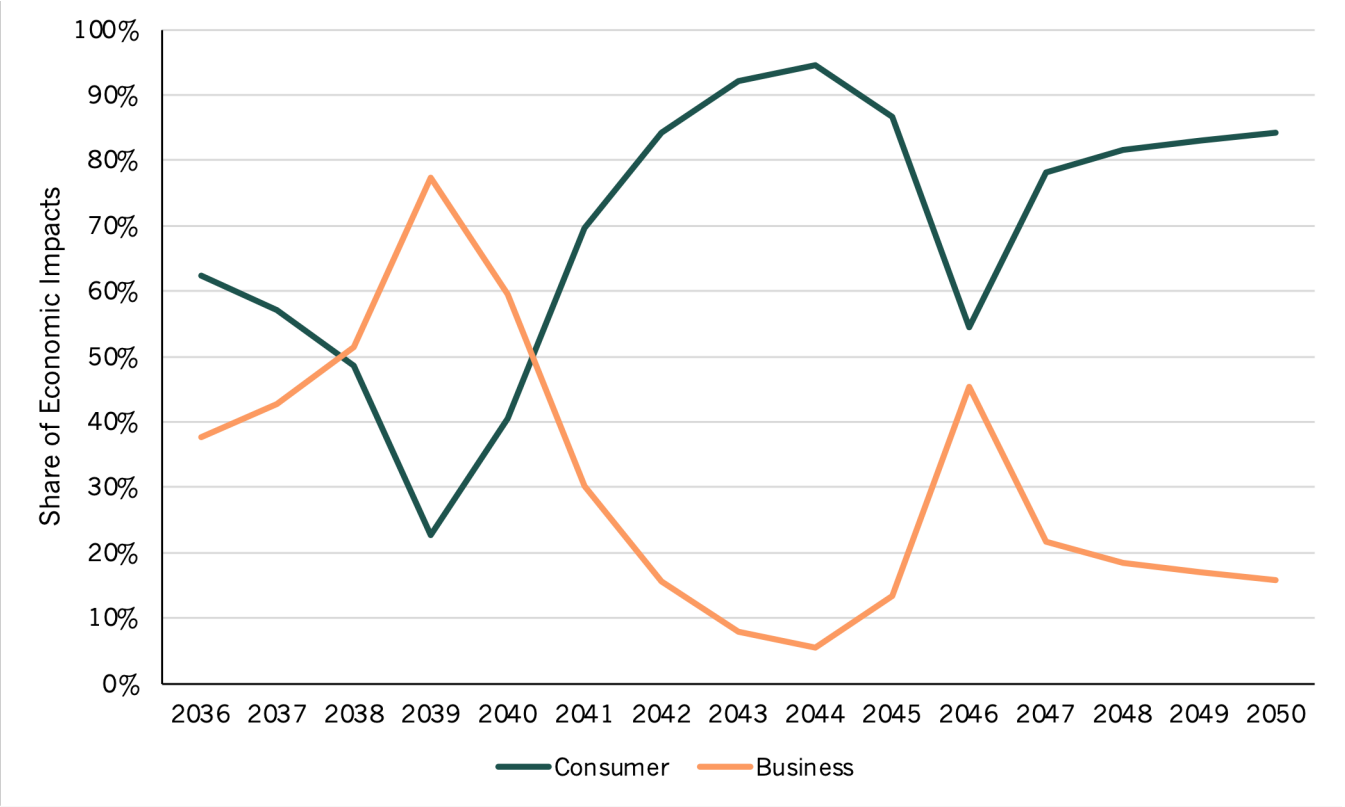


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

The consumer side dominates the output impact in the first year, consistent with the direct demand shock transmitted through reduced household spending. The business share grows as a proportion of the total in subsequent years, as firms in transportation, wholesale trade, and warehousing absorb the lagged effects of higher input costs on their production decisions.

