

Nonroad Workgroup: Incentives and Assurances Subcommittee

Summary of Activities

August 23, 2001

At the June 12, 2001 meeting, the Nonroad Workgroup established a subcommittee chaired by Janea Scott, Environmental Defense and Bruce Bertelsen, MECA to identify ways to provide assurances that emission reductions from nonroad equipment and vehicles will be achieved and to provide incentives to encourage emission reductions. Members of the subcommittee (*see Attachment 1*) were asked to submit ideas for incentives and the subcommittee conducted a conference call on June 29, 2001 to review the ideas. Based on the discussion during the conference call, the subcommittee compiled a list of incentive-based ideas for assuring clean air benefits and fleet turnover and submitted them to the Nonroad Workgroup (*see Attachment 2*).

At the July 10, 2001 meeting, Janea Scott reported on the activities of the Incentives and Assurances Subcommittee. The Workgroup Chairperson requested that the list of incentives be categorized in terms of the purpose(s) to which they serve and, if possible, to identify a short list of incentives/assurances to recommend to EPA. In response, the subcommittee consolidated the list of incentive ideas to 17 total and requested that the members of the subcommittee rate the items in terms of priority level and identify the purpose or purposes served by each. The list, with the compiled results, is presented in Attachment 3. Since only six responses were received, it is difficult to draw any definitive conclusion from the survey regarding which incentive/assurances would be most appropriate to recommend to EPA. The list, however, does present a comprehensive set of incentive-based ideas that can serve as a starting point for further discussion.

Attachment 1
Incentives and Assurances Subcommittee Members

Incentives and Assurances Subcommittee Members

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Attachment 2
Compilation of Draft Ideas for Assuring Clean Air Benefits/Fleet Turnover
as Submitted by Subcommittee Members

Nonroad Workgroup: Incentives and Assurances Subcommittee
Draft Ideas for Assuring Clean Air Benefits/Fleet Turnover

July 3, 2001

OBJECTIVE

The goal of the Incentives and Assurances Subcommittee is to identify possible incentive-based programs to: 1) make the purchase of new nonroad engines/equipment meeting the more stringent emission standards ("clean engines") more attractive, 2) encourage the retrofit/repower of existing nonroad engines, and 3) encourage the availability and use of low sulfur diesel fuel (15 ppm) in nonroad applications. For the incentive-based programs identified, the Subcommittee will list the pros and cons of each, as well as examples, if applicable, of where the program has already been implemented and/or plans to be implemented.

I. RETROFITS/REBUILDS

A. Coordination with EPA's Voluntary Diesel Retrofit Program.

Pros:

Cons:

Next Steps:

- Invite someone from the EPA voluntary retrofit program to participate on our subcommittee (Contacted Gay MacGregor)

B. AGC (Associated General Contractors) of America has been working with EPA's OTAQ to encourage our chapters to retrofit their nonroad diesel equipment. For example, in an effort to achieve state-wide reductions in NOx and PM, AGC of California recently teamed up with California Caterpillar Dealers to organize a project, called "Re-powering for Tomorrow," that would involve "re-powering" construction related equipment with new engines capable of meeting more stringent NOx and PM requirements. After an extensive outreach effort, AGC and Caterpillar have identified 2,437 engines (pre-1988) eligible for replacement. Moreover, the data indicate that construction equipment engines meeting the "re-power criteria" are concentrated in non-attainment areas. The challenge is identifying a sum of \$\$\$ that can be used to fund the re-power effort (i.e., an incentive encouraging contractors to participate in the program).

AGC contractors are motivated to retrofit their diesel construction equipment in order to achieve cleaner air. Clearly, the main incentive for all of us is cleaner air. Unfortunately, the main impediment is money. Our members are committed to improving the environment, but – like EPA – they very often lack the necessary resources. Most of our members are small businesses. If the funds are not available, then it doesn't matter how much a contractor wants to upgrade his or her fleet.

Pros:

- Voluntary effort supported by the industry

Cons:

- Funding needed

Next Steps:

- There are programs similar to this one in Texas

C. Mandatory Retrofit

1. All Federal government-owned fleets be required to retrofit all, or a specified portion of the fleet, and to purchase vehicles/equipment with clean engines

Pros:

- Impacts only federal government owned equipment

Cons:

- Funding from Congress would be needed

Next Steps:

2. Federal/States/Cities require fleet operators to retrofit available emission controls or use new vehicles equipped with the best available emission control technology.

