TLU-12 Truck Stop Electrification/Anti-Idling

Option Category: Quantified

Policy Description:
Reduce idling from diesel and gasoline heavy-duty vehicles, buses, and other vehicles through the combination of a Statewide anti-idling ordinance and by promoting and expanding the use of technologies that reduce long-term heavy-duty vehicle idling, with an emphasis on encouraging the use of innovative truck stop electrification. Anti-idling control measures reduce fuel consumption and emissions from stationary freight vehicles (potentially wasted energy). In addition to truck stop electrification, other available technologies that reduce heavy-duty vehicle idling include automatic engine shut down/start up system controls; direct fired heaters (for providing heat only); and auxiliary power units.

Policy Design:
Develop and implement a statewide ordinance banning idling by heavy-duty vehicles in most situations. The ordinance should be designed to be easily enforceable by the appropriate state and local agencies. It is critical that a dedicated state funding stream for enforcement be identified for this measure to be successful in reducing vehicle idling and the resulting reductions in GHG emissions. The ordinance would also need to limit exemptions as much as possible, to make it easier to enforce. However, idling that occurs for public health and safety reasons (such as emergency vehicles) should be exempted from this rule.

Set up truck stop electrification stations at key truck stops and truck rest areas along the major highways in New Mexico. Electricity for powering these stations should come from clean sources, such as solar panels that would cover the trucks and also provide shade. Require truck stops to purchase renewable energy certificates. Coordinate this measure with Arizona and other neighboring States.

- **Goal levels:** Reduce fuel consumption from idling of heavy-duty diesel vehicles by 80% by year 2010, and by 100% by 2020.
- **Timing:** Have ordinance in place by 2008.
- **Parties:** Industry, NMED, Counties, truck stop owners.

Implementation method(s):

Information and education: Provide information to fleet carriers, shippers, retailers, bus companies, school districts, and others involved in the diesel fleet industry indicating the economic benefits, as well as the environmental benefits, of reducing or eliminating idling. Emphasize the fuel savings benefits, reductions in toxic emissions, and reduced engine wear associated with reducing idling. Also, identifying best practices within the industry and recognizing companies with these best practices in place within New Mexico should be used to encourage companies to select these carriers for their shipments. Develop outreach materials with cost benefits information and toxic diesel health impacts. Outreach materials should also be geared toward making the general

public aware of the GHG, toxics, and fuel-saving benefits of eliminating idling on personal vehicles, as well as on trucks and buses.

Technical assistance: Coordinate with anti-idling product manufacturers to organize workshops/outreach programs to regulated community to let them know of technological options that provide alternatives to the need for idling including products for cabin comfort, power for other functions (e.g., refrigerated trucks), and engine warm-up.

Funding mechanisms and or incentives: Propose legislation to partially fund idling technology loan grants for innovative truck stop electrification, focusing grants on high idling areas. A small tax on diesel fuel might be considered as a means for funding truck stop electrification. Tax credits may be available for installing electrification through the National Energy Bill. Truck stop owners could offer their own incentives for the use of electrification (e.g., credits for free hours of electrification with the purchase of a specified amount of diesel).

Voluntary and or negotiated agreements: Encourage participation in EPA's SmartWay Transport Partnership (or similar programs).

Codes and standards: Develop a statewide ordinance banning idling by heavy-duty diesel commercial trucks and buses

Pilots and demos: Investigate availability of funding for a pilot project demonstrating the use of solar-powered truck-stop electrification. Evaluate the effectiveness of the pilot program before implementing on a broader scale.

Related Policies/Programs in place: None identified.

Types(s) of GHG Benefit(s):

Reducing idling will reduce black carbon emissions, as well as all other GHG exhaust emissions (CO2, CH4, N2O) through reduced fuel consumption. However, it is important to also ensure that any technologies used to reduce idling have lower emissions than the diesel truck idling emissions they are replacing.

Estimated GHG Savings and Costs Per Ton (for quantified actions):

	2012	2020	Units
GHG Emission Savings	0.34	0.49	MMtCO2e
Net Present Value (2006-2020)		$20	$million
Cumulative Emissions Reductions (2006-2020)		5.1	MMtCO2e
Cost-Effectiveness		$4	$/tCO2e

Data Sources, Methods and Assumptions:

- **Data Sources:**

American Transportation Research Institute, "Idle Reduction Technology: Fleet Preferences Survey," February 2006 for technology costs.

EPA Smartway Transportation Partnership (http://www.epa.gov/otaq/smartway/idlingtechnologies.htm#truck-mobile) for technology costs.

"Analysis of Tehcnology Options to Reduce the Fuel Consumption of Idling Trucks," ANL/ESD-43, Argonne National Laboratory, Transportation Technology R&D Center, June 2000 for information on technology impacts.

Data from EPA's MOBILE6 model to estimate the proportion of CO2 emissions attributable to Class 8 trucks.

Data from USDOE/EIA *Annual Energy Outlook 2005* to estimate the amount of fuel consumed annually per truck.

- **Quantification Methods:**

The estimated reduction in CO2 emissions from reduced idling was calculated based on estimating the portion of emissions and fuel consumption in the NM inventory that were attributable to Class 8 diesel trucks, estimating the portion of the total fuel consumption that would be consumed during idling, and applying a targeted reduction of 80 percent to this amount starting in 2008 and a reduction of 100 percent starting in 2015.

- **Key Assumptions:**

This analysis will assume idle reductions are achieved only by Class 8 diesel truck population; these trucks idle for an average of 6 hours per day; they consume 0.8 to 1.2 gallons of diesel per hour during idling; and that a 80 (by 2010) or 100 (by 2020) percent reduction of diesel idling from these Class 8 trucks will be achieved.

The cost analysis assumes a 5-year lifetime for idling technology equipment, applied to 80 percent of Class 8 vehicles starting in 2008 and 100 percent of Class 8 vehicles starting in 2015, at a cost of $6,000 per vehicle and a $2.40 per gallon diesel cost.

Program administration costs, enforcement costs, and fines have not been factored into the cost analysis. Reduced vehicle maintenance costs have not been factored into the analysis.

Key Uncertainties:

A small additional reduction in idling emissions could be achieved by buses, as well as other diesel trucks and gasoline vehicles and trucks that has not been quantified here.

The distribution of technology that would be selected by these trucks or fleets to reduce their emissions is highly uncertain. This will have a significant impact on the overall cost/cost savings of this measure. The use of these technologies will also cause a slight decrease in the CO2 and fuel consumption reductions achieved. The use of truck stop electrification would increase emissions from electricity generation.

Equipment cost and lifetime will vary by technology employed. The cost value selected was based on cost data summarized by American Transportation Research Institute, representing the capital costs of a variety of idle reduction technology. The cost of

$6,000 per vehicle represents a mix of higher and lower technology costs. The cost analysis does not take into account the number of vehicles that have already installed idle reduction technologies.

Ancillary Benefits and Costs, if applicable:

Reductions in idling will also reduce emissions of toxics, NOx, and PM. California estimates that 70 percent of toxic risk comes from diesel engines.

Idle emission reductions will reduce fuel consumption, thus leading to a cost benefit from reduced operating costs.

Additional costs are associated with on-board idle reduction technologies, but fuel savings over time typically lead to a net savings.

Feasibility Issues, if applicable:

Status of Group Approval: Pending

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):