

HJR

47

New Diesel Fuel Regulations & Impact on Tribes and Rural Alaska

April 3, 2002

by Ron King



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Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Presentation Overview

- History
- Why are we here
- Options
- Pros and Cons
- Questions and Answers
- Closing Remarks

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Remember when...

- Cars switched from leaded gas to unleaded gas?

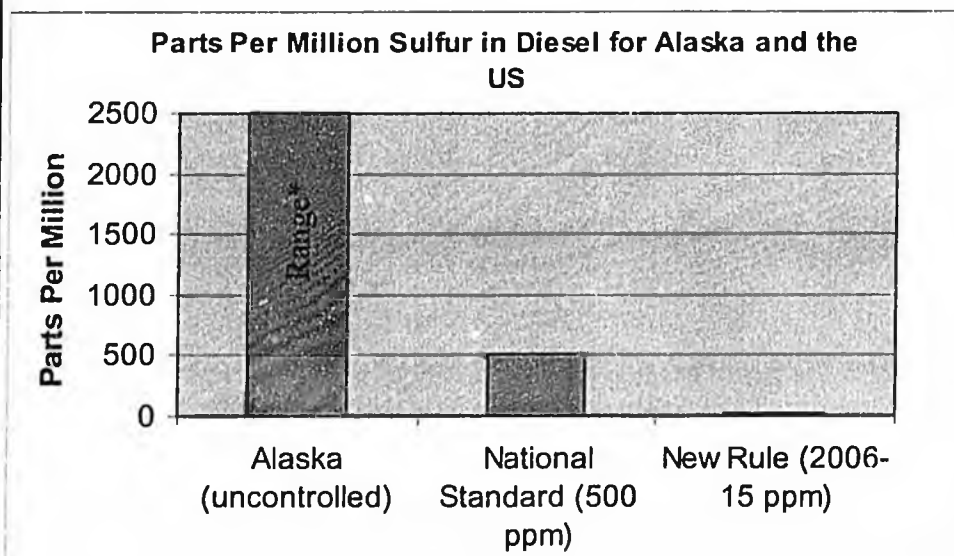
This time Alaska has a choice in how to implement a change!

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

History: The EPA Rule

- In 2001, EPA established a rule to reduce air pollution from large trucks and buses starting in 2007.
- New emission control equipment is required for model year 2007 diesel trucks.
- In 2006, diesel trucks and buses must start using diesel that has 15 parts per million (ppm) or less sulfur.
- We call this new fuel - ultra-low sulfur diesel.

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan



* Based on available diesel fuel

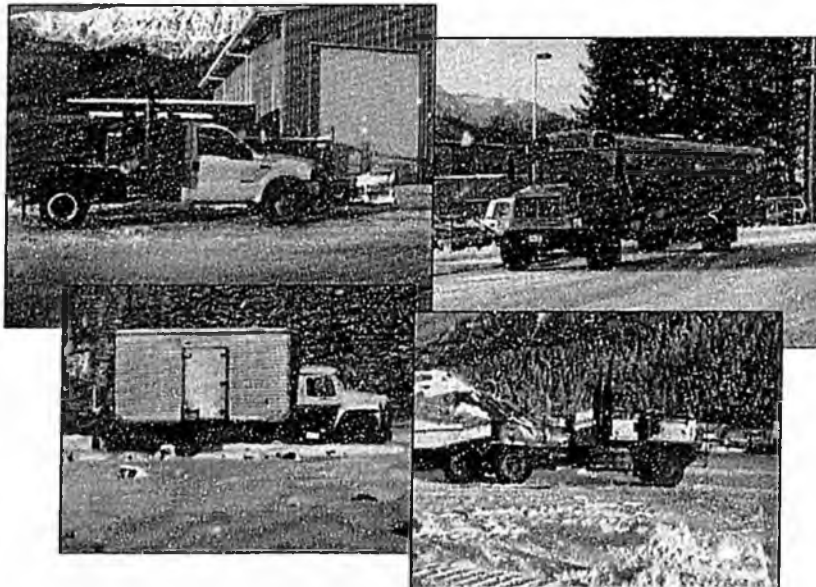
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History: Why is ultra-low sulfur diesel needed?