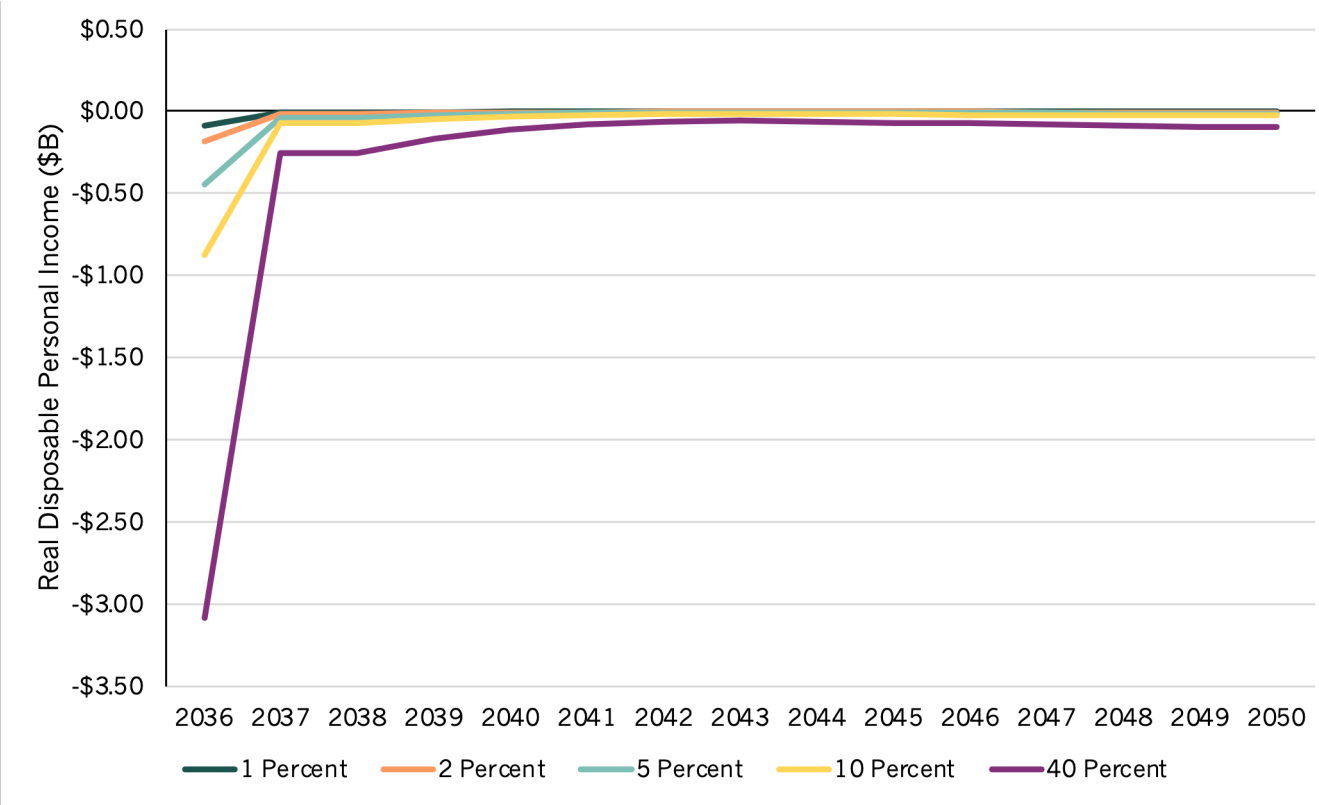
Exhibit 22. Consumer & Business Share of Impact to Economic Output (One-Year Price Shock)



Source: (REMI 2026) and Analysis by ECOnorthwest

Real disposable personal income declines in the shock year across all scenarios, ranging from approximately $90 million under the 1 percent scenario to $3.1 billion under the 40 percent scenario. The disposable income impact is notably more persistent than the employment or output effects. Even under the one-year shock design, households continue to experience reduced real disposable income through the early 2040s as lingering price level effects and population adjustments work through the economy. By 2045 to 2050, the residual impact has diminished substantially but has not fully dissipated under the higher scenarios.

