WASHINGTON STATE DEPARTMENT OF ECOLOGY

SMALL BUSINESS ECONOMIC IMPACT STATEMENT

FOR

WAC 173-407

CARBON DIOXIDE MITIGATION PROGRAM FOR

FOSSIL FUELED THERMAL ELECTRIC GENERATING

FACILITIES

Prepared by:
Washington State Department of Ecology
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1. INTRODUCTION

BACKGROUND

The Department of Ecology (Ecology) is proposing adoption of a new rule implementing RCW 70.94 and Title 80 RCW. The proposed rule provides additional direction regarding carbon dioxide mitigation for public and private entities that are constructing certain types of energy facilities in Washington State. Ecology's goal is that the rule will provide clarification as to what is required for energy facility developers in Washington. As required under RCW 19.85.030, Ecology is developing and issuing this Small Business Economic Impact Statement (SBEIS) as part of its rule adoption process. Ecology will use the information developed in the SBEIS as required by law to ensure that the proposed rules are consistent with legislative policy.

RULE DEVELOPMENT

Washington has been actively involved in evaluating the implications of climate change having completed several studies in the last 15 years. Development of a rule to mitigate GHG emissions was initiated by Governor Gary Locke in 2001. The Governor authorized the Energy Facility Site Evaluation Council (EFSEC) to commence rulemaking in an effort to mitigate the amount of greenhouse gas emissions from new electricity generation facilities. The result was the proposed EFSEC Carbon Dioxide Mitigation rule. The rule required new fossil fuel fired electricity generation facilities to mitigate 20% of their lifetime CO_2 emissions. However, the rule was never adopted because the 2004 Legislature created law that closely reflected the proposed EFSEC rule. This statutory language modified portions of RCW 70.94 and Title 80 RCW to reflect the legislature's intent to require greenhouse gas mitigation. Ecology is proposing to implement these revisions to statute via proposed Chapter 173-407 "Carbon Dioxide Mitigation Program for Fossil Fueled Thermal Electric Generating Facilities" that is the subject of this analysis.

DESCRIPTION AND PURPOSE OF THE SBEIS

The objective of this SBEIS is to identify and evaluate the various requirements and costs that the proposed rule might impose on businesses. In particular, the SBEIS examines whether the costs to businesses that might be imposed by the proposed rule impose a disproportionate impact on the State's small businesses. The specific purpose and required contents of the SBEIS is contained in RCW 19.85.040 and are noted below (The bracketed numbers are for the reader's convenience, and reflect the organization of this SBEIS.):

"A small business economic impact statement must include [1] a brief description of the reporting, record keeping and other compliance requirements of the proposed rule, and [2] the kinds of professional services that a small business is likely to need in order to comply with such requirements. [3] It shall analyze the costs of compliance for business required to comply with the proposed rule adopted pursuant to RCW 34.05.320, including costs of equipment, supplies, labor and increased administrative costs. [4] It shall consider, based on input received, whether compliance with the rule will cause businesses to lose sales or revenue. [5] To determine whether the proposed rule will have a disproportionate impact on small businesses, the impact statement must compare the costs of compliance for small

businesses with the cost of compliance for the ten percent of businesses that are the largest businesses required to comply with the proposed rules using one or more of the following as a basis for comparing costs:

a. Cost per employee
b. Cost per hour of labor
c. Cost per hundred dollars of sales

(2) A small business economic impact statement must also include:

a. [6] A statement taken by the agency to reduce the costs of the rule on small businesses as required by RCW 19.85.030(3), or reasonable justification for not doing so, addressing the options listed in RCW 19.85.030(3).
b. [7] A description of how the agency will involve small business in the development of the rule; and
c. [8] A list of industries that will be required to comply with the rule.

For purposes of an SBEIS, "Small business," is defined by RCW 19.85.020: *"Small business" means any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, that has the purpose of making a profit, and that has fifty or fewer employees.*

CONTENTS OF THE DOCUMENT

The proposed carbon dioxide mitigation rule developed through this rulemaking process will be further evaluated in the following sections as required in RCW 19.85:

Section 2- This section discusses the new rule and provides [1] a brief description of the reporting, record keeping, and other compliance requirements, [2] the kinds of professional services that a small business is likely to need in order to comply, [3] the costs of compliance for businesses required to comply with the proposed rule including costs of equipment, supplies, labor, and increased administrative costs.