- New emission control equipment in model year 2007 diesel trucks will reduce air pollution.
- Sulfur is a contaminant found in diesel that can cause damage to these new emission controls.
- Use of ultra-low sulfur diesel is needed for correct operation of the new emission controls.
- Operators of 2007 heavy-duty diesel trucks must use ultra-low sulfur diesel or risk engine damage, loss of warranty, and federal penalties.

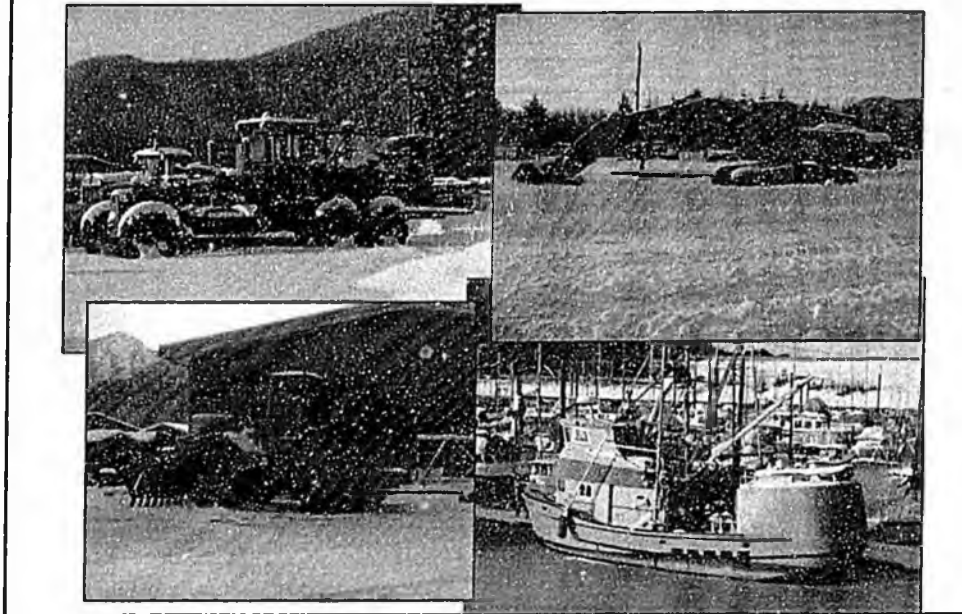
Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles Covered by the Rule



Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Types of Vehicles/Equipment NOT Covered by the Rule:



Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

Why are we here today?

- The EPA is allowing Alaska to develop a different implementation plan
- We need your help
- We want to consult with and get recommendations from you on the best way to transition to ultra-low sulfur diesel fuel in tribal and rural Alaska.
- We want to provide information to you on the EPA rule

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Options

- National Plan
- Buy the 2007 or later diesel truck :
 - Buy the fuel for that truck
 - Buy the fuel for all the diesel vehicles
 - Buy the fuel for all diesel uses in the community
- Other options?

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Pros and Cons

- Air Quality
- Economic
- Distribution
- Truck Owner

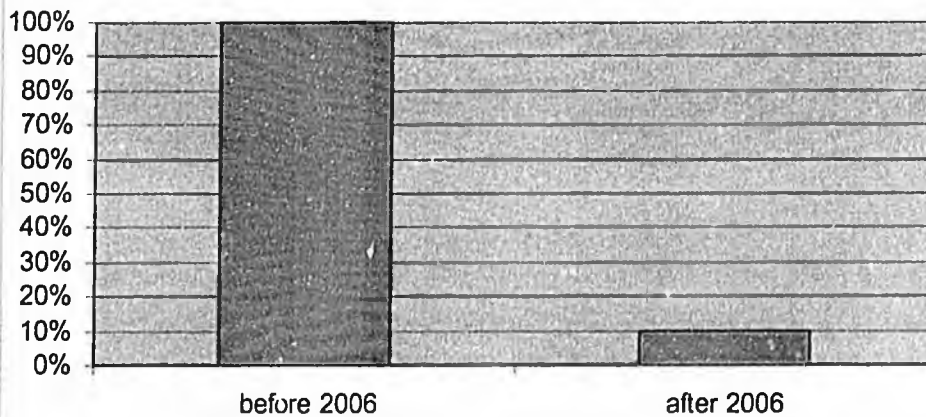
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Air Quality Impacts

- Using the new fuel will reduce air pollution from large trucks and buses.
- Air pollution may trigger asthma attacks, cause lung cancer, respiratory illness, or increased mortality.
- Air pollution can cause hazy skies.

