Administrative Procedures – Economic Impact Statement

Instructions:

In completing the economic impact statement, an agency analyzes and evaluates the anticipated costs and benefits to be expected from adoption of the rule. This form must be completed for the following filings made during the rulemaking process:

- Proposed Rule Filing
- Final Proposed Filing
- Adopted Rule Filing
- Emergency Rule Filing

Rules affecting or regulating public education and public schools must include cost implications to local school districts and taxpayers in the impact statement (see 3 V.S.A. § 832b for details).

The economic impact statement also contains a section relating to the impact of the rule on greenhouse gases. Agencies are required to explain how the rule has been crafted to reduce the extent to which greenhouse gases are emitted (see 3 V.S.A. § 838(c)(4) for details).

All forms requiring a signature shall be original signatures of the appropriate adopting authority or authorized person.

Certification Statement: As the adopting Authority of this rule (see 3 V.S.A. § 801 (b) (11) for a definition), I conclude that this rule is the most appropriate method of achieving the regulatory purpose. In support of this conclusion I have attached all findings required by 3 V.S.A. §§ 832a, 832b, and 838(c) for the filing of the rule entitled:

Rule Title: **Sulfur Limitations in Fuel**

_____, on _____.
(signature) (date)

Printed Name and Title:
Deb Markowitz, Secretary
Agency Of Natural Resources

BE AS SPECIFIC AS POSSIBLE IN THE COMPLETION OF THIS FORM, GIVING FULL INFORMATION ON YOUR ASSUMPTIONS, DATABASES, AND ATTEMPTS TO GATHER OTHER INFORMATION ON THE NATURE OF THE COSTS AND BENEFITS INVOLVED. COSTS AND BENEFITS CAN INCLUDE ANY TANGILBE OR INTANGIBLE ENTITIES OR FORCES WHICH WILL MAKE AN IMPACT ON LIFE WITHOUT THIS RULE.

1. TITLE OF RULE FILING:

Sulfur Limitations in Fuel

2. ADOPTING AGENCY:

Agency of Natural Resources

3. CATEGORY OF AFFECTED PARTIES:

LIST CATEGORIES OF PEOPLE, ENTERPRISES, AND GOVERNMENTAL ENTITIES POTENTIALLY AFFECTED BY THE ADOPTION OF THIS RULE AND THE ESTIMATED COSTS AND BENEFITS ANTICIPATED:

The fuel oil industry, including distributors, wholesalers and refiners, heating oil consumers, gas turbine driven peaking units that use the affected fuels, electric consumers, Vermonters with respiratory ailments, and the Air Pollution Control Division of the Department of Environmental Conservation will be potentially affected by the adoption of this rule. The removal of sulfur from fuel oil is a refinery process step that would add cost. However, it is assumed that the costs of complying with the low sulfur fuel mandates in the proposed rule will be passed on to consumers. While using lower sulfur fuel oil will likely result in higher fuel costs for consumers, it should yield net costs savings for heating oil consumers due to lower heating system maintenance costs and a small efficiency improvement.

Although it is difficult to predict the cost of low sulfur fuel in 2018, there have been a number of studies that have concluded that shifting to lower sulfur fuel oil will likely result in higher fuel costs for consumers. The cost estimates for low sulfur fuel vary among studies. For example, a 2005 study estimated, "The added cost of low sulfur heating oil is on the order of 1.6 cents per gallon." NESCAUM, Low Sulfur Heating Oil in the Northeast States: An Overview of Benefits, Costs, and Implementation Issues, Chap. 3 (Dec. 2005). According to a 2007 study, "on average low sulfur distillate oil would be expected [to] cost 0.8 cents per gallon more than regular heating oil" in the mid-Atlantic and Northeast States. MARAMA, Assessment of Reasonable Progress for Regional Haze in

MANE-VU Class I Areas, Chap. 8 (2007). And a 2008 National Oilheat Research Alliance (NORA) study predicted that the cost of low sulfur distillate could be as much as 8.9 cents per gallon more than regular heating oil, but will be less than 5 cents a gallon once refinery owners and operators have desulfurization capabilities. NORA, Northeast Heating Oil Assessment, Chap. VIII (2008).

Even though the estimated cost of low sulfur fuel varies from study to study, the studies all conclude that shifting to low sulfur heating oil should yield net savings for heating oil consumers due to decreased heating system maintenance costs and a small increase in efficiency. Lower sulfur heating oil burns cleaner and emits less particulate matter. Therefore, using lower sulfur heating oil will reduce the rate of fouling of heating equipment and allow for less frequent service intervals for vacuum cleaning to remove deposition caused by sulfur dioxide. According to a 2010 NORA study, the annual savings for a homeowner would be $50 in maintenance and $48 from lower fuel use due to a 2% efficiency improvement. NORA, Ultra-low Sulfur Diesel Fuel/Heating Oil Market Study (2010) available at http://www.nora-oilheat.org/site20/uploads/lowsstudy.pdf.

The economic impact to the gas turbines and electric consumers should be minimal given that the affected gas turbines only operate a few hours a year to provide extra electricity needed during emergencies and peak usage periods.

The proposed sulfur limits, which are part of a regional effort, will reduce ambient levels of sulfur dioxide (SO2). SO2 is the primary cause of visibility impairment in the East. Thus, mandating lower sulfur fuel is expected to reduce regional haze, which could have a positive economic impact on Vermont's tourism industry. In addition, substantial public health benefits will be realized through the introduction of low sulfur fuel, which will result in significant reductions in SO2, NOx, and PM2.5.