Section 3 – This section considers [4] whether compliance with the rule will cause businesses to lose sales or revenue and evaluates [5] whether the proposed rule will have a disproportionate impact on small business.

Section 4 – This section considers [6] actions taken to reduce the impact of the rule on small business, [7] how small business was involved in the development of this rule and provides [8] a list of industries required to comply with the rule. The Appendix contains additional information used in this analysis.[1]

[1] 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.

2. DISCUSSION OF COMPLIANCE COSTS FOR BUSINESSES

INTRODUCTION

The proposed rule re-states much of what is explicitly presented in RCW 70.94 and Title 80 and clarifies several aspects likely to be relevant to energy facility construction. The most significant clarification is explicitly stating the formula for calculating carbon dioxide emissions and outlining how to incorporate multiple fuels and supplemental firing. The proposed rule also provides a fee schedule. Ecology has carefully evaluated each of the proposed new rule sections and determined which are likely to have significant impacts on future applicants. These are discussed below along with a discussion of the baseline. A discussion of costs likely to be experienced by firms is also provided.

RULE DESCRIPTION AND BASELINE DEVELOPMENT

In order to discuss the cost impacts of the proposed rule it is necessary to consider the proposed rule language and the baseline from which the change in requirements is measured. The baseline is the best estimate of how RCW 70.94 and Title 80 would be implemented if the rule was not promulgated.

The proposed rule provides definitions of the regulated community, outlines statutory authority, and provides formulas for emissions calculations and requirements for addressing multiple fuels.[2] The rule requires all new or expanding fossil fuel powered electricity generation facilities to mitigate a portion of their carbon dioxide emissions. Twenty percent of all emissions forecast over a thirty-year period are required to be mitigated either via a third-party or through self-initiated mitigation.[3]

In the case of proposed WAC 173-407, much of the rule language is simply re-stated from the statute. If Ecology did not adopt a rule, carbon dioxide mitigation would still be required from new fossil-fueled power plants since it is explicitly described in statute.[4] The components of the rule where there is additional direction provided than included in statute are those associated with supplemental firing and multiple fuel sources. The statute defines total carbon dioxide emissions as those emitted from fossil fuel powered facilities over 30 years and mandates *"taking into account any enforceable limitations on operational hours or fuel types and use"*. This statutory language is unclear as to whether it is to require mitigation of all fuel sources or the base fuel or some estimated fuel use up to the fuel's operational hour limitation. Ecology's proposed rule requires that all allowable supplemental firing hours be used in the emissions calculations and that the fuel with the highest CO_2 emissions factor be incorporated first until the total annual operational hours have been allocated. Without the rule, calculation of the CO_2 quantity subject to mitigation would be negotiated with individual permit writers resulting in differing mitigation requirements between otherwise identical proposals.

[2] See www.ecy.wa.gov/programs/air/psd/draft_rule_page.html for complete text
[3] Typical mitigation projects include those that will offset emissions elsewhere such as energy efficiency programs and green power purchases.
[4] RCW 19.85 does not require analysis where the statute explicitly defines the requirements.

Ecology has chosen to base this analysis on two assumptions. First, because the statute is quite clear about considering limitations on operational hours and since supplemental firing is usually an allowed use based on a maximum number of hours, it is assumed that mitigation would be required for allowed supplemental firing hours even without the rule.

Second, because the statute is unclear about regulation of multiple fuels, Ecology will assume that mitigation for reserve fuels with higher emission factors than the base fuel is an impact of this rulemaking. Though this could have been the intention of the statute, it could also be interpreted to require basing it on actual use, estimated use, etc. Without the rule, Ecology permit writers and applicants would have to negotiate which fuels are included and how much of the allowable use of the higher emitting fuel would be considered. Therefore, the baseline in the case of multiple fuel sources will be mitigation based on the primary fuel type.

COST IMPACTS TO BUSINESES

For those energy facilities that want the flexibility to use multiple fuel sources, the requirements described above will be a cost impact of the rulemaking. Firms may have to pay a greater amount of mitigation than would have been required if they had simply negotiated with individual permit writers. It is possible this may even cause some firms to choose to reduce their permitted use of back-up fuels from what would have been the case without the rule.