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Percent Pollutant Reduction for Diesel Trucks and Buses



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Economic Impacts

- EPA estimates Ultra-low sulfur fuel may be \$0.05 per gallon more than the current cost of diesel in the Lower 48. In Alaska, this cost will probably be more.
- Costs to rural Alaska will likely be higher due to distribution challenges.
- Use of ultra-low sulfur diesel for uses such as home heating or power generation may increase costs to a community.

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Distribution Impacts

- Transportation of fuel to rural Alaska poses unique challenges.
- May be difficult to find ultra-low sulfur diesel meeting arctic grade fuel requirements.
- Dual tank systems for separating ultra-low sulfur diesel from other fuels may be expensive.

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| • Nome | February 21-22 |
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| • Dillingham | ? |
| • Bethel | ? |

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Questions?

Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

To Provide Comments or Get More Information Contact:

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Alaska State Legislature

HOUSE COMMITTEE ON COMMUNITY AND REGIONAL AFFAIRS

Representative Carl Morgan
Co-Chairman
Committee Aide, Bill Lawrence
(907) 465-3882

Representative Kevin Meyer
Co-Chairman
Committee Aide, Lorali Meier
(907) 465-6588

House Joint Resolution 47 Sponsor Statement

The Environmental Protection Agency (EPA) recently established a rule, effective in 2006, to reduce air pollution and related health and air quality impacts from large trucks and buses. In 2006, diesel trucks and buses must use diesel fuel containing 15 parts per million (or less) sulfur. Model year 2007 diesel trucks will require new emissions control equipment specifically designed to use only this type of fuel. This means most road diesel fuel used in Alaska in the future will, by rule, be ultra low sulfur diesel.

The financial and logistical consequence to rural Alaskans is significant with this change of diesel fuel types. An increase of 20 to 45 cents per gallon is expected. A greater fuel requirement is necessary with a decrease in fuel efficiency or fewer BTU's generated.

The effects extend to the Alaska trucking industry, whereby freight transport costs will rise.

Electrical companies testified that varying grades of diesel fuel would become increasingly difficult to obtain for existing systems.

Fuel transportation, delivery and storage systems in rural Alaska are generally capable of handling no more than one discrete diesel fuel type. Barges will need retrofitting and tanks in fuel farms cleaned.

One Alaska refiner expected a retrofit to cost \$100 million to produce the new fuel. The cost associated with this retrofit is not financially feasible when only 5% of the diesel refined in Alaska is used on the road. Thus, production of ultra low sulfur diesel fuel is not likely in Alaska. Any ultra low sulfur diesel fuel used in Alaska will, by necessity, be imported from lower 48 refineries.

While the federal rule is designed to address environmental health and air quality issues in urban and populated areas, it has severe economic implications in rural Alaska. Most of those testifying acknowledged ultra low sulfur diesel fuel will eventually be used throughout Alaska, but believe implementing the rule in 2006 is onerous.

The House Community and Regional Affairs Committee introduced HJR 47 to address Alaska's concerns with the effective date of this new federal rule. It asks EPA and the Department of Environmental Conservation to give Alaska maximum flexibility in implementing the new rule.

Digest -

- Alaska Economic Report
- Alaska Legislative Digest

Special Commentary

March 8, 2002
With Digest #10/02

New EPA clean diesel rule will hit Alaska rural communities hard

The problem of high fuel and electricity costs in rural Alaska may be getting much worse: Rural utility and municipal managers are looking at possible 25 to 33 percent fuel cost increases resulting from new U.S. Environmental Protection Agency rules that require use of ultra low-sulphur "clean" diesel in the next few years. Although the immediate rule applies to diesel sold to on-road vehicles (trucks, busses, etc.) by 2006, it's felt that the logistics complications of shipping the ultra-clean diesel to remote rural communities will affect costs of all fuel. And EPA officials say that the clean-diesel rule is on a long-term track to be applied to off-road diesel equipment (construction equipment, for example), stationary diesel-powered generators and eventually even marine vessels. Still over the regulatory horizon, but soon to come into view, will be application to fuel oil used for home heating.