Pros:

- Ensures that air quality goals are met

Cons:

- Could put small businesses, especially minority- and women-owned businesses, out of business
- Preemption issues

Next Steps:

II. FLEET AVERAGE/FLEET EMISSION REQUIREMENT

A. The idea discussed at the April meeting of a progressively more stringent fleet emission requirement that can be met by normal purchase of new equipment or retrofit of existing equipment. To be practical the program would have to be limited to larger fleets and possibly enforced by states.

Pros:

- This would level the playing field and address serious concerns of equipment and engine manufacturers that the new regulations and fuel requirements might suppress normal purchase of new equipment
- Provides states and environmental organizations with better assurance the projected emission reductions from the program will be achieved.

Cons:

- Preemption issues
- May discriminate against small businesses, especially minority- and women-owned businesses

Next Steps:

- Leah Wood will provide feedback from AGC on this issue

B. A fleet average or cap on NO_x and/or PM emissions. Tax incentives/grants/rebates could be used to help businesses with cost to meet the average/cap. If a business reduces beyond their average/cap they could generate credits to use in a trading program.

Pros:

Cons:

Next Steps:

III. CONTRACT SPECIFICATIONS

A. Federal/State/City governments award contract bidding points to contractors who purchase vehicles/equipment with clean engines and/or who retrofit vehicles or equipment with emission control retrofit technology and/ or operate on lower sulfur fuels. (Types of fleets could include construction, refuse collection, school buses, transit buses)

Pros:

- Encourages fleet turnover, use of cleaner technology

Cons:

- May discriminate against small businesses, especially minority- and women-owned businesses

Next Steps:

- ARB will provide more information (Jackie L.)
- Are there other examples of this outside MA and CA?

B. Federal/ State governments specify as a condition to a highway construction contract that all equipment (or a specified percentage of the equipment) be retrofitted with emission control technology or be equipped with clean engines. Example: NESCAUM's Big Dig Program – implementation through contract specifications; had to retrofit certain engines in order to be awarded the work.

Pros:

- Encourages fleet turnover, use of cleaner technology

Cons:

- May discriminate against small businesses, minority- and women-owned businesses

- Preemption issues

Next Steps:

IV. TAX

A. State/City tax credits or registration rebates for fleet operators for each vehicle retrofitted with controls or equipped with clean engines

Pros:

Cons:

Next Steps:

B. Provide a tax rebate for purchase of new vehicles

Pros:

Cons:

Next Steps:

C. Tax relief to provide people an incentive to buy ultra low sulfur diesel, for example rebate on income tax if you can provide receipts to show that you bought the low sulfur fuel.

Pros:

- Incentive not to misfuel

Cons:

Next Steps:

D. Differential tax on fuel to bring the prices at the pump closer together

Pros:

Cons:

- Only about 10-15% of the fuel is involved

- If high sulfur fuel is taxed, end users of equipment not covered by the nonroad regulations would have to bear the added costs.

- If tax were reduced on low sulfur fuel, it might be purchased by end users who do not actually need to use low sulfur fuel.

Next Steps:

- Oregon and Georgia both have regulations in place.

V. FUNDING/ GRANTS

A. State/Cities create funds such as the Carl Moyer fund in California to partially fund the costs of replacement/repower/retrofit of diesel engines

Pros:

Cons:

Next Steps:

B. Outright grants

Pros:

Cons:

Next Steps:

C. Federal appropriations to subsidize new emission controls/ engines

Pros:

Cons:

Next Steps:

VI. OTHER GOOD THOUGHTS

A. Purchase of clean engines or diesel retrofit/repower technology can be used for environmental mitigation purposes under state environmental impact laws or as mitigation under transportation conformity.

Pros:

Cons:

Next Steps:

- Ask EPA to let us know all the states that are doing this

B. In areas where it makes sense, marketable emission credits for engines that have been retrofitted/repowered.

Pros:

Cons:

Next Steps:

- Dave S. and Jackie L. from CARB know more about this. Dave will make ARB guidelines available.

C. Accelerated depreciation (equipment and possibly additional fuel tanks that may be required)

Pros:

Cons:

- Fleet operators might have to buy additional fuel tanks and more additional equipment.

Next Steps:

D. Mobile source credit reduction program; set up guidelines for credit generation

Pros:

Cons:

Next Steps:

E. EPA has completed work on a report regarding state and local incentive programs for cleaner transportation technologies. EPA's Office of Transportation and Air Quality is currently seeking feedback from state and local air agencies on the document. While this document primarily covers on-road sources, it provides a nice review of existing incentive programs. It also provides a nice outline of the factors they identified were necessary for a successful incentive program.

