



Eliminating Unnecessary Idling of On-road Heavy Duty Vehicles

North Carolina Division of Air Quality

Stakeholder Kickoff Meeting

Raleigh, NC

May 28, 2008



Welcome and Introductions

Sheila Holman
Planning Section Chief



Introduction to the Stakeholder Process

Mike Abraczinskas
Rules Development Branch Supervisor



Introduction to the Stakeholder Process

- **Stakeholders are key to a successful rule**
- **Dynamic process to encourage increased knowledge and understanding**
- **Objective is to craft a reasonable, fair and effective rule that improves air quality**
- **Looking for a behavior change... that improves air quality**



Background

15A NCAC 02D .1009

- **NCDAQ adopted the California on-road heavy-duty diesel (HDD) regulations by reference in 2004 as a backstop in case USEPA delayed or relaxed their HDD regulations.**
- **In 2006 California amended the rule that is referenced in 02D .1009**
 - **Requires automatic engine idle shutdown systems (AESS) for 2008 and later model year HDD engines**



Background

15A NCAC 02D .1009

- **Engine Manufacturers Association (EMA) presented concerns with the AESS element of the rule**
- **“Low idle NOx” certified engine option is not available yet... Will be by end of 2008**



Background

15A NCAC 02D .1009

As a result of meetings with the EMA, NCDAQ proposed a conditional agreement to defer enforcement of the AESS until December 31, 2009 as long as the EMA and engine manufacturers agreed to:

- 1. Assist NCDAQ in the development of an operator idle rule for HDD**
- 2. Supply “low idle NOx” certified engines to NC when certified by CARB**
- 3. Comply with the USEPA 2010 HDD engine standards**



Idle reduction program

02D .1009 AESS or “low NOx” for HDD

02D .1010 Operator rule

**Goal: Eliminating Unnecessary Idling of
On-road Heavy Duty Vehicles**



Agenda

- ✓ **Introduction and Background**
 - **Air Quality Overview**
 - **Purpose for an Idling Reduction Program**
 - **Pre-Draft Rule**
 - **Outreach and Enforcement**
 - **Discussion**
 - **Next Steps**



Air Quality in North Carolina

Laura Boothe

Attainment Planning Branch Supervisor



Air Quality in NC

- **National Ambient Air Quality Standards (NAAQS)**
 - **Ozone**
 - 7 Counties are still designated as nonattainment for the 1997 8-hour ozone standard of 0.08 ppm (monitors in only 2 of those counties continue to violate the 0.08 ppm standard.)
 - **PM2.5**
 - 3 Counties are still designated as nonattainment for the 1997 fine particulate matter (PM2.5) annual standard of 15.0 ug/m³ (monitors in only 2 of those counties continue to violate the 15.0 ug/m³ annual standard.)



New Ozone Standard

- **On March 12, 2008, USEPA promulgated new ozone standards**
- **Primary: 0.075 ppm**
 - **Based on the 3-year average of the annual 4th highest daily maximum 8-hour average**
- **Secondary: same as primary**