State Department of Environmental Conservation officials briefed the House Resources Committee in Juneau March 5 on the new rules. Alaska won't be given an outright exemption from this rule, similar to the state's exemption from a current EPA rule requiring use of diesel with a 500 parts-per-million (PPM) sulfur content, they said. But EPA has given Alaska an option to develop a transition plan, a phase-in to full compliance by 2010, they told the committee. DEC must have the plan by April 1. The agency has been discussing various options since last year with "stakeholders" (rural communities, tribal groups, trucking operators, fuel distributors, refiners, municipalities and community groups) and no clear consensus recommendation has formed.

DEC officials said EPA is sympathetic to the unique problem of rural communities in Alaska, and some form of special treatment under the rule is likely to be acceptable. But ultimately even "the bush" will have to comply with the national rule, they warned.

What galls community leaders is that the EPA clean diesel rule was developed to reduce

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DIGEST

EPA rule: Rural Alaska could be allowed more time

Continued from previous page

health-harming air pollution in large urban cities of the Lower 48, where diesel-caused emissions are harmful. Most of Alaska doesn't have air pollution problems, and even in Anchorage most of the harmful particulates in the air are from natural sources (glacial silt blown by wind, etc.). Still, the national rule is being imposed on Alaska, creating serious costs that will be heavy in small, outlying communities.

What are the expected cost increases?

How costly will ultra-clean diesel be? Estimates are that the clean fuel, with a limit of 15 parts per million sulfur, will cost 20 cents to 25 cents per gallon more by the time it is transported to Alaska. Frank Dillon, executive director of the Alaska Trucking Association, said the cost could be as high as 40 cents per gallon more. There are other, as-yet undefined cost issues, such as separate tankage required. But a big undefined cost is the fact that there is an energy-loss factor to contend with, too. The new diesel will contain less energy than conventional diesel. One estimate is that it will contain 14 percent less British Thermal Units (Btus) of energy per gallon. Therefore, it will take more gallons to power a truck a certain distance or generate a given amount of power.

AVEC operates 51 systems

Alaska Village Electric Cooperative, which operates village power plants in 51 small communities, says it pays an average of \$1.37/gallon for diesel. Fuel costs are 28 percent of total system costs, and AVEC's average power rate is 40 cents/kilowatt hour. A 25 cent/gallon increase will add \$1.25 million to AVEC's annual fuel bill, but when the lower energy content is factored in, the effective cost increase will be close to double that, AVEC told the Resources committee.

Nome - diesel now \$2.30 a gallon

Nome's city manager told the Resources Committee March 5 that diesel now costs \$2.30 a gallon in the Seward Peninsula community. If costs increase 20 percent, it's a significant burden. Nome's utility manager said the utility now spends about \$2.1 million per year for 1.6 million gallons of fuel. A 25 cent/gallon additional cost will raise annual fuel costs to AVEC by \$2.5 million, it is estimated. But if the new fuel has 14 percent less Btus per gallon, more gallons will be needed to generate the same energy, raising costs to about \$3 million more per year, the utility said.

Article last updated:
Thursday, March 21, 2002 5:01 AM MST

Deadline approaches on low-sulfur fuel

The Associated Press

ANCHORAGE--Alaska will have to decide by the beginning of next month how a new ultra-low sulfur rule for diesel fuel will be implemented in the state.

The rule goes into effect nationwide in 2006, but Alaska can opt for a phase-in plan, David Rogers, deputy director of the Department of Environmental Conservation's Division of Air and Water Quality, told the Alaska Journal of Commerce.

Rogers told a state legislative panel earlier this month that no matter what the state does, the new EPA rule will raise the cost of diesel used by trucks and buses.

In the future, off-road construction equipment, stationary diesel generators used by power utilities and even marine vessels could be required to use the new ultra low-sulfur fuel, according to Ron King, head of DEC's mobile air pollution control program.