Exhibit 23. Impact to Disposable Income (One-Year Price Shock)

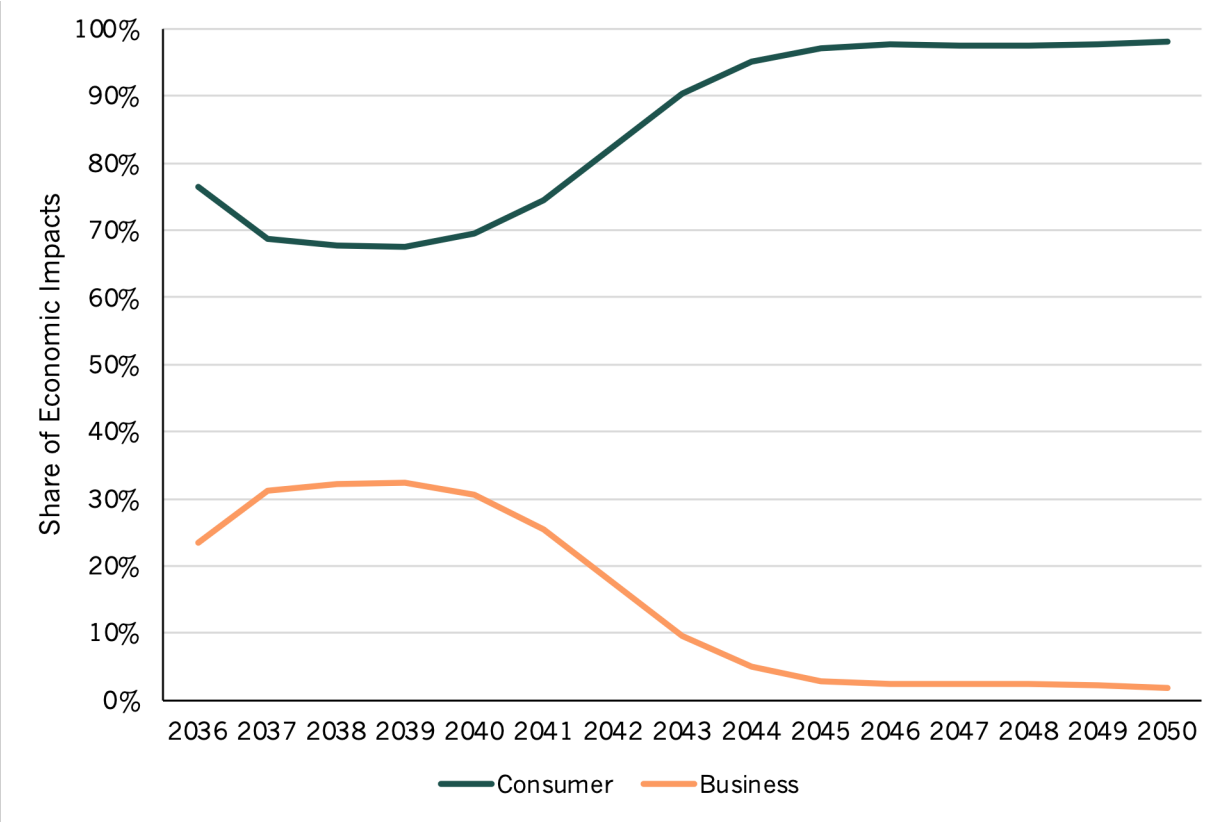


Source: (REMI 2026) and Analysis by ECOnorthwest

Note: All dollar values are in billions of dollars and are in 2025 dollars.

The consumer side accounts for the dominant share of the disposable income impact throughout the analysis period, which is consistent with the design of the consumer price variable as a direct tax on household purchasing power. The business side contributes a smaller but non-trivial share, reflecting the indirect effect of higher business input costs on wages and household incomes through reduced labor demand. The consumer share remains elevated relative to the business share even in later years, underscoring that fuel cost increases fall more heavily on households than on firm-level income flows.

