

Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon

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Planning

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The contents of this report reflect the view of the authors who are solely responsible for the facts and accuracy of the material presented. The contents do not necessarily reflect the official views of the Oregon Department of Environmental Quality.

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Introduction

National Movement to Low Carbon Fuel Standards

Strategies to reduce greenhouse gas emissions from the transportation sector generally fall into three distinct approaches. The first approach relies on VMT reduction strategies, which seek to reduce overall vehicle travel. The second approach places an emphasis on vehicle-technology strategies, which seek to make vehicles more efficient in their ability to transport people and goods. The third approach contains fuel strategies, which seek to change the content of vehicle fuels so that emissions are reduced. Low carbon fuel standards fall within the fuels-strategies approach.

Low carbon fuel standard policies (often referred to as “LCFS” policies) make up a distinct approach to responding to public concern about the emissions of greenhouse gases that cause climate change. While not all low carbon fuel standard policies are equal, they are generally characterized by a focus on the intensity of emissions from fuel consumed, rather than on the exact type of fuel consumed. This approach, which specifically does not mandate a particular fuel or fuel mix for any part of the vehicle fleet, is often referred to as a performance-based standard. Without specifying a required fuel source, an LCFS seeks to lower the intensity of emissions from transportation fuels. Unlike mandates to displace gasoline with ethanol or electricity, or to displace diesel with biodiesel, an LCFS strategy simply establishes an overall emissions standard for the fuel mix.

This approach seeks to create flexibility, and to allow those impacted by the regulation to find their own way to the most cost-effective path to compliance. There are many different fuels available to the transportation sector, from natural gas to electricity to a wide variety of biofuels feed stocks, each with its own cost and each with its own greenhouse gas reduction capacity. This variety produces many different options for achievement of a lower-carbon fuel mix.

Because of the flexibility such an approach offers to regulated industries, low carbon fuel standards have attracted interest around the country. California was the first to enact an LCFS, and analyses of similar policies are taking place in Washington, Oregon and the northeast region. Information from analyses of related policies, such as biofuels or electric-vehicle policies, is available to improve states’ understanding of what outcome an LCFS might produce, and what costs such a policy might impose.

Federal RFS and RFS2 Targets

There has never been (and there is not now) a federal low-carbon fuel standard. The government has enacted two different Renewable Fuel Standards (referred to by the acronym “RFS”), however. The original RFS, passed as part of the Energy Policy Act of 2005, mandated that 7.5 billion gallons of renewable fuel be blended into the gasoline supply by the year 2012. The second RFS (referred to as “RFS2”) was included in the Energy Independence and Security Act of 2007 (EISA 2007), a statute which famously also mandated increases in vehicle fuel efficiency. RFS2 superseded the original policy, and mandated that 36 billion gallons of renewable fuels be blended into the transportation fuel mix by 2022. Within this 36-billion-gallon requirement were specific sub-requirements for different types of renewable fuels.¹

The RFS approach is distinct from an LCFS approach in that it mandates that specific fuels be consumed, rather than setting a broad target and allowing regulated parties to select their own approach to compliance.

California Low-Carbon Fuel Standard

In 2007, Governor Schwarzenegger established a low-carbon fuel standard for the state of California by executive order. This LCFS, which sets a target of 10% reduction in the carbon intensity of fuels by the year 2020, was further developed by California’s Air Resources Board to contain intermediate targets for each year between 2011 and 2020.

California has not only a 10% reduction target after ten years, but also specific intermediate targets for each year:

Year	Percent Reduction in Carbon Intensity
2010 (Baseline)	0%
2011	0.25%
2012	0.5%
2013	1%
2014	1.5%
2015	2.5%
2016	3.5%

¹ “Renewable Fuel Standards (RFS)”. Environmental Protection Agency Office of Transportation and Air Quality. Retrieved from <http://www.epa.gov/otaq/fuels/renewablefuels/index.htm>.

Economic Impact of Oregon Low Carbon Fuel Standard

2017	5%
2018	6.5%
2019	8%
2020	10%

Oregon's proposed LCFS has intermediate requirements by which the fuel supply must meet progressively stricter standards over the ten-year span from 2012 through 2022. 2012 serves as the baseline (in which no improvement is mandated). Improvements are mandated starting in 2013, and as in California, the final target is to be reached in the tenth year of the ramp-up in 2022.

Also, California's LCFS is distinguished in terms of flexibility of compliance by the opportunity for regulated parties to comply by purchasing emissions credits from clean-electricity providers. Because the state has already authorized the trading of emissions credits, transportation fuel providers may utilize that approach toward achieving the mandated LCFS targets. Oregon will also allow for the purchase and trading of low carbon fuel credits as a method of LCFS target compliance.

Washington Low-Carbon Fuel Standard

In May 2009, Governor Christine Gregoire issued Executive Order (E.O.) 09-05, Washington's Leadership on Climate Change. E.O. 09-05 directs the Washington Department of Ecology (Ecology) to assess whether the California Low Carbon Fuel Standard (LCFS) or a modification thereof would best meet Washington's greenhouse gas emissions reduction targets.

Accordingly, in consultation with Washington Departments of Commerce and Transportation, and with consultant assistance, Ecology will:

- Assess various lower carbon fuel programs and options.
- Assess how those options would align with Washington's transportation fuel supplies, greenhouse gas reduction targets, and state economic conditions,
- Recommend whether or not to pursue adoption of a low carbon fuel standard for Washington, what LCFS policies would best fit Washington, and if not recommended what alternatives could help achieve state GHG targets.

Ecology has completed its compliance scenario development, emissions reduction benefits, economic impact analysis and evaluation of alternatives. Ecology is now evaluating the options.

Oregon Low-Carbon Fuel Standard

Options for Compliance

Low-Carbon Fuel Standards present regulated communities with multiple options for compliance. Many types of fuels offer reduced emissions when compared against gasoline and diesel. Response strategies may target the light-duty fleet, which is very large and uses mostly gasoline, or they may target the heavy-duty fleet, which generates significant emissions from a smaller, mostly diesel-powered fleet.

Biofuels

The combustion of biofuels, a category which includes ethanol and biodiesel, generally emits less greenhouse gases per unit of energy than combustion of gasoline and diesel, when analyzed on a life cycle basis. Displacing conventional gas and diesel with biofuels, therefore, reduces the overall carbon intensity of the fuel mix and thus achieves progress toward LCFS targets.²

This can be done in many ways. Current federal regulations allow for the use of gasoline blended with up to 10% ethanol content in the on-road fleet of light-duty vehicles (a category including cars, SUVs and pickup trucks). In addition, recent federal regulatory changes allow for a blend of 15% ethanol in gasoline for vehicles of the 2007 or later model years, and may soon allow this fuel to be used in older vehicles as well. Oregon has not yet authorized gasoline blends containing more than 10% ethanol for use in the state. Encouraging the sale and consumption of these blended fuels, rather than of unblended gasoline, is one approach to reducing carbon intensity of fuels. More aggressive approaches to biofuels might seek to expand the use of flex-fuel vehicles, which can run on either gasoline or an ethanol-dominant blend (as high as 85% ethanol and 15% gasoline). Expanding the availability and consumption of biodiesel, or of hydrogenation-derived renewable diesel, in the heavy-duty fleet is an additional approach.

² The carbon intensities discussed here are estimated on a “Life cycle” basis. Life cycle carbon intensities measure not only the greenhouse gases contained in the fuel and emitted from the tailpipe upon combustion, but also the emissions required to grow, harvest, refine and transport the fuels to market. Cellulosic fuels gain an advantage over corn primarily in these “upstream” phases – they require less energy to grow and refine than corn typically does, or are made from waste products. Calculations of life cycle greenhouse gas emissions are generated by DEQ and it’s contractor, TIAX llc, using a model developed by DOE and can be independently assessed through the GREET emissions measurement tool, available at <http://greet.es.anl.gov/>. Oregon and TIAX have customized this GREET model to reflect Oregon-specific conditions.

Biofuels come from many different types of crops. The type of crop, as well as the process used to refine the feedstock, determines the amount of carbon reduction. The production and consumption of corn ethanol, which is common in the US, is relatively carbon intensive and represents only a moderate savings compared to conventional gasoline. Ethanol and biodiesel from stocks such as waste wheat straw, forest residue, farmed trees, waste berries, sugarcane, switchgrass or other cellulosic sources are less carbon intense, and are thus far more helpful in meeting LCFS targets.

Electricity and Hybridization

By virtue of their comparative efficiency when compared against conventional fuels, electric vehicles are also beneficial to reaching an LCFS target. Electric vehicles and plug-in hybrid electric vehicles use an electric motor (either independently or in combination with a conventional engine) to achieve low-carbon transportation.

These are included in LCFS strategies despite the fact that electricity is not usually a low-carbon fuel. In fact, electricity from coal is actually significantly more carbon-intensive than gasoline or diesel, when measured per unit of energy. Outside of the northwest, the current national electricity supply is dominated by coal-fired and natural-gas fired generation, and is a carbon-intensive energy source. In Oregon, the future of electricity generation will become less carbon-intensive due to a state renewable portfolio standard and the closure of its only coal-fired power plant. Electric vehicles remain in LCFS strategies, however, because vehicular efficiency (how far the vehicle can go on the same amount of energy) is projected to be so much greater for these vehicles than for conventional vehicles that it overwhelms the carbon intensity of electricity.

These projections of great efficiency in electric vehicles are corroborated by recent EPA ratings for emerging electric vehicle models. The Nissan Leaf received ratings of over 90 miles per gas-gallon equivalent (the amount of electricity equivalent to the energy in a gallon of gas). This level of energy efficiency is roughly triple that of the average new automobile, and roughly quadruple that of the gasoline-powered vehicle fleet currently on the road. The Chevrolet Volt, which can run on both an electric charge and on electricity generated by an on-board gasoline engine, received two distinct efficiency ratings. When running on electricity from a charged battery (i.e. running directly on electricity), it also receives a rating just above 90 miles per gas-gallon equivalent. It is not as efficient when relying on gasoline, however; it achieves only 37 miles per gallon when drawing power from its gasoline engine. The analysis involved in developing these scenarios assumed relative efficiencies of the electric and gasoline fleets similar to these numbers.

Internal combustion engines expend most of the energy contained in gasoline in the form of noise, heat and vibration, applying only a fraction of the fuel's energy content to actually turning the wheels. By avoiding energy losses associated with fuel combustion, vehicles running on electricity can direct a greater share of their stored energy toward motion.

Natural gas and biogas

The combustion of natural gas, either in compressed (CNG) or liquefied (LNG) form, generally emits less greenhouse gases per unit of energy than combustion of gasoline and diesel, when analyzed on a life cycle basis. Displacing conventional gas and diesel with natural gas, therefore, reduces the overall carbon intensity of the fuel mix and thus achieves progress toward LCFS targets. This is true despite the fact that liquefied natural gas contains less energy per gallon than diesel, and consequently permits fewer miles of travel per gallon.

Compressed and liquefied natural gas can be utilized in both the light-duty and heavy-duty fleets. For the purpose of this analysis, however, the scenarios involving expanded use of natural gas fuels directed all new natural gas supply to the heavy-duty vehicles sector, where it was anticipated to displace diesel fuel.

Biogas (also referred to as biomethane) is produced from the biological breakdown of biodegradable organic materials (anaerobic digestion), resulting in a mixture of methane, carbon dioxide, and trace amounts of other gases. Biogas captured from landfills is referred to as landfill gas, while digester gas refers to the production of biogas from wastewater treatment plants (sewage), and livestock manure, food waste, industrial waste, and other sources. Biogas, like other forms of natural gas, can be compressed or liquefied, or converted to hydrogen. Biogas can also be injected into a natural gas pipeline. Because biogas is made from waste, It has a very low carbon intensity.

Natural gas and biogas also offers economic benefits to the US economy over petroleum consumption. Most natural gas is domestically produced, allowing the positive economic and employment benefits from production, processing, distribution and sale to be fully captured within the US economy. By contrast, the US economy imports approximately two thirds of its petroleum for use in the transportation sector. In addition, a significant infrastructure for processing and distributing natural gas products already exists in the form of pipeline networks serving the utilities sector. This cost-effective infrastructure, along with low projected costs of extraction, produces a very low retail price (projected to be only around 60% of petroleum fuels) and significant fuel savings to consumers, businesses and governments.

Hydrogen

Hydrogen fuel is yet another alternative fuel offering lower carbon emissions per mile of vehicle travel. Emissions from the use of hydrogen fuel are extremely low, and can constitute no greenhouse gas emissions at all. However, hydrogen fuel does require energy-intensive processes for its formulation. Several approaches exist, usually using fossil fuels to isolate and store hydrogen in fuel cells. This process, rather than the actual use of the fuel in a vehicle, is where the associated emissions are generated.

Despite these associated emissions, the EPA and AEO associate hydrogen with fewer emissions per unit of energy than either diesel or gasoline. In addition to this benefit, the vehicular efficiency (how far the vehicle can go on the same amount of energy) is projected to be much greater for these vehicles than for conventional vehicles. As such, hydrogen achieves two benefits: it reduces the emissions associated with energy use and achieves greater distance traveled on the same amount of energy.

Hydrogen technology is, however, in its infancy. Excess supply from industrial production of hydrogen is not considered to be sufficient to supply fuel to a significant share of the vehicle fleet or to displace a significant amount of petroleum fuels. Developing the production capacity, vehicle technology and distribution infrastructure is considered to be at best a long-term goal, and expansion of a hydrogen transportation industry is viewed as unrealistic over the period of analysis considered in this project.

Expected Economic Impacts in Oregon

This economic analysis of potential Low Carbon Fuel Standards in Oregon is focused on the development and evaluation of potential impacts from a wide range of fuels that could be used in the future to comply with the low carbon fuel standards. The purpose of the standards is to reduce carbon intensity of transportation fuel (including off-road equipment and vehicles) used from motor vehicle use in the state. This will be accomplished by altering the fuel supply mix from mostly petroleum products to a mix still dominated by petroleum products, but containing a greater portion of lower carbon alternatives such as ethanol, biodiesel, natural gas and electricity. The different scenarios reflect the uncertainty of market response – responses may focus on any one of a variety of fuels, those fuels may come from in-state, out-of-state or foreign feedstocks, and they may be refined locally or out of state.

Regardless of the fuels modeled, the importance of production within the United States, and possibly within Oregon, is economically very significant. The importation of petroleum products to the nation and to Oregon results in a negative balance of trade for the nation and for Oregon and reduces economic performance. Domestic production, by contrast, allows the domestic economy to retain the wealth spent on feedstock.

In a 2005 study for the US Department of Energy, researchers at Oak Ridge National Laboratories estimated that if oil prices in 2005 averaged \$35-\$45/bbl, oil dependence costs in 2005 will be in the range of \$150-\$250 billion.³ By reducing petroleum imports and replacing

³ COSTS OF U.S. OIL DEPENDENCE: 2005 UPDATE, David L. Greene, Oak Ridge National Laboratory and Sanjana Ahmad, University of Tennessee, February 2005, for the U.S. DEPARTMENT OF ENERGY

the fuel with low carbon domestic alternatives, there is an opportunity to reduce these economic losses from the US and Oregon economy.

Other Economic Impact Studies

There have been several recent economic or macroeconomic impact analyses focusing on scenarios involving the implementation of an LCFS, or of some fuel-related strategies commonly found within an LCFS. The authors of these studies sought, or are seeking, to estimate a) carbon reduction potential, b) fuel usage patterns, and c) economic impacts of a low-carbon fuel standard strategy. The studies were completed by the Center for Climate Strategies and the Governmental Studies faculty at Johns Hopkins University, Professor Adam Rose at the University of Southern California, the Washington State Department of Ecology, the California Air Resources Board, NESCAUM⁴, the California Climate Action Team, and Charles River Associates. A comparison of these studies is found in the Oregon Low Carbon Fuel Standards Report as Appendix E: Comparable Economic Studies in Other States Memorandum.

Not all of these studies have similar scenarios, assumptions or methods to those utilized for the Oregon analysis. In addition, not all have been completed to the point where results have been published. The table below briefly summarizes the year of publication and the perceived similarity of each study to the work being completed for Oregon. Those of high similarity should be more valuable to those considering an LCFS in Oregon.

Studies Reviewed

<u>Study</u>	<u>Date of Publication</u>	<u>Similarity to Oregon Study and Usefulness for Comparison</u>
Impacts of Comprehensive Climate and Energy Policy Options on the U.S. Economy <i>Center for Climate Strategies and Johns Hopkins University</i>	2010	Limited. Considers macro effects of biofuels, but only as part of a 23-policy bundle. Analysis is done a) on a national scale and b) without detailed infrastructure assumptions
The Economic Impact of the Florida Energy and Climate Change Action	2008	Somewhat. A state-level study with macroeconomic analysis, finding \$15 billion in direct savings from advanced

⁴ NESCAUM stands for Northeast States for Coordinated Air Use Management.

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Plan on the State's Economy <i>Adam Rose and Dan Wei, University of Southern California</i>		biofuels use. No macro analysis was completed for the biofuels strategy, however, beyond a projection of 11,000 net positive new jobs created.
Washington State Low Carbon Fuel Standard Analysis <i>Washington State Department of Environmental Quality</i>	Ongoing	Superior, but not yet complete. This study uses very similar methodologies and uses very similar sets of inputs and an equivalent LCFS scenario. Scenarios and assumptions differ only in minor ways from those in the current study. This study is not yet completed.
Northeast States Low Carbon Fuel Standard Analysis <i>NESCAUM</i>	Ongoing	Significant, but not yet complete. This study undertakes very similar methodologies and uses very similar sets of inputs. Scenarios may differ; they have not yet been established. This study is in its beginning stages.
Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report <i>California Climate Action Team – Economics Subgroup</i>	2006	Limited. As with Florida's study, this study completes a macroeconomic analysis of a bundle of 40 climate strategies, but no individual results for major LCFS components. Also uses different methods and model types from Oregon's approach.
Economic and Energy Impacts Resulting from a National Low-Carbon Fuel Standard <i>Charles River Associates</i>	2010	Very Limited. The study analyzes the impacts of a severe rationing regime imposed on gasoline and diesel, rather than the displacement of those fuels by lower-carbon-content alternatives. It specifically assumes that any new low-carbon fuel capacity is impossible within the next 15 years, and thus models no change in the use of alternative fuels. The likelihood of its other assumptions is open to question on political, technological and economic grounds.
California Air Resources	2009	Somewhat. CARB's analysis considered

Board, Economic Impact Estimate of Low-Carbon Fuel Standard		a similar LCFS standard and also considered several alternate scenarios to achieving that standard over a 10-year period. However, their economic analysis was limited to direct microeconomic impacts, rather than a wider macroeconomic analysis showing the effect on the economy as a whole.
National Low Carbon Fuel Standard Analysis <i>University of California, Davis</i>	Ongoing	Unclear. Researchers seek to complete a macroeconomic analysis of a national LCFS scenario, but the scenario design is not yet complete and the analytical methods have not yet been publicly described.

Methodology

Measuring Economic Impacts

Impact analyses are always framed within the context of “with” and “without” (benchmark) perspectives. The impact of an exogenous event, such as the application of an LCFS policy, is defined and measured in terms of the differences between the state of the economy associated with the change and its state without. Thus, impact analysis requires the ability to forecast a baseline condition. In *ex post* analyses, the only forecast required is of what the economy would have been without the change, since the state with the change is directly observable. In *ex ante* analyses such as the present study, research is required to estimate what the economy is expected to look like in both the “with” and “without” scenarios. This framework is required whether the analysis is qualitative or quantitative. Impacts cannot be ascertained otherwise.

All impact analyses require an explicit or implicit model that explains how the economy is affected by a variety of factors determined outside the control of private decision makers. Because there is a wide range of opinions on the likely direction of energy use, it may be wise to define alternative benchmark scenarios that will meet the LCFS mandates. In order to complete the analysis of the Oregon LCFS scenarios, the project team created a baseline that includes not only the fuel mix today, but the mix in each year between the current year and a forecast year without the potential Oregon LCFS. The end year for this analysis is 2022. This baseline is

developed from the US Department of Energy Annual Energy Outlook with major modifications based on discussions with the low carbon fuel advisory committee and TIAX. In future studies, DEQ might want to consider a longer term as well, such as 2030 or even 2050. The longer term horizon might reveal trends that are not anticipated. For example, hydrogen fuel is unlikely to play a role in meeting the 2022 goal, but may be an important option in the longer term. This analysis develops baseline and annual alternative impacts only over the period from 2012 to 2022.

