# Small Business Economic Impact Statement 

Chapter 173-441 WAC
Reporting of Emission of Greenhouse Gases

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# Small Business Economic Impact Statement 

Chapter 173-441 WAC Reporting of Emission of Greenhouse Gases

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Note: Due to size limitations relating to the filing of documents with the Code Reviser, the SBEIS does not contain the appendices that further explain Ecology's analysis. Additionally, it does not contain the raw data used in this analysis, or all of Ecology's analysis of this data. However, this information is being placed in the rule-making file, and is available upon request. A full analysis of compliance costs is available in the associated Cost-Benefit Analysis for this rule.
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## Executive Summary

The Washington State Department of Ecology is proposing a rule to require reporting of greenhouse gas emissions from sources in the state (Chapter 173-441 WAC). The proposed rule requires reporting of emissions from:

- Sites and fleets of aircraft, marine vessels, and rail equipment with direct emissions over 10,000 metric tons $\mathrm{CO}_{2} \mathrm{e}$ (carbon dioxide-equivalent) of greenhouse gas emissions per year.
- Fleets of on-road vehicles emitting over 2,500 metric tons $\mathrm{CO}_{2} \mathrm{e}$ of greenhouse gas emissions per year.

Ecology has analyzed the degree of disproportionate impact of the proposed rule on small business, and concluded that a disproportionate impact does exist. While yearly compliance costs for the largest 10 percent of businesses are expected to be up to $\$ 0.48$ per employee, compliance costs for small businesses are expected to be at least $\$ 5.65$ per employee. Even at the most conservative margin, small business costs per employee may be 12 times as large as for the largest businesses.

Ecology took various measures, within the scope of the authorizing statutes, to reduce this disproportionate burden, including:

- De minimis simplified estimation methods that make it easier for emitters to comply with the proposed rule. Ecology capped emissions permitted to use simplified estimation methods, to protect the integrity of the threshold, and to be fair to smaller emitters.
- A lower percentage of total program costs will be paid by small emitters, aiding the group of small emitters as a whole.
- Some of the smallest emitters are likely to be fleet operators - Ecology concentrated outreach and calculation tool assistance for those reporters.
- Developed a simplified estimation method for on-road fleets that greatly reduces data tracking. Also expanded simplified estimation methods for on-road refrigerants.
- Provided flexibility in quantification method tier selection to reduce capital and operational costs. Allowing methods with default calculation factors.
- Phased in reporting threshold, with a threshold of 25,000 metric tons $\mathrm{CO}_{2} \mathrm{e}$ of GHG emissions for first year.
- Included recently passed enforcement discretion for first time paperwork violations (expanded to include large and small businesses).
- Used latest reporting date possible under statute (Oct $31^{\text {st }}$ ) to facilitate data gathering and compliance.

Ecology estimated that the costs and payments created by the proposed rule will likely reduce manufacturing-related employment primarily in sectors subject to the proposed rule, while increasing service-sector employment as a result of employee wages earned in compliance with the rule being spent in the local economy. This balancing results in the following expected range of job impacts across the state economy, for all sizes of business.

- Compared to the proposed federal rule, Ecology's proposed rule may result in the loss of 2 jobs, up to a gain of 11 jobs.
- Compared to no reporting required, Ecology's proposed rule may result in the loss of 1 job, up to a gain of 21 jobs.


## Chapter 1: Background

The Washington State Department of Ecology (Ecology) is proposing a rule to require reporting of greenhouse gas (GHG) emissions from certain sources in the state.

Based on research and analysis required by the Regulatory Fairness Act - RCW 19.85.070 Ecology has determined the proposed rule, Chapter 173-441 WAC, has a disproportionate impact on small business. Therefore, Ecology included cost-minimizing features in the rule where it is legal and feasible to do so.

This document provides the public with an overview of the methods Ecology used to perform its analysis, and the features of the rule and rule-development process specifically addressing smallbusiness needs. Small businesses are defined as those with fifty or fewer employees.