Exhibit 24. Consumer & Business Share of Impacts to Disposable Income (One-Year Price Shock)

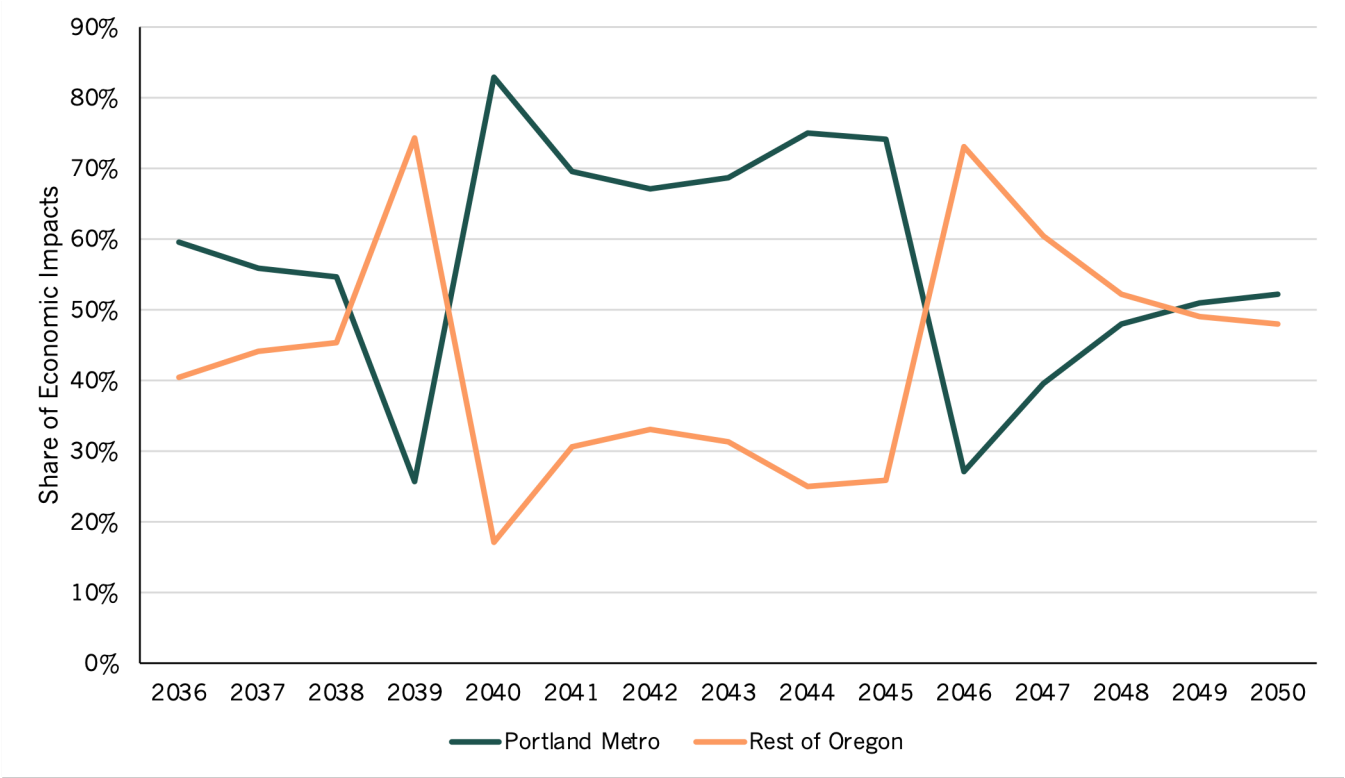


Source: (REMI 2026) and Analysis by ECOnorthwest

Regional Burden

Averaged across the analysis period, the Portland Metro area absorbs a larger share of the consumer-side economic impacts reflecting its higher concentration of fuel-dependent commuting patterns, consumer services, and retail activity. The rest of Oregon bears the remaining share, with rural and smaller metro areas facing proportionally similar per-capita burdens given their greater reliance on personal vehicle travel and longer average trip distances.