The economic impact of the proposed rule will most likely be experienced by those developing/modifying electricity generation facilities[5] as an increase in facility development costs. The following cost categories are required by RCW 19.85:

Reporting and Recordkeeping: Additional carbon mitigation rule requirements will not likely require additional on-going monitoring or recordkeeping.

Additional Professional Services: Additional carbon mitigation rule requirements may require additional project management services to execute additional carbon offsets if the self-mitigation option is selected. This cost is included in the mitigation amount.

Costs of Equipment, Supplies, Labor, and increased Administrative Costs: No additional equipment, supplies, labor or administrative costs are anticipated.

Other Compliance Requirements: As mentioned above, the main impact of the rule will be the additional carbon mitigation that may be required of some facilities. This amount will vary with the facility, fuel-type and owner with a typical range of between $0 and $1,100,000.[6]

[5] Replacement of turbines "in-kind" for remanufacturing/repair is unlikely to result in increased mitigation cost as the replacement turbine is usually of similar size.

[6] A cost of $0 would occur in the case of a simple cycle natural gas CT with no reserve fuels. An additional cost of $1,086,000 would occur for a 172 megawatt (MW) plant with unlimited use of back-up diesel. The likely upper limit in additional cost would be a 349 MW plant with unlimited back-up fuel in which mitigation would be increased by approximately $2,000,000.

3. REVENUE IMPACTS AND DISTRIBUTION OF COSTS

INTRODUCTION

RCW 19.85.040 requires that the analysis consider [4] whether compliance with this rule will cause businesses to lose sales or revenue and [5] whether the proposed rule will have a disproportionate impact on small businesses. The increased costs come from increased carbon dioxide mitigation requirements for new energy facilities locating in the State.

Increased mitigation costs associated with higher carbon emitting supplemental fuels could be reduced by decreasing the hourly limit on supplemental fuel use. This would reduce the amount of mitigation required of firms, but comes at the expense of decreased operational flexibility. All costs in this analysis assume no change in the use of supplemental fuels by electricity project proponents and therefore are conservative (biased against the rule).

The increased costs will affect both existing and proposed energy facilities and could have indirect effects on other business entities operating in Washington State. The increase will affect siting costs and is related to capacity of the facility but not the output.[7] In general, an increase in fixed costs will impact firms with less output (i.e. "small" firms) more significantly than firms with more output (i.e. "large" firms). This occurs because firms with less output that try to recoup fixed costs by raising the price of their final product must raise the price proportionately more than large firms.

Increased siting costs for new energy facilities could benefit existing firms if existing plants are used more intensively or retirements of existing plants are delayed. In some cases, the impacts may be passed along to others as secondary effects. Which business entities are affected and how these new requirements will affect them depend on the specific markets and market participants. Firms that provide third-party mitigation services may benefit from increased demand for their services.

ANALYSIS OF FUTURE PLANTS

The proposed rule will apply to any facility that sells power to the grid and uses a fossil fuel energy source. To analyze this, Ecology considered existing and expected future market conditions and reviewed several facilities that have been constructed in the State and that obtained Air Operating Permits. The analysis revealed that potentially impacted facilities likely to be constructed in the future include natural gas and coal-fired electricity generation plants. These facilities are typically constructed by consumer-owned utilities, investor-owned utilities, and independent power producers and range in size from 25 MW to 349 MW. Many of the larger facilities have supplemental firing capability, reserve fuels and can be cogeneration facilities.

Ecology elected to evaluate the impacts on three hypothetical electricity generation facilities that represent the anticipated range of facilities likely to be constructed in the

[7] These are known as "fixed" costs. Costs that depend on output levels are known as "variable" costs.

future. All facilities are natural gas fired facilities[8] but operational capacities are different consisting of 30 MW, 172 MW and 274 MW facilities. Capabilities for supplemental firing, reserve fuels and cogeneration vary with each facility. The specific parameters are provided in Table 3.1.

Table 3.1. Parameters of Hypothetical Electrical Generation Facilities

Characteristic	Facility No. 1	Facility No. 2	Facility No. 3
Turbine Type	GE LM 2500+	Siemens/Westinghouse W501D5	Siemens/Westinghouse 501F
Nominal Capacity (MW)	30	172	274
Supplemental (Duct) Firing	No	No	Yes
Type & Primary Fuel	Natural Gas-Simple Cycle	Natural Gas-Comb. Cycle	Natural Gas-Comb. Cycle
Secondary Fuel	N/A	Distillate Fuel; 876 hour limit	Distillate fuel; 1,752 hour limit
Cogeneration Facility	No	No	Yes

SALES IMPACTS

Potential sales impacts for new generating resources in Washington could occur if the increased cost of siting facilities delays construction or are passed along in wholesale electricity prices. Table 3-2 provides an analysis of cost and investment return impacts for the three proposed facilities.