Many issues must be considered in the baseline, including the underlying growth in Oregon population and economic activity. The most recent Oregon Economic Review and Forecast⁵ expects annual employment growth over the next decade to be between one and two percent with annual growth in per capita income of about three percent. This growth in income and employment will include expected growth in demand for gasoline and diesel fuel to power transportation. Because of the State of Oregon and City of Portland renewable fuel standards, similar growth is expected for biofuels. These expectations are in the baseline scenario (referred to as the “Business As Usual” or “BAU” scenario). The baseline scenario changes will proceed in a dynamic fashion, the pace of which will be crucial in defining the impact and viability of a lower-carbon-intense-fuel-driven Oregon economy. Note that there are both microeconomic and macroeconomic baseline considerations. As such, both the VISION (vehicle inventory and use) and REMI (Input-Output, Computable General Equilibrium, and economic Geography models) tools must generate a baseline from which scenarios under consideration can be evaluated in later steps. These modeling tools and their application are discussed below.

Types of Economic Impacts

The estimation of economic impacts of public policy often focuses on three types of impacts. Direct economic impacts refer to the changes in behavior and costs that result from actions to comply with the LCFS. For example, the development of distilling resources to produce fuel ethanol would be a direct impact. Indirect economic impacts are defined as the behavior and costs that result in the economy to facilitate the direct impacts. An example of indirect impacts is the economic impact resulting from the likely changes in spending on labor and fertilizer, which are needed to produce crops that will serve as feedstock for an ethanol production facility. The labor and materials needed to build and run such a facility are another indirect impact. Finally, induced economic impacts are the behavior and expenditures by households given the changes in income earned as a result of both direct and indirect activities. Induced impacts may occur across the entire economy.

Most environmental regulations result in higher production costs for the regulated industries. Tailpipe emissions regulations require additional vehicle emissions control technology which

⁵ http://www.oregon.gov/DAS/OEA/economic.shtml#Most_Recent_Forecast

increases the production cost of the vehicle. Air quality regulations that limit plant emissions require production modifications or emissions post production processing to comply with emissions limits. The additional cost of compliance is compared to the benefits of reduced emissions such as improved health and quality of life. If the benefits of the regulation are deemed to exceed the costs, the regulation is considered cost effective.

The proposed Oregon LCFS is distinct in its economic impact from typical environmental regulation, as it provides an opportunity for economic gains as domestic and in-state production of replacement fuels stimulates the US and Oregon economies. This stimulus results from a reduction in petroleum imports and an increase in domestic investment to provide feedstock and production/generation facilities for the replacement fuels. In this study, all alternative fuel supply investment within Oregon is deemed to come from outside the state as there is now no significant transportation fuel production industry in Oregon. This external investment in productive facilities in Oregon creates employment, income and state product greater than would exist without this stimulation.

The potential decision by Oregon to institute an LCFS will provide opportunities for economic development within Oregon that would not occur in the absence of such a rule. Such investments will not occur in the absence of the rule, as investors would have no guarantee that the market for alternative fuels would materialize. Indeed, the petroleum sector could modify delivery prices in areas where such investments were made to make these investments uneconomic. However, with the rule in place, low carbon fuel suppliers are effectively guaranteed a market for their product as the fuel mix is required to meet the carbon intensity requirements of the regulation. Without a supply of these low carbon substitutes, traditional petroleum could not be sold in the Oregon market.

The level of investment assumed in the macroeconomic model is considered fixed in the baseline. Thus, new investment from outside of Oregon will increase economic activity in Oregon in the scenarios. This is particularly true in the short run as there is very little transportation fuel produced in Oregon today. If these investments, or even a portion of these investments, came from within Oregon, they would replace other Oregon investments. The economic impacts would then be measured as the impacts of the new investment less that of the displaced investment. This is a complicated calculus and has not been carried out in this analysis. If it had been, the measured economic impacts would likely still be positive, as only a portion of the investments would displace existing investments and the impacts of the displaced and new investments are likely to be similar in aggregate. Also, regardless of the source of the investment dollars, the LCFS policy (under most scenarios) would achieve a displacement of imports by domestically produced fuels, which allows the state to gain economic benefits associated with the production and sale of fuels – benefits currently enjoyed almost exclusively by out-of-state providers.

This analysis considers impacts to over 70 distinct sectors of the economy. The nature of the expected impacts under the scenarios considered suggested that certain specific sectors would be likely to see significant impacts. The anticipation of the construction of new biofuels refining facilities suggests likely gains for the construction sector. Because construction is labor-intensive work (when considered in terms of the number of full-time-equivalent positions per dollar expended in the sector), employment was also anticipated to rise, and as a further consequence, incomes and consumer spending were expected to rise as well. Petroleum production would be expected to show a loss in economic activity as alternative fuels displace gas and diesel, but in Oregon's case, the state has no in-state production or refining, and so such an impact was not expected here. Even in the State of Washington, where they have a sizeable petroleum production economy, their economic analysis showed net economic benefits in all of their scenarios except for the one where all fuel production came from out-of-state sources.

The modeling and analyses produced results which agreed with those assumptions. The sectors in which the largest impacts are projected to occur under the different scenarios are described in the Macro Modeling section (see below).

Scenario Development

Purpose of Scenario Analysis

This scenario analysis is not a forecasting effort. Forecasting economic conditions in a particular year is a challenging prospect. Projections of future economic conditions depend on the expected growth in population and in economic activities, but are subject to the effects of natural, economic and political conditions during the forecast period that are impossible to predict with precision. Natural disasters, international banking collapse, war, embargos and many other unpredictable events will determine the future level of economic activity. The best that can be done is to develop a state economic forecast that is consistent with the national forecast and recognizes any unique characteristics of the Oregon economy. This forecast is the business-as-usual scenario, without a LCFS either in Oregon or nationwide. Fortunately, this analysis of a Low Carbon Fuel Standard requires only a baseline, and not a full economic forecast, to assess the impacts of the standard.

The transportation fuel supply industry in Oregon will have a range of options available to it to supply transportation fuel to the state while meeting the LCFS. These options are referred to as compliance scenarios. The DEQ, working with the low carbon fuel advisory committee and TIAX, developed a set of compliance scenarios that are believed to bracket the range of potential fuel supply options. All of the selected compliance scenarios result in compliance with the

LCFS, and they are expected to bracket a range of realistic assumptions regarding the low carbon fuels available in the future. Scenario analyses were conducted for gasoline and diesel fuel, both separately and in a single fuel pool.

Impacts are measured by comparing each scenario to the baseline business-as-usual scenario. The direct, indirect and induced impacts are catalogued for each scenario compared to the baseline for macroeconomic variables such as employment, personal income and state product.

Carbon Intensities

The process of identifying scenarios in which alternate fuel use leads to a certain level of change in carbon intensity depends on an understanding of the relative carbon intensities of different fuels. Analysts utilized carbon intensity calculation methods developed by Argonne National Laboratories as part of its GREET model. These carbon intensities represent the amount of greenhouse gases a fuel is expected to produce for a fixed unit of energy (this is most commonly measured in grams per megajoule). Different fuels have different amounts of energy in the same volume, so comparisons by gallon can be misleading, and inapplicable as a measurement for non-liquid fuels such as electricity and compressed natural gas. Comparing by units of energy allows fuels of very different types to be compared on similar footing.

Carbon intensities were developed for gasoline, diesel, natural gas from fossil sources, and electricity. Carbon intensities for biomass-based diesel and ethanol were further refined to differentiate between all the different biofuels pathways under consideration as part of the scenarios in this analysis. Separate carbon intensities were developed for each of the following:

- Midwest corn ethanol, refined in Midwestern refineries and transported to Oregon
 - Conventional varieties
 - Lower-carbon varieties
- Midwest corn ethanol, made with Midwest corn but refined in Oregon
- Cellulosic ethanol from waste food
- Out-of-state cellulosic ethanol
- Imported sugarcane ethanol from Brazil
- Cellulosic ethanol from forest residue and from grass waste
- Cellulosic ethanol from wheat straw

- Cellulosic ethanol from farmed trees
- Midwest-produced biodiesel from soybean stock
- Northwest-produced biodiesel from canola
- Northwest-produced biodiesel from waste yellow grease
- Northwest-produced renewable diesel from camelina
- Cellulosic diesel
- Compressed natural gas from waste biogas

All carbon intensities, including those for both gasoline and diesel, were then weighted by projections of vehicle efficiency (miles driven on the same amount of energy as is contained in a gallon of gas) as compared to a conventional gasoline or diesel vehicle to develop carbon intensities for each fuel. This step was taken to allow the comparison to account for the projected transportation efficiency of fuels. As mentioned above in the section describing electrification and the use of natural gas as an LCFS option, different fuels are associated with engine technologies which have different efficiency ratings. Applying this adjustment allows for the measurement of carbon intensity per mile traveled, rather than just a measurement of carbon intensity from production, transportation, refining, storing and burning fuel.⁶

Scenario Selection

A compliance scenario combines information from a fuels assessments and the calculation of carbon intensities to estimate the volume of various low carbon fuels that would be needed to achieve the LCFS. There are several purposes for developing compliance scenarios:

- The scenarios allow DEQ to assess whether the current production capacity of low carbon fuels in Oregon will likely be sufficient to support compliance with a LCFS program.
- The scenarios allow DEQ to identify any gaps in alternative fuel availability that would need to be filled in order to have a feasible program. This allows DEQ to evaluate the LCFS phase-in schedule in light of expected fuel availability and identify investment

⁶ This analytical step, if enshrined in policy, has the potential to create an incentive for fuel providers and vehicle manufacturers to pursue vehicle efficiency technologies. Under such a policy, improvements in vehicle efficiency of specific models would make the fuels powering those vehicles more attractive for compliance with an LCFS policy.

needs and economic development opportunities for Oregon to increase the availability of lower carbon alternatives fuels by 2022.

- The different compliance scenarios allow DEQ to evaluate the reasonable range of possible economic impacts associated with different compliance options.

Based on discussions with DEQ and the low carbon fuel standards advisory committee, TIAX created an Oregon-adjusted business-as-usual case. It assumed that Oregon receives its proportional share of fuels required by the federal Renewable Fuel Standard (RFS2) and that the Oregon Renewable Fuel Standard and Portland Renewable Fuel Standard regulations remain in place. It also assumed continuation of the Oregon Low Emission Vehicle program as well as federal fuel economy standards currently in place.

DEQ worked with the advisory committee to develop eight variations of compliance scenarios in order to compare the effects of several factors including: indirect land use change, in-state vs. out-of-state production of biofuels, price of crude, the need for advanced cellulosic technologies to develop, and the adoption rate of electric vehicles. TIAX then created the different fuel combinations that represent each compliance scenario. All scenarios were created to achieve a 10% reduction in carbon intensity by 2022. For each scenario there were separate analysis (Runs) for light duty and heavy duty vehicles. The eight scenarios are listed below.⁷

Scenario A – Cellulosic Biofuels with Indirect Land Use Change

Cellulosic Ethanol with indirect land use change (Produced In-State)

- In addition to Northwest corn ethanol and waste berry ethanol, compliance with standards achieved through use of in-state cellulosic ethanol. A small amount of out-of-state cellulosic ethanol is included due to lack of additional in-state feedstock availability.
- If more ethanol is needed to reach total RFS2 proportional share volumes, it comes from Midwest corn ethanol.

Cellulosic diesel with indirect land use change (Produced In-State)

- Compliance achieved through the use of new in-state cellulosic diesel and new waste oil biodiesel capacity.

Scenario B – Mixed Biofuels with Indirect Land Use Change

Mixed ethanol with indirect land use change

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of sugarcane ethanol, lower carbon intensity Midwest corn ethanol, and cellulosic ethanol (some produced in-state, a small amount from out-of-state).

⁷ Scenario descriptions developed by DEQ and TIAX, LLC

- So much ethanol was required here that the blend wall had to be increased to E12 (12% ethanol blended with gasoline) in 2017 and E15 (15% ethanol blended with gasoline) in 2020.

Conventional biodiesel with indirect land use change

- Compliance achieved through:
 - Moderate amounts of in-state cellulosic diesel production
 - Out of state grown and produced camelina-based renewable diesel
 - New in-state waste oil biodiesel capacity
 - Existing in-state canola biodiesel
 - New out-of-state canola biodiesel production from Oregon grown canola

Scenario C – Mixed Biofuels without Indirect Land Use Change

Mixed ethanol without indirect land use change

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of sugarcane ethanol, lower carbon intensity Midwest corn ethanol, in-state cellulosic ethanol, and some cellulosic ethanol produced out-of-state.
- For comparison with Scenario B, we increased the blend wall to E12 in 2017 and E15 in 2020.

Conventional Biodiesel without indirect land use change

- Compliance achieved through:
 - Existing canola biodiesel
 - Existing waste oil biodiesel
 - Midwest soybean biodiesel

Scenario D – Electricity, CNG and Cellulosic Biofuels with Indirect Land Use Change

High Electric Vehicles with Cellulosic Ethanol with indirect land use change (Produced In-State)

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of Electric Vehicles and Plug-In Hybrid Electric Vehicles plus in-state cellulosic ethanol.
- Similar to Scenario A except more electric vehicles to substitute for light duty gasoline are included, so less ethanol is required.

Maximize CNG vehicles and cellulosic diesel with indirect land use change

- Similar to Scenario A except more CNG vehicles to substitute for heavy duty diesel are included so less biodiesel is required.

Scenario E – One Pool

In this scenario, all fuels are treated as a single pool for compliance purposes. Heavy-duty vehicles achieve disproportionate gains. Multiple new fuels sources are combined,

including ethanol and biodiesel along with electric vehicles, plug-in hybrids, and expanded use of CNG in trucks.

Scenario F – Mixed Biofuels without Indirect Land Use Change, high oil prices

- Similar mix of fuels as Scenario C, but with higher oil prices (compared against a baseline also modified to reflect higher oil prices).

Scenario G – Mixed Biofuels without Indirect Land Use Change, low oil prices

- Similar mix of fuels as Scenario C, but with lower oil prices (compared against a baseline also modified to reflect lower oil prices).

Scenario H – Cellulosic Biofuels with Indirect Land Use Change, Out-of-State

Cellulosic Ethanol with indirect land use change (Produced Out-of-State)

- In addition to Northwest corn ethanol and waste berry ethanol, compliance with standards achieved through use of out-of-state cellulosic ethanol.
- If more ethanol is needed to reach total RFS2 proportional share volumes, it comes from Midwest corn.

Cellulosic biodiesel with indirect land use change (Produced Out-of-State)

- Compliance achieved through the use of out-of-state cellulosic diesel and new in-state waste oil biodiesel capacity, existing in-state canola biodiesel.

Alternatives Considered

DEQ considered many factors that provided the basis to many of the compliance scenario assumptions. A summary of the major factors considered include:

Factor 1: End point of the LCFS. Instead of using 2022 as the end point of the LCFS, end points of 2020 or 2024 were considered. 2020 would align with California’s program. Since it would be at least 2012 for rulemaking to be complete, the program would be less than 10 years. Therefore, regulated parties would have an accelerated timeframe to comply with the 10% reduction mandate. 2024 would align with Washington’s program (although subsequent recommendations from Washington have a 2023 end point year). This would result in the program’s reporting-only year being 2014 and the first compliance year being 2015. This delay in implementation would severely impede development of the infrastructure needed to support the LCFS. It would also complicate how DEQ could implement this program in light of the 2015 sunset date in the statute.

Factor 2: Indirect Land Use Change. For this analysis, the low carbon fuel standards advisory committee chose to adjust the carbon intensity of biofuels with California Air Resources Board’s indirect land use change (or “ILUC”) estimate. The CARB estimate is the highest of those

available (the EPA also produced estimates of carbon emissions attributable to biofuels as a result of indirect land use change numbers for the RFS2 program, and Purdue University also has a new estimate for ILUC-driven carbon emissions from corn ethanol). There is no consensus establishing that one estimate is better or more accurate than the others. The use of the California Air Resources Board number is not an acknowledgement of its accuracy or acceptance, but merely to provide an upper bound for analysis purposes. This analysis provides some information on the significance of its effect that the advisory committee members could use to inform their recommendations to DEQ.

Factor 3: Oregon's share of RFS2 biofuels volumes. RFS2 requires a minimum volume of biofuels to be produced nationwide, but does not specify where these volumes are used. Certain assumptions were made in order to estimate the amount of alternative fuels Oregon should expect to receive. The advisory committee recommended by consensus that the compliance scenarios assume that Oregon would receive its proportional share (by percentage of its fuel used compared to the entire country) of RFS2 biofuels.

Factor 4: Blend wall. In order to use all of the ethanol expected from Oregon's proportional share of RFS2, assumptions were necessary regarding the amount of ethanol that would be blended into gasoline during the 2012-2022 period. The current blend of 10% ethanol and 90% gasoline, known as E10, was retained for this analysis. A higher blend wall, allowing up to 15% ethanol, would create a higher baseline for ethanol use. A lower blend wall would need more ethanol to be used in flex-fuel vehicles capable of using up to 85% ethanol blend. The State of Washington's LCFS analysis assumed that a statewide ethanol blend of 15% ethanol would be in place in the future. The Oregon advisory committee recommended by consensus that E10 be the blend wall for this analysis (except in one case where it was necessary to increase the blend wall to E12 then E15 over time in order to consume all of its RFS2 proportional shares). The effect of this recommendation is that Oregon's program assumes the higher cost of developing the infrastructure needed to support a larger E85 fleet.

VISION Modeling

The VISION Model, developed by Argonne National Laboratories, is a spreadsheet-based tool that seeks to measure energy and greenhouse gas emissions from the entire US on-road vehicle fleet. It relies on perpetual inventories of 22 different classes of light-duty vehicles (eleven each for autos and light trucks), as well as six different classes of heavy-duty vehicles. The tool allows for extensive customization of the assumptions underlying the types of fuel used, the types of vehicles entering the market, the carbon intensities of each type of fuel, and the extent to which various fuels are blended together.

The standard tool was extensively modified to reflect Oregon, rather than the entire US, before any analyses were completed. The vehicle fleet was adjusted in both size and composition to reflect state rather than national data. Fuel price data and projections were adjusted to reflect projections for the Pacific region, rather than national average projections.

For each scenario, analysts developed a detailed picture of the exact sources from which various fuel supplies would be obtained. The model was expanded to reflect this detailed picture of the scenario's fuel supply, and the carbon intensities used were adjusted to reflect the scenario's unique mix as well.

Assumptions

Key assumptions in the VISION analyses, beyond those related to developing the LCFS scenarios, are as follows:

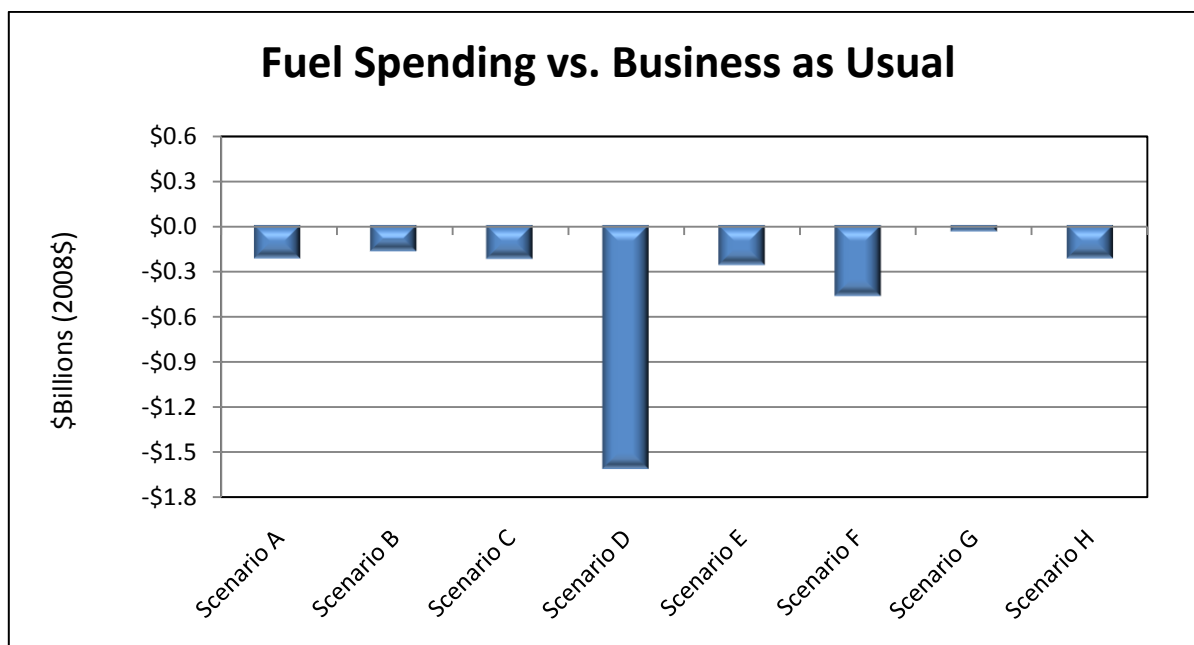
- Fleet composition – number and percent of each type of vehicle comprising the heavy-duty and light-duty fleets
- Fuel efficiency – miles per gasoline gallon equivalent achieved by each type of vehicle in the heavy- and light-duty fleets.
- Fuel and Vehicle prices – projected costs of each type of fuel, including taxes, as well as projected prices for each type of vehicle comprising the light-duty fleet.
- Carbon intensity – full lifecycle carbon intensities for conventional fuels (diesel and gasoline) as well as alternative fuels (natural gas, electricity, biofuels)
- Vehicle duration and scrappage – rates at which vehicles leave the fleet as they age.