King and other DEC officials have been meeting with industry and community leaders over the last year to discuss possible phase-in options.

Most air pollution in major U.S. cities these days comes from diesel trucks and buses, and once the new engines using 15 ppm diesel are operating, EPA expects a 90 percent reduction in air pollution caused by diesel vehicles, King said.

EPA now mandates that diesel for road vehicles have no more than 500 parts per million. Alaska has an exemption from that rule, so diesel made by Alaska refiners with sulfur content up to 1,000 ppm can be used in vehicles, King said.

The options for a gradual Alaska phase-in are limited. Larger Alaska cities and communities along the state's highway network will probably have to deal with the low-sulfur requirement about the same time as the rest of the nation, mainly because trucks and buses with new engines requiring the fuel will be coming into Alaska.

Rogers said rural communities might get special treatment, but even there the new fuel will be required no later than 2010.

The EPA in December 2000 published a new rule requiring sharply reduced particulate and nitrogen oxide emissions, which have been identified as creating health problems in large urban cities.

New diesel engines fitted with advanced emissions-control systems will require a diesel fuel with no

greater than 15 parts per million of sulfur.

Cost of the new fuel and the special handling it will require will be a major consideration. Where to get the fuel is another problem.

Alaska refineries will be unable to produce it because the demand for small quantities of special diesel for highway use will be too small to justify the estimated \$100 million-plus in refinery modifications needed to produce 15 ppm diesel, according to Bill Boycott, refining director for Williams Companies, which owns a refinery at North Pole.

Lower 48 refineries will gear up to produce the new fuel.

Frank Dillon, executive director of the Alaska Trucking Association, said he believes the added cost could be 25 cents or even 40 cents per gallon by the time the low-sulfur fuel is brought to Alaska.

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Alaska Ultra-Low Sulfur Diesel Fuel Transition Plan

1. Rule Development and Health Based Justification

- In December 2000, EPA finalized a rule reducing emissions of particulate matter (PM) and nitrogen oxides (NOx) from 2007 and newer large trucks and buses.
- To achieve these reductions, manufacturers must install after treatment devices that require use of ultra low sulfur diesel fuel (15 parts per million (ppm) or less sulfur).
- Operators of heavy-duty diesel trucks and buses will have to use ultra-low sulfur diesel or risk engine damage, loss of warranty, and federal penalties.
- Why this rule? There will be improved air quality with use of the new fuel - the new vehicles will have up to a 90% reduction in PM and NOx emissions.
- Particulate matter may exacerbate asthma, cause lung cancer, or increased mortality.
- Nitrogen oxides are an ozone precursor. Ozone is implicated in respiratory illness.
- Particulate matter and nitrogen oxides contribute to haze formation.

2. Economic/Distribution Impacts

- Fuel will cost more.
- EPA estimates ultra-low sulfur fuel to cost \$0.05 more in the lower-48. Costs to Alaskans -especially rural Alaskans - will likely be higher due to distribution logistics. Note: Fuel may have to be imported due to high costs of in-state production. May be difficult to find 15 ppm sulfur diesel meeting arctic grade fuel specifications.
- Tankage systems to separate 15 ppm sulfur diesel from other fuels may be expensive.
- 15 ppm sulfur will have approximately 3% less energy (BTU's) per gallon, leading to a loss of efficiency (this is especially important if used in power generation).
- If this fuel is used universally, costs also will increase for such things as home heating or power generation.
- Use of 15 ppm sulfur diesel in 2006 and older vehicles should not cause impact. However, some indications that 1990 and earlier vehicles may need additives to avoid leaking pumps and lubricity problems.

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DOCUMENT(S)
ARE
POOR
ORIGINAL
COPIES

3. Options to Transition to Ultra Low Sulfur Diesel Fuel

- Only 5% of diesel fuel used in Alaska is destined for on-highway vehicles compared to approximately 40% in lower-48.
 - Due to unique environmental, geographical and economic costs documented in exemption to previous fuel regulations, EPA approved flexibility for Alaska to develop a transition plan specific to Alaska for the new 15 ppm fuel.
-
- **National Plan**
 - At least 80% of on-highway diesel as 15 PPM sulfur and no more than 20% on-highway diesel as higher sulfur.
 - 100% 15 PPM sulfur diesel by 2010.