Table 3-2. Facility Siting and Wholesale Electricity Cost and Investment Return Impacts Due to the Proposed Rule

	Facility No. 1 (NGSC-30 MW)	Facility No. 2 (NGCC-172 MW)	Facility No.3 (NGCC-274 MW)
Increased Mitigation Cost from Rule (Thousand $)	0	108.6	312.9
Capital Cost (Million $)[9]	17.7	101.1	159.6
Percentage Increase in Capital Cost	0.0%	0.11%	0.20%
Percentage Change in NPV [10]	0.0%	-0.4%	-0.4%
Change in Cost of Electricity ($/MWh)	0.00	+0.01	+0.02

[8] Coal-fired plants were not considered since rule requirements for reserve fuel mitigation will not likely affect the required mitigation since coal is a highly emitting fuel source.
[9] Cost assumptions taken from "Wholesale Power Price Forecast for the Fifth Power Plan", NPPC, 2003
[10] NPV is "net present value". Calculations assume a wholesale electricity price of $40/MWh.

The estimated increased siting cost ranges from $0 to approximately $313,000 for the natural gas fired plants listed above. This represents an increase of between 0.0% and 0.20% of a typical plant's capital costs. If increased costs are passed along in wholesale electricity prices, the price of wholesale electricity is expected to increase between $0.0/MWh and $0.02/MWh which represents between 0% and 0.05% of the price of wholesale power.[11] This may result in a small decrease in sales depending on how sensitive the market is to a price increase. However, fuel price volatility, variable power demand and changing hydroelectric conditions are likely to be far more significant cost factors.

As mentioned previously, a reduction in NPV for new facilities or an increase in wholesale power costs may be a beneficial effect for existing facilities. Existing electricity generation facilities may experience an increase in sales if siting of new facilities is delayed due to the reduced investment return or if time of use (dispatch) is reduced. This would increase the dispatch of existing plants and potentially delay retirement of some plants. The impact of these investment value and price changes for both existing and new plants is likely to be relatively minor as other factors are likely to drive siting decisions like fuel costs, public responsiveness, plant efficiency, and availability of transmission facilities.

DISTRIBUTION OF COMPLIANCE COSTS

RCW 19.85.040 requires an evaluation of how compliance costs may vary between small firms and the largest 10% of firms required to comply. This is complicated in this case by the fact that the rule will only apply to facilities developed in the future. To inform the rulemaking, Ecology evaluated several energy facilities that recently obtained AOP permits with capacities that would be subject to carbon mitigation requirements if constructed today. Sixteen permits for fossil-fuel fired facilities that sold electricity to the grid were considered. In all cases, the firms were large firms.

Changes in the wholesale power industry make plants developed in the past less relevant. Developers can be classified as consumer owned utilities (COUs), investor owned utilities (IOUs) and independent power producers (IPPs). In the past, IOUs and COUs were often vertically integrated providing generation, transmission and distribution. Restructuring in the electricity markets has allowed IPPs to develop a much larger share of electricity generation. Moreover, they will likely be much more prevalent in future development. As such, Ecology analyzed all existing COUs and IOUs and considered a collection of IPPs with existing assets or an interest in electricity development in Washington to assess proportionality.[12] The results are listed in Table 3-3.

Table 3-3 Proportionality of Compliance Costs (Dollars per Hundred Dollars in Sales)

Firm Size	No. Firms	Facility No. 1 (NGSC- 30MW)	Facility No. 2 (NGCC-174 MW)	Facility No. 3 (NGCC-272 MW)
Small	40	0.0	0.007	0.012
Large	42	0.0	0.007	0.012

[11] Assuming a wholesale price of $40/MWh.

[12] Data used is from NPPC "Power Plants of the Northwest", the Northwest Independent Power Producers Coalition, Washington Employment Security, Corporate websites and personal contacts.