Assumptions are outlined in the Oregon Low Carbon Fuel Standard Report in:

- Appendix B: Lifecycle Analysis
- Appendix C: Infrastructure Cost Assumptions
- Appendix F: Compliance Scenario Documentation.

Results

VISION analyses produce extensive results regarding a wide variety of impacts in each scenario, such as the volumes of various fuels consumed, the projected expenditure on those fuels, the blends of various fuels and the costs of any alternative vehicles required. An extensive collection of results is presented in Appendix A of this report. One representative result, the projected spending change on fuel under each of the eight scenarios, is depicted in the chart below:



VISION to REMI

While the VISION model is a valuable tool for measuring the impacts of changes to vehicle fleets and fuels, it does not produce macroeconomic impacts that show how such changes might reverberate through the broader economy. Significant increases in the consumption of biofuels, particularly of biofuels produced in-state, can be expected to impact farming and agricultural sectors of the economy. Significant shifts away from petroleum-based fuels (gasoline and diesel) can be expected to have impacts on businesses involved in oil production, refining and transportation. Significant new utilization of natural gas or electricity produced in-state would also affect related industries. Macroeconomic models seek to estimate these broader impacts.

For this project, the study team utilized the “REMI PI+” model, produced by Regional Economic Models, Inc.

Also, VISION provides only some of the values necessary to fully inform the REMI PI+ model of the direct economic expenditures expected under the different scenarios. To provide necessary inputs, analysts (with input from the low carbon fuel standards advisory committee) developed estimates for a number of direct expenditures expected as part of each different scenario. The expenditures included:

- New refining capacity for ethanol and for biodiesel
- Labor, utilities and feedstock costs for new refinery operations
- Distribution and fueling infrastructure (including additional tanker fleet costs) for additional biofuels and natural gas
- Fueling infrastructure and additional vehicle costs for electric/plug-in hybrid-electric fleet
- Additional vehicle costs for natural-gas powered heavy-duty vehicles

Further, VISION produces many of its results in physical units, such as gallons of fuel or BTUs of energy. The VISION to MACRO process involved developing direct economic impact estimates under each scenario for fuel expenditures based upon Department of Energy fuel price projections.

Assumptions and Results

Macro- and micro-economic models seek to evaluate economic activity at two very different levels. Micro analysis is concerned with activities for individuals or small groups of economic factors such as households, firms or agencies.

In this case, the modeling seeks to understand how the demand for transportation fuel is impacted by vehicle technology changes, driving patterns and fuel choice. VISION includes a full accounting of these decisions in the base year and in each forward year through 2022. It keeps track of the fleet over time so that the amount of fuel used, by type, is accounted for.

Macroeconomic models are broad aggregates of the economy. Sectors in the macro model include many products and industries collected and measured together. For example, there is no unique gasoline industry. Gasoline production is included in the Sector: *Petroleum and Coal Production*. Thus, both micro and macro models are required to simulate the economic impacts of the LCFS. These models can be separate stand-alone models or they can be combined in a

single program that translates and transfers the micro changes caused by this regulation to the macro model. In this case, we took advantage of the microeconomic detail of the VISION model and the capacity for macroeconomic aggregation of the REMI PI+ model. Other individual and combined models are available, but none offers more detail than those applied.

The full list of results and assumptions is included in Appendix B.

MACRO Modeling

Assumptions

The macroeconomic analysis was accomplished with the use of the REMI PI+ model. First, the business as usual case was run for Oregon using the REMI default case. Then, a model run was conducted and the results were compared to the baseline BAU for each scenario. The analysis focused on the change in employment, personal income and gross state product, but more detailed comparisons are available for each economic sector characterized in the 70 sector REMI as well as all categories of final demand.⁸

PI+ Results

The eight compliance scenarios were designed by DEQ and the advisory panel to include a wide range of potential compliance scenarios for the Oregon fuel supply sector. The graphs below indicate how macroeconomic variables such as income, employment and state product vary across scenarios. All three macro variables move together as the scenarios alter the low carbon fuel mix. In all cases the Oregon economy and fuel supply system is treated as the responder to the LCFS as it purchases and supplies the needs of Oregon vehicles for fuel that meets the standard. No national LCFS is assumed. The potential supply of fuel from each source is determined in the scenario and limited if there is a capacity constraint.

All scenarios that rely on liquid fuels demonstrate similar macro impacts. Investment in new plants and equipment to produce these fuels and the required infrastructure stimulates the Oregon economy in the years when plants are built and in their continuing operation. Baseline conditions are developed from the US Department of Energy AEO report and the base case

⁸ Final demand is the total demand for final goods and services in the economy.

scenario is built into the REMI models. Positive economic impacts in Oregon stem from the importation of less petroleum fuel and its replacement with Oregon produced products. To the extent that the Oregon LCFS reduces national petroleum imports, similar economic impacts will be realized. It should be noted that the level of petroleum consumption reduction in Oregon will not result in a lower absolute value for petroleum imports to Oregon than are imported today as demand growth is expected to continue through 2022. In the longer term, improved internal combustion efficiencies associated with new higher Corporate Average Fuel Economy (CAFE) regulation is expected to result in lower petroleum consumption in 2030 than the amount consumed currently.

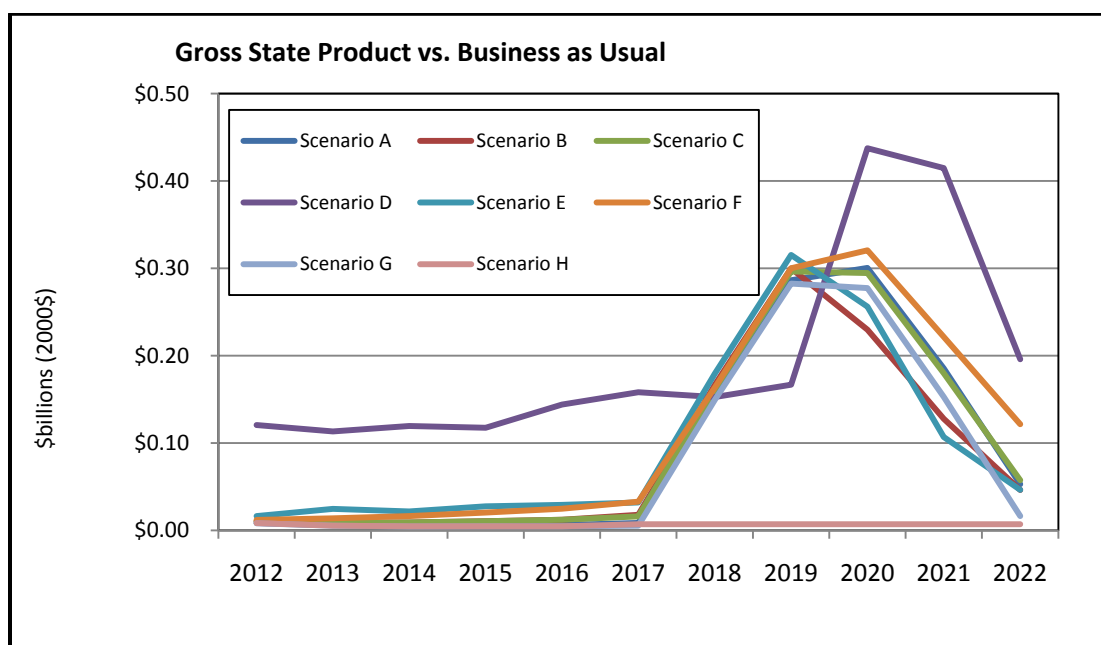
The results from Scenario D suggest that meeting the LCFS with electric vehicles in the light duty market and natural gas powered vehicles in the heavy duty market provides an earlier economic benefit than liquid fuel options through higher effective vehicle efficiencies. The US and California low emission vehicle standards and other forces are leading to the introduction this year of several electric-powered vehicles by both US and foreign automobile producers. The presence of pre-existing forces encouraging the development of an electric-vehicle fleet may allow the Oregon population to reduce their petroleum demand through this avenue more readily than through other alternative-fuel options.

The macroeconomic modeling analysis produced estimates of overall economic impacts, as well as specific impacts to approximately 70 different sectors of the economy, for all eight different compliance scenarios. The full results are included in this report as Appendix C.

All scenarios show net economic growth, but the final scenario, assuming all alternative fuels to be imported, shows very little economic change at all. This is due to the decision to assume that all of the capital investment will come from outside the state of Oregon and was based on the fact that the state currently has a very small domestic industry that produces transportation fuels. An analysis that considered this new capital expenditure as being taken from other capital-investment opportunities within the state would likely show more economic losses. This analysis, however, assumes that the lost capital investment occurs almost entirely out of state.

Gross State Product

The first graphic demonstrates the change in gross state product (GSP) projected under each scenario.



The graphic above depicts the GSP impacts of each of the eight scenarios modeled. In every scenario, the overall GSP changes are positive, indicating that the scenarios drive growth in economic activity in the state.

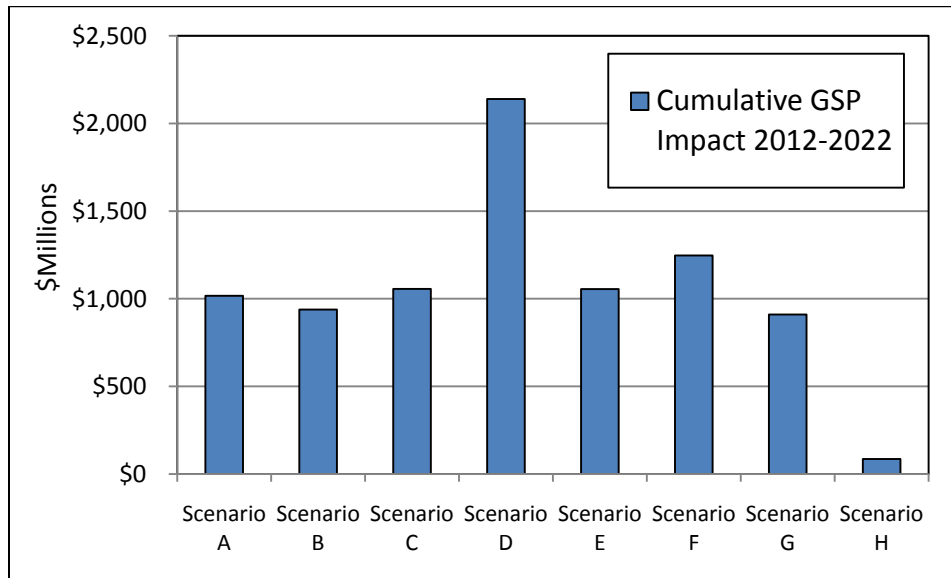
Results for six of the eight scenarios (scenarios A through C and E through G) produce a very similar projection, indicated by the six closely grouped lines in the graph. These scenarios all produce minor changes to GSP for the first five years of policy implementation (2013 to 2017), followed by rapid rises in the GSP impact in 2018 and continuing through 2021. This sudden increase in scenario impact corresponds to the beginning of construction of plants for the refining of biofuels. This construction, assumed to start only after a few years due to the time requirements of necessary preliminary steps such as design, permitting and site selection, represents a significant infusion of money into the state's economy.

Scenario D, which envisions an approach more focused on electricity and natural gas than on biofuels, produces a larger GSP impact and a different GSP impact pattern. This is represented by the high purple line. Unlike other scenarios, positive GSP impacts begin immediately, due to the expected on-going investment in electrical charging stations. This investment can begin immediately. Some in-state biofuels refining remains part of the scenario, and so the GSP impact of Scenario D spikes upward late in the period. As with other scenarios, this reflects investment in the construction of a refinery.

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario H, which envisions reliance on biofuels provided entirely from out-of-state agriculture and out-of-state refining, produces the lowest impact on GSP. The flat line in the graph represents this scenario. With little investment change in the state, and little change in overall fuel spending, this scenario produces very small changes from the business-as-usual projection.

The graphic below shows the overall volume of GSP change from the baseline in each scenario for the entire 10-year period in which the LCFS would ramp up to full implementation:



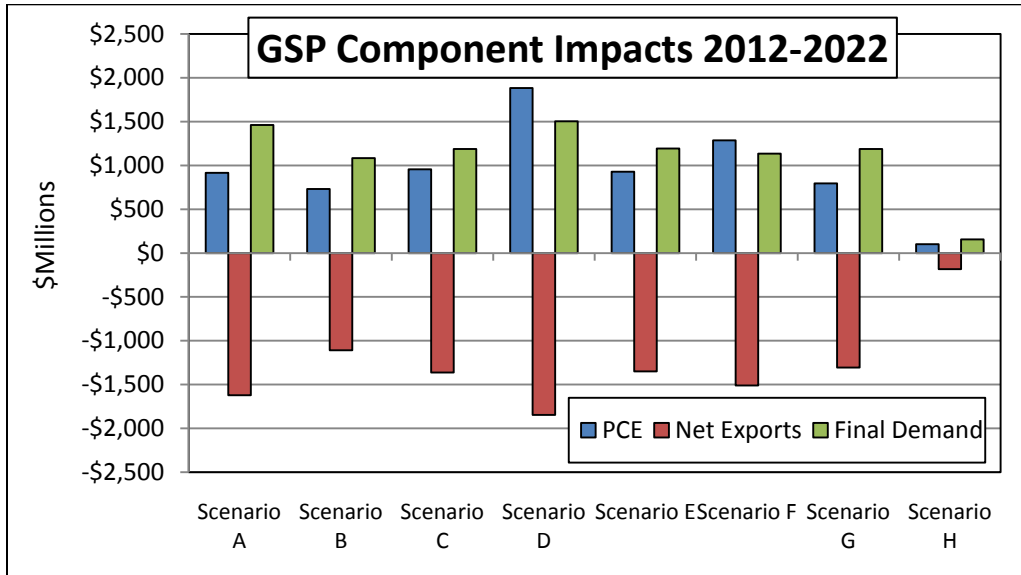
Overall, the six scenarios involving in-state production of biofuels (A through C and E through G) have fairly similar GSP impacts, ranging from approximately \$900 million to about \$1.25 billion in additional economic activity. Differences in the projected prices of fuels and the types and volumes of fuels needed are responsible for the variation among these six scenarios. Scenario D, which produces higher GSP impact projections every year, has a similarly higher cumulative effect. Scenario H, which never has a large impact in any single year, has a small cumulative effect.

Gross State Product Components

Gross State Product is estimated by measuring several components of activity in the state's economy. Levels of consumer spending, private sector investment, inventories, imports and exports, and government spending are among the components that make up a state's overall GSP.

The analysis of the LCFS scenarios identified three GSP components consistently expected to show significant impacts. Those components are Personal Consumption Expenditures, Private

Domestic Investment, and Net Exports (which represents the value of goods exported after deducting the value of goods imported).



In all scenarios, net exports (indicated by the red columns) fall against the baseline as a result of the increase in imports required. These imports are components of the capital to be constructed. However, this change (measured as a loss of GSP) is offset by increases in demand (indicated by the green columns) in every case. While these two components largely offset each other, personal consumption rises in every scenario, helping to drive the positive overall GSP change.

Two other GSP components, government expenditures and private domestic investment, also rise in every scenario, but at a much smaller scale.

Changes in Output and Value Added by Sector

Output is a measure of the total production in each sector, including a) intermediate consumption as an input to other products, b) final consumption as an end product by households, and c) the amount exported to non-Oregon markets for consumption.

Value Added has many components, the key ones associated with compensation of labor and return to capital.

REMI PI+ modeling produced estimates of the change in output for 70 individual sectors (see appendices for all sector outputs). Of these 70 sectors, the changes in output and value added were consistently largest in nine sectors in particular. Those nine sectors are:

- Construction

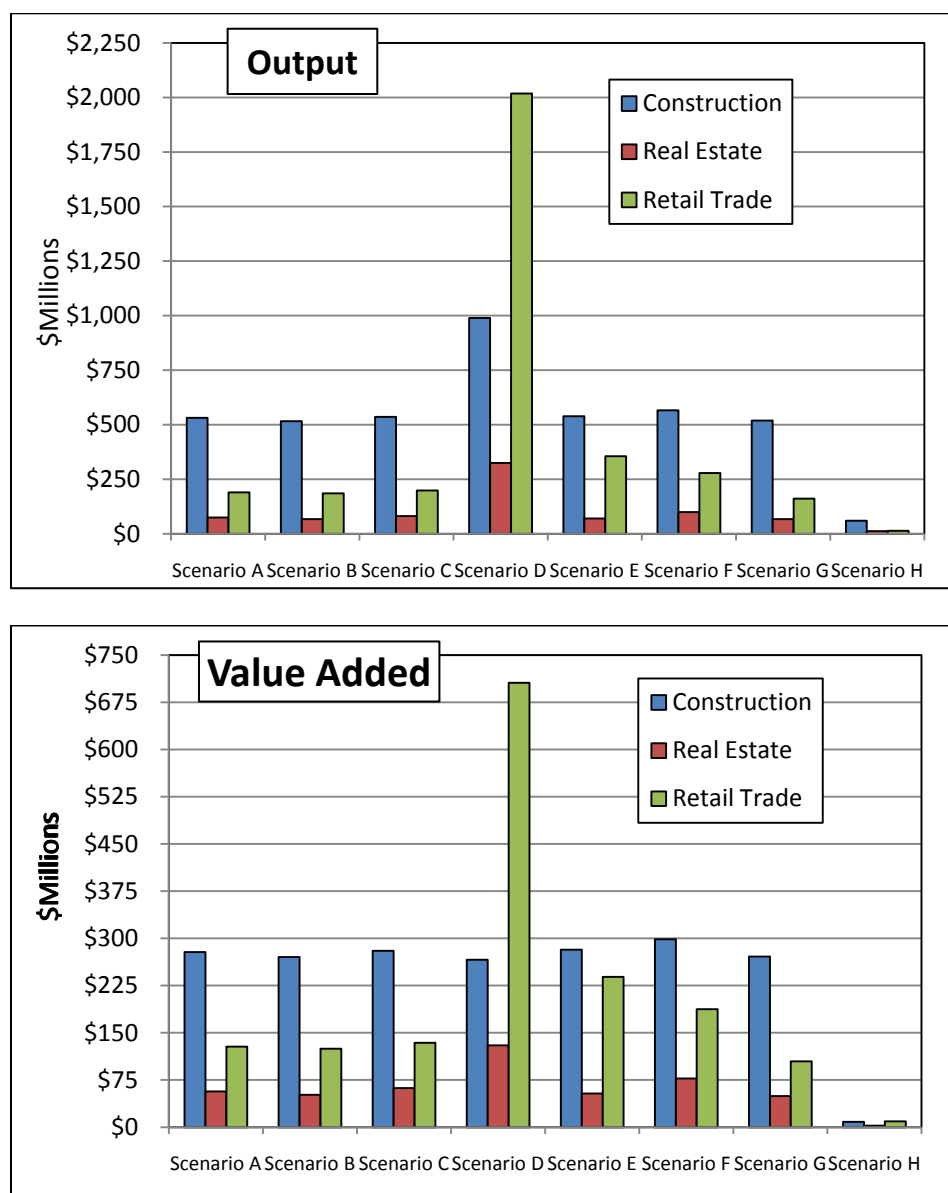
- Real Estate
- Retail Trade
- Wholesale Trade
- Professional Services
- Healthcare
- Banking
- Waste Management
- Administrative Services

Each of these sectors saw an impact of over \$50 million in additional volume above the baseline in at least one scenario. It is valuable to observe that no one of these nine specific sectors modeled in this analysis saw significant negative impacts as a result. Also, no sector was projected to experience negative impacts of a size on the scale of the positive impacts identified in these nine.