Pros:

Cons:

Next Steps:

THE ISSUES FOR THE NON-ROAD ENGINE EMISSIONS WORK GROUP SUB-GROUP ON INCENTIVES AND ASSURANCES

Prepared by: Gerald H. Ritterbusch, *22 June 2001*

1. The need for assuring projected emission reduction goals are achieved.

The greatest opportunity for getting the projected reduction is to ensure that the means to achieve the reduction is implemented. If the reduction is through the introduction of new machines with lower emission engines, then the replacement schedule of existing machines must not be stretched out. If normal market conditions prevail, then the key factor is that the cost/value of the new machine is better than the retention of the older, higher emission machine. This issue has to be worked two ways. One is that the value of the machine is above that of the existing machine, and the second that the cost of the new machine is not above the value.

Manufacturers generally use product cycles to introduce new technology. What has to be accomplished is that there is sufficient lead-time provided in the emissions regulation such that manufacturers can time their introduction of new machine features with the effectiveness of the emissions reduction. The offset between the increased cost of the emissions reduction and the value of new features can cause a market condition to develop where the customer will accept more cost if the value is there.

A limiting factor to this is that the extent of the new content in the machine is a significant factor in the reliability of the machine. Customers critically assess new content amounts in accepting new machines. Thus, the extent of changes for emissions reduction and for new features has to be balanced on both cost/value and the content changes it drives in the machine. So, the economic model has to be worked to find the right level of emissions reduction mixed with feature changes that will drive the customer to purchase. This is not easy, but requires stakeholder buy-in to the concept of maximum use of market forces to accomplish emissions reduction.

Beyond normal market driven factors, is the role of incentives. Incentives can either be enticers or forcers. Enticers take money from the government. There can be many schemes such as tax rebates, accelerated depreciation, subsidized contracts, etc. All of these take money out of the government that means other programs have to be cut.

Forcers are mandatory fleet replacement rates, usage percentages, contract requirements, etc. Their effect is to drive up the cost of projects on which machines are used. This means that the project owner pays for the added cost that will be passed on to the consumer. This will also have economic ripple effects including that some projects may not be done.

No easy solutions, but if society wants, they have to be willing to shoulder the costs.

2. Initiatives to encourage emission reductions from current fleets and from the early introduction of cleaner fuels and low-emitting technologies.

For current fleets, some reduction can be achieved with the lower sulfur fuel. But, this is only likely to be applied on a voluntary basis if the price of the lower sulfur fuel is not materially higher than a higher sulfur fuel through the distribution chain. Materially the same price could be accomplished by the fuel industry balancing the price between the grades of fuel, or through tax schemes. The other approach is to limit the availability of higher sulfur fuel in the area where the fleets are located such that there is no choice. For example, for non-attainment urban areas, high sulfur fuel could be eliminated or specific fleet limits could be established.

The next approach would be retrofit. This is highly complicated as it is not as easy as just installing a new engine or an add-on component. With each tier of changes, there were some machine changes. The most minimal were from Tier 0 to Tier 1. The problem is that youngest Tier 0 machines are now 5 years old and if the wait for low sulfur fuel for PM aftertreatment is the desired retrofit approach, those machines will be 10 years old. The economics of retrofit are quite disadvantageous at the 10-year point for many of the machines. So, the block of machines to be retrofitted has to be established based on the economic value aspect as well as to the technology that can be applied.

The other problem with retrofit is that it has to be designed. Manufacturers won't design unless they know the market for retrofit. Thus, voluntary retrofit probably will not enable the establishment of the true market. Mandatory retrofit would have to be established. Mandatory retrofit is likely to be highly political. Most likely incentives would have to be deployed, or condition of use applied where the cost is passed through the project. Thus, a well-organized approach would have to be established where the size of the retrofit market is clearly established and realizable to enable the design to be developed and the appropriate manufacturing processes deployed. Retrofit on a machine-by-machine basis is not cost effective.

Thus, for each tier, population factors would have to be established and then design choices made. Emissions reductions versus cost analysis would have to be made to determine what designs would be appropriate. Appropriate retrofit packages giving the best value would have to be determined. Some might be applicable on pure retrofit and others timed for repair or rebuild stages. Balance across manufacturers would have to be respected as well as balance across machine users.

As with any issue everything is possible with time and money. As money is finite, the key is redeployment strategies for the money side. The foremost point is a proper strategy and then the deployment of resources to accomplish the strategy. There are many factors that have to be considered with the retrofit approach, but having an overall strategy is what is necessary to make retrofit work.