As can be seen from Table 3-3, the cost impacts as measured per hundred dollars in sales will not be greater for small firms but will vary with the capacity of the plant. These results are not surprising because the mitigation costs are spread over the same revenue stream for a given size plant and technology regardless of the number of employees. If plant capacity or technology selection varies with the size of developer, we would expect effects to be disproportionate. Therefore a more relevant question is "does new plant capacity or technology choice vary with the size of the proponent firm in the class of plants 25 megawatts to 350 megawatts?" Ecology's experience with previously constructed facilities indicates little relationship between plant capacity and proponent size.[13]

It appears that mostly large firms develop plants between 25 MW and 350 MW capacity. Even in cases where small firms develop plants, there is little evidence that plant capacity is related to the number of employees of the proponent. For both of these reasons, the proposed rule should not disproportionately affect smaller proponents more than large proponents.

SECONDARY IMPACTS

It is possible that some or all of the increased costs associated with the proposed rule revisions will be passed on to consumers in the form of higher electricity rates. For COUs and IOUs this would occur by including the increased cost in the utility rates approved by individual utility boards. For IPPs, higher prices would be determined within the market for wholesale power. Analysis by Ecology found that it is unlikely that there will be disproportionate secondary impacts. The complete analysis can be found in the appendix.

Natural gas has been the most efficient fuel used for new electricity facilities in recent years. Raising the cost to develop these plants might lead to a reduction in the use of natural gas. However, any impact would depend on the cost of the other generation technologies like wind, and on the cost for other inputs like coal. To the extent that coal will also be subject to increased requirements for carbon mitigation and that wind is a site specific resource with a low capacity factor, it is unlikely that the increased costs from the proposed rule will change the generation technology choice at the margin.

CONCLUSION

Businesses engaged in the production of electricity will incur increased compliance costs as a result of the rule revisions. These costs will vary significantly with the plant characteristics. The most important characteristics affecting siting costs will be the generation technology, plant size and use of supplemental fuels. Ecology has analyzed several representative facilities and finds that the impacts on sales should be minimal and that the rule will not likely have disproportionate impacts.

[13] All proponents with existing plants considered by Ecology were large firms. Among these firms the correlation coefficient of capacity vs. number of employees was 0.09.

4. BUSINESS INVOLVEMENT AND INDUSTRY

ACTIONS TAKEN TO REDUCE THE IMPACT ON SMALL BUSINESS

As noted previously, the rulemaking is unlikely to have disproportionate impacts on smaller firms. Ecology's overall intent for this rulemaking is to implement state law mitigating greenhouse gases. It is intended that the new rule will reduce the uncertainty associated with siting 25MW-350MW capacity electricity generation facilities in Washington and reduce the associated financial penalties. To the extent that this is a fixed cost, it will benefit firms with less output more than firms with greater output. Because the impacts are unlikely to be disproportionate, Ecology did not further pursue the options for reducing costs to small businesses listed in RCW 19.85.030(3).

HOW WAS SMALL BUSINESS INVOLVED IN THE DEVELOPMENT OF THIS RULE?

As mentioned previously, the stimulus for rulemaking came from legislation passed in 2004. Ecology began rulemaking in 2004 by drafting preliminary rule language and posting it for external stakeholder review. Written comments were taken through August, 2004. The proposed rule was also posted on Ecology's website. Throughout the process, Ecology has encouraged the participation of all entities in considering the impacts and outcomes of the proposed rules. This public process was open to both small and large businesses. Further input will be encouraged during the future draft rule public comment period.

LIST OF INDUSTRIES REQUIRED TO COMPLY

The most likely industries to which this rule will apply will be those involved in the production of electricity. Other firms that elect to develop co-generation facilities might also be included. Table 4.1 contains [9] a list of industries required to comply with the rule. The table was constructed based on air permitting data and market analysis. In general, the majority of plants are classified SIC code 4911.

Table 4.1. Industries Likely to be Required to Comply with the Rule Revisions

SIC Code	Description
4911	Electric Services
4931	Electric and other services combined

APPENDIX A: REFERENCES

1. Northwest Power and Conservation Council, Draft Power Project Financing Assumptions for the Fifth Power Plan, 2003

2. Northwest Power and Conservation Council, Revised Draft Wholesale Power Price Forecast for the Fifth Power Plan, 2004

3. Northwest Power and Conservation Council, The Evolving Northwest Power Industry, 4th Northwest Conservation and Electric Power Plan, 1998

4. PacifiCorp, Integrated Resource Plan, 2003

5. Predpall, Dan, New Generation Site Selection—Challenges in the 1990's for the Electric Utility Industry, Proceedings of the American Power Conference, Vol. 52, 1990, pgs. 783-788.