Notably, the sectors of petroleum production and agricultural production were not among the sectors projected to experience significant economic impacts under these scenarios. Oregon produces no petroleum fuel in-state, and so the losses incurred to the petroleum sector would be felt elsewhere in the country. Agriculture is impacted, but other sectors see larger changes due to their connection with the new spending on construction of biofuels refining facilities. Because that spending represents the great majority of the economic activity associated with LCFS compliance, sectors most affected by it show the largest impacts.

Economic Impact of Oregon Low Carbon Fuel Standard

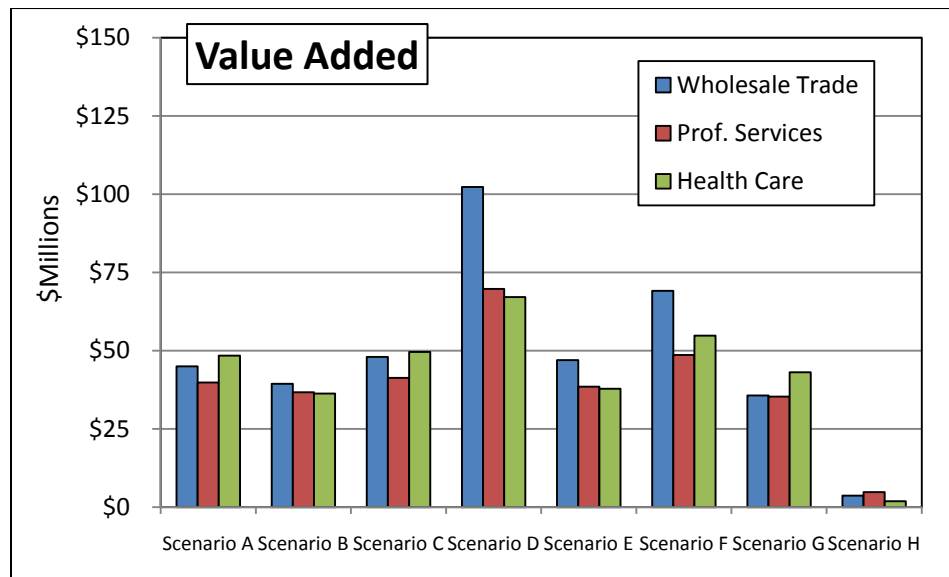
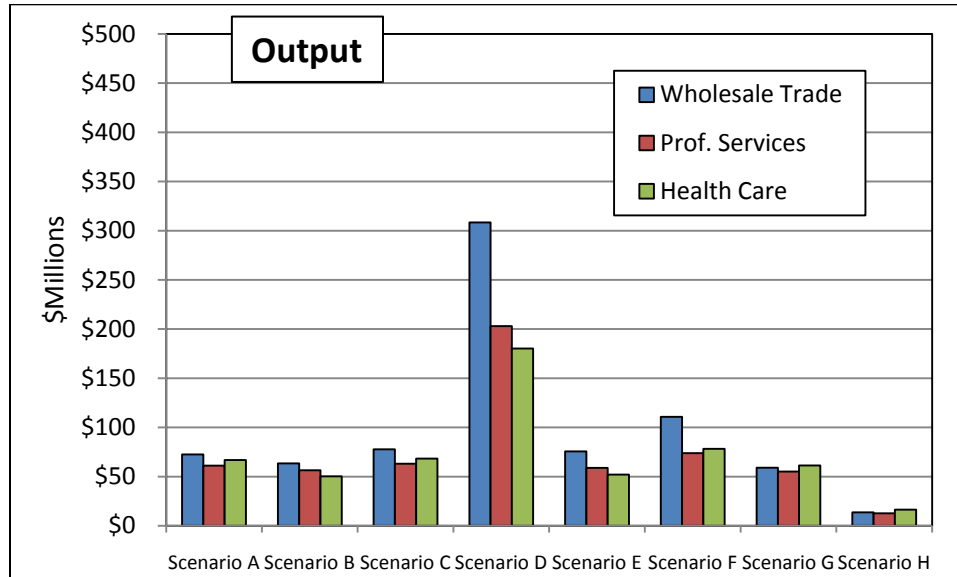
The sectors registering the largest impacts are the construction, real estate, and retail trade sectors.



The construction sector impacts are similar in all scenarios with biofuels plant construction assumed to occur (all scenarios except H). Retail trade and real estate are similar in the same scenarios with the exception of Scenario D. Scenario D stands out in that the positive impacts in the retail trade sector are magnified. Retail fuel expenditures fall significantly in scenario D, as a consequence of the lower price of energy when supplied in the forms of electricity and natural gas. This leaves greater room for consumer expenditures on other categories of goods and services. Overall, the changes to outputs for these three sectors are roughly twice as large as the changes to value added.

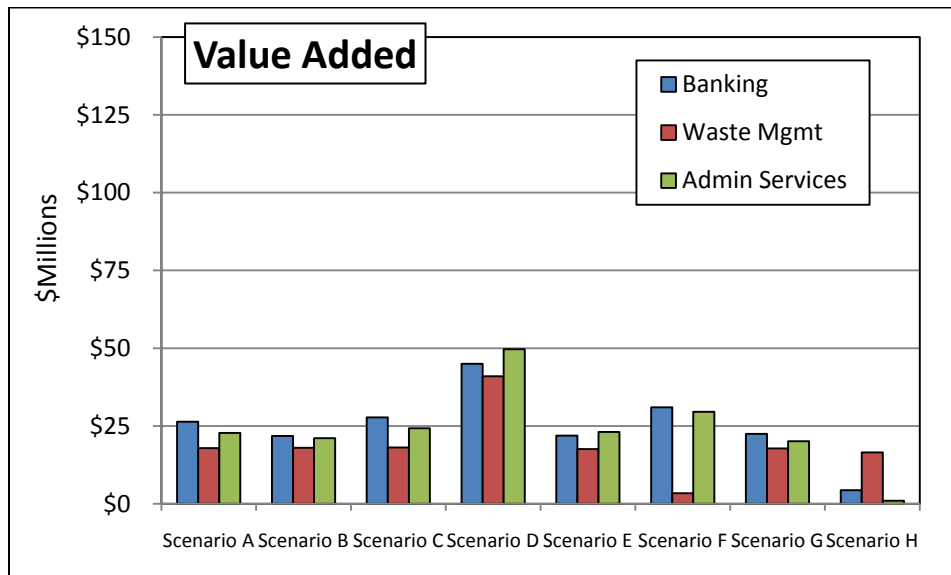
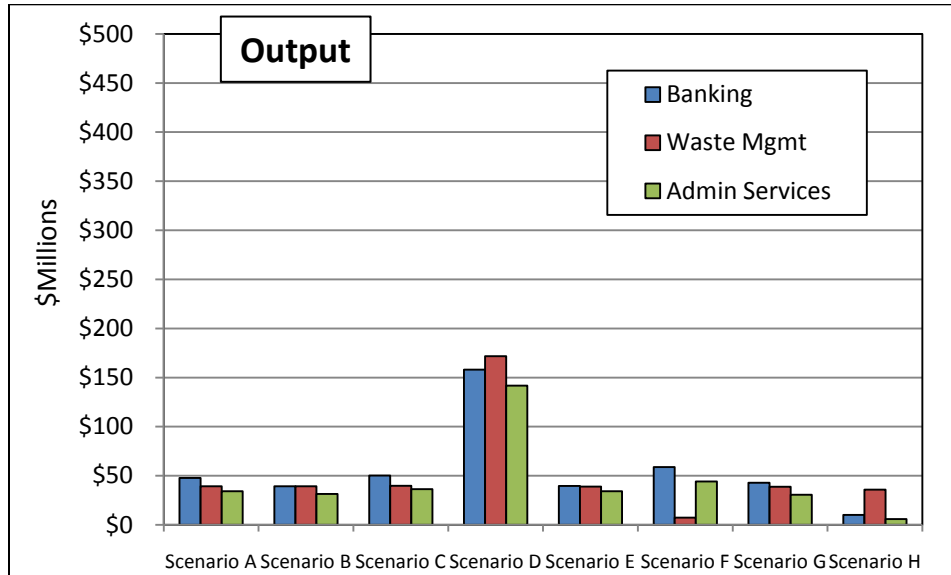
Economic Impact of Oregon Low Carbon Fuel Standard

The three sectors showing the next highest levels of overall impact in outputs and value added are wholesale trade, professional services and health care.



Economic Impact of Oregon Low Carbon Fuel Standard

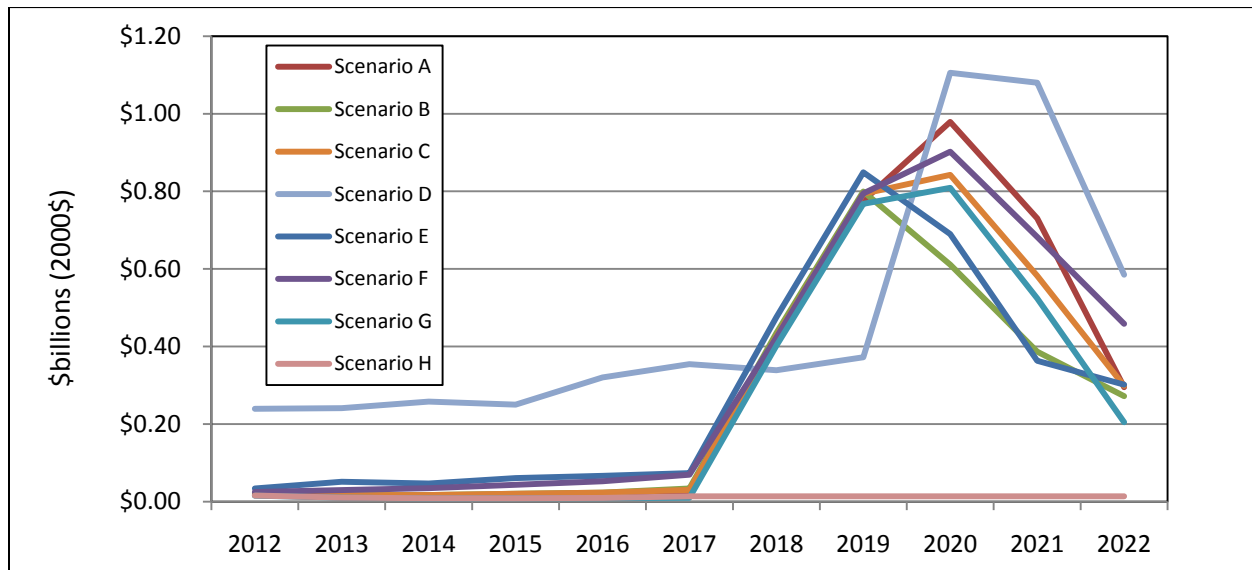
The next three sectors with significant impacts are banking, waste management and administrative services.



Employment, Income and Demand

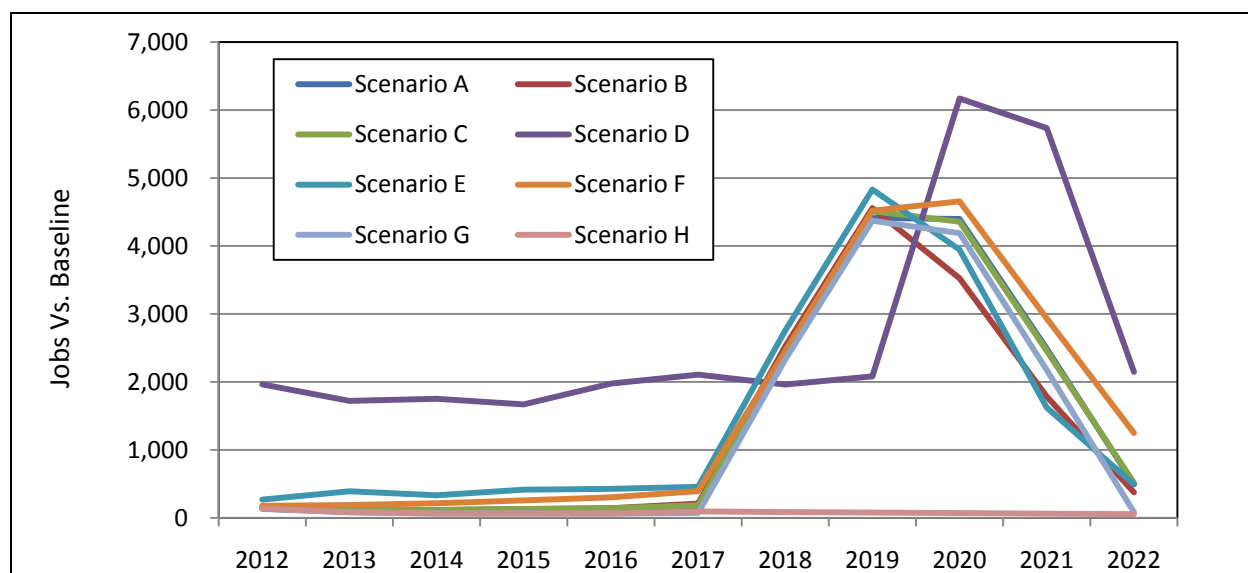
Below are year-by-year impacts to important macroeconomic impacts not captured as sectors. These include overall demand impacts, overall employment impacts, and overall personal income impacts.

*Changes in **Demand** under Eight LCFS Compliance Scenarios*



Aggregate demand is the total demand for final goods and services (as opposed to wholesale goods or raw materials) in an economy. Demand tracks very similarly to GSP for the eight LCFS scenarios considered in this study. As with other indicators, the onset of significant capital investment drives the largest portion of the changes from baseline in each scenario.

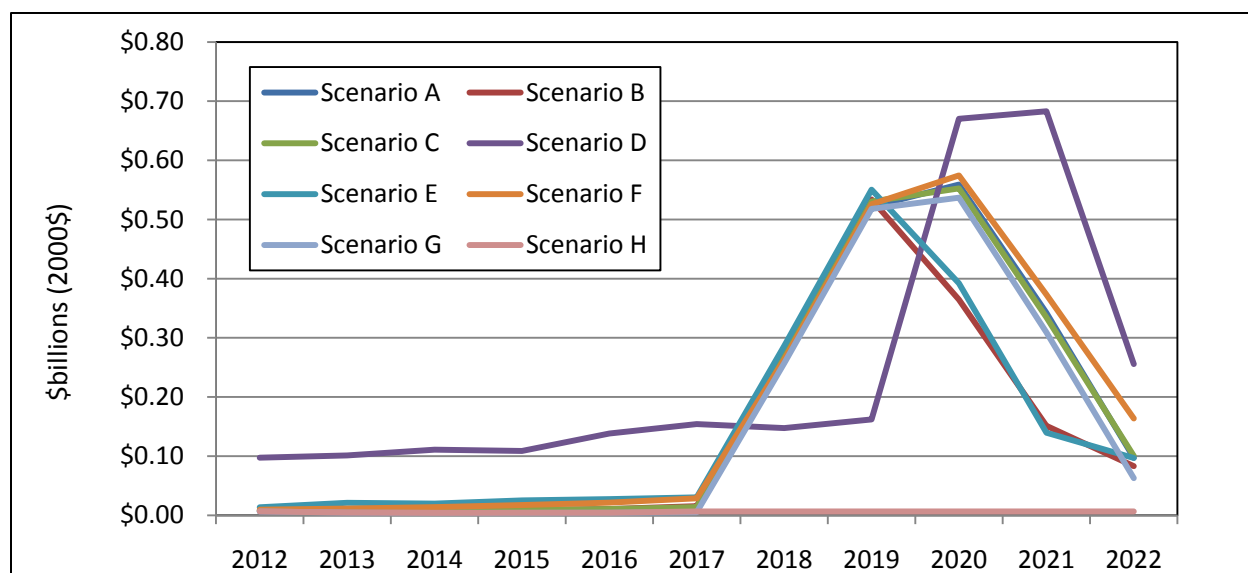
*Changes in **Employment** under Eight LCFS Compliance Scenarios*



Employment in the above graphic is measured as jobs. The scenarios reflect a correlation between the intensity of investment, which tracks with the timing of refinery construction, and increases in employment. Plants, once built, directly employ relatively small numbers of people (below 100 per plant). During the construction phase, by contrast, the spending involved works through the economy to create employment for thousands of people.

Scenarios D and H stand out much in the way they do in the GSP projections. In scenario D, the investment in fueling capacity and charger station installation drives employment even in the earlier years. This scenario results in approximately 2,000 additional jobs every year throughout the ten-year period even without the construction of any biofuels refining capacity. This employment is tied to other infrastructure creation. Scenario H again has no significant impact.

*Changes in **Income** under Eight LCFS Compliance Scenarios*



Income levels again follow a familiar pattern. Additional employment drives income changes at equivalent points in time across the 2012-2022 timeframe. The six scenarios assuming in-state biofuels production separate in 2020, however. Some see high income effects in 2020 while others see a much lower level than 2019 impacts. This is the result of different assumptions about the number and timing of biofuels plant production. Those scenarios which envision construction in 2020 at high levels see high income impacts. Others, which envision construction tailing off by that point, see income impacts fall. Scenarios D and H follow familiar outlying patterns.