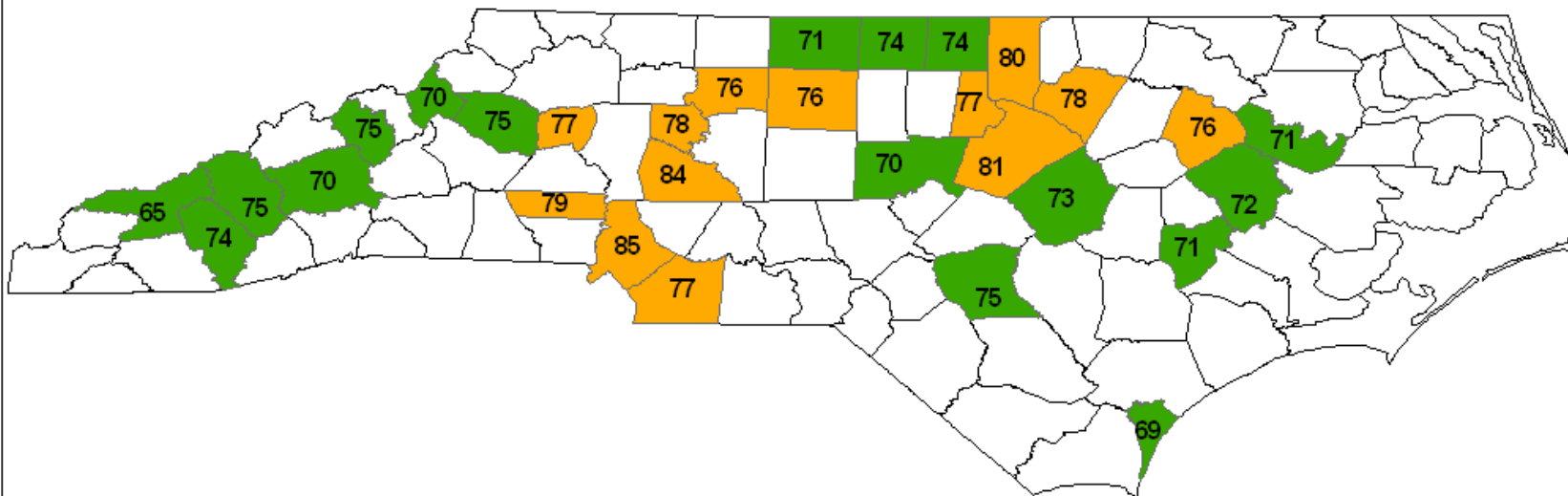
New Ozone Standard - Schedule

- **March 12, 2008 – Standard Promulgated**
- **March 12, 2009 – State recommends boundaries for nonattainment areas based on 2006-2008 data**
- **March 12, 2010 – EPA designates nonattainment areas based on either 2006-2008 or 2007-2009 data**
- **Attainment dates based on severity of ozone problem**

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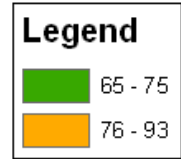


2009 Ozone Projections from VISTAS/ASIP Modeling.



This map displays counties with monitors only and does not represent potential nonattainment area boundaries.