6. Puget Sound Energy, April 2003 Least Cost Plan, 2003

7. Washington State Community, Trade and Economic Development, 2001 Biennial Report, 2001.

8. Washington State Community, Trade and Economic Development, Comparative Evaluation of Electric Power Plant Siting Requirements in Washington, Oregon and California, 2001.

APPENDIX B: ANALYSIS OF THE PROPOSED RULE

INTRODUCTION

RCW 34.05.328 requires an agency engaged in rule-making deemed to be "a significant legislative rule" to perform several economic analyses including determining that the probable benefits exceed the probable costs, and that the rule is the least burdensome alternative. Proposed Chapter 173-407 WAC meets the criteria of a "significant legislative rule." Exemptions from these requirements include:[14]

-Rules adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs
-Rules the content of which is explicitly and specifically dictated by statute
-Rules that set or adjust fees or rates pursuant to legislative standards

RCW 19.85 requires an agency to consider the impacts that the rule might have on small businesses. The applicability requirements and exemption provisions are the same as for RCW 34.05.328.

BASELINE

When evaluating the economic impacts of the proposed rule, the first step is to consider the baseline from which the rule change is measured. As has been stated, *"The baseline should be the best assessment of the way the world would look absent the proposed regulation."*[15] Once the baseline is determined, it can be compared with the specific rule language to determine the changes experienced by regulated entities that will likely be required by the rule. This change can be "valued" to arrive at the economic impacts.

The statutory basis for the proposed rule is Chapter 80.70 RCW and section 70.94.892 RCW. These sections provide the basis for how the State's requirement for carbon dioxide mitigation from fossil-fueled thermal electric plants is to be accomplished. They provide specific direction in terms of applicability, appropriate mitigation options and independent qualified organizations. They also provide dates for program applicability.

The statutory language mentioned above reduces the extent of economic analysis required since language specifically listed in statute is not required to be analyzed. The following section by section comparison notes little change or "no significant economic impact" in several cases since the requirement is already listed in statute.

IMPACTS OF THE PROPOSED RULE

173-407-010 Policy and Purpose
(1) No Significant Economic Impact-stated in statute

[14] RCW 34.05.328.5(b)(iii), (v), (vi)
[15] Economic Analysis of Federal Regulations Under Executive Order 12866, OMB, 1996

(2) Indicates that if a source only emits CO_2, then it will not be subject to requirements to obtain a complete operating permit. If it is subject to Chapter 401, the CO_2 mitigation requirements are enforceable under that regulation.
(3) Facilities not subject to 173-401 are still subject to the registration program (173-400)

Section clarifies how electricity facilities will be regulated. This may provide greater certainty for plant proponents.

173-407-020 Definitions
All the definitions are directly from RCW. An important component is listed under (17) "Total carbon dioxide emissions" (a) and (b) in the last sentence; *'taking into account any enforceable limitations on operational hours or fuel types and use"*

Definition on fuel types and use limitations are important. No further economic analysis required.

173-407-030 Carbon Dioxide Mitigation Program Applicability
1. All text is directly from statute.
2. All text is directly from statute.
3. Text describes requirements in RCW 80.70 and RCW 70.94.892
4. Text describes requirements in RCW 80.70 and RCW 70.94.892
5. Example facilities are as anticipated.
6. Solid waste incinerators are not considered to be fossil fueled facilities.

All text is either directly from statute, summaries of statute or interpretations with few or no alternatives. No economic analysis required.

173-407-040 Carbon Dioxide Mitigation Program Fees
The section establishes the fee schedule for application review, mitigation plan approval and routine compliance monitoring. The statute specifically allows Ecology to "determine, assess, and collect fees" for reviewing mitigation plan components and monitoring conformance with the plan. Since this is "pursuant to legislative standards," it is not required to be analyzed under RCW 34.05.

No economic analysis required.