Special Scenario Pairings

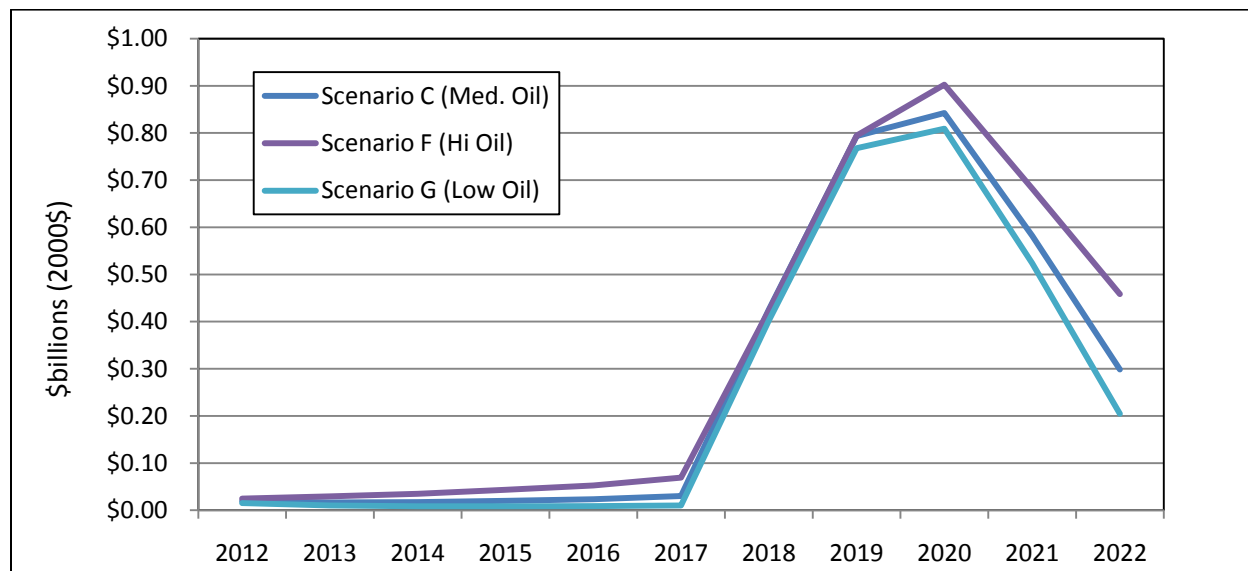
Fuel Price

One scenario was modeled under three different fuel price projections. The standard projection used for all scenarios is drawn from the Department of Energy’s Annual Energy Outlook, published in 2010. This “reference case” projection anticipates petroleum fuels (gasoline and diesel) growing gradually but constantly throughout the 2012-2022 period of analysis, reaching a retail price inclusive of all taxes of approximately \$3.50 per gallon in 2022. Biodiesel and ethanol prices are projected to remain roughly at parity with gas and diesel prices. The high-price scenario involves petroleum fuels rising rapidly in price to over \$5 per gallon by 2022. Further, the prices of gasoline and diesel outpace the prices of ethanol and biodiesel, making the shift to biofuels a cost-saving adjustment. The low-price scenario projects the same fuels to cost

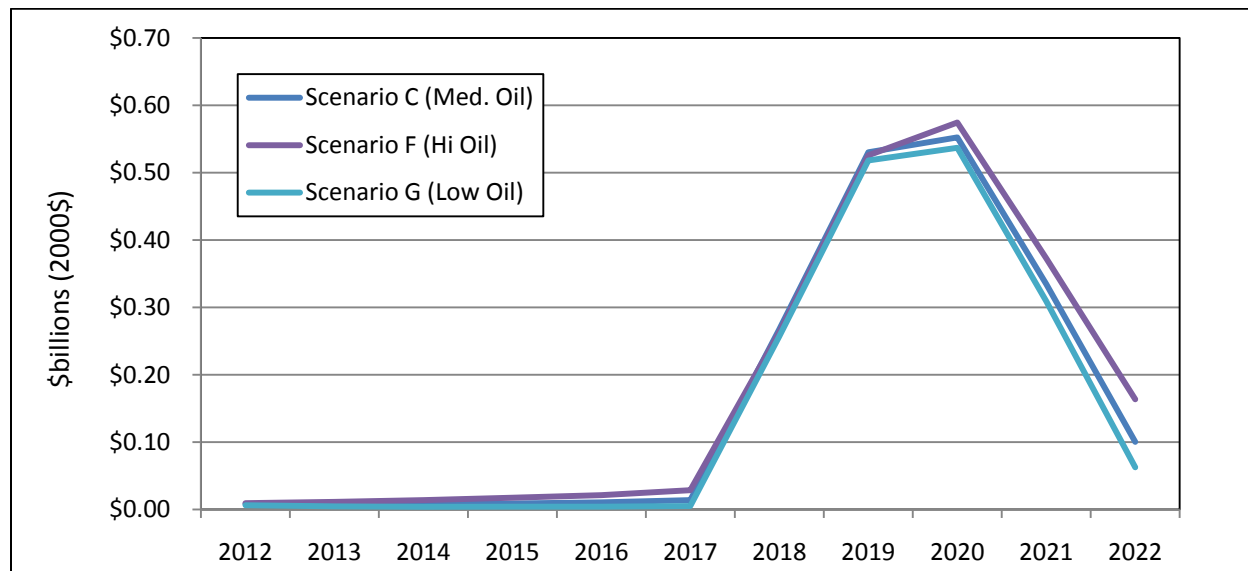
Economic Impact of Oregon Low Carbon Fuel Standard

approximately \$2 per gallon throughout the period of analysis. These prices fall below the prices for biodiesel and ethanol in this projection, making the shift to biofuels represent an increase in costs. The graphs below show the sensitivity of the analysis to different fuel price assumptions:

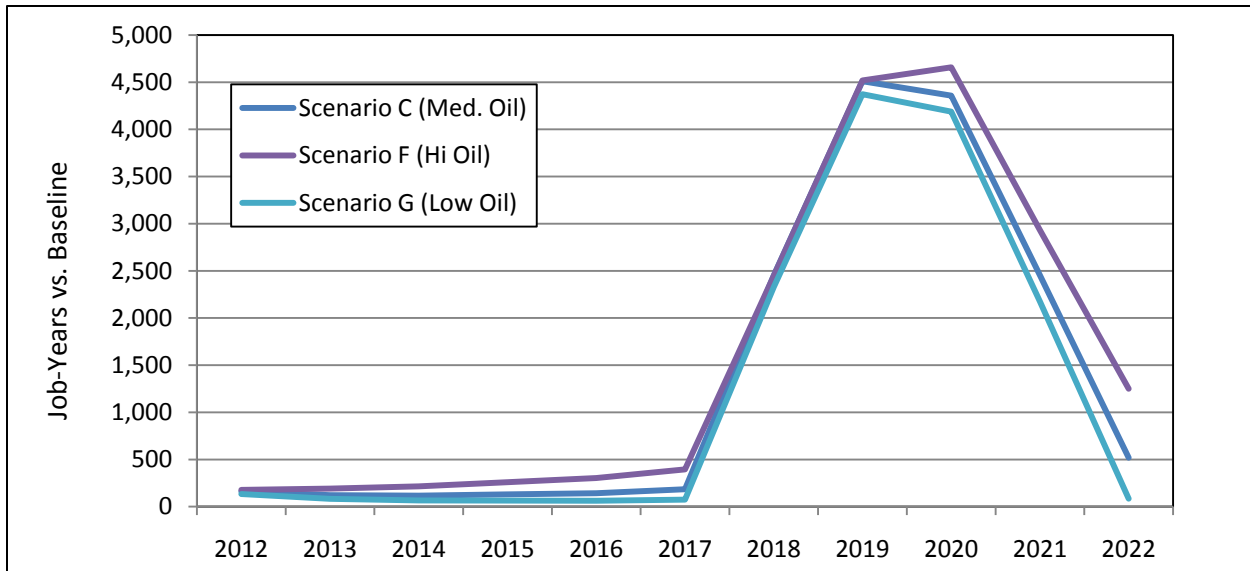
*Changes in **Demand** under Three Different Oil Price Projections*



*Changes in **Income** under Three Different Oil Price Projections*



*Changes in **Employment** Under Three Different Oil Price Projections*



These three graphics demonstrate that even very large changes in the projected price of oil will not have a dramatic change in the effect of a biofuels-based strategy. This may seem counter-intuitive, but it demonstrates the primary importance not of the fuel spending but instead of the investment in construction of refining capacity. The spikes in effects in all three graphs follow construction timing.

That said, the numbers for the year 2022 are deserving of attention. The line depicting Scenario F (the high-oil-price scenario) shows a significant difference from Scenarios C and G in the year 2022, the last year of the scenarios. By this time, the change in the fuel supply is significant, and consumers encounter significant savings by using biofuels in higher levels. As a consequence, significant consumer spending that would have gone to fuel is freed up for other spending, which drives demand and employment.

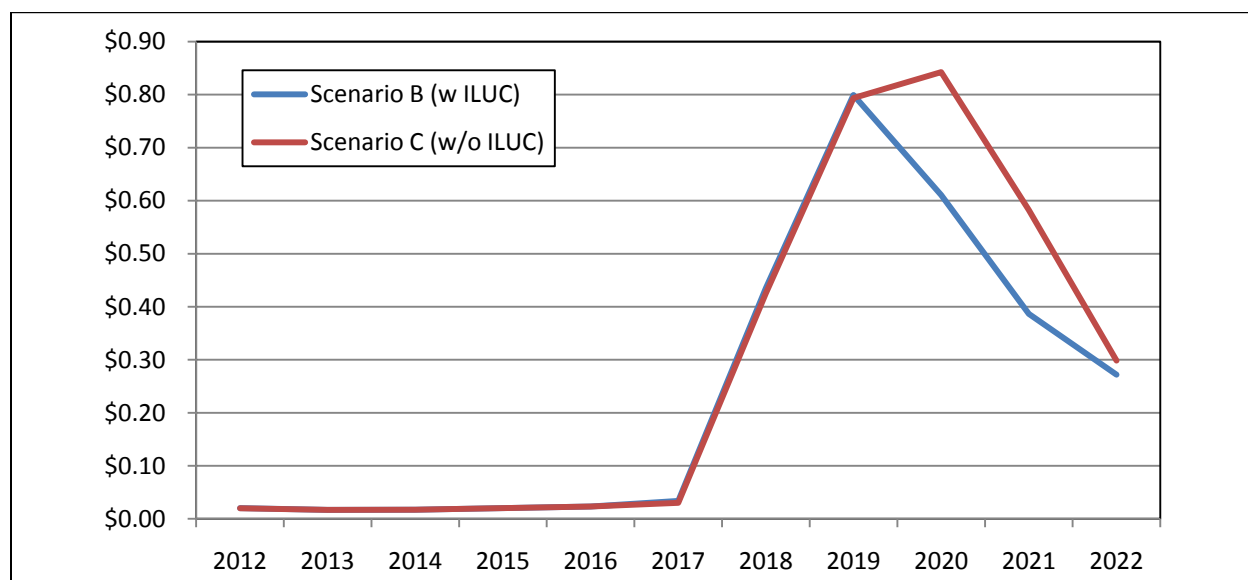
Indirect Land-Use Change

The publication of environmental research in *Science* and other publications have indicated that the greenhouse gas emissions from indirect land use changes from U.S. biofuels production may exceed those resulting from direct land use change. The conversion of cropland from food to fuel production can increase food prices and drive land use change in other areas of the globe to compensate for lost food and feed supply. Moreover, the U.S. Energy Independence and Security Act was recently amended to require the inclusion of indirect land-use change in life-cycle analyses of greenhouse gas emissions associated with U.S. biofuel production. In the economic analysis of the Oregon LCFS the question was asked if including adjustments for indirect land-

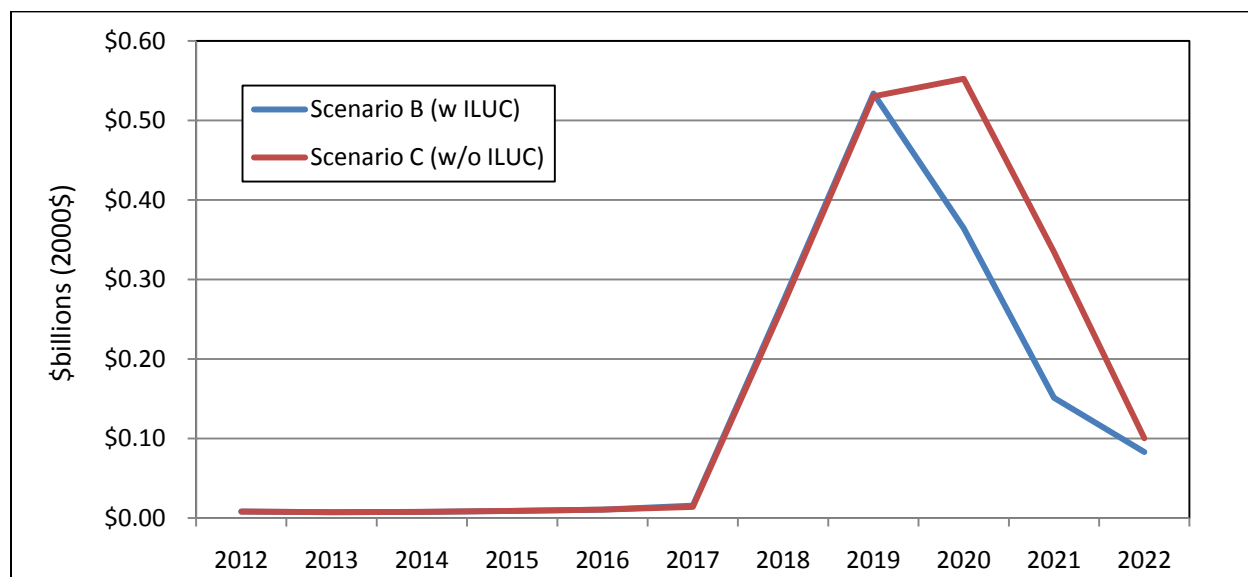
Economic Impact of Oregon Low Carbon Fuel Standard

use change would impact the results. The graphs below indicate that there is some impact on employment, income and state product from the treatment of indirect land-use change, but that it is small relative to the impact of other variables. Therefore, the decision to include or exclude indirect land-use change should be made on grounds other than macroeconomic criteria.

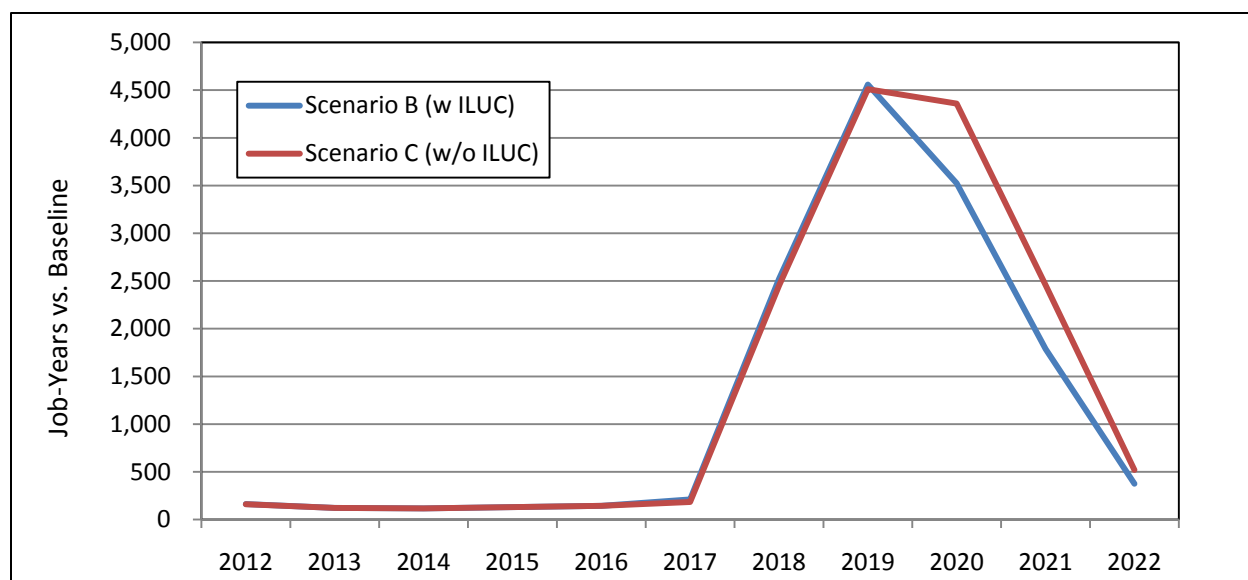
Impact of ILUC Consideration on Demand



Impact of ILUC Consideration on Income



*Impact of ILUC Consideration on **Employment***



Considering ILUC as a factor in the carbon intensity of biofuels production adds a penalty to the carbon intensity of some fuels. Because production of biofuels from crops is now effectively less beneficial as a carbon-reduction technique, more reliance is placed on cellulosic and other fuels from waste or crops with a smaller indirect land use change penalty than corn or soybeans.

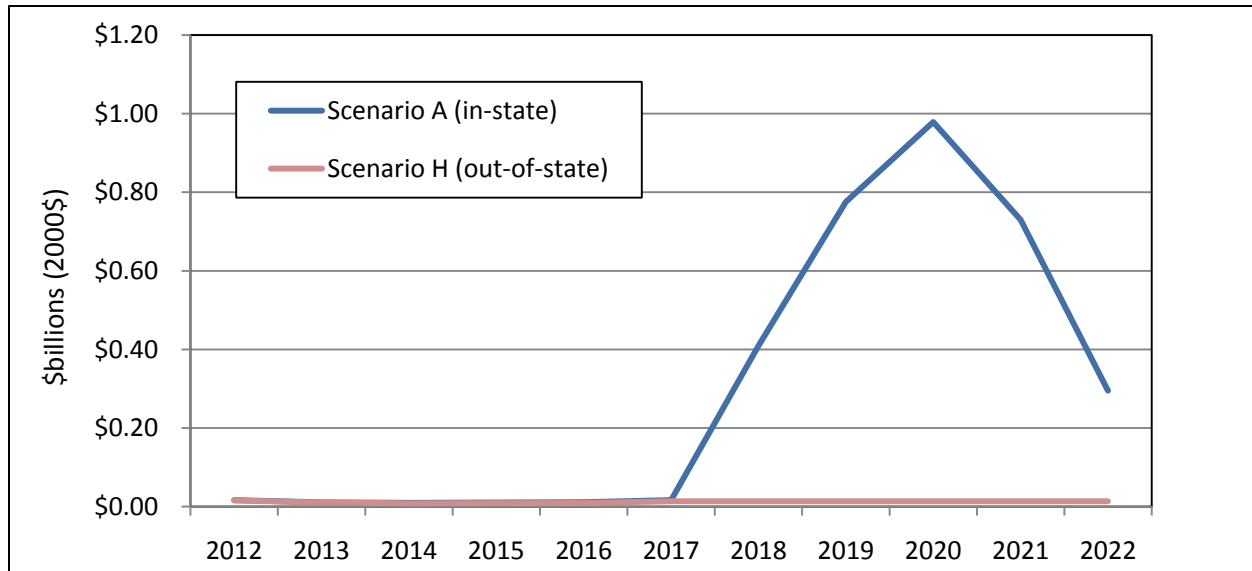
Origin of Biofuels

As indicated elsewhere in this report, there is an opportunity for economic gain if domestically produced fuel can replace some imported petroleum fuel. The Oregon LCFS is a technology forcing regulation that would result in less imported petroleum to Oregon and therefore a potential benefit. From the perspective of the Oregon economy, producing low carbon fuels in Oregon and replacing high carbon imported petroleum fuel will both reduce greenhouse gas emissions and provide an economic stimulus.

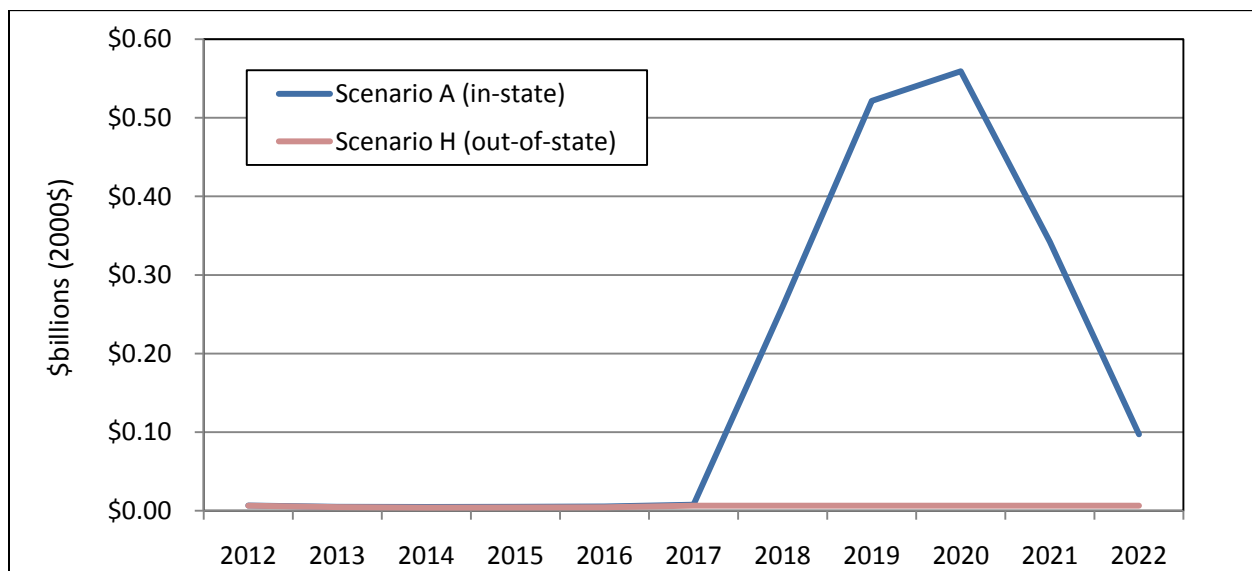
To test the impacts of fuel imports on the Oregon economy, a scenario was derived that compared a portion of the fuel supply produced in Oregon with a scenario where all additional capacity to produce biofuels would be out of state, and the fuel produced would be imported. The BAU includes current volumes of Oregon biofuels production.