Designations will be based on 2007-2009 ambient data.



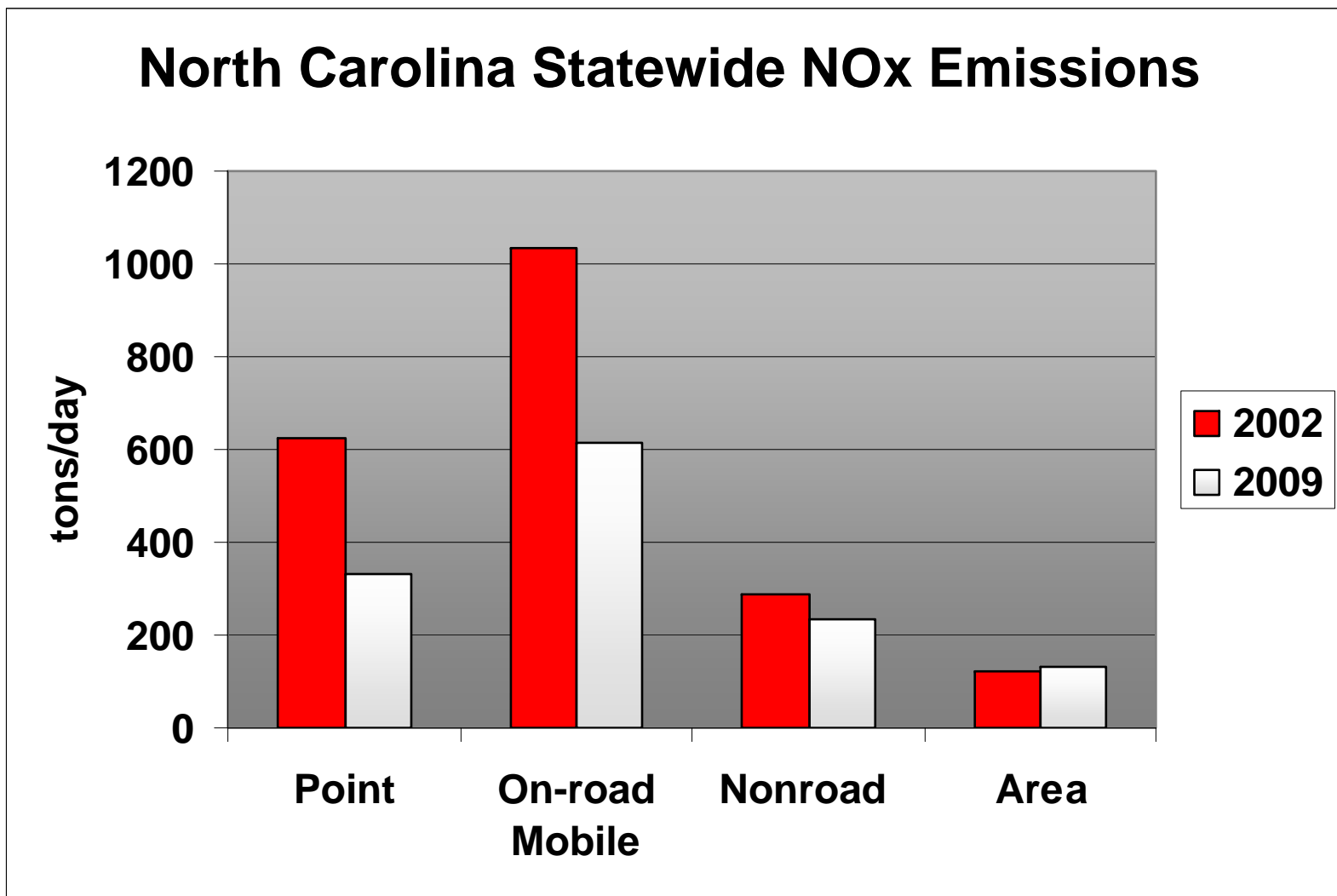


New Ozone Standard - Strategies

- **How are we going to meet the new standard?**
 - **Most significant features “low hanging fruit” are already underway, including:**
 - **Clean Smokestacks Act**
 - **Vehicle emissions testing**
 - **Low sulfur fuels**
 - **Cleaner Engines**
 - **Model sensitivities have shown low-level (i.e. mobile source) NO_x reductions to be the most effective in getting future ozone reductions**
 - **2009 emission estimates show On-road mobile sources contribute ~50% of the Statewide NO_x**