173-407-050 Calculating Total Carbon Dioxide Emissions to be Mitigated
(1)- (2) This section provides the explicit definition of the formula used to calculate the emissions. The formula is a straight-forward approach to calculating emissions. Areas that will be subject to analysis are the time that duct firing is included and the choice of analyzing the highest CO_2 fuel when multiple fuels are used. Conversion factors are from EPA.
(3) The Cogeneration credit is calculated based on CO_2 emissions that will actually be produced via a binding contract.
(4) Requirements for applying the mitigation rate are from statute.
(5) Additional restrictions on modifications are implied by or discussed in statute.

Choices for regulating supplemental production (duct-firing) and multiple fuels may have benefits and costs. Economic analysis will be required.

173-407-060 Carbon Dioxide Mitigation Plan Requirements and Options
(1) Text describes requirements in RCW 80.70.
(2) Text describes requirements in RCW 80.70.
(3) Text describes requirements in RCW 80.70.
(4) Text describes requirements in RCW 80.70.
(5) Text describes requirements in RCW 80.70.

173-407-070 Carbon Dioxide Mitigation Option Statement and Mitigation Plan Approval
Applicants must select their option at the time of application. This is not spelled out in RCW but is necessary information associated with their mitigation plan.

No significant economic impact.

173-407-080 Enforcement
No significant economic impact.

173-407-090 Severability
No significant economic impact.

APPENDIX C: SECONDARY IMPACTS OF PROPOSED WAC 173-407

RATE IMPACTS

It is possible that some or all of the increased cost associated with the proposed rule will be passed on to consumers in the form of higher electricity rates. For COUs and IOUs this would occur by including the increased cost in the utility rates approved by individual utility boards. For IPPs, higher prices would be determined within the market for wholesale power.

Generation costs will increase differently for each type of generation technology and supplemental fuel since some plants have less capacity and lower capacity factors. As noted in Section 3, we would expect an electricity generating cost increase of between $0.00 and $0.02 per megawatt-hour depending on the technology, markets etc. as a result of the proposed rule. Given the typical quantities of power used by various classifications of consumers in Washington[16], we would expect the average annual utility bills for the different consumer classes to increase as listed in Table C-1.

Table C-1 Estimated Annual Increased Consumer Electricity Bill if all Costs are Passed on to Consumers.

	100% New Sources		10% New Sources	
Wholesale Power Cost Increase	$0.01/MWh	$0.02/MWh	$0.01/MWh	$0.02/MWh
Residential Consumers	$0.13/yr	$0.26/yr	$0.01/yr	$0.03/yr
Commercial Consumers	$0.84/yr	$1.68/yr	$0.08/yr	$0.17/yr
Industrial Consumers	$10.62/yr	$21.24/yr	$1.06/yr	$2.12/yr

Table C-1 lists the consumer class and additional annual cost of electricity for both a $0.01/MWh increase and $0.02/MWh increase assuming all electricity comes from a source subject to the new rules ("100% new sources") or that only 10% of the power comes from a source subject to the new rules ("10% new sources"). It is unlikely that any residential consumer and most commercial consumers would get all their electricity from a single new source. In those cases, the second scenario (i.e. 10% power from a new source) is likely to be more representative. Both scenarios might be appropriate for industrial consumers depending on the specific industry.

To consider whether these potential rate impacts would be disproportionately borne among business consumers involves evaluating the amount of power used by firms of different sizes. Table C-2 lists the employment sizes, consumption per employee and average energy consumption for typical firms.[17]

[16] Data from Energy Information Administration (EIA) "U.S. Average Monthly Bill by Sector, Census Division and State, 2001," http://www.eia.doe.gov/cneaf/electricity.

[17] Data from "Electricity: Components of Net Demand, 1998" Energy Information Administration and "U.S. Employer Firms 2000," U.S. Census Bureau

Table C-2 Firm Size, Consumption and Cost/Employee

Firm Size (No. of Employees)	Average No. of Employees	Consumption/Employee (MWh/yr)	Cost/Employee (assuming $0.01/MWh increase)	Cost/Employee (assuming $0.02/MWh increase)
<50	6	2.72	$0.03	$0.06
50-99	68	8.32	$0.08	$0.16
100-499	193	23.80	$0.24	$0.48
500-999	690	36.57	$0.37	$0.74
>1000	5892	5.19	$0.05	$0.10

As can be seen from Table C-2, the exact distribution of costs tends to hurt firms at least partially in proportion to their size. Bigger firms pay more per employee for the cost impacts. For very large firms the effect is smaller, but still larger than for small firms.