Further, regional modeling has demonstrated that implementation of the regional low sulfur fuel oil strategy is estimated to result in approximately $29,918,970 (based on 2000$) of health benefits in Vermont attributed to reduced PM2.5 concentrations. The majority of this benefit is from avoided mortality. Further, the total modeled health benefit value of implementation of the regional low sulfur fuel oil strategy is more than 3.5 billion dollars in the mid Atlantic and Northeast states. NESCAUM, Public Health Benefits of Reducing Ground-level Ozone and Fine Particle Matter in the

Northeast U.S: A Benefits Mapping and Analysis Program (BenMap) Study, Chapter 4 (January 15, 2008).

For copies of the studies cited above, please contact Elaine O'Grady in the Air Pollution Control Division at (802)241-3604 or elaine.ogrady@state.vt.us.

4. IMPACT ON SCHOOLS:

INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON PUBLIC EDUCATION, PUBLIC SCHOOLS, LOCAL SCHOOL DISTRICTS AND/OR TAXPAYERS:

Except for the impacts described above for heating oil consumers, no additional impacts are expected.

5. COMPARISON:

COMPARE THE ECONOMIC IMPACT OF THE RULE WITH THE ECONOMIC IMPACT OF OTHER ALTERNATIVES TO THE RULE, INCLUDING NO RULE ON THE SUBJECT OR A RULE HAVING SEPARATE REQUIREMENTS FOR SMALL BUSINESS:

The cost of compliance will be passed on to consumers of the affected fuels, including small businesses. However, as described above, the proposed amendments are expected to result in net positive impacts for heating oil consumers. That is, the savings from reduced heating system maintenance requirements that will result from using lower sulfur heating oil are expected to exceed any increase in the price of heating oil. These economic benefits would not be realized by heating oil consumers without the rule. Similarly, small businesses would not realize these economic benefits if they were exempted from the rule.

6. FLEXIBILITY STATEMENT:

COMPARE THE BURDEN IMPOSED ON SMALL BUSINESS BY COMPLIANCE WITH THE RULE TO THE BURDEN WHICH WOULD BE IMPOSED BY ALTERNATIVES CONSIDERED IN 3 V.S.A. § 832a:

The economic burden on small businesses is expected to be neutral for fuel oil distributors and wholesales, and positive for heating oil consumers. Moreover, the proposed regulation does not impose any reporting or other administrative requirements on small businesses in Vermont. Having different requirements for small businesses would significantly reduce the effectiveness of the rule and compromise the environmental and public health benefits of the rule.

7. GREENHOUSE GAS IMPACT: *EXPLAIN HOW THE RULE WAS CRAFTED TO REDUCE THE EXTENT TO WHICH GREENHOUSE GASES ARE EMITTED, EITHER DIRECTLY OR INDIRECTLY, FROM THE FOLLOWING SECTORS OF ACTIVITIES*:

A. TRANSPORTATION —

IMPACTS BASED ON THE TRANSPORTATION OF PEOPLE OR PRODUCTS (e.g., "THE RULE HAS PROVISIONS FOR CONFERENCE CALLS INSTEAD OF TRAVEL TO MEETINGS" OR "LOCAL PRODUCTS ARE PREFERENTIALLY PURCHASED TO REDUCE SHIPPING DISTANCE."):

B. LAND USE AND DEVELOPMENT —

IMPACTS BASED ON LAND USE AND DEVELOPMENT, FORESTRY, AGRICULTURE ETC. (e.g., "THE RULE WILL RESULT IN ENHANCED, HIGHER DENSITY DOWNTOWN DEVELOPMENT." OR "THE RULE MAINTAINS OPEN SPACE, FORESTED LAND AND /OR AGRICULTURAL LAND."):

C. BUILDING INFRASTRUCTURE —

IMPACTS BASED ON THE HEATING, COOLING AND ELECTRICITY CONSUMPTION NEEDS (e.g., "THE RULE PROMOTES WEATHERIZATION TO REDUCE BUILDING HEATING AND COOLING DEMANDS." OR "THE PURCHASE AND USE OF EFFICIENT ENERGY STAR APPLIANCES IS REQUIRED TO REDUCE ELECTRICITY CONSUMPTION."):

D. WASTE GENERATION / REDUCTION —

IMPACTS BASED ON THE GENERATION OF WASTE OR THE REDUCTION, REUSE, AND RECYCLING OPPORTUNITIES AVAILABLE (e.g., "THE RULE WILL RESULT IN REUSE OF PACKING MATERIALS." OR "AS A RESULT OF THE RULE, FOOD AND OTHER ORGANIC WASTE WILL BE COMPOSTED OR DIVERTED TO A 'METHANE TO ENERGY PROJECT'."):

The proposed rule's lower sulfur fuel oil mandates are expected to improve furnace and boiler combustion efficiency by reducing fouling rates of heat exchangers and other boiler and furnace components. Improved combustion efficiency should decrease overall fuel oil consumption and, in turn, reduce emissions of carbon dioxide, a greenhouse gas.

E. OTHER —

IMPACTS BASED ON OTHER CRITERIA NOT PREVIOUSLY LISTED:

Run Spell Check