Due to size limitations relating to the filing of documents with the Code Reviser, the SBEIS does not contain the appendices that further explain Ecology's analysis. Additionally, it does not contain the raw data used in this analysis, or all of Ecology's analysis of this data. However, this information is being placed in the rule-making file, and is available upon request. A full analysis of compliance costs is available in the associated Cost-Benefit Analysis for this rule.

## Chapter 2: Compliance Costs for Washington Businesses

## Quantified Costs of the Proposed Rule to Sites and Fleets of Aircraft, Marine Vessels, and Rail Equipment Emitters

Ecology estimated the quantifiable costs of the proposed rule to the regulated community by determining expected reporters, and estimating the range of compliance costs for each industry. Due to uncertainty over the true long-run baseline for comparison, Ecology compared the proposed rule's impacts to two baselines: the proposed federal GHG reporting rule at the time of this publication, and the existing regulatory context of no regulation.

## Coverage under the Proposed Federal Rule

Ecology expects the proposed federal reporting rule to capture emissions from the largest industrial emitters. Ecology developed an estimate of the number of Washington State sites impacted by the federal reporting rule, based on reported fuel consumption and business output. Ecology developed a list of 78 specific reporters that likely emit over the federal threshold of 25,000 metric tons $\mathrm{CO}_{2} \mathrm{e}$ per year, from industrial processes covered by the federal rule (WA Department of Ecology, 2009).

Based on the relative proportions of reporters to non-reporters at the national level (EPA, 2009), Ecology assumed 100 businesses in Washington would need to determine whether they are reporters under the proposed federal rule. This number is highly conservative, base on Ecology's knowledge of the industries reporting under the proposed federal rule, and those industries in Washington State. However, Ecology chose this estimate based on the proportion of reporters to non-reporters in the United States as a whole.

## Coverage under No Reporting

Under the existing regulatory scheme, no regulations exist enforcing reporting of GHG emissions. This is the regulatory context of the proposed rule at the time of this publication. There are no existing costs or benefits under the no reporting scenario, as there are no compliance requirements.

## Coverage under the Proposed Rule

Ecology expects coverage under the proposed rule to include several manufacturing, commercial, and utility sites, including those reporting under the federal reporting rule. In addition, Ecology expects the proposed rule to cover significant mobile sources of aircraft, marine vessel, and rail equipment emissions. The proposed rule's lower reporting threshold and broader base (compared to the proposed federal rule) is expected to include more reporters, largely because of the lower threshold itself, but also to a minor extent because of broader inclusion of indirect, biomass, and on-site emissions types that will add to basic industrial process emissions.

Ecology's proposed rule requires reporting of indirect emissions as well, but only once the reporting threshold is exceeded. Therefore, indirect emissions reporting is not
expected to affect the number of reporters or the number of assessments of whether to report, but increases what is required of reporters.

Based on the energy intensity of different production activities, and employment size of firms as a proxy for operation size, Ecology estimated that about 340 sites and nonroad mobile sources (aircraft, marine vessels, and rail equipment) in the state are likely to be required to report under the proposed rule (Washington State Employment Security Department. Workforce Explorer; Nicholas Institute for Environmental Policy Solutions, 2007; and Energy Information Administration, 2002). This includes 78 sites expected to report under the federal rule, if applicable. Ecology expects that some remaining sites and nonroad mobile sources in the state, in manufacturing, utility, and commerce fields will need to determine their reporting status, but will not need to report. Ecology estimated there are about 3 thousand remaining possible emitters that may need to determine reporting status, in industries regulated by to the proposed rule (Employment Security, 2009).

Within the 340 estimated reporters, Ecology also determined that 36 emitters were likely to report mobile emissions from marine vessels, while another 22 were possible, though less likely to become reporters. For rail emissions, Ecology determined that eight emitters were likely reporters under the proposed rule, while another six were possible reporters. For aircraft emissions, Ecology determined that five emitters were likely reporters, while another 10 were possible reporters. For emissions from nonroad fleets of mobile sources, Ecology assumed the number of "possible" reporters discussed above was a conservative estimate of potential non-reporters, totaling 38.