2002 Typical & 2009 Emissions Comparison





PM2.5 Standard

- **Close to attaining the annual standard through the reduction in sulfur dioxide emissions from power plants.**
- **Still have concerns about localized diesel particulate matter.**
 - **May not impact an ambient monitor but still may cause health concerns to the public in the general area of the emissions.**
 - **DAQ has worked towards reducing the idling of school buses and continues to work on retrofitting school buses**



Purpose for an Idle Reduction Program in NC

Mike Abraczinskas
Rules Development Branch Supervisor



Purpose for an Idle Reduction Program in NC

- **Mobile sources contribute significantly to our ozone air quality problems**
- **Need to address current and future nonattainment areas**
- **Low hanging fruit has been picked**
- **Current strategy focuses on finding small reductions that will add up**
- **...Like idle reduction**



Idle Reduction Technologies Are Available !

- **Auxiliary Power Units (APUs)**
- **Diesel Driven Heating Systems**
- **Cold Storage - Air Condition System**
- **Automated Startup and Shutdown Systems**
- **Shore Power**
- **Building Refuge**

**See Appendix A of this document for a comprehensive list of
Idling Reduction Technologies:**

http://www.georgiaair.org/airpermit/downloads/mobilearea/SIP_Anti_Idling.pdf



Idle Reduction is a logical cost effective step to improving air quality in NC

- **U.S. EPA provides a cost savings example showing \$3,600 per year could be saved if a truck used an auxiliary power unit (APU)**
- **U.S. EPA is offering financial tools to help companies with the capital cost of APUs**

<http://www.smartwayfinancecenter.com/>

<http://www.epa.gov/smartway/>

- **Common goal of meeting and maintaining compliance with the NAAQS and reducing localized risks associated with fine particles and toxics from idling vehicles**



EXAMPLE Cost Savings Calculations

2600	idle hours/year
1	gal/hour
\$4.25	\$/gal
\$11,050.00	\$/year from idling

Note: Assumed 10 hours of idling per day for 260 days per year.

\$10,000	Cost of diesel APU
0.2	gal/hour
\$4.25	\$/gal
\$2,210.00	\$/year from running an APU

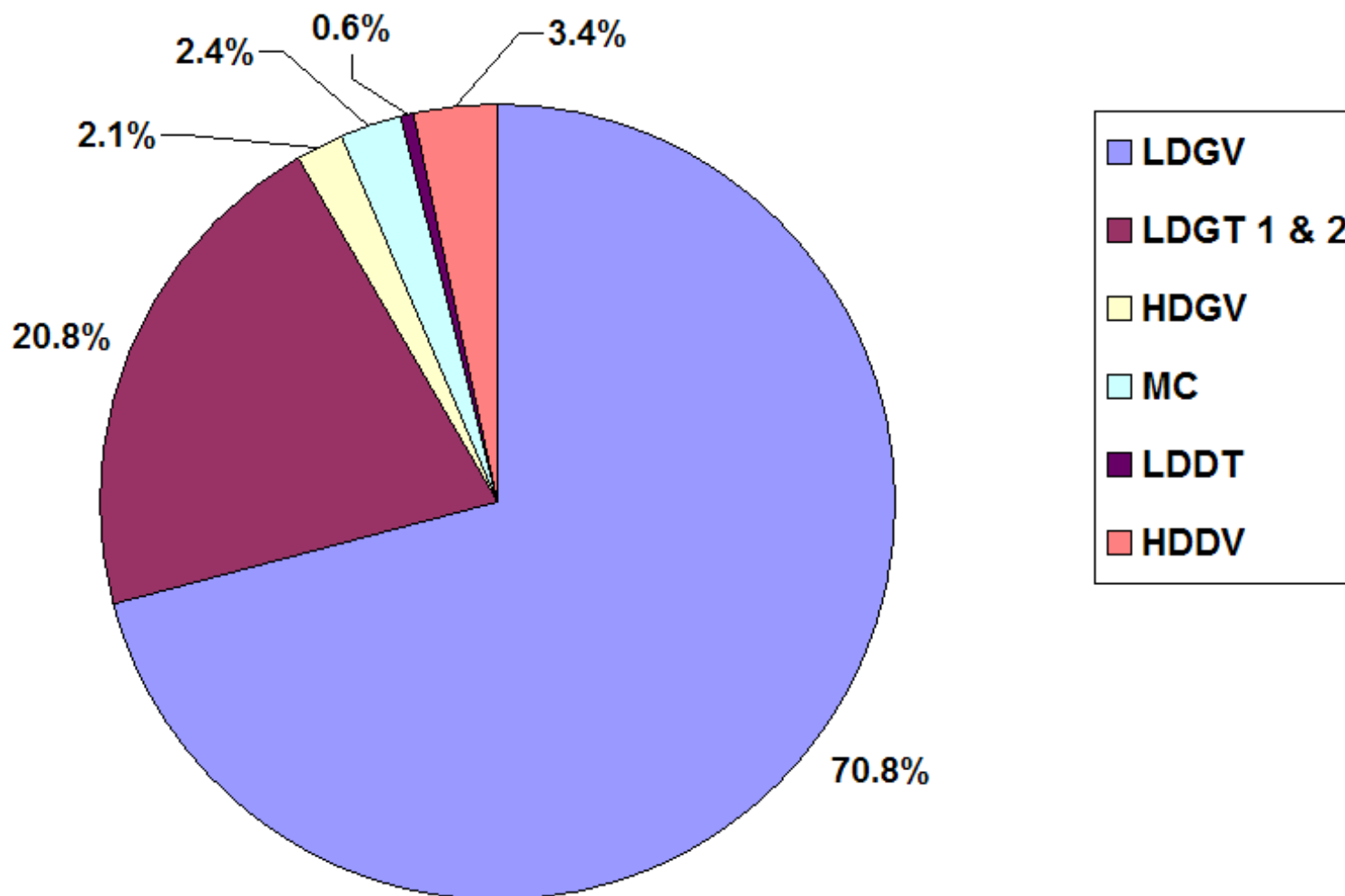
Note: Assumed average cost of diesel APU is \$10K.