 - **Market Based Phase-in Plan**
 - Fuel provided based on market demand – lower percentage of the fuel in the early years (2007, 2008).
 - In-state refiners may not be able to provide the fuel.
 - The percent 15 PPM diesel increases each year.
 - Timeline for 100% 15 PPM sulfur diesel may extend past 2010.
 - There would be a goal of 2010 to transition diesel vehicle fuel supply to ultra low sulfur diesel.

 - **Buy the Truck – Buy the Fuel Market Based Approach – Rural only (off the contiguous road system)**
 - Allow community to use uncontrolled (>500 PPM) diesel until:
 - A 2007 or later diesel vehicle is imported, and 15 PPM diesel fuel must be imported for that vehicle.
 - Community and community members can decide if:
 - They will buy a 2007 model year diesel vehicle.
 - They will switch all diesel vehicles to the new fuel regardless of model year.
 - The entire community will switch to the new fuel, including power generation.
 - There would be a goal of 2010 to transition diesel vehicle fuel supply to ultra low sulfur diesel.

 - **Mandate for All Fuels**
 - Require all diesel fuel not destined for aircraft to switch to 15 PPM sulfur diesel.
 - This is a regulatory process and may also require legislative action.
 - Retailers/Distributors/Refiners responsible for providing fuel.
 - Cost impacts - incentives and assistance in changeover costs may have to be considered and may also require legislative action.

4. Status

- We have held 3 workshops in Anchorage between April and July to discuss options.
 - Most participants were from urban Alaska.
 - Consensus was not reached.
 - A little over half chose the national plan or something more stringent.
 - Refineries indicated that they would not refine the ultra low sulfur fuel initially.
- We are currently visiting rural hub communities (e.g., Nome, Kotzebue, Barrow, Kodiak, Dillingham, Bethel, Unalaska/Dutch Harbor)
 - No consensus at this time.

5. Actions Taken or To Be Taken

- On April 1, 2002, we submitted plan to EPA that splits Urban and Rural areas.
 - Urban Alaska - We are recommending areas connected to the contiguous 48 states and major hubs on the ferry system to be subject to the National Plan.
 - Rural Alaska - We are recommending an extra year to further explore the impacts of the new fuel on areas not considered "urban". We express a goal of having rural Alaska transitioned to ultra low sulfur diesel by 2010.
- Working with the Alaska Native Health Board (ANHB) and the Institute of Circumpolar Health at UAA to develop a low dose exposure study to particulate matter and subsequent health impacts from diesel fuel use in rural Alaska.

6. Future Impacts

- Sulfur must be reduced in gasoline by 2007.
- EPA is developing sulfur fuel requirements for non-road engines (e.g., road construction equipment, farm tractors, etc.).
- Vehicle and engine manufacturers indicate that light duty diesel cars and trucks will also need the ultra low sulfur fuel by 2006/2007.



State of Alaska
Legislature

PLEASE ENTER MY TESTIMONY INTO THE RECORD TO THE

HRES COMMITTEE IN REGARD TO THE
(COMMITTEE NAME)

HJR 47 ON 4/2/02.
(BILL/SUBJECT) (DATE)

ALASKA POWER AND TELEPHONE
STRONGLY SUPPORTS HJR 47.
PLEASE FORWARD TO COMMITTEE
MEMBERS.

SIGNED DON MAHON
(PLEASE PRINT)

ALASKA POWER AND TELEPHONE
(ADDRESS AND PHONE NUMBER)

**Alaska Power & Telephone
Comments on Ultra Low Sulfur Fuel
March 5, 2002**

Alaska Power & Telephone supports any controls that have a clear human health or environmental benefit. However, while studies indicate that pollutants caused by high sulfur fuel may contribute to respiratory disease, the impact of these pollutants in isolated remote Alaskan communities is negligible. Where is the justification in mandating Ultra Low Sulfur Diesel Fuel by 2010 in rural Alaska?