## Cost Estimation - Reporters for Sites and Fleets of Aircraft, Marine Vessels, and Rail Equipment

Ecology developed a list of likely reporters, by site or fleet of nonroad mobile sources, under the proposed rule. For each of these operations, Ecology developed an estimated facility compliance cost by industry, on-site vehicle compliance cost, and/or mobile fleet of aircraft, rail equipment, and marine vessels compliance cost, if applicable. Ecology estimated a range of compliance costs, tied to labor and capital costs developed by the EPA for its Regulatory Impact Analysis for the proposed federal rule (EPA, 2009).

For those emitters likely reporting under the proposed federal rule, as well, Ecology included cost estimates for only additional reporting of indirect emissions, biomass, and limited on-site vehicle emissions.

## Results - Compared to Proposed Federal Rule

Based on its analysis of compliance costs for sites and fleets of nonroad mobile sources, Ecology estimated total annualized compliance costs of $\$ 2$ million to $\$ 4.5$ million, relative to the proposed federal rule. See the associated Cost-Benefit Analysis for a break-down of compliance costs.

## Results - Compared to No Reporting

Based on its analysis of compliance costs for sites and fleets of nonroad mobile sources, Ecology estimated total annualized compliance costs of $\$ 2.5$ million to $\$ 6.4$ million, relative to no reporting required. See the associated Cost-Benefit Analysis for a break-down of compliance costs.

## Cost Estimation - Non-Reporters for Sites and Fleets of Aircraft, Marine Vessels, and Rail Equipment

Based on the industries impacted in Ecology's cost analysis for reporters, Ecology assumed approximately 3,000 sites and fleets of nonroad mobile sources in the state would need to determine what action to take in compliance with the rule, but would not need to report. Ecology followed the EPA's assumptions on the labor required to determine reporting status (EPA, 2009).

## Results - Compared to the Proposed Federal Rule OR to No Reporting

The range of site-level fleet-level (for nonroad mobile source fleets) costs for nonreporters was determined to be $\$ 150$ to $\$ 300$ per non-reporter. Ecology annualized this cost over 20-years, and estimated an annualized cost of $\$ 13-\$ 44$. Summed across all non-reporters determining reporting status, this is a total annual compliance cost of $\$ 39$ thousand to $\$ 132$ thousand. See the associated Cost-Benefit Analysis for a break-down of compliance costs.

Although the above annualized cost is a relatively small portion of overall expected compliance costs, Ecology emphasizes that many non-reporters would be able to determine reporting status through attendance of a free workshop, or through a phone call with Ecology staff. The implicit cost of labor and time in this scenario is similar to the annualized cost estimated above.

## Cost Estimation - Reporting Fees - Sites and Fleets of Aircraft, Marine Vessels, and Rail Equipment

Ecology estimated that program costs will be $\$ 335$ thousand per year.
To allocate reporter fees across fleets, small emitters, and large emitters, Ecology followed the language in the proposed rule. Ecology broke the budget down into a flat fee (20 percent of the estimated total program cost), and additional fee paid only by stationary and combined source (not fleet) reporters pay. In turn, the 80 percent of the fee was broken down into 50 percent paid by large emitters, and 30 percent paid by small emitters. Ecology then divided the total fees to be paid by reporters to estimate that:

- On-road fleet reporters pay only the flat fee of $\$ 105$ per year.
- Small sites and fleets of nonroad mobile sources will pay a flat fee, plus a variable fee, totaling $\$ 643$ per year.
- Large sites and fleets of nonroad mobile sources will pay a flat fee plus a variable fee, totaling \$2,500 per year.

These are estimated values based on the expected annual costs of the program at the time of this publication. If the realized composition of reporters and non-reporters differs from Ecology's assumptions, or program costs change, actual fees may differ.

## Results - Compared to the Proposed Federal Rule OR to No Reporting

Ecology multiplied the estimated fees for small and large sites and nonroad mobile sources, by the numbers of expected reporters. The total fees paid by sites and fleets of, aircraft, marine vessels, and rail equipment reporters would be $\$ 295$ thousand.

## Quantified Costs of the Proposed rule to Fleets of On-Road Motor Vehicles

Ecology determined which fleets in the state were likely fleet reporters under the proposed rule. This determination was based on the best information available on the number of vehicles in a fleet, and for some fleets, the types of vehicles in the fleet (DOL, 2009).