\$8,840.00	\$/year fuel savings in year 1 of having an APU
1.13	Pay back period (years)
413	Pay back period (days)

Note: NCDQA will be drafting a fiscal note to support this rule-making effort over the coming months.



2006 North Carolina Vehicle Registration Distribution



Source: NCDOT

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HDV3 Class 3 Heavy-Duty Vehicles (10,001-14,000 lbs. GVWR)



HDV4 Class 4 Heavy-Duty Vehicles (14,001-16,000 lbs. GVWR)



HDV5 Class 5 Heavy-Duty Vehicles (16,001-19,500 lbs. GVWR)



HDV6 Class 6 Heavy-Duty Vehicles (19,501-26,000 lbs. GVWR)



HDV7 Class 7 Heavy-Duty Vehicles (26,001-33,000 lbs. GVWR)



HDV8A Class 8a Heavy-Duty Vehicles (33,001-60,000 lbs. GVWR)

HDV8B Class 8b Heavy-Duty Vehicles (>60,000 lbs. GVWR)



HDBS School Buses

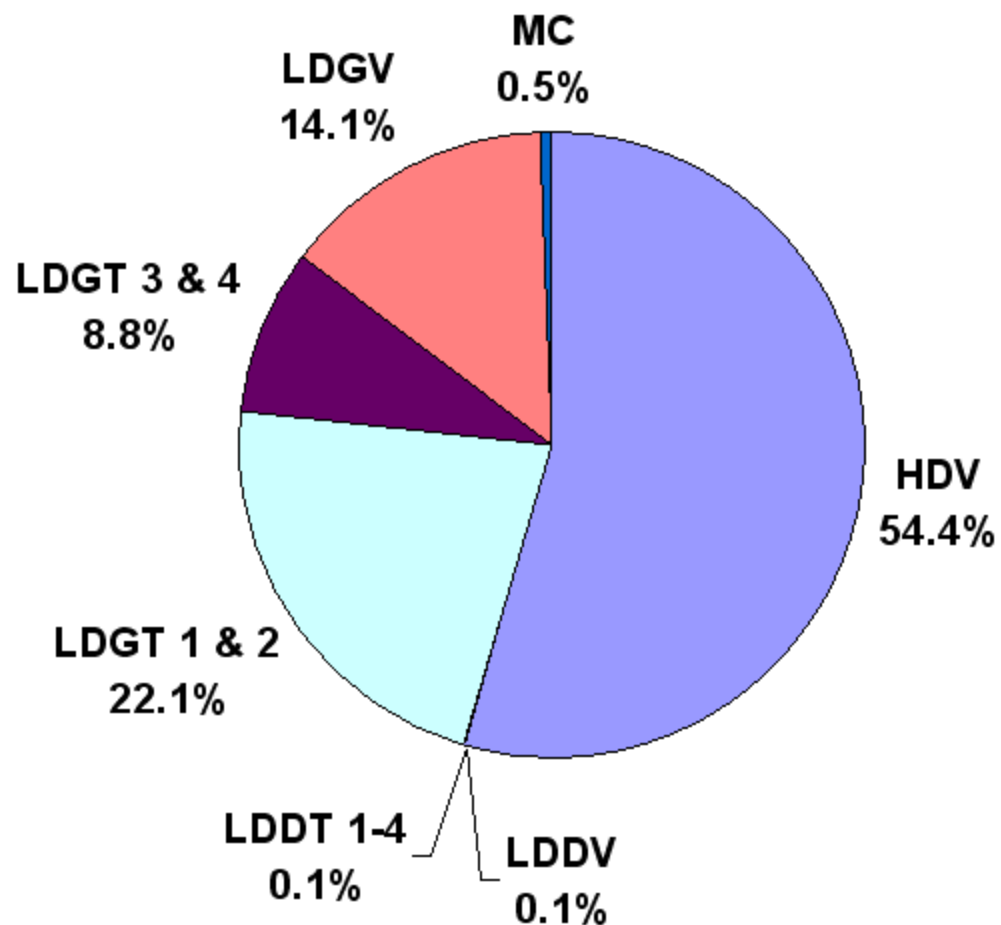


HDBT Transit and Urban Buses





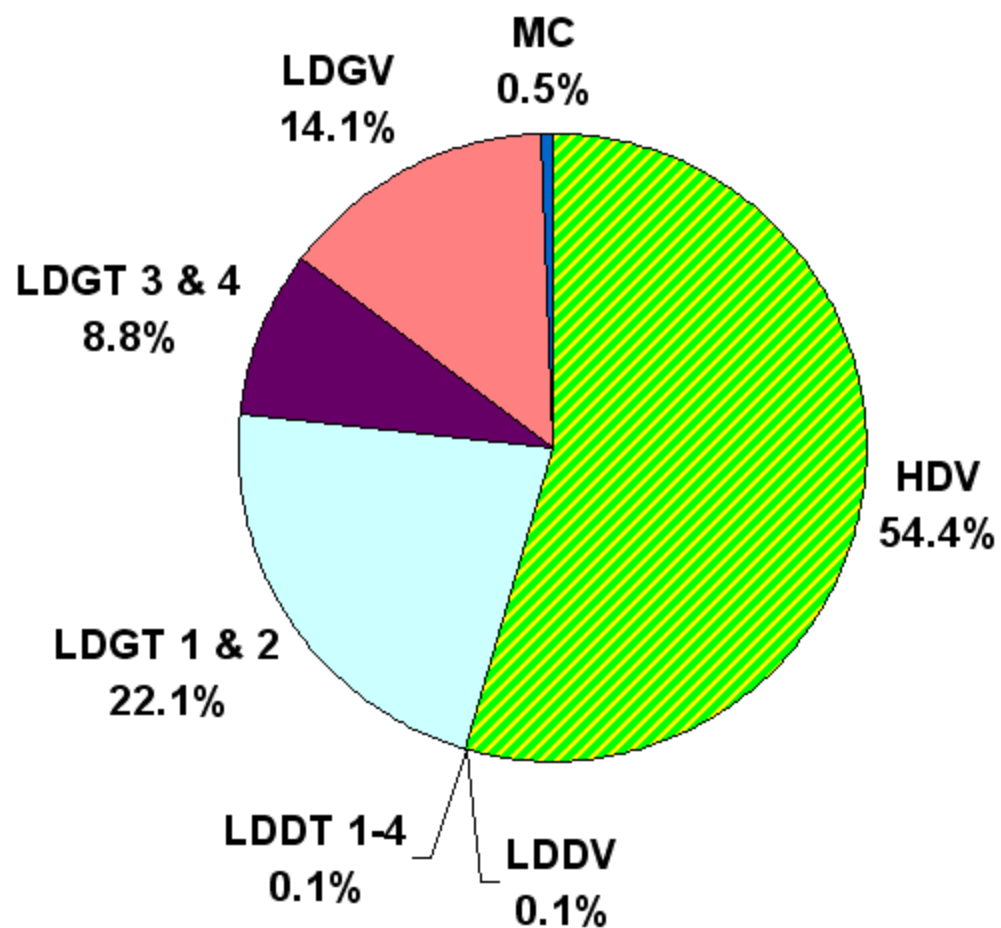
2009 NC On-road Mobile NOx emission estimates