Economic Impact of Oregon Low Carbon Fuel Standard

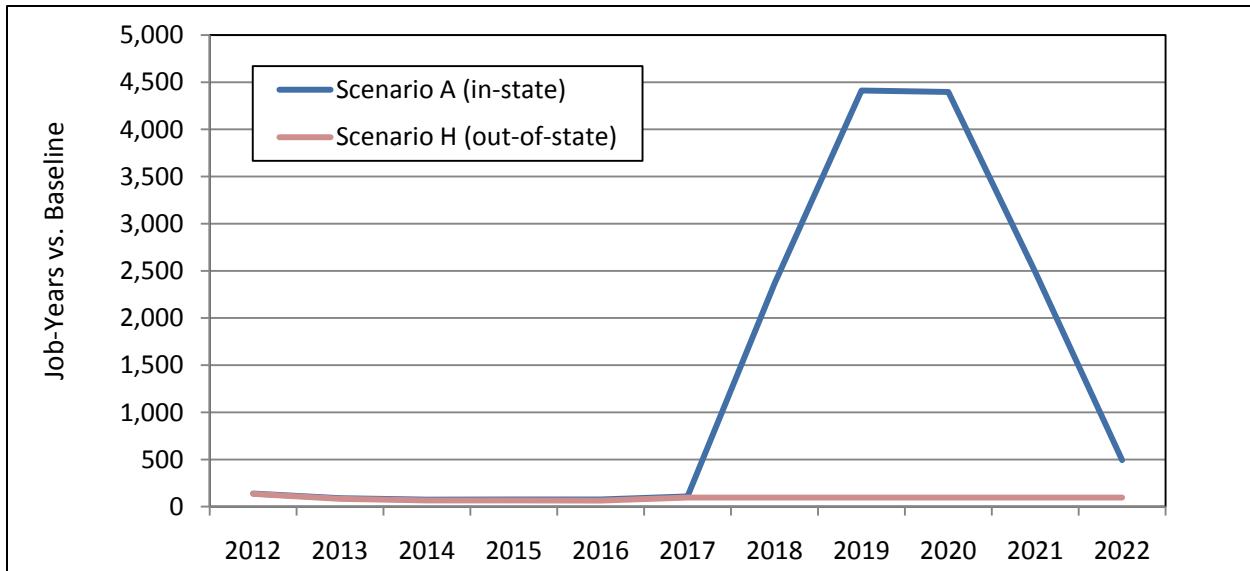
*Impact of In-State vs. Out-of-State Biofuels Supply on **Demand***



*Impact of In-State vs. Out-of-State Biofuels Supply on **Income***



*Impact of In-State vs. Out-of-State Biofuels Supply on **Employment***



As discussed above, the consumption of biofuels from out-of-state sources would not bring investment into the state of Oregon in the way that the development of an in-state biofuels industry would. Opportunities for spending on new capital and new infrastructure in-state, as well as the increased demand for agricultural products and services, are lost by reliance on out-of-state fuel supplies. In this way, the costs of importing biofuels are similar in nature to the costs of importing petroleum products.

Scenario H impacts are not negative, even though they involve reliance on imports. This is due to the fact that the baseline scenario assumes that almost all fuel consumed by the transportation sector is already imported. This scenario would produce economic losses only if it were to drive even more imports than the baseline scenario.

Conclusion

This study has produced a number of projections regarding the broader economic impacts of a low-carbon fuel standard under a variety of scenarios meant to bracket the range of likely industry responses to such a regulation. Consistencies occur among the results of the various scenarios which indicate economic impacts that appear repeatedly even as assumptions are changed. The first is that regardless of the exact fuel mix, an LCFS which encourages a temporary inflow of investment from out of state will likely spur economic growth and job creation. This inflow of capital for the construction of new infrastructure produces a temporary increase in economic activity during the construction phase. The only scenario not requiring in-

state production, Scenario H, is also the only scenario not to produce significant economic benefits.

The scenario analyses provide much less guidance about the likely long-term impact of an LCFS after the necessary new infrastructure is in place. The scenarios reach their end in 2022, which is just at the end of the infrastructure expansion. The scenario analyses suggest that the economic impacts without spending on infrastructure are small in comparison to those in the years of capital expansion, but the period of analysis ends before any post-construction trend is established. The expectation, however, is that displacing imports with domestically-produced fuels would result in net economic benefit to the state as it captures the employment, profits and producer surpluses currently gained out of state.

The analysis of Scenario D, while again not being a prediction of the future, does expose certain economic advantages of natural gas and electricity as transportation fuels. The presence of effective distribution systems for both (natural gas pipelines and the power grid are widespread) limits the need for expensive new refining plants for these fuels. Distributed infrastructure in the form of charging or fueling stations can be built without delay, producing earlier and higher economic impacts.

Also, projected prices for electricity and natural gas are both significantly below the prices of conventional fuels or biofuels. The macroeconomic modeling immediately demonstrates a large positive impact from reducing the costs of fuel, even when taking into account the significant additional vehicle cost. Consumers direct the savings to other expenditures or to savings, and sectors far and wide see growth as a result.

It bears repeating that these are analyses of scenarios imagined as industry responses, and are not predictions of the future. These analyses are very sensitive to fuel price assumptions, cost assumptions, and projections about the economy in general – all of which are highly unreliable. The future courses of technology as well as policy will also be highly influential, whether changes occur locally or nationally.

Appendix A: VISION Results

Fuel Expenditure Values – Scenario A

Fuels Consumption Change vs BAU								
	Gasoline (2008 \$bil) (out-of-state)	Diesel (2008 \$bil)	CNG (2008 \$bil)	Electricity (2008 \$bil)	Ethanol (2008 \$bil) (in-state)	Hydrogen (2008 \$bil)	F-T Diesel (2008 \$bil)	Bio-Diesel (2008 \$bil)
2010	-\$0.0001	-\$0.0004	-\$0.0017		\$0.0000			\$0.0000
2011	-\$0.0002	-\$0.0010	-\$0.0034		\$0.0000			\$0.0000
2012	-\$0.0003	-\$0.0018	-\$0.0053		\$0.0000			\$0.0000
2013	-\$0.0006	-\$0.0026	-\$0.0070		\$0.0000			\$0.0000
2014	-\$0.0008	-\$0.0033	-\$0.0088		-\$0.0001			\$0.0000
2015	-\$0.0010	-\$0.0040	-\$0.0108		-\$0.0001			\$0.0000
2016	-\$0.0012	-\$0.0047	-\$0.0129		-\$0.0001			\$0.0000
2017	-\$0.0014	-\$0.0055	-\$0.0148		-\$0.0001			\$0.0000
2018	-\$0.0016	-\$0.0061	-\$0.0166		-\$0.0002			-\$0.0001
2019	-\$0.0018	-\$0.0067	-\$0.0183		-\$0.0002			-\$0.0002
2020	-\$0.0020	-\$0.0071	-\$0.0200		-\$0.0002			-\$0.0003
2021	-\$0.0374	-\$0.0075	-\$0.0212		\$0.0360			-\$0.0004
2022	-\$0.1419	-\$0.0444	-\$0.0222		\$0.1416			\$0.0457

Fuel Expenditure Values – Scenario B

Fuels Consumption Change vs BAU							
Gasoline (2008 \$bil)	Diesel (2008 \$bil)	CNG (2008 \$bil)	Electricity (2008 \$bil)	Ethanol (2008 \$bil)	Hydrogen (2008 \$bil)	F-T Diesel (2008 \$bil)	Bio-Diesel (2008 \$bil)

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2010	-\$0.0001	-\$0.0004	-\$0.0017	\$0.0000	\$0.000
2011	-\$0.0002	-\$0.0010	-\$0.0034	\$0.0000	\$0.000
2012	-\$0.0003	-\$0.0018	-\$0.0053	\$0.0000	\$0.000
2013	-\$0.0006	-\$0.0026	-\$0.0070	\$0.0000	\$0.000
2014	-\$0.0008	-\$0.0033	-\$0.0088	-\$0.0001	\$0.000
2015	-\$0.0010	-\$0.0040	-\$0.0108	-\$0.0001	\$0.000
2016	-\$0.0012	-\$0.0047	-\$0.0129	-\$0.0001	\$0.000
2017	-\$0.0012	-\$0.0055	-\$0.0148	-\$0.0001	\$0.000
2018	-\$0.0012	-\$0.0061	-\$0.0167	-\$0.0002	\$0.000
2019	-\$0.1315	-\$0.0067	-\$0.0183	\$0.1379	\$0.000
2020	-\$0.3492	-\$0.0071	-\$0.0200	\$0.3772	\$0.000
2021	-\$0.3908	-\$0.0075	-\$0.0212	\$0.3998	\$0.000
2022	-\$0.3752	-\$0.0160	-\$0.0223	\$0.3789	\$0.010

Fuel Expenditure Values – Scenario C

Fuels Consumption Change vs BAU								
	Gasoline (2008 \$bil)	Diesel (2008 \$bil)	CNG (2008 \$bil)	Electricity (2008 \$bil)	Ethanol (2008 \$bil)	Hydrogen (2008 \$bil)	F-T Diesel (2008 \$bil)	Bio-Diesel (2008 \$bil)
2010	-\$0.0001	-\$0.0004	-\$0.0017		\$0.0000			\$0.0000
2011	-\$0.0002	-\$0.0010	-\$0.0034		\$0.0000			\$0.0000
2012	-\$0.0003	-\$0.0018	-\$0.0053		\$0.0000			\$0.0000
2013	-\$0.0006	-\$0.0026	-\$0.0070		\$0.0000			\$0.0000
2014	-\$0.0008	-\$0.0033	-\$0.0088		-\$0.0001			\$0.0000
2015	-\$0.0010	-\$0.0040	-\$0.0108		-\$0.0001			\$0.0000
2016	-\$0.0012	-\$0.0047	-\$0.0129		-\$0.0001			\$0.0000
2017	-\$0.0012	-\$0.0055	-\$0.0148		-\$0.0001			\$0.0000
2018	-\$0.0012	-\$0.0061	-\$0.0167		-\$0.0002			-\$0.0001
2019	-\$0.0011	-\$0.0067	-\$0.0183		-\$0.0002			-\$0.0002
2020	\$0.0002	-\$0.0071	-\$0.0200		-\$0.0002			-\$0.0003
2021	-\$0.0769	-\$0.0075	-\$0.0212		\$0.0774			-\$0.0004
2022	-\$0.1993	-\$0.0078	-\$0.0223		\$0.2002			-\$0.0006

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Fuel Expenditure Values – Scenario D

Fuels Consumption Change vs BAU								
	Gasoline	Diesel	CNG	Electricity	Ethanol	Hydrogen	F-T Diesel	Bio-Diesel
	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>
2010	-\$0.0001	-\$0.0063	\$0.0017	\$0.0000	\$0.0000			-\$0.0002
2011	-\$0.0002	-\$0.0144	\$0.0052	\$0.0000	\$0.0000			-\$0.0004
2012	-\$0.0070	-\$0.0258	\$0.0095	\$0.0013	-\$0.0005			-\$0.0008
2013	-\$0.0167	-\$0.0374	\$0.0136	\$0.0029	-\$0.0012			-\$0.0013
2014	-\$0.0293	-\$0.0487	\$0.0180	\$0.0051	-\$0.0022			-\$0.0018
2015	-\$0.0565	-\$0.0587	\$0.0227	\$0.0102	-\$0.0044			-\$0.0025
2016	-\$0.0776	-\$0.0676	\$0.0276	\$0.0144	-\$0.0067			-\$0.0033
2017	-\$0.1019	-\$0.0791	\$0.0322	\$0.0190	-\$0.0094			-\$0.0043
2018	-\$0.1242	-\$0.0888	\$0.0367	\$0.0230	-\$0.0123			-\$0.0056
2019	-\$0.1475	-\$0.0967	\$0.0407	\$0.0271	-\$0.0159			-\$0.0068
2020	-\$0.1725	-\$0.1033	\$0.0447	\$0.0316	-\$0.0196			-\$0.0081
2021	-\$0.2041	-\$0.1096	\$0.0474	\$0.0362	-\$0.0150			-\$0.0099
2022	-\$0.3296	-\$0.1151	\$0.0498	\$0.0414	\$0.0787			-\$0.0117

Fuel Expenditure Values – Scenario E

Fuels Consumption Change vs BAU								
	Gasoline	Diesel	CNG	Electricity	Ethanol	Hydrogen	F-T Diesel	Bio-Diesel
	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>	<i>(2008 \$bil)</i>
2010	-\$0.0009	\$0.0003	\$0.0002	\$0.0000	-\$0.0001			\$0.0000
2011	-\$0.0022	\$0.0008	\$0.0006	\$0.0000	-\$0.0002			\$0.0000
2012	-\$0.0052	\$0.0014	\$0.0011	\$0.0003	-\$0.0004			-\$0.0001
2013	-\$0.0091	\$0.0021	\$0.0015	\$0.0006	-\$0.0007			-\$0.0001
2014	-\$0.0137	\$0.0031	\$0.0019	\$0.0010	-\$0.0010			-\$0.0002

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2015	-\$0.0214	\$0.0044	\$0.0024	\$0.0020	-\$0.0017	-\$0.0004
2016	-\$0.0281	\$0.0060	\$0.0029	\$0.0029	-\$0.0025	-\$0.0006
2017	-\$0.0357	\$0.0082	\$0.0034	\$0.0038	-\$0.0033	-\$0.0009
2018	-\$0.0433	\$0.0107	\$0.0039	\$0.0046	-\$0.0038	-\$0.0012
2019	-\$0.0518	\$0.0137	\$0.0043	\$0.0053	-\$0.0045	-\$0.0015
2020	-\$0.0611	\$0.0171	\$0.0047	\$0.0062	-\$0.0051	-\$0.0020
2021	-\$0.0706	\$0.0127	\$0.0049	\$0.0071	-\$0.0054	\$0.0083
2022	-\$0.2151	-\$0.0024	\$0.0052	\$0.0080	\$0.1299	\$0.0325

Fuel Expenditure Values – Scenario F

Fuels Consumption Change vs BAU								
	Gasoline (2008 \$bil)	Diesel (2008 \$bil)	CNG (2008 \$bil)	Electricity (2008 \$bil)	Ethanol (2008 \$bil)	Hydrogen (2008 \$bil)	F-T Diesel (2008 \$bil)	Bio-Diesel (2008 \$bil)
2010	-\$0.0001	-\$0.0004	-\$0.0017	\$0.0000	\$0.0000			\$0.0000
2011	-\$0.0002	-\$0.0010	-\$0.0034	\$0.0000	\$0.0000			\$0.0000
2012	-\$0.0004	-\$0.0020	-\$0.0053	\$0.0000	\$0.0000			-\$0.0001
2013	-\$0.0007	-\$0.0030	-\$0.0070	\$0.0000	\$0.0000			-\$0.0001
2014	-\$0.0010	-\$0.0041	-\$0.0088	\$0.0000	-\$0.0001			-\$0.0001
2015	-\$0.0013	-\$0.0053	-\$0.0108	\$0.0000	-\$0.0001			-\$0.0002
2016	-\$0.0016	-\$0.0065	-\$0.0129	\$0.0000	-\$0.0001			-\$0.0002
2017	-\$0.0067	-\$0.0077	-\$0.0148	\$0.0000	-\$0.0004			-\$0.0003
2018	-\$0.0072	-\$0.0088	-\$0.0167	\$0.0000	-\$0.0005			-\$0.0004
2019	-\$0.0074	-\$0.0098	-\$0.0183	\$0.0000	-\$0.0005			-\$0.0004
2020	-\$0.0138	-\$0.0107	-\$0.0200	\$0.0000	-\$0.0010			-\$0.0005
2021	-\$0.1236	-\$0.0114	-\$0.0212	\$0.0000	\$0.0658			-\$0.0006
2022	-\$0.2972	-\$0.0122	-\$0.0223	\$0.0000	\$0.1717			-\$0.0004

Economic Impact of Oregon Low Carbon Fuel Standard

Fuel Expenditure Values – Scenario G

Fuels Consumption Change vs BAU								
	Gasoline <i>(2008 \$bil)</i>	Diesel <i>(2008 \$bil)</i>	CNG <i>(2008 \$bil)</i>	Electricity <i>(2008 \$bil)</i>	Ethanol <i>(2008 \$bil)</i>	Hydrogen <i>(2008 \$bil)</i>	F-T Diesel <i>(2008 \$bil)</i>	Bio-Diesel <i>(2008 \$bil)</i>
2010	-\$0.0001	-\$0.0004	-\$0.0017	\$0.0000	\$0.0000			\$0.0000
2011	-\$0.0002	-\$0.0009	-\$0.0034	\$0.0000	\$0.0000			\$0.0000
2012	-\$0.0003	-\$0.0014	-\$0.0053	\$0.0000	\$0.0000			-\$0.0001
2013	-\$0.0004	-\$0.0018	-\$0.0070	\$0.0000	\$0.0000			-\$0.0001
2014	-\$0.0005	-\$0.0023	-\$0.0088	\$0.0000	-\$0.0001			-\$0.0001
2015	-\$0.0007	-\$0.0027	-\$0.0108	\$0.0000	-\$0.0001			-\$0.0002
2016	-\$0.0008	-\$0.0031	-\$0.0129	\$0.0000	-\$0.0001			-\$0.0002
2017	\$0.0034	-\$0.0035	-\$0.0148	\$0.0000	\$0.0005			-\$0.0003
2018	\$0.0035	-\$0.0038	-\$0.0166	\$0.0000	\$0.0005			-\$0.0004
2019	\$0.0037	-\$0.0039	-\$0.0183	\$0.0000	\$0.0005			-\$0.0005
2020	\$0.0106	-\$0.0042	-\$0.0200	\$0.0000	\$0.0018			-\$0.0005
2021	-\$0.0428	-\$0.0043	-\$0.0212	\$0.0000	\$0.0867			-\$0.0008
2022	-\$0.1297	-\$0.0043	-\$0.0222	\$0.0000	\$0.2191			-\$0.0013

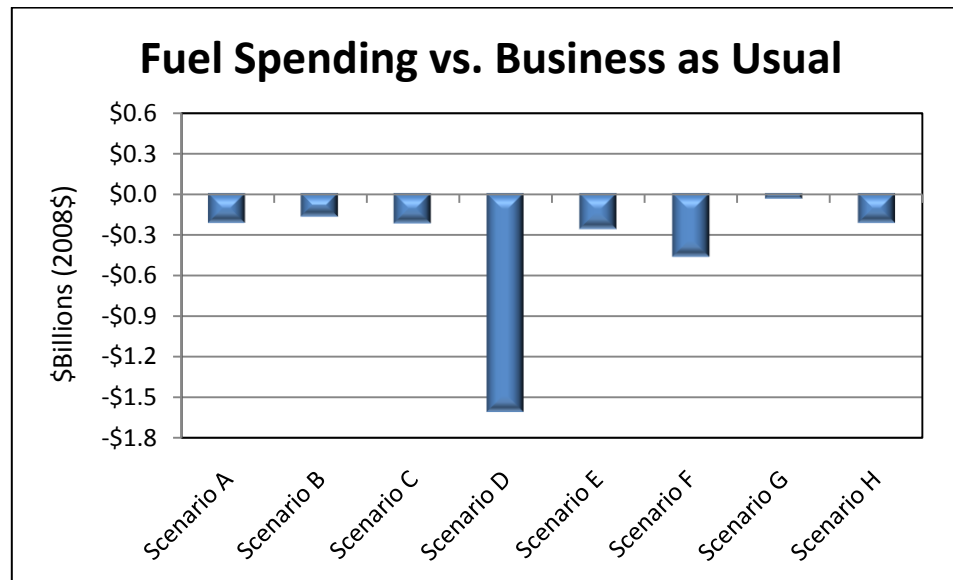
Fuel Expenditure Values – Scenario H

Fuels Consumption Change vs BAU								
	Gasoline <i>(2008 \$bil)</i> <i>(out-of-state)</i>	Diesel <i>(2008 \$bil)</i>	CNG <i>(2008 \$bil)</i>	Electricity <i>(2008 \$bil)</i>	Ethanol <i>(2008 \$bil)</i> <i>(in-state)</i>	Hydrogen <i>(2008 \$bil)</i>	F-T Diesel <i>(2008 \$bil)</i>	Bio-Diesel <i>(2008 \$bil)</i>
2010	-\$0.0001	-\$0.0004	-\$0.0017	\$0.0000	\$0.0000			\$0.0000
2011	-\$0.0002	-\$0.0010	-\$0.0034	\$0.0000	\$0.0000			\$0.0000
2012	-\$0.0003	-\$0.0018	-\$0.0053	\$0.0000	\$0.0000			\$0.0000
2013	-\$0.0006	-\$0.0026	-\$0.0070	\$0.0000	\$0.0000			\$0.0000
2014	-\$0.0008	-\$0.0033	-\$0.0088	\$0.0000	-\$0.0001			\$0.0000
2015	-\$0.0010	-\$0.0040	-\$0.0108	\$0.0000	-\$0.0001			\$0.0000