Based on its analysis of fleet size and composition, Ecology determined that approximately 400 fleets would likely be required to report emissions under the proposed rule. The remaining nearly 600 identified fleets in the state are expected to incur only the costs of determining whether to report.

## Cost Estimation - Fleets of On-Road Motor Vehicles

For reporting fleets, Ecology estimated costs based on EPAs estimated reporting burden for the SmartWay Transport Partnership (EPA, 2009b). The SmartWay program is a voluntary program that requires many of the same reporting information and data as the proposed rule, as well as using a similar calculation and reporting format.

The base cost used by Ecology for reporting emissions from a simple fleet (one type of vehicle) is the reporting cost based on the SmartWay analysis. To reflect the increasing complexity of reporting emissions from multiple vehicle sizes, types, and uses, Ecology assumed conservatively there were no economies of scale, and that the reporting cost would be incurred additively for each type of vehicle reported. This is a highly conservative estimate, since Ecology expects considerable economies of scale in understanding regulation, data gathering, calculations, and reporting. Ecology did not quantify a more likely estimate in this case, because it was not possible to confidently quantify the degree to which economies of scale will take place.

For those expected reporters that did not have data available on vehicle types, Ecology assumed the cost distribution was the same as the distribution across other reporters, and
assigned costs accordingly. Across all reporters (those with known vehicle types, and those without vehicle type data), annualized fleet-level costs ranged from $\$ 254$ to $\$ 1,527$.

For non-reporters, Ecology assumed only basic planning and calculation tasks were necessary for determining reporting status. To maintain consistency with other mobile emissions non-reporters (aircraft, marine, and rail emitters) Ecology assumed that fleet non-reporters would incur the same costs as other mobile non-reporters (EPA, 2009). Ecology calculated annual fleet-level costs for non-reporters between $\$ 150$ and $\$ 500$, or an annualized equivalent of $\$ 13$ to $\$ 44$.

## Results - Compared to the Proposed Federal Rule OR to No Reporting

Summing across all reporters and non-reporters of on-road vehicle fleet emissions, Ecology estimated the proposed rule will have a direct compliance cost of \$0.6 million to $\$ 0.8$ million, per year.

## Cost Estimation - Reporting Fees - Fleets of On-Road Motor Vehicles

Ecology estimated that total fees across all expected reporters will be $\$ 335$ thousand per year. To allocate reporter fees across fleets, small emitters, and large emitters, Ecology followed the language in the proposed rule. Ecology broke the budget down into a flat fee (20 percent of the estimated total program cost), and additional fee paid only by stationary and combined source (not fleet) reporters pay.

## Results - Compared to the Proposed Federal Rule OR to No Reporting

On-road fleet reporters are required to pay only the flat fee under the proposed rule. Ecology then divided the total on-road fleet fees to be paid by reporters to estimate that on-road fleet reporters will pay a flat fee of $\$ 105$ per year. Multiplied by approximately 400 on-road fleet reporters, this is over $\$ 40$ thousand per year.

See the associated Cost-Benefit Analysis for this rule for a full discussion of cost estimation.

## Chapter 3: Quantification of Cost Ratios

Ecology estimated that the proposed rule - relative to the baseline of the proposed federal reporting rule - generates the following quantifiable costs:

- Costs to operators of greenhouse gas sources, combinations of sources, air, rail, and marine emissions of \$2.9 million - \$6.6 million, including reporters and non-reporters.
- Costs to operators of on-road vehicle fleets of \$0.6 million - $\mathbf{0 . 8} \mathbf{~ m i l l i o n , ~ i n c l u d i n g ~}$ reporters and non-reporters.
- Reporter fees of \$335 thousand, funding the reporting program.

Relative to a baseline of no reporting required, Ecology estimated the proposed rule generates the following quantifiable costs:

- Costs to operators of greenhouse gas sources, combinations of sources, air, rail, and marine emissions of $\$ 3.4$ million - $\$ 7.5$ million, including reporters and non-reporters.
- Costs to operators of on-road vehicle fleets of \$0.6 million - $\mathbf{0 . 8} \mathbf{~ m i l l i o n , ~ i n c l u d i n g ~}$ reporters and non-reporters.
- Reporter fees of \$335 thousand, funding the reporting program.