Source: NCDAQ, VISTAS/ASIP modeling



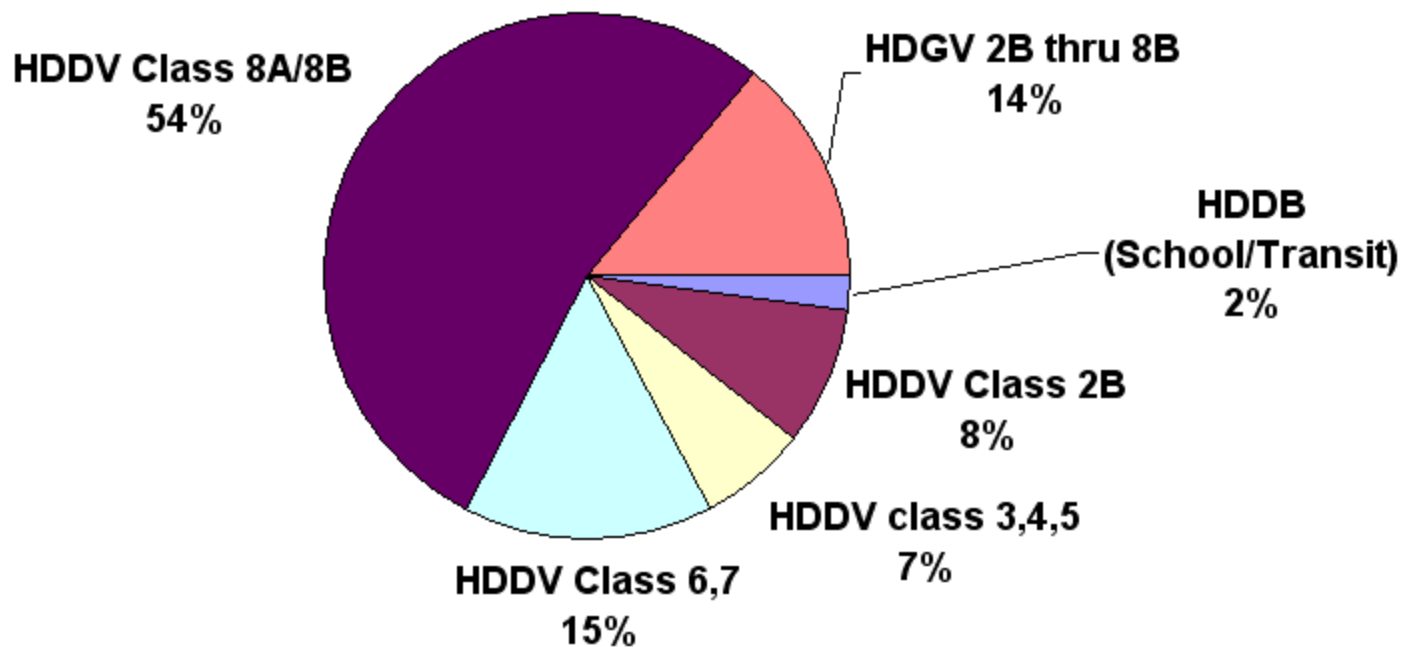
2009 NC On-road Mobile NO_x emission estimates



Source: NCDAQ, VISTAS/ASIP modeling



2009 NC On-road Mobile NO_x Emission Estimates Heavy-duty Vehicle Breakdown



Source: NCDAQ, VISTAS / ASIP modeling
Assumption: Regional average HDV distribution

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2009 On-road Mobile NOx Emission Estimates					
Vehicle Class	Diesel NOx tons/day	Gasoline NOx tons/day	Total NOx tons/day	% emissions from idling	Notes
HDDB (School/Transit)	7.5		7.5	5%	Engineering Estimate
HDDV class 3,4,5	21.1		21.1	5%	Engineering Estimate
HDDV Class 6,7	49.8		49.8	5%	Engineering Estimate
HDDV Class 8A/8B	172.4		172.4	3.40%	USEPA
HDGV 2B thru 8B		44.7	44.7	2.5%	Engineering Estimate
HDDV Class 2B	26.4		26.4		
LDDT 1-4	0.6		0.6		
LDDV	0.5		0.5		
LDGT 1 & 2		130.7	130.7		
LDGT 3 & 4		51.8	51.8		
LDGV		83.6	83.6		
MC		2.7	2.7		
			591.9		

2009 On-road Mobile Estimated NOx from Idling HDV's			
Vehicle Class	Total Idling NOx tons/day		
HDDB (School/Transit)	0.4		
HDDV class 3,4,5	1.1		
HDDV Class 6,7	2.5		
HDDV Class 8A/8B	5.9		
HDGV 2B thru 8B	1.1		
	10.9		

**If the rule reduces idling by 70%, then the NOx emissions benefit would be:
 $10.9 \text{ tons/day} * 0.7 = 7.6 \text{ tons/day}$**



Summary

- **Low hanging fruit has been picked**
- **Idle reduction is cost effective, but capital investment (APUs) is needed**
- **Idle reduction will reduce emissions and coupled with other strategies will help NC meet the NAAQS.**



Pre-Draft Rule

Mike Abraczinskas

Rules Development Branch Supervisor



Pre-Draft Rule

- **Applicability**
- **Definitions**
- **Exemptions**
- **Requirements**



Pre-Draft Rule

- **Applicability**
 - **The requirements of this rule shall apply to heavy-duty vehicles powered in-part or entirely by an internal combustion engine.**