The financial impact on the consumers from these same communities will be of such proportion to adversely affect virtually every aspect of community life. In addition to the direct impacts this mandate will cause, such as increased fuel costs, compatibility with existing equipment, and storage concerns during the transition period, this mandate will increase an already high electric kilowatt-hour rate.

- Rural Alaska is heavily dependant on diesel generation.
- Fuel cost is estimated to increase approximately 23 cents per gallon.
- The BTU rating will be decreased by 14%, increasing fuel consumption.
- Dual fuel storage and dual delivery and metering systems will be required.

Electric consumers, whose kilowatt-hour rates are as much as 45 cents today could expect an increase of up to 5% if these costs are passed on to the consumer. These increased costs will also place an additional burden on the state PCE program.

Alaska Power Company (APC) currently provides electric service to 24 rural communities throughout Southeast and Interior Alaska. Of these, 19 communities depend strictly on diesel as the primary fuel source for generation, and the remaining five are hydroelectric facilities that depend on diesel generation as a backup.

The 19 APC communities that currently use diesel-powered generation are:

- Naukati
- Coffman Cove
- Hydaburg
- Whale Pass
- Hollis
- Tok
- Tanacross
- Dot Lake
- Tetlin
- Bettles
- Evansville
- Mentasta Lake
- Chistochina

- Eagle & Eagle Village
- Healy Lake
- Northway & Northway Village
- Allakaket
- Alatna
- Alcan Border Station

The five APC hydroelectric communities that still depend on diesel generation as a back-up are:

- Craig
- Skagway
- Haines
- South Thorne Bay
- Klawock

We suggest the committee adopt a resolution with provisions that would require the DEC request the EPA to reevaluate and address the ramifications and costs to rural Alaska consumers.