These quantitative values represent the costs of equipment, supplies, labor, professional services, administrative costs, and other labor and capital costs of the proposed rule relative to the baseline.

These costs are not uniformly spread across businesses, especially as pertains to business size. Ecology matched industries and, where possible, individual businesses with employment numbers (ESD, 2009; Hoovers, 2009). Ecology then determined the interaction between compliance costs and business size.

Based on the interaction of business size and compliance costs, Ecology determined:

1. Which businesses or subsets of industries are required to comply with the proposed rule, and incur costs.
2. Which businesses are small, and which businesses comprise the largest 10 percent of impacted businesses.

Ecology divided each site's or fleet's compliance costs by the number of employees there. Ecology then averaged these cost-to-employment ratios for the small business group, and the large business group.

Ecology calculated the broadest range possible for the average annualized cost per employee as $\$ 6.43$ to $\$ 30,927$ for small businesses impacted by the proposed rule. The average annualized cost per employee for the largest 10 percent of businesses was calculated to be 0.08 cents to $\$ 10$.

Most of the range of average costs per employee for small businesses is higher than the range for the largest businesses, although the ranges overlap between $\$ 6.43$ and $\$ 10$.

A contributing factor to the largest possible average annual costs per employee, for small businesses, is the appearance in the data of sole proprietorships that own large businesses. When a range of employment was available for a business, Ecology conservatively chose the smallest employment number available, as not to under-represent small businesses in the data. This contributed to the largest small business costs per employee. Ecology believes a single-employee reporter is highly unlikely to exist under the proposed rule, and the appearance of sole proprietorships in the data is a result of conservative data usage, and data limitations.

A sole proprietorship is made additionally unlikely by the high likelihood that small reporters will have smaller emissions and less-complicated calculations, making compliance costs or costs to determine whether to report smaller.

Irrespective of the possible existence of a sole proprietorship, Ecology calculated disproportionate costs per employee, and concluded that the proposed rule will likely impose disproportionate costs on small business. Ecology included cost-mitigating components in the proposed rule to reduce this disproportionate impact. This small-business cost mitigation is further described in the next chapter.

## Chapter 4: Actions Taken to Reduce Small Business Impacts

Ecology took a number of actions in the proposed rule, to reduce the disproportionate impacts on small businesses. It is important to note that small businesses are likely to be low emitters. Aspects of the proposed rule that attempt to reduce the disproportionate compliance costs to small businesses include:

- De minimis simplified estimation methods that make it easier for emitters to comply with the proposed rule. Ecology capped emissions permitted to use simplified estimation methods, to protect the integrity of the threshold, and to be fair to smaller emitters.
- A lower percentage of total program costs will be paid by small emitters, aiding the group of small emitters as a whole.
- Some of the smallest emitters are likely to be fleet operators - Ecology concentrated outreach and calculation tool assistance for those reporters.
- Developed a simplified estimation method for on-road fleets that greatly reduces data tracking. Also expanded simplified estimation methods for on-road refrigerants.
- Provided flexibility in quantification method tier selection to reduce capital and operational costs. Allowing methods with default calculation factors.
- Phased in reporting threshold, with a threshold of 25,000 metric tons $\mathrm{CO}_{2} \mathrm{e}$ of GHG emissions for the first year.
- Included recently passed enforcement discretion for first time paperwork violations (expanded to include large and small businesses).
- Used latest reporting date possible under statute (Oct $31^{\text {st }}$ ) to facilitate data gathering and compliance.


## Chapter 5: Small Business Involvement

Ecology attempted to identify potential reporters, including small businesses, and invite them to technical assistance workshops help throughout the state. This also informed smaller reporters about the rule and led to many one-on-one technical assistance contacts between potential reporters and Ecology staff. Ecology identified on-road motor vehicle fleets as a potential source of small business reporters due to the lower threshold, and concentrated outreach in this area early in the process. Ecology also developed free tools to help these reporters determine if they triggered the threshold. Ecology's stakeholder meetings were open to the public, and the agency emailed updates and invitations to all parties that expressed interest in the rule, including small businesses.