Pre-Draft Rule

- **Definitions**

- **“Auxiliary power unit” means a mechanical or electrical device affixed to a vehicle that is designed to be used to generate an alternative source of power for any of the vehicle’s systems other than the primary propulsion engine.**



Pre-Draft Rule

- **Definitions**
 - **“Emergency vehicle” means any vehicle that is legally authorized by a governmental authority to exceed the speed limit to transport people and equipment to and from situations in which speed is required to save lives or property, such as a rescue vehicle, police vehicle, fire truck or ambulance.**



Pre-Draft Rule

- **Definitions**

- **“Gross vehicle weight rating”** means the weight specified by the manufacturer as the loaded weight of a single vehicle.
- **“Heavy-duty vehicle”** means a motor vehicle (excluding trailer(s)) with a gross vehicle weight rating of 10,001 pounds or greater.
- **“Idling”** means the operation of a motor vehicle’s propulsion engine while the vehicle is stationary.



Pre-Draft Rule

- **Definitions**

- **“Military vehicle” means a motor vehicle owned by the U.S. Department of Defense.**
- **“Motor vehicle” means any self-propelled vehicle used for transporting property or persons.**
- **“Passenger bus” means any bus, including school buses, which are designed to carry sixteen or more passengers.**



Pre-Draft Rule

- **Definitions**

- **“Person” as defined in Rule 02D .0101 of this Section.**

- *from 02D .0101: "Person" as defined in G.S. 143-212 includes any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or its legal representative, agent or assigns.*



Pre-Draft Rule

- **Definitions**
 - **“Power take off” means providing power from the motor vehicle’s propulsion engine to a trailer or other equipment.**



Pre-Draft Rule

- **Exemptions**
 - **Heavy-duty vehicles may idle if they remain motionless due to:**
 - **traffic conditions**
 - **official traffic control devices or signals**
 - **Congestion**
 - **or at the direction of a law enforcement official**



Pre-Draft Rule

- **Exemptions**
 - **Emergency vehicles may idle while performing an emergency or training function**
 - **Military vehicles are exempt**



Pre-Draft Rule

- **Exemptions**
 - **Heavy-duty vehicles may idle to provide power take off for:**
 - Refrigeration of cargo
 - Processing of cargo
 - Dumping
 - Lifting
 - Hoisting
 - Drilling
 - Mixing
 - Loading or unloading
 - And other necessary operations requiring power take off



Pre-Draft Rule

- **Exemptions**
 - **Heavy-duty vehicles may idle for maintenance, inspection, servicing, repairing, or diagnostic purposes, if idling is required for such activity**



Pre-Draft Rule

- **Exemptions**
 - **Heavy-duty vehicles with an occupied sleeper berth compartment may idle for the purposes of air conditioning or heating during federally mandated rest or sleep periods.**
 - **This exemption shall expire on May 1, 2010**



Pre-Draft Rule

- **Exemptions**
 - **Auxiliary power units are exempt**
 - **Heavy-duty vehicles with a primary diesel engine meeting the NOx idling emission standard in Title 13, of the California Code of Regulations, Section 1956.8(a)(6)(C)**



Pre-Draft Rule

- **(d) Requirements**
 - **(1) No person who owns, operates or leases a heavy-duty vehicle or who owns, leases or occupies land and has the actual or apparent dominion or control over the operation of a heavy-duty vehicle on such land shall cause, let, permit, suffer or allow idling for a period of time in excess of 5 consecutive minutes in any 60 minute period**



Pre-Draft Rule

- **(d) Requirements**
 - **(2) A passenger bus shall meet the requirements in (d)(1), except when temperatures are below 50 degrees Fahrenheit or above 80 degrees Fahrenheit, a passenger bus may idle up to 15 minutes in any 60 minute period to provide heating or air conditioning when non-driver passengers are on board the vehicle**



Pre-Draft Rule

- (d) Requirements
 - (3) Signage



NCDAQ is exploring options:

- Should it be a requirement for certain locations where heavy-duty vehicles are idling most often?
- Or should signage be an element of NCDAQ's enforcement and outreach effort?

Note: Example signs from the State of New Jersey



Outreach and Enforcement

Brian Phillips

**Mobile Source Compliance Branch
Supervisor**



Enforcement Concept

- **Observation or compliant**
 - **1st time offender**
 - **Informational letter / Warning**
 - **If a commercial property owner, must put up a “No Idling Zone” sign**
 - **NCDAQ will provide the sign**
 - **2nd offense**
 - **Notice of Violation**
 - **Potential penalty**



Outreach Ideas

- **NCDAQ identifies locations where many vehicles may be frequently idling**
 - **Truck stops, rest areas, distribution centers, etc.**
- **NCDAQ provides “No Idle Zone” signs and brochures for these locations**



Outreach Ideas

- **Sign might be a 12” x 18” reflective aluminum sign**
- **Available in English and Spanish**