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2016	-\$0.0012	-\$0.0047	-\$0.0129	\$0.0000	-\$0.0001	\$0.0000
2017	-\$0.0014	-\$0.0055	-\$0.0148	\$0.0000	-\$0.0001	\$0.0000
2018	-\$0.0016	-\$0.0061	-\$0.0166	\$0.0000	-\$0.0002	-\$0.0001
2019	-\$0.0018	-\$0.0067	-\$0.0183	\$0.0000	-\$0.0002	-\$0.0002
2020	-\$0.0020	-\$0.0071	-\$0.0200	\$0.0000	-\$0.0002	-\$0.0003
2021	-\$0.0387	-\$0.0075	-\$0.0212	\$0.0000	\$0.0373	-\$0.0004
2022	-\$0.1430	-\$0.0444	-\$0.0222	\$0.0000	\$0.1427	\$0.0457

Total Net Changes in Fuel Spending vs. Business-as-Usual Scenario:



Vehicle Expenditures – Scenario D

Gasoline		EV	
Auto	LT	Auto	LT

Economic Impact of Oregon Low Carbon Fuel Standard

Veh Unit Price	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)
\$25,810	\$0.000	\$25,382	\$0.000	\$42,103	1.6313	\$0.000	\$46,458	1.8	\$0.000
\$25,810	\$0.000	\$25,382	\$0.000	\$42,014	1.62785	\$0.000	\$46,430	1.798919	\$0.000
\$25,810	-\$42.328	\$25,382	-\$66.702	\$41,925	1.6244	\$9.822	\$46,402	1.797838	\$17.420
\$25,810	-\$68.870	\$25,382	-\$76.096	\$41,836	1.62095	\$15.948	\$46,374	1.796757	\$19.862
\$25,810	-\$111.927	\$25,382	-\$83.516	\$41,747	1.6175	\$25.863	\$46,346	1.795676	\$21.785
\$25,810	-\$363.432	\$25,382	-\$88.973	\$41,658	1.61405	\$83.800	\$46,318	1.794595	\$23.195
\$25,810	-\$319.309	\$25,382	-\$65.526	\$41,569	1.6106	\$73.469	\$46,290	1.793514	\$17.072
\$25,810	-\$364.436	\$25,382	-\$74.689	\$41,480	1.60715	\$83.672	\$46,262	1.792433	\$19.448
\$25,810	-\$405.338	\$25,382	-\$81.011	\$41,391	1.6037	\$21.296	\$46,234	1.791352	\$4.834
\$25,810	-\$435.901	\$25,382	-\$65.833	\$41,302	1.60025	\$22.445	\$46,206	1.790271	\$3.856
\$25,810	-\$473.583	\$25,382	-\$61.284	\$41,213	1.5968	\$29.104	\$46,179	1.78919	\$4.291
\$25,810	-\$498.670	\$25,382	-\$60.339	\$41,190	1.5959	\$34.164	\$46,151	1.788121	\$4.710
\$25,810	-\$539.453	\$25,382	-\$102.587	\$41,167	1.595	\$50.731	\$46,123	1.787052	\$10.992

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PHEV						CNG					
Auto			LT			Auto			LT		
Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Price	Price Factor	Consumer Spending Change (mil 2008\$)
\$35,617	1.38	\$0.000	\$39,128	1.516	\$0.000	\$35,488	1.375	\$0.000	\$34,456	1.335	\$0.000
\$35,411	1.372	\$0.000	\$38,957	1.5094	\$0.000	\$35,475	1.3745	\$0.000	\$34,443	1.3345	\$0.000
\$35,204	1.364	\$49.487	\$38,787	1.5028	\$87.369	\$35,463	1.374	\$0.000	\$34,430	1.334	\$0.000
\$34,998	1.356	\$80.047	\$38,617	1.4962	\$99.236	\$35,450	1.3735	\$0.000	\$34,417	1.3335	\$0.000
\$34,792	1.348	\$129.324	\$38,446	1.4896	\$108.432	\$35,437	1.373	\$0.000	\$34,404	1.333	\$0.000
\$34,585	1.34	\$417.427	\$38,276	1.483	\$115.005	\$35,424	1.3725	\$0.000	\$34,391	1.3325	\$0.000
\$34,379	1.332	\$364.560	\$38,105	1.4764	\$84.322	\$35,411	1.372	\$0.000	\$34,379	1.332	\$0.000
\$34,172	1.324	\$413.583	\$37,935	1.4698	\$95.683	\$35,398	1.3715	\$0.000	\$34,366	1.3315	\$0.000
\$33,966	1.316	\$515.950	\$37,765	1.4632	\$116.585	\$35,385	1.371	\$0.000	\$34,353	1.331	\$0.000
\$33,759	1.308	\$551.813	\$37,594	1.4566	\$94.372	\$35,372	1.3705	\$0.000	\$34,340	1.3305	\$0.000
\$33,553	1.3	\$591.964	\$37,424	1.45	\$86.884	\$35,359	1.37	\$0.000	\$34,327	1.33	\$0.000
\$33,475	1.297	\$619.009	\$37,243	1.443	\$84.737	\$35,334	1.369	\$0.000	\$34,314	1.3295	\$0.000
\$33,398	1.294	\$656.894	\$37,063	1.436	\$140.968	\$35,308	1.368	\$0.000	\$34,301	1.329	\$0.000

Vehicle Expenditures – Scenario E

Gasoline						EV					
Auto			LT			Auto			LT		
Veh Unit Price		Consumer Spending Change (mil 2008\$)	Veh Unit Price		Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)

Economic Impact of Oregon Low Carbon Fuel Standard

2010	\$25,810	\$0.000	\$25,382	\$0.000	\$42,103	1.6313	\$0.000	\$46,458	1.8	\$0.000
2011	\$25,810	\$0.000	\$25,382	\$0.000	\$42,014	1.62785	\$0.000	\$46,430	1.798919	\$0.000
2012	\$25,810	-\$42.328	\$25,382	-\$66.702	\$41,925	1.6244	\$9.822	\$46,402	1.797838	\$17.420
2013	\$25,810	-\$68.870	\$25,382	-\$76.096	\$41,836	1.62095	\$15.948	\$46,374	1.796757	\$19.862
2014	\$25,810	-\$111.927	\$25,382	-\$83.516	\$41,747	1.6175	\$25.863	\$46,346	1.795676	\$21.785
2015	\$25,810	-\$363.432	\$25,382	-\$88.973	\$41,658	1.61405	\$83.800	\$46,318	1.794595	\$23.195
2016	\$25,810	-\$319.309	\$25,382	-\$65.526	\$41,569	1.6106	\$73.469	\$46,290	1.793514	\$17.072
2017	\$25,810	-\$364.436	\$25,382	-\$74.689	\$41,480	1.60715	\$83.672	\$46,262	1.792433	\$19.448
2018	\$25,810	-\$405.338	\$25,382	-\$81.011	\$41,391	1.6037	\$21.296	\$46,234	1.791352	\$4.834
2019	\$25,810	-\$435.901	\$25,382	-\$65.833	\$41,302	1.60025	\$22.445	\$46,206	1.790271	\$3.856
2020	\$25,810	-\$473.583	\$25,382	-\$61.284	\$41,213	1.5968	\$29.104	\$46,179	1.78919	\$4.291
2021	\$25,810	-\$498.670	\$25,382	-\$60.339	\$41,190	1.5959	\$34.164	\$46,151	1.788121	\$4.710
2022	\$25,810	-\$539.453	\$25,382	-\$102.587	\$41,167	1.595	\$50.731	\$46,123	1.787052	\$10.992

PHEV						CNG					
Auto			LT			Auto			LT		
Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Unit Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Price	Price Factor	Consumer Spending Change (mil 2008\$)	Veh Price	Price Factor	Consumer Spending Change (mil 2008\$)
\$35,617	1.38	\$0.000	\$39,128	1.516	\$0.000	\$35,488	1.375	\$0.000	\$34,456	1.335	\$0.000
\$35,411	1.372	\$0.000	\$38,957	1.5094	\$0.000	\$35,475	1.3745	\$0.000	\$34,443	1.3345	\$0.000
\$35,204	1.364	\$49.487	\$38,787	1.5028	\$87.369	\$35,463	1.374	\$0.000	\$34,430	1.334	\$0.000
\$34,998	1.356	\$80.047	\$38,617	1.4962	\$99.236	\$35,450	1.3735	\$0.000	\$34,417	1.3335	\$0.000
\$34,792	1.348	\$129.324	\$38,446	1.4896	\$108.432	\$35,437	1.373	\$0.000	\$34,404	1.333	\$0.000
\$34,585	1.34	\$417.427	\$38,276	1.483	\$115.005	\$35,424	1.3725	\$0.000	\$34,391	1.3325	\$0.000
\$34,379	1.332	\$364.560	\$38,105	1.4764	\$84.322	\$35,411	1.372	\$0.000	\$34,379	1.332	\$0.000
\$34,172	1.324	\$413.583	\$37,935	1.4698	\$95.683	\$35,398	1.3715	\$0.000	\$34,366	1.3315	\$0.000
\$33,966	1.316	\$515.950	\$37,765	1.4632	\$116.585	\$35,385	1.371	\$0.000	\$34,353	1.331	\$0.000
\$33,759	1.308	\$551.813	\$37,594	1.4566	\$94.372	\$35,372	1.3705	\$0.000	\$34,340	1.3305	\$0.000
\$33,553	1.3	\$591.964	\$37,424	1.45	\$86.884	\$35,359	1.37	\$0.000	\$34,327	1.33	\$0.000

Economic Impact of Oregon Low Carbon Fuel Standard

\$33,475	1.297	\$619.009	\$37,243	1.443	\$84.737	\$35,334	1.369	\$0.000	\$34,314	1.3295	\$0.000
\$33,398	1.294	\$656.894	\$37,063	1.436	\$140.968	\$35,308	1.368	\$0.000	\$34,301	1.329	\$0.000

Charging Unit Costs for EVs and PHEVs – Scenario D

Home Charger Purchase Expenditures by Year							
annual expenditure on Level-1 Chargers:	(thousand 2008\$)			annual expenditure on Level-2 Chargers:	(thousand 2008\$)		
Labor	Materials	Permit	Total	Labor	Materials	Permit	Total
(in-state)	(out-of-state)	(gov revenue)		(in-state)	(out-of-state)	(gov revenue)	
\$411.83	\$446.51	\$15.17	\$873.52	\$3,540.71	\$3,831.48	\$51.53	\$7,423.72
\$621.48	\$673.82	\$22.90	\$1,318.20	\$4,522.43	\$4,893.82	\$65.82	\$9,482.07
\$949.85	\$1,029.84	\$34.99	\$2,014.69	\$5,816.41	\$6,294.05	\$84.65	\$12,195.10
\$2,811.17	\$3,047.90	\$103.57	\$5,962.65	\$11,927.97	\$12,907.50	\$173.59	\$25,009.06
\$2,450.94	\$2,657.33	\$90.30	\$5,198.56	\$9,996.99	\$10,817.95	\$145.49	\$20,960.42
\$2,797.17	\$3,032.72	\$103.05	\$5,932.95	\$11,406.10	\$12,342.77	\$165.99	\$23,914.87
\$3,507.23	\$3,802.58	\$129.21	\$7,439.02	\$11,653.76	\$12,610.77	\$169.60	\$24,434.13
\$3,737.94	\$4,052.72	\$137.71	\$7,928.37	\$11,723.99	\$12,686.77	\$170.62	\$24,581.38
\$4,017.39	\$4,355.69	\$148.01	\$8,521.09	\$12,414.18	\$13,433.64	\$180.66	\$26,028.47
\$4,203.63	\$4,557.62	\$154.87	\$8,916.13	\$12,960.15	\$14,024.45	\$188.61	\$27,173.21
\$4,532.64	\$4,914.33	\$166.99	\$9,613.96	\$15,613.91	\$16,896.14	\$227.23	\$32,737.28

Economic Impact of Oregon Low Carbon Fuel Standard

Public/Commercial Level 2 2-Charger Station Purchases by Year:			
Annual Expenditure on Level-2 Charger Stations::	(Variation vs. BAU)		
Labor	Materials	Trenching/Repair	Permits
(in-state)	(out of state)	(in-state)	(gov revenue)
\$55,796	\$81,731	\$53,768	\$182
\$107,300	\$157,175	\$103,400	\$350
\$163,096	\$238,906	\$157,168	\$532
\$214,600	\$314,350	\$206,800	\$700
\$270,396	\$396,081	\$260,568	\$882
\$321,900	\$471,525	\$310,200	\$1,050
\$377,696	\$553,256	\$363,968	\$1,232
\$429,200	\$628,700	\$413,600	\$1,400
\$484,996	\$710,431	\$467,368	\$1,582
\$536,500	\$785,875	\$517,000	\$1,750

Economic Impact of Oregon Low Carbon Fuel Standard

Annual Expenditure on City and Distributed Fast-Charging Stations (\$2008)					
	Scenario D				
	Labor	Materials	Trenching/Repairs	Concrete Wk	Permit
	(in-state)	(out-of-state)	(in-state)	(in-state)	(gov revenue)
2013	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2014	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2015	\$19,356.00	\$156,792.00	\$4,137.00	\$4,137.00	\$255.00
2016	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2017	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2018	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2019	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00
2020	\$25,808.00	\$209,056.00	\$5,516.00	\$5,516.00	\$340.00
2021	\$19,356.00	\$156,792.00	\$4,137.00	\$4,137.00	\$255.00
2022	\$12,904.00	\$104,528.00	\$2,758.00	\$2,758.00	\$170.00

Economic Impact of Oregon Low Carbon Fuel Standard

Charging Unit Costs for EVs and PHEVs – Scenario E

Home Charger Purchase Expenditures by Year							
annual expenditure on Level-1 Chargers:	(thousand 2008\$)			annual expenditure on Level-2 Chargers:	(thousand 2008\$)		
Labor	Materials	Permit	Total	Labor	Materials	Permit	Total
(in-state)	(out-of-state)	(gov revenue)		(in-state)	(out-of-state)	(gov revenue)	
\$114.43	\$124.06	\$4.22	\$242.71	\$3,257.44	\$3,524.94	\$47.41	\$6,829.79
\$144.91	\$157.11	\$5.34	\$307.36	\$2,183.35	\$2,362.65	\$31.77	\$4,577.77
\$232.24	\$251.79	\$8.56	\$492.58	\$3,095.34	\$3,349.53	\$45.05	\$6,489.91
\$746.32	\$809.16	\$27.50	\$1,582.98	\$8,497.99	\$9,195.85	\$123.67	\$17,817.52
\$643.95	\$698.18	\$23.72	\$1,365.86	\$6,559.75	\$7,098.44	\$95.46	\$13,753.64
\$749.92	\$813.07	\$27.63	\$1,590.61	\$8,551.15	\$9,253.37	\$124.44	\$17,928.97
\$943.39	\$1,022.84	\$34.76	\$2,000.99	\$8,507.38	\$9,206.01	\$123.81	\$17,837.20
\$1,000.53	\$1,084.79	\$36.86	\$2,122.18	\$8,076.16	\$8,739.38	\$117.53	\$16,933.07
\$1,085.29	\$1,176.68	\$39.98	\$2,301.95	\$9,217.51	\$9,974.45	\$134.14	\$19,326.10
\$1,139.36	\$1,235.31	\$41.98	\$2,416.65	\$9,885.41	\$10,697.21	\$143.86	\$20,726.49
\$1,231.35	\$1,335.04	\$45.37	\$2,611.76	\$12,367.57	\$13,383.21	\$179.99	\$25,930.77

(No additional Level-2 or Level-3 public chargers in this scenario.)

Economic Impact of Oregon Low Carbon Fuel Standard

Compressed Natural Gas Costs, by Scenario

CNG Refueling Station Installation Costs

Expenditures (\$2008 million)	Scenarios A- C, F-H		Scenario D		One-Pool Scenario	
	Capital	Labor	Capital	Labor	Capital	Labor
2012	\$1.08	\$1.08	\$4.30	\$4.30	\$1.08	\$1.08
2013	\$0.00	\$2.15	\$3.23	\$3.23	\$0.00	\$0.00
2014	\$0.00	\$1.08	\$4.30	\$4.30	\$0.00	\$0.00
2015	\$0.00	\$1.08	\$4.30	\$4.30	\$0.00	\$0.00
2016	\$0.00	\$1.08	\$3.23	\$3.23	\$0.00	\$0.00
2017	\$1.08	\$2.15	\$4.30	\$4.30	\$1.08	\$1.08
2018	\$0.00	\$1.08	\$3.23	\$3.23	\$0.00	\$0.00
2019	\$0.00	\$1.08	\$4.30	\$4.30	\$0.00	\$0.00
2020	\$0.00	\$1.08	\$4.30	\$4.30	\$0.00	\$0.00
2021	\$0.00	\$2.15	\$3.23	\$3.23	\$0.00	\$0.00
2022	\$0.00	\$1.08	\$4.30	\$4.30	\$0.00	\$0.00

Medium- and Heavy-Duty CNG Trucks (Price Differentials above Conventional Diesel/Gas)

	Expenditures on CNG MDVs and HDVs			
	Medium-Duty		Heavy-Duty	
	Scenario D	All Other	Scenario D	All Other
2012	\$48,031,900	\$3,180,100	\$40,275,000	\$2,625,000
2013	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2014	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2015	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2016	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2017	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2018	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000

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2019	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2020	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2021	\$20,980,400	\$1,404,200	\$17,250,000	\$1,125,000
2022	\$20,691,300	\$1,362,900	\$16,950,000	\$1,425,000

Costs for Landfill Gas Recapture, by Scenario:

Landfill Gas costs for Capture, Cleanup, Introduction to NG Pipeline

Annual Costs (2008\$)		Scenarios A-C, F-H	Scenario D	One-Pool Scenario
Materials	<i>out-of-state</i>	\$28,407,942	\$56,815,884	\$28,407,942
Labor	<i>in-state</i>	\$8,227,437	\$16,454,874	\$8,227,437
Site Prep	<i>in-state</i>	\$1,831,769	\$3,663,538	\$1,831,769
Engineering	<i>in-state</i>	\$6,597,473	\$13,194,946	\$6,597,473
Permitting	<i>gov revenue</i>	\$1,102,166	\$2,204,332	\$1,102,166
Contingency		\$3,663,538	\$7,327,076	\$3,663,538
Total		\$49,830,325	\$99,660,650	\$49,830,325

Economic Impact of Oregon Low Carbon Fuel Standard

Ethanol Plant Costs and Timing, by Scenario:

Plant Construction Expenditure in 2008\$ millions			
Scenarios			
Apply to: -->	Scen. A-C, E-G	Scen. D	Scen. H
# of plants v BAU	3	2	-1
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019	\$226.37		-\$113.19
2020	\$226.37	\$226.37	
2021	\$113.19	\$226.37	
2022			

Plant Operating Costs in 2008\$ millions (vs BAU)			
Scenarios			
Apply to: -->	Scen. A-C, E-G	Scen. D	Scen. H
# of plants v BAU	3	2	-1
2012			
2013			
2014			
2015			
2016			
2017			
2018			

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2019			
2020	\$77.05		-\$77.05
2021	\$154.11		-\$77.05
2022	\$231.16	\$154.11	-\$77.05

New Truck Expenditures	Trucks for Transportation of Ethanol				
	Scenarios A and H	Scenario B	Scenarios C, F and G	Scenario D	One-Pool Scenario
2012					
2013					
2014					
2015					
2016					
2017			\$180,000		
2018					
2019		\$360,000	\$180,000		
2020		\$360,000			
2021	\$180,000	\$360,000	\$180,000		
2022	\$360,000	\$360,000		\$180,000	\$360,000

Terminal Costs by year (\$millions):	Ethanol Terminal Costs						
	Scenarios A and H	Scenario B	Scenario C	Scenario F	Scenario G	Scenario D	One-Pool Scenario (Sc. E)
2012	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2013	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

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2017	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00
2018	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00
2019	\$0.00	\$1.85	\$0.00	\$0.00	\$0.02	\$0.00	\$0.00
2020	\$0.00	\$5.07	\$0.00	\$0.00	\$0.05	\$0.00	\$0.00
2021	\$1.42	\$5.38	\$2.56	\$2.58	\$2.52	\$0.00	\$0.00
2022	\$5.58	\$5.10	\$6.64	\$6.72	\$6.38	\$3.60	\$6.00

Economic Impact of Oregon Low Carbon Fuel Standard

Biodiesel Plant Construction and Operating Costs:

Plant Capital Cost				
Assumption: (million 2008\$)				
	Scenarios:			
	Scenario A	Scenario B	Scenario D	One-Pool Scenario
# of plants:	1	-1	0	-1
2012				
2013				
2014				
2015				
2016				
2017				
2018				
2019				
2020	\$177.93	-\$177.93		-\$177.93
2021	\$177.93	-\$177.93		-\$177.93
2022				

Economic Impact of Oregon Low Carbon Fuel Standard

New Trucks by 2022 (for transporting Biodiesel):

Scenarios A & H	Scenario B	Scenario C, F & G	Scenario D	One-Pool Scenario
		-\$198,000	-\$198,000	
		-\$198,000	-\$198,000	
\$594,000				\$198,000
\$594,000		-\$198,000	-\$198,000	\$198,000

Biodiesel-Related Costs to Upgrade Petroleum Terminals

Upgrade Costs: (million 2008\$)	Scenarios:					
	BAU	Scenarios A & H	Scenario B	Scenario C, F & G	Scenario D	One-Pool Scenario
2012		\$0.00	\$0.00	n/a	\$0.00	\$0.00
2013		\$0.00	\$0.00	n/a	\$0.00	\$0.00
2014		\$0.00	\$0.00	n/a	\$0.00	\$0.00
2015		\$0.00	\$0.00	n/a	\$0.00	\$0.00
2016		\$0.00	\$0.00	n/a	-\$0.01	\$0.00
2017		\$0.00	\$0.00	n/a	-\$0.01	\$0.00

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2018		\$0.00	\$0.00	n/a	-\$0.01	\$0.00
2019		\$0.00	\$0.00	n/a	-\$0.01	\$0.00
2020		\$0.00	\$0.00	n/a	-\$0.01	\$0.00
2021		\$0.00	\$0.00	n/a	-\$0.02	\$0.08
2022		\$0.50	\$0.10	n/a	-\$0.02	\$0.32

In addition, many values were developed outside of the VISION framework in an effort to establish a complete assessment of the expected direct and induced costs reasonable to expect under each scenario. This set of inputs was developed by DEQ and consultants, led by TIAX LLC. The final memorandum of understanding regarding these inputs can be found in Appendix C of the Oregon Low Carbon Fuel Standards Report.