## Chapter 6: NAICS Codes of Impacted Industries

Ecology expects the proposed rule to impact a broad range of industries. Table 1 presents the NAICS codes of those industries. For industry groups with all sub-industries possibly impacted, Ecology has listed only the 3-digit group code.

| Table 1: NAICS Codes Likely Impacted by the Proposed Rule |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 221 | 2212 | 3329 | 4413 | 5152 | 5629 |
| 311 | 2213 | 3331 | 4441 | 5171 | 6111 |
| 321 | 2361 | 3332 | 4442 | 5172 | 6112 |
| 322 | 2362 | 3339 | 4451 | 5179 | 6215 |
| 324 | 2371 | 3341 | 4471 | 5221 | 6216 |
| 325 | 2372 | 3345 | 4521 | 5222 | 6219 |
| 327 | 2373 | 3359 | 4529 | 5234 | 6221 |
| 332 | 2379 | 3361 | 4539 | 5239 | 6241 |
| 335 | 2381 | 3364 | 4543 | 5241 | 6242 |
| 336 | 2382 | 3366 | 4811 | 5311 | 6244 |
| 481 | 2383 | 3371 | 4821 | 5312 | 7127 |
| 482 | 2389 | 4231 | 4831 | 5321 | 7223 |
| 483 | 3112 | 4233 | 4841 | 5322 | 8114 |
| 492 | 3114 | 4234 | 4842 | 5324 | 8121 |
| 562 | 3115 | 4235 | 4851 | 5411 | 8123 |
| 622 | 3116 | 4236 | 4852 | 5413 | 8129 |
| 1111 | 3118 | 4237 | 4853 | 5416 | 8131 |
| 1112 | 3119 | 4238 | 4855 | 5417 | 8133 |
| 1113 | 3121 | 4239 | 4859 | 5418 | 8134 |
| 1114 | 3211 | 4241 | 4882 | 5419 |  |
| 1119 | 3219 | 4242 | 4883 | 5511 |  |
| 1121 | 3222 | 4244 | 4884 | 5612 |  |
| 1133 | 3241 | 4245 | 4885 | 5613 |  |
| 1151 | 3254 | 4246 | 4889 | 5615 |  |
| 2111 | 3255 | 4247 | 4921 | 5616 |  |
| 2122 | 3256 | 4248 | 4931 | 5617 |  |
| 2123 | 3273 | 4249 | 5111 | 5619 |  |
| 2131 | 3311 | 4411 | 5112 | 5621 |  |
| 2211 | 3323 | 4412 | 5151 | 5622 |  |

## Chapter 7: Impact on Jobs

Ecology used the Washington State Office of Financial Management's 2002 Washington InputOutput Model (OFM-IO) to estimate the proposed rule's first-round impact on jobs across the state. This methodology estimates the impact as reductions or increases in spending in certain sectors of the state economy flow through to purchases, suppliers, and demand for other goods. Compliance costs incurred by an industry, or industries, are entered in the OFM-IO model as decreases in spending and investment.

Ecology grouped total expected annualized costs by industry, and calculated a total present value cost over 20 years to each industry group. Ecology used a nominal discount rate of 7 percent, and accounted for expected inflation as the average inflation over the last decade. Compliance costs do not disappear, however, once spent by businesses; they are earned as wages or capital income by employees and suppliers performing GHG analysis and reporting. Those funds cycle into the economy, as well.

Table 2 summarizes the estimated job impacts over 20 years resulting from the proposed rule.

| Table 2: Job Impacts Under the Proposed Rule over 20-Years |  |
| :---: | :---: |
| Baseline: Proposed Federal Rule |  |
| Low cost | 2 jobs lost (manufacturing losses offsetting service and retail gains) |
| High cost | 11 jobs created (service sector and retail gains offsetting manufacturing losses) |
| Baseline: No-Reporting |  |
| Low cost | 1 job lost <br> (manufacturing losses offsetting service and retail gains) |
| High cost | 21 jobs created (service sector and retail gains offsetting manufacturing losses) |

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