Discussion

Sheila Holman

Laura Boothe

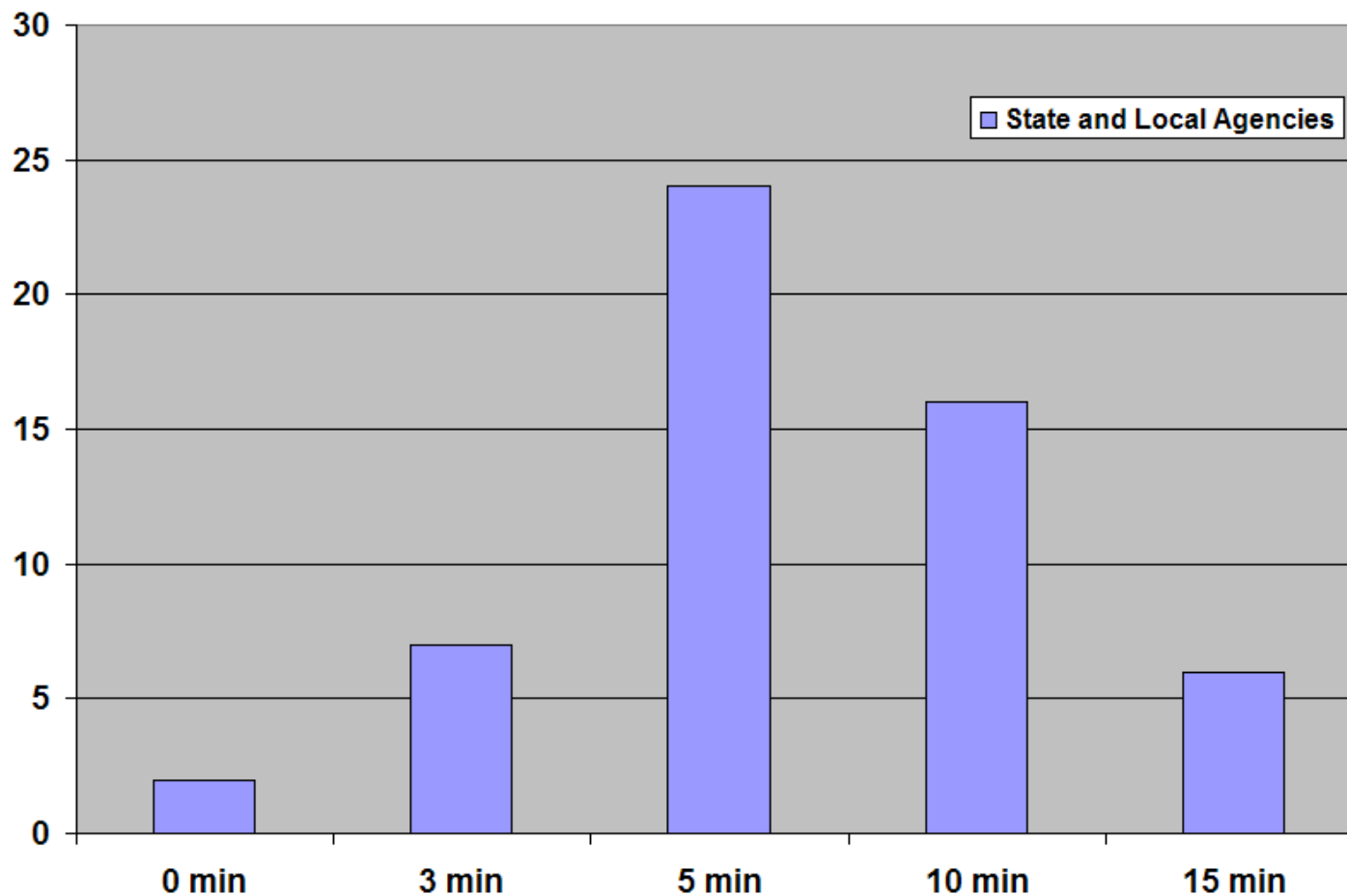
Mike Abraczinskas

Brian Phillips



Idle Time 5 minutes OK?

Idle Rule Time Restrictions





Questions for you...

- **Heavy-duty On-road w/ GVWR > 10,000 lbs ?**
- **Allow “low-NOx” engines to idle ?**
- **Do we have the right Stakeholders here?**



Next Steps

- **Goal is to have a consensus product to take to the Air Quality Committee (AQC) in September.**
- **Please submit comments on this “pre-draft” by June 20, 2008**

Michael.Abraczinskas@ncmail.net

- **You will have another opportunity to comment during the official public comment period (Dec 2008/Jan 2009)**



Timeline

DRAFT Timeline for rule-making

Rule Concept to AQC	March 2008
Stakeholder Meeting	May 28, 2008
Pre-draft comments	June 20, 2008
Draft Rule to AQC	September 2008
Draft Rule to EMC	November 2008
Public Hearing	January 2009
State Effective Rule	May 2009



Contact Information

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