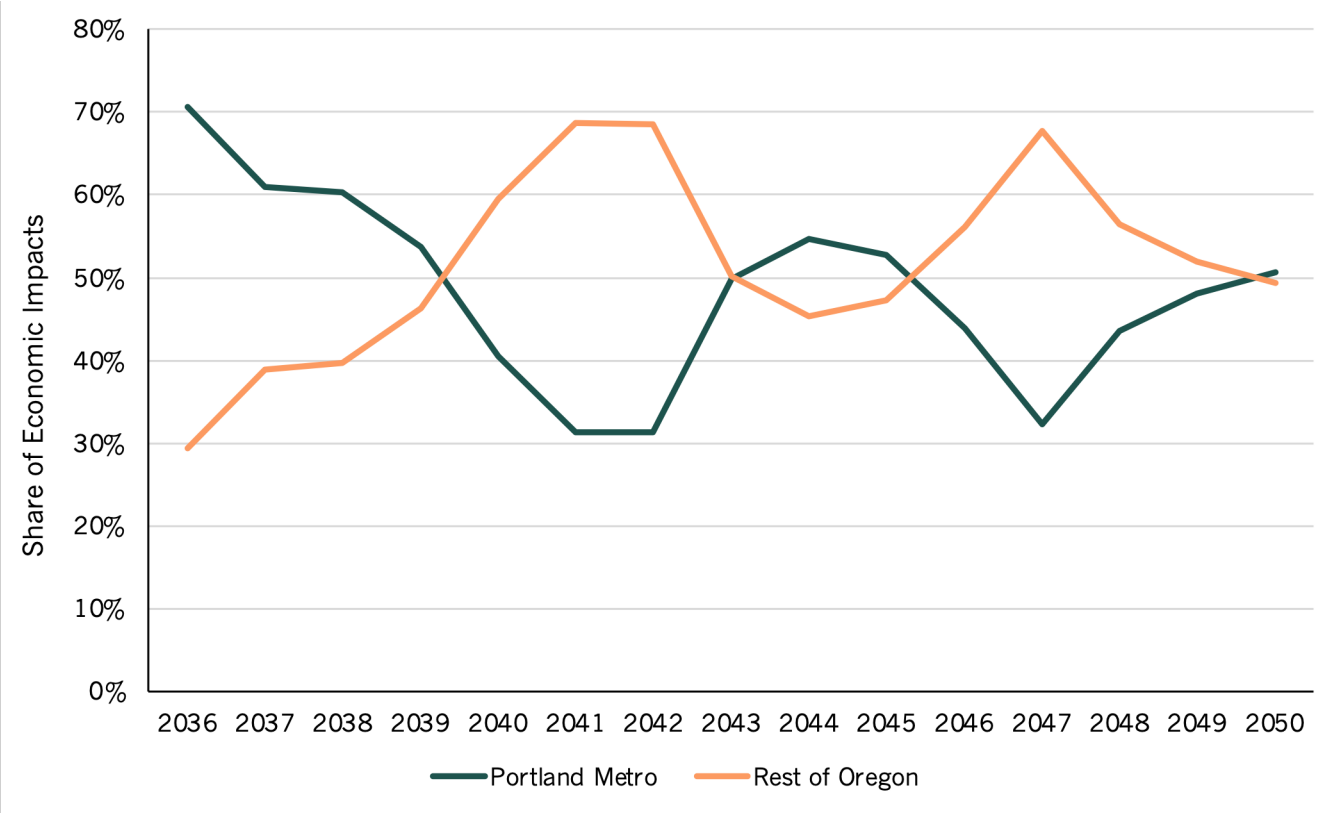
Exhibit 25. Average Share of Economic Impacts (Consumer-Side)



Source: (REMI 2026) and Analysis by ECOnorthwest

On the business side, the rest of Oregon accounts for a larger share of impacts compared to its consumer-side share. This reflects the concentration of freight, agriculture, and industrial activity outside the Portland Metro area, all of which face elevated fuel input cost exposure. Transportation and warehousing industries, which are the primary channel for the Fuel Cost policy variable in the model, are more geographically dispersed across the state than consumer-facing employment.