Respectfully submitted,



Donald E. Mahon
Vice President, Operations
Alaska Power Company

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April 3, 2002

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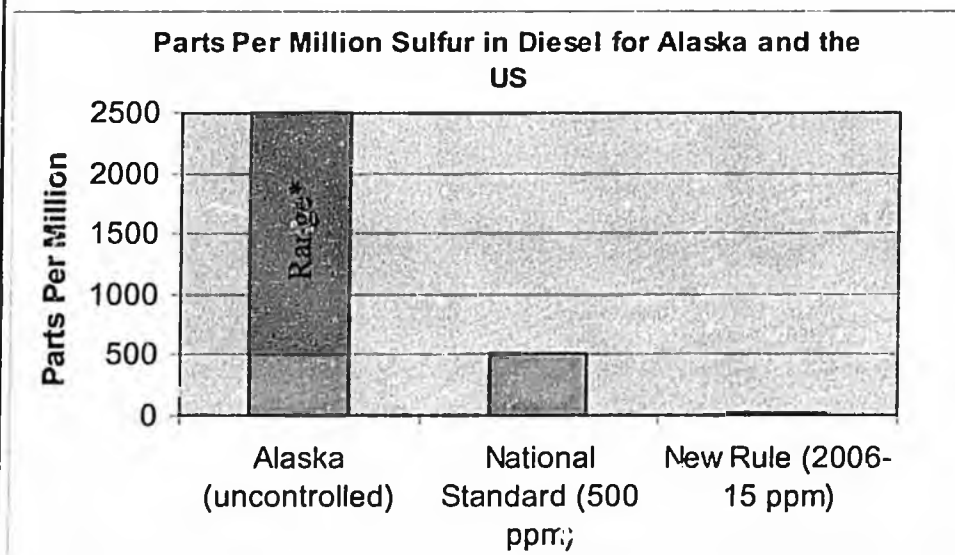
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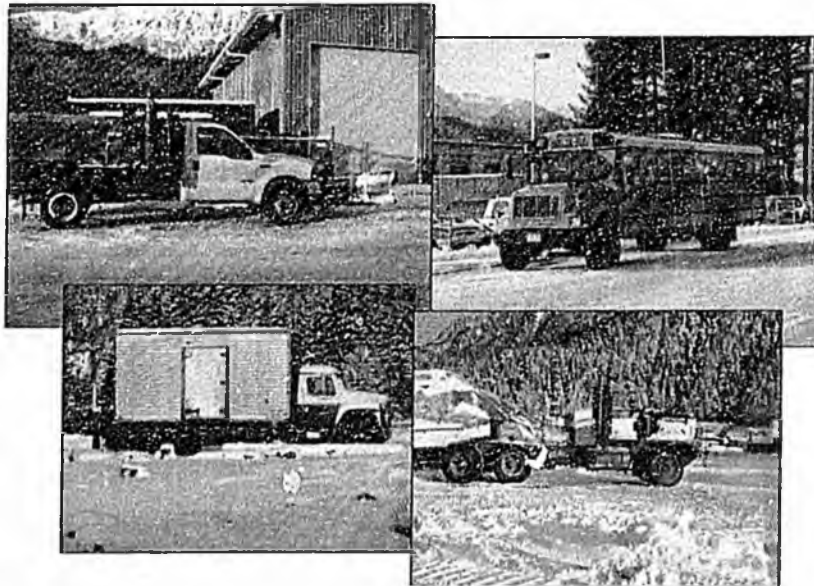
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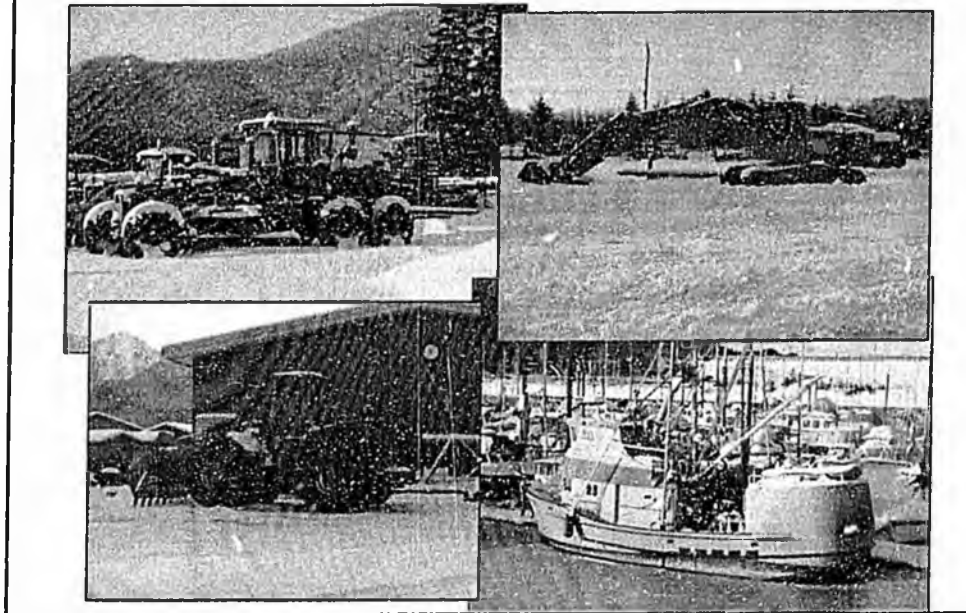
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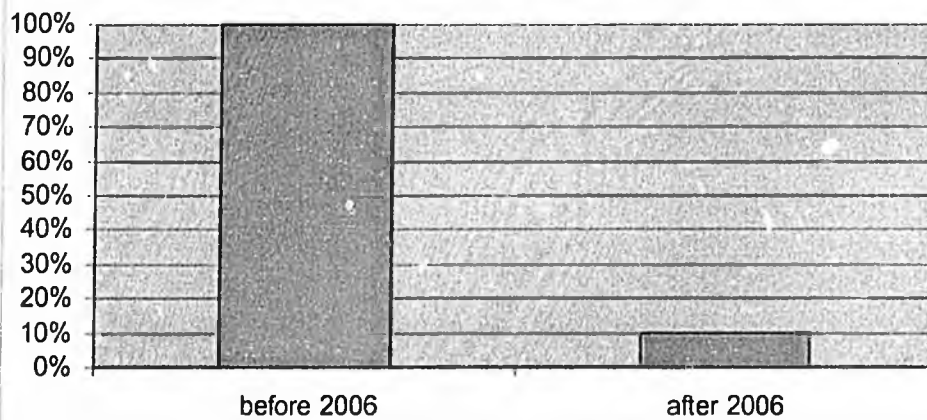
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