Attachment 3
Results of Survey

Nonroad Workgroup: Incentives and Assurances Subcommittee
Ideas for Assuring Clean Air Benefits/Fleet Turnover

Per the discussion at the July 10th Nonroad Workgroup meeting, the Incentives and Assurances Subcommittee was asked to prioritize the list of ideas presented at the meeting and put the ideas into different categories. Therefore, for the 17 ideas listed in the table below, please 1) rate them according to the following priority levels:

- High** - high priority (most promising)
- Medium** - medium priority (has potential)
- Low** - low priority (limited potential)

and 2) place them in one or more of the following four categories:

- A.** Assure air quality benefits are achieved
- B.** Make the purchase of new nonroad engines/equipment meeting the more stringent emission standards more attractive
- C.** Encourage the availability and use of low sulfur diesel fuel (15 ppm) in nonroad applications
- D.** Use for offsets/encourage early emission reductions

Please send your response to MECA's Bruce Bertelsen (e-mail: bbertelsen@meca.org, fax: 202/331-1388) by Monday, July 30, 2001. Thank you.

Survey Totals
(Totals below based on 6 responses)

IDEA	PRIORITY LEVEL	CATEGORY
Industry/Government voluntary retrofit programs (e.g., AGC's "Repowering for Tomorrow" program)	H: 1 M: 1 L: 4	A: 2 B: 1 C: 2 D: 3
All federal government-owned fleets be required to retrofit all, or a specified percentage of the fleet, and to purchase vehicles/equipment with clean engines	H: 1 M: 3 L: 2	A: 4 B: 2 C: 2 D: 1
EPA would require that States/Cities require fleet operators to retrofit available emission controls or use new vehicles equipped with the best available emission control technology	H: 1 M: 3 L: 2	A: 4 B: 2 C: 2 D: 1
EPA establishes a fleet average or cap on NOx and/or PM emissions. Tax incentives/rebates/grants could be used to help businesses with cost to meet the average/cap. If a business reduces beyond its average/cap, it could generate credits to use in a trading program	H: 3 M: 1 L: 1	A: 3 B: 3 C: 1 D: 2
EPA establish voluntary Blue Sky standards (engine manufacturers have option of certifying engines in advance or below mandated levels)	H: 2 M: 1 L: 3	A: 1 B: 3 C: 1 D: 2

IDEA	PRIORITY LEVEL	CATEGORY
Federal/State/City governments award contract bidding points (i.e., bonus credit for clean engines) to contractors who purchase vehicles/equipment with clean engines and/or who retrofit vehicles or equipment with emission control technology and/or operate on low sulfur fuels (types of fleets could include construction, refuse collection, school buses, transit buses, etc.)	H: 3 M: 1 L: 1	A: 3 B: 4 C: 2 D: 1
Federal/State governments specify as a requirement to a highway construction contract that all equipment (or a specified percentage of the equipment) be retrofitted with emission control technology or be equipped with clean engines. Example: NESCAUM's Big Dig Program (implementation through contract specifications; had to retrofit certain engines in order to be awarded the work)	H: 1 M: 5 L: 0	A: 4 B: 3 C: 2 D: 1
State/City tax credits or registration rebates for fleet operators for each vehicle retrofitted with controls or equipped with clean engines	H: 0 M: 5 L: 1	A: 0 B: 5 C: 1 D: 2
Provide a tax rebate for the purchase of new vehicles	H: 1 M: 2 L: 2	A: 0 B: 6 C: 0 D: 0
Tax relief to provide people an incentive to buy ultra low sulfur diesel, e.g., rebate on corporate income tax if you can provide receipts to show that you bought the low sulfur fuel	H: 0 M: 4 L: 1	A: 0 B: 1 C: 5 D: 0
Differential tax on fuel to bring price parity at the pump	H: 2 M: 0 L: 3	A: 0 B: 0 C: 6 D: 0
Accelerated depreciation (equipment and possibly the additional fuel tanks that may be required)	H: 1 M: 3 L: 1	A: 0 B: 5 C: 1 D: 0
States/Cities create fund to partially or completely cover the costs of replacing/repowering/rebuilding/retrofitting diesel engines	H: 1 M: 4 L: 1	A: 2 B: 5 C: 1 D: 1
Industry/Government funding partnerships to partially or completely fund replacement/repower/rebuild/retrofit of diesel engines	H: 0 M: 5 L: 1	A: 2 B: 5 C: 1 D: 1
Federal appropriations to subsidize new emission controls/ engines	H: 0 M: 4 L: 2	A: 1 B: 6 C: 0 D: 0
Purchase of clean engines or diesel retrofit/repower technology can be used for environmental mitigation purposes under state environmental impact laws or as mitigation under transportation conformity	H: 0 M: 3 L: 0	A: 2 B: 3 C: 0 D: 2
Marketable emission credits for engines that have been rebuilt/repowered/retrofitted	H: 0 M: 1 L: 4	A: 0 B: 3 C: 1 D: 2