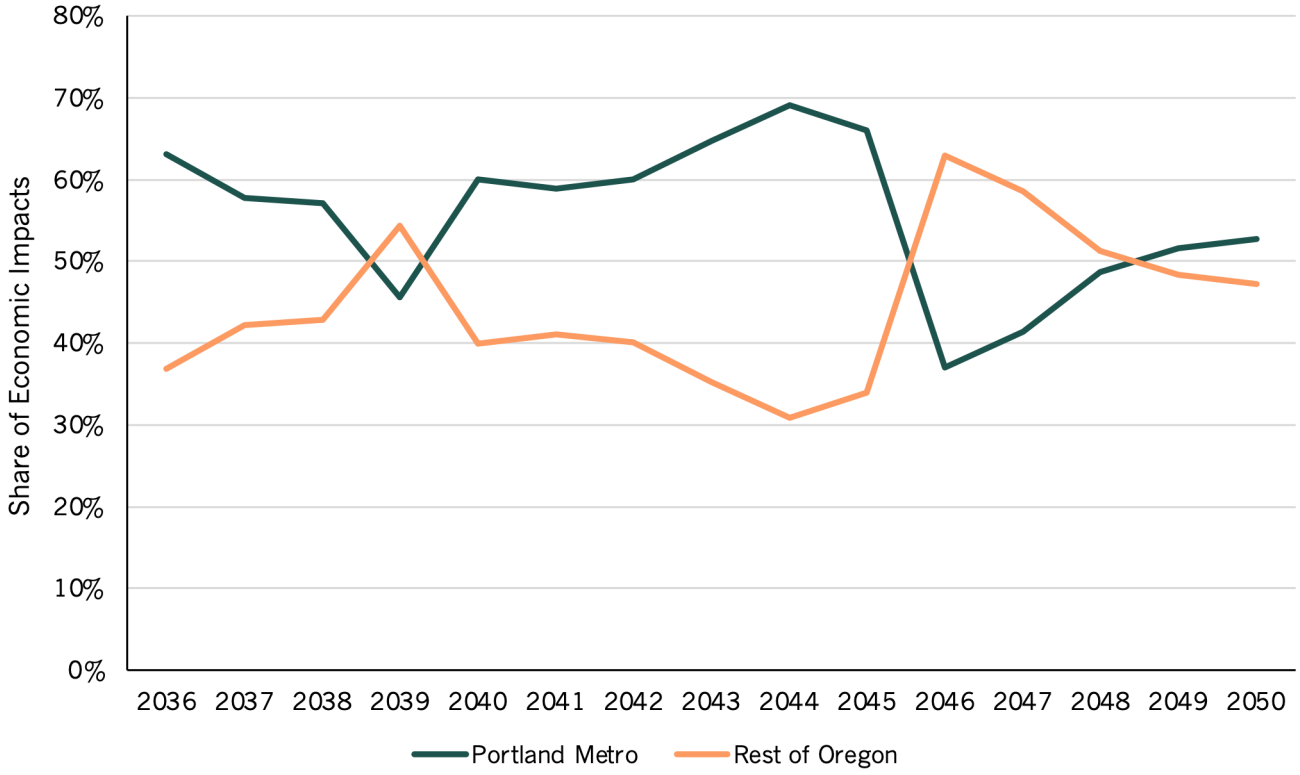
Exhibit 26. Average Share of Economic Impacts (Business-Side)



Source: (REMI 2026) and Analysis by ECOnorthwest

When consumer and business impacts are combined, the distribution of burden between Portland Metro and the rest of Oregon reflects both regions' economic exposure. Portland Metro accounts for roughly 56 percent of the combined impact, consistent with its share of statewide economic activity. The rest of Oregon bears approximately 44 percent, a share that is meaningfully higher on a per-capita basis given its smaller population and more fuel-intensive economic base.

Exhibit 27. Average Share of Economic Impacts (Consumer + Business)



Source: (REMI 2026) and Analysis by ECOnorthwest

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