Appendix B: REMI PI+ Results

Gross State Product Impacts, Eight Scenarios; Measured as \$ Change from Baseline

Category	Units		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gross Domestic Product A	Billions of Fixed (2000) Dollars	Scenario A	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.15	\$0.29	\$0.30	\$0.19	\$0.05
Gross Domestic Product B	Billions of Fixed (2000) Dollars	Scenario B	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.17	\$0.30	\$0.23	\$0.13	\$0.05
Gross Domestic Product C	Billions of Fixed (2000) Dollars	Scenario C	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.16	\$0.30	\$0.29	\$0.18	\$0.06
Gross Domestic Product D	Billions of Fixed (2000) Dollars	Scenario D	\$0.12	\$0.11	\$0.12	\$0.12	\$0.14	\$0.16	\$0.15	\$0.17	\$0.44	\$0.41	\$0.20
Gross Domestic Product E	Billions of Fixed (2000) Dollars	Scenario E	\$0.02	\$0.02	\$0.02	\$0.03	\$0.03	\$0.03	\$0.18	\$0.32	\$0.26	\$0.11	\$0.05
Gross Domestic Product F	Billions of Fixed (2000) Dollars	Scenario F	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.03	\$0.16	\$0.30	\$0.32	\$0.22	\$0.12
Gross Domestic Product G	Billions of Fixed (2000) Dollars	Scenario G	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.15	\$0.28	\$0.28	\$0.15	\$0.02
Gross Domestic Product H	Billions of Fixed (2000) Dollars	Scenario H	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01

Employment Impacts, Measured as Percent Change from Baseline Presented by Sector

Scenario A

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.99	1.97	1.99	1.05	0.08
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.10	0.10	0.05

Economic Impact of Oregon Low Carbon Fuel Standard

Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.07	0.04	0.01
Retail trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.09	0.05	0.04	0.04	0.04	0.06	0.25	0.45	0.45	0.28	0.12
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.01
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.06	0.03	(0.00)
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.01	(0.00)
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.01)
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.05	0.01
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.12	0.24	0.25	0.15	0.03

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Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.00
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.11	0.20	0.20	0.11	0.02
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.04	0.02
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.20	0.20	0.09	(0.00)
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.04	0.02
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.04	0.02
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.09	0.06	0.03
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	(0.00)
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.14	0.15	0.10	0.05
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.01
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.03	(0.00)
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.05	0.03	0.01
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.08	0.04	(0.00)

Scenario B

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support	% Change in	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

activities; Other	Jobs															
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	1.00	1.98	1.90	0.94	0.03
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	% Change in	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	Jobs															
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.03	0.05
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.05	0.02	0.01
Retail trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.09	0.06	0.05	0.05	0.05	0.09	0.31	0.50	0.32	0.27	0.07
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.01	0.00
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.04	0.01	(0.00)
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.02	0.00	(0.00)
Insurance carriers and related	% Change in	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	(0.00)	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

activities	Jobs															
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.10	0.06	0.03	0.01
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.13	0.25	0.20	0.10	0.03
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.12	0.21	0.14	0.07	0.02
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.04	0.02	0.02
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.12	0.21	0.10	0.01	(0.00)
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.02
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.01
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.06	0.03	0.03
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.02	0.01	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.01	0.01
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.08	0.15	0.11	0.06	0.04
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.03	0.01	0.01
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.03	0.00	(0.00)
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.03	0.02	0.01
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.04	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario C

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	1.00	1.98	1.99	1.04	0.08
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.05	0.05	0.05
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.07	0.04	0.01
Retail trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.09	0.06	0.05	0.05	0.05	0.07	0.27	0.46	0.45	0.29	0.13
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	0.00
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.06	0.03	(0.00)
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.01	(0.00)
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.09	0.09	0.06	0.02
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.13	0.25	0.24	0.14	0.04
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.11	0.20	0.20	0.11	0.02
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.04	0.02
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.21	0.19	0.09	(0.01)
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.04	0.02
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.05	0.04	0.02
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.09	0.06	0.03
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	(0.00)
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.08	0.15	0.15	0.10	0.05
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.01
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.03	(0.00)
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01

Economic Impact of Oregon Low Carbon Fuel Standard

Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.07	0.03	(0.00)
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Scenario D

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Construction	% Change in Jobs	0.00	0.00	0.01	0.02	0.10	0.13	0.15	0.16	0.19	0.21	0.20	0.21	2.09	2.11	0.28
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.03	0.03	0.01
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Miscellaneous manufacturing	% Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

	in Jobs															
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.04
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.11	0.11	0.06
Retail trade	% Change in Jobs	0.00	0.00	0.10	0.13	1.27	0.89	0.86	0.89	0.92	0.96	0.95	0.99	1.43	1.07	0.78
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.05	0.05	0.02
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Motion picture and sound	% Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00

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recording industries	in Jobs															
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.08	0.07	0.01
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.00
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.03	0.02	0.00
Real estate	% Change in Jobs	0.00	0.00	0.00	0.01	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.14	0.14	0.07
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01
Professional and technical services	% Change in Jobs	0.00	0.00	0.01	0.01	0.07	0.07	0.07	0.07	0.09	0.10	0.09	0.10	0.33	0.31	0.12
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.04	0.02
Administrative and support services	% Change in Jobs	0.00	0.00	0.01	0.01	0.09	0.08	0.09	0.08	0.10	0.11	0.10	0.11	0.29	0.27	0.11
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.12	0.12	0.02	0.02	0.02	0.02	0.02
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.08	0.09	0.05
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.01	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.05	0.24	0.22	0.04
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.08	0.08	0.04
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.07	0.08	0.04
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.13	0.13	0.08
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.04	0.02
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.06	0.06	0.03
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01

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Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.01	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.22	0.22	0.13
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.02	0.03	0.02	0.02	0.05	0.05	0.02
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.07	0.07	0.01
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.07	0.07	0.04
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.10	0.09	0.02

Scenario E

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.03	0.04	0.04	1.03	2.01	1.95	0.97	0.06
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.01	0.01	0.01	0.00	(0.00)
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	(0.00)
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.00)	(0.00)

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Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	(0.00)	(0.00)
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.03	0.05
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.05	0.08	0.06	0.02	0.01
Retail trade	% Change in Jobs	0.00	0.00	0.09	0.06	0.18	0.25	0.21	0.26	0.26	0.28	0.50	0.71	0.62	0.20	0.19
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.01	0.00
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.04	0.00	(0.00)
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.02	(0.00)	(0.00)
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	(0.00)	(0.01)
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.10	0.07	0.02	0.01
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.14	0.25	0.21	0.08	0.02
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.02	0.03	0.02	0.00	0.00
Administrative and support services	% Change in Jobs	0.00	0.00	0.01	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.12	0.21	0.16	0.05	0.01
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.05	0.02	0.02
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.12	0.21	0.11	0.00	(0.01)
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.04	0.02	0.02

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Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.02
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.05	0.09	0.07	0.03	0.03
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.02	0.01	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.01	0.01
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	(0.00)	(0.00)
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.15	0.12	0.06	0.04
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.03	0.01	0.01
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.03	0.00	(0.00)
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.01
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.04	0.00	(0.00)

Scenario F

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03	0.04	0.05	1.01	1.99	2.02	1.11	0.18

Economic Impact of Oregon Low Carbon Fuel Standard

Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.05	0.05	0.06
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.08	0.09	0.06	0.04

Economic Impact of Oregon Low Carbon Fuel Standard

Retail trade	% Change in Jobs	0.00	0.00	0.01	0.02	0.09	0.07	0.07	0.08	0.09	0.13	0.31	0.52	0.54	0.45	0.38
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.03	0.01
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.07	0.06	0.04	0.01
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.01	0.00
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.06	0.10	0.11	0.07	0.04
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.14	0.25	0.26	0.17	0.08
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.01
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.12	0.21	0.22	0.14	0.07
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.06	0.07	0.05	0.03
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.11	0.21	0.20	0.11	0.02
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.06	0.04	0.02
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.04	0.02
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.05	0.09	0.10	0.07	0.04
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.01
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.02
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.08	0.15	0.17	0.12	0.08
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.02
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.03	0.01
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.05	0.04	0.02
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.08	0.08	0.04	0.01

Scenario G

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
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Economic Impact of Oregon Low Carbon Fuel Standard

Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.98	1.96	1.97	1.01	0.02	
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)	
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	(0.00)	
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	
Fabricated metal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)	
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)	
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)	
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.05	0.05
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.07	0.03	(0.01)
Retail trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.09	0.05	0.04	0.04	0.04	0.05	0.24	0.44	0.42	0.21	(0.01)
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	(0.00)
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)
Internet publishing and broadcasting; ISPs, search portals, and	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

data processing; Other information services																
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.06	0.02	(0.01)
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.02	0.01	(0.00)
Insurance carriers and related activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.01)
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.05	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.23	0.23	0.12	0.01
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.19	0.18	0.09	(0.00)
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.01	0.01	0.01
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.04	0.01
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.20	0.19	0.08	(0.02)
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.05	0.04	0.01
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.09	0.06	0.02
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.14	0.14	0.09	0.03
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.00
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.05	0.02	(0.01)
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.05	0.03	0.01
Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.07	0.03	(0.01)

Scenario H

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00
Agriculture and forestry support activities; Other	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Wood product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

manufacturing																
Machinery manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Chemical manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastics and rubber product manufacturing	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Wholesale trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail trade	% Change in Jobs	0.00	0.00	0.00	0.00	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Air transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transit and ground passenger transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Securities, commodity contracts, investments	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance carriers and	% Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

related activities	in Jobs															
Real estate	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Management of companies and enterprises	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	% Change in Jobs	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste management and remediation services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	1.51	0.09	0.09	0.09
Educational services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membership associations and organizations	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Private households	% Change in Jobs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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Economic Impact of Oregon Low Carbon Fuel Standard

Income Impacts, Measured as Percent Change from Baseline Presented by Sector

Scenario A

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.26	0.52	0.56	0.34	0.08
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.14	0.28	0.31	0.20	0.07
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.07	0.04	0.02
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.18	0.09	(0.00)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01
Plus: Adjustment for residence	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.04)	(0.03)	(0.01)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.22	0.44	0.47	0.28	0.06
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.02)	(0.01)	0.00	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.21	0.43	0.48	0.31	0.10
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.07	0.04	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.18	0.37	0.41	0.27	0.09

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario B

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.27	0.53	0.36	0.15	0.07
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.15	0.29	0.25	0.15	0.06
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.05	0.03	0.01
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.06	(0.04)	(0.00)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.04	0.02	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Plus: Adjustment for residence	% Change in Income	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.03)	(0.02)	(0.01)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	0.01
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.23	0.45	0.29	0.11	0.05
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.02)	(0.01)	0.01	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.22	0.45	0.30	0.13	0.08
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.04	0.02	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.19	0.38	0.26	0.11	0.07

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario C

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.27	0.53	0.55	0.33	0.08
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.15	0.29	0.31	0.20	0.07
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.07	0.04	0.02
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.18	0.09	(0.00)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01
Plus: Adjustment for residence	% Change in Income	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.04)	(0.02)	(0.01)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.01
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.22	0.45	0.46	0.28	0.06
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.02)	(0.01)	0.00	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.22	0.44	0.47	0.30	0.10
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.07	0.04	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.19	0.38	0.41	0.26	0.09

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario D

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.01	0.01	0.10	0.10	0.11	0.11	0.14	0.15	0.15	0.16	0.67	0.68	0.22
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.01	0.01	0.08	0.08	0.09	0.09	0.11	0.12	0.12	0.13	0.40	0.41	0.18
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.09	0.09	0.04
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.06	0.06	0.03
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.02
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.18	0.18	(0.00)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.07	0.07	0.03
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.02
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.02
Plus: Adjustment for residence	% Change in Income	0.00	0.00	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.05)	(0.05)	(0.02)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.05	0.02
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.01	0.01	0.08	0.08	0.09	0.08	0.11	0.12	0.11	0.12	0.56	0.57	0.17
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.05
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	0.00	0.00	0.00	0.01	0.01	(0.00)	0.01	0.04
Equals: Personal Income	% Change in Income	0.00	0.00	0.01	0.01	0.07	0.08	0.09	0.10	0.12	0.14	0.14	0.16	0.59	0.62	0.26
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.08	0.08	0.03
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.01	0.06	0.07	0.08	0.08	0.11	0.12	0.13	0.14	0.51	0.54	0.23

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario E

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.01	0.00	0.01	0.02	0.02	0.03	0.03	0.03	0.29	0.55	0.39	0.13	0.07
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.16	0.31	0.28	0.14	0.06
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.07	0.06	0.03	0.01
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.01
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.06	(0.04)	(0.01)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.02	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.00
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.01
Plus: Adjustment for residence	% Change in Income	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.03)	(0.02)	(0.01)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	0.01
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.24	0.46	0.31	0.09	0.05
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.03
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.00)	0.01	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.03	0.24	0.47	0.33	0.13	0.10
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.05	0.02	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.21	0.40	0.29	0.12	0.09

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario F

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.26	0.53	0.57	0.37	0.14
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.14	0.29	0.32	0.23	0.12
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.07	0.05	0.03
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.05	0.03	0.02
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.18	0.09	(0.00)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.04	0.02
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01
Plus: Adjustment for residence	% Change in Income	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.04)	(0.03)	(0.01)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.22	0.44	0.48	0.31	0.11
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.03
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	0.01	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.22	0.45	0.50	0.34	0.16
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.07	0.05	0.02
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.19	0.38	0.43	0.30	0.14

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario G

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.26	0.52	0.54	0.31	0.04
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.14	0.28	0.29	0.18	0.04
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.04	0.01
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.18	0.09	(0.01)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.00
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Plus: Adjustment for residence	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.04)	(0.02)	(0.00)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.00
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.22	0.44	0.45	0.26	0.03
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.02)	(0.01)	0.00	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.43	0.46	0.28	0.06
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.04	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.37	0.39	0.24	0.06

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario H

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Earnings by Place of Work	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.26	0.52	0.54	0.31	0.04
Total Wage and Salary Disbursements	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.14	0.28	0.29	0.18	0.04
Supplements to Wages and Salaries	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.04	0.01
Employer contributions for employee pension and insurance funds	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.03	0.01
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Proprietors' income with inventory valuation and capital consumption adjustments	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.18	0.09	(0.01)
Less: Contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.03	0.01
Employee and self-employed contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.00
Employer contributions for government social insurance	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Plus: Adjustment for residence	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.04)	(0.02)	(0.00)
Gross In	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Out	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.00
Equals: Net earnings by place of residence	% Change in Income	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.22	0.44	0.45	0.26	0.03
Plus: Rental, Personal interest, and Personal dividend income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02
Plus: Personal current transfer receipts	% Change in Income	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	0.00	(0.01)	(0.02)	(0.01)	0.00	0.02
Equals: Personal Income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.43	0.46	0.28	0.06
Less: Personal current taxes	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.04	0.01
Equals: Disposable personal income	% Change in Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.37	0.39	0.24	0.06

Economic Impact of Oregon Low Carbon Fuel Standard

Value Added Impacts, Measured as Percent Change from Baseline Presented by Sector

Scenario A

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.17	0.17	0.09	0.01
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.04	0.02
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.05	0.05	0.03	0.01
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	(0.00)
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario B

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.09	0.04	0.00
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.02	0.01
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds,	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

trusts, & other financial vehicles																
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	(0.00)
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario C

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.09	0.05	0.01
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.01
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds,	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

trusts, & other financial vehicles																
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	(0.00)
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario D

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.10	0.01
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.01
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.01	0.07	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.10	0.08	0.06
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds,	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

trusts, & other financial vehicles																
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.01
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario E

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.05	0.00
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.05	0.04	0.02	0.02
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.00)	(0.00)
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	0.00	(0.00)
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds,	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

trusts, & other financial vehicles																
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	(0.00)
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario F

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.09	0.05	0.01
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.01
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.04	0.03	0.03
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds,	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

trusts, & other financial vehicles																
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.01
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Scenario G

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.09	0.05	0.00
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apparel manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	(0.00)
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	(0.00)
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck transportation; Couriers and messengers	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	(0.00)
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	(0.00)
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

	(2000) Dollars														
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Economic Impact of Oregon Low Carbon Fuel Standard

Scenario H

Category	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Forestry and logging; Fishing, hunting, and trapping	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Agriculture and forestry support activities; Other	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining (except oil and gas)	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support activities for mining	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Wood product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonmetallic mineral product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary metal manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fabricated metal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

	Dollars															
Machinery manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computer and electronic product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical equipment and appliance manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicles, bodies & trailers, and parts manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transportation equipment manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture and related product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beverage and tobacco product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.00
Textile product mills	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Apparel manufacturing	Billions of Fixed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

	(2000) Dollars															
Leather and allied product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paper manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing and related support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum and coal product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Chemical manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plastics and rubber product manufacturing	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail trade	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.04	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Air transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Water transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	0.00	0.00
Truck transportation; Couriers	Billions of	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.02)	(0.02)	(0.01)	0.00	0.00

Economic Impact of Oregon Low Carbon Fuel Standard

and messengers	Fixed (2000) Dollars															
Transit and ground passenger transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Pipeline transportation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01
Scenic and sightseeing transportation; support activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehousing and storage	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Publishing industries, except Internet	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motion picture and sound recording industries	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Internet publishing and broadcasting; ISPs, search portals, and data processing; Other information services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Broadcasting, except Internet; Telecommunications	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monetary authorities - central bank; Credit intermediation and related activities; Funds, trusts, & other financial vehicles	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Securities, commodity contracts, investments	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance carriers and related activities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)

Economic Impact of Oregon Low Carbon Fuel Standard

	Dollars															
Real estate	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rental and leasing services; Lessors of nonfinancial intangible assets	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional and technical services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Management of companies and enterprises	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative and support services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste management and remediation services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	1.51	0.10	0.10	0.10
Educational services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ambulatory health care services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nursing and residential care facilities	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social assistance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Performing arts and spectator sports	Billions of Fixed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)

Economic Impact of Oregon Low Carbon Fuel Standard

	(2000) Dollars															
Museums, historical sites, zoos, and parks	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amusement, gambling, and recreation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accommodation	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food services and drinking places	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repair and maintenance	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)
Personal and laundry services	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Membership associations and organizations	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private households	Billions of Fixed (2000) Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00