

Diesel Emission Reduction Strategy for Non-Road Engines

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**Metro
Vancouver**



Fraser Basin Council presents

BC CLEAN AIR FORUM 2009

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Health & Environmental Effects

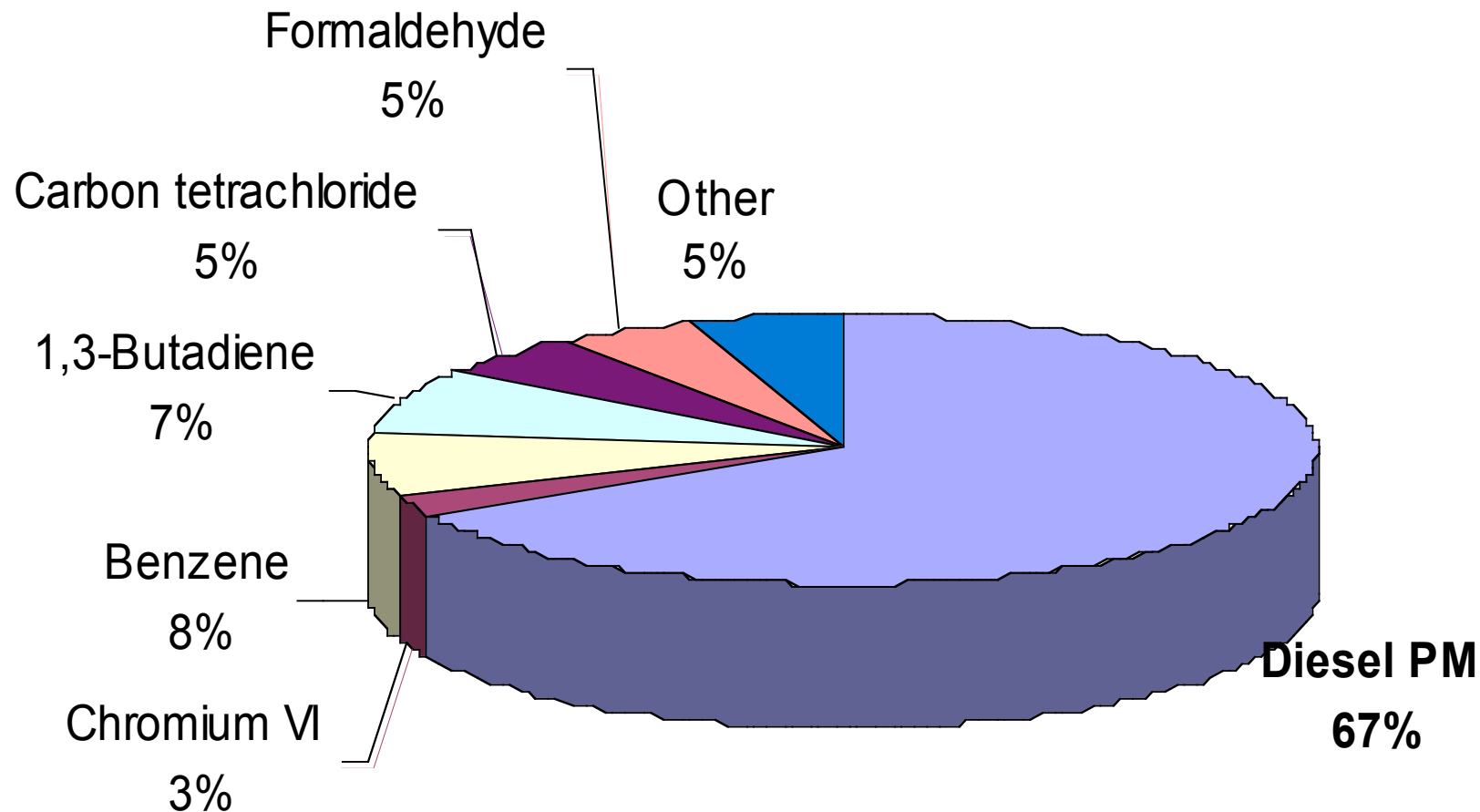
Diesel Particulate Matter causes*

- Premature Deaths
- Lung Cancer
- Decreased Lung Function
- Chronic Bronchitis
- Respiratory & Cardiovascular Hospitalizations
- Lost Workdays
- Reduction in Visibility
- Global Warming (2nd to Carbon Dioxide)

*California Environmental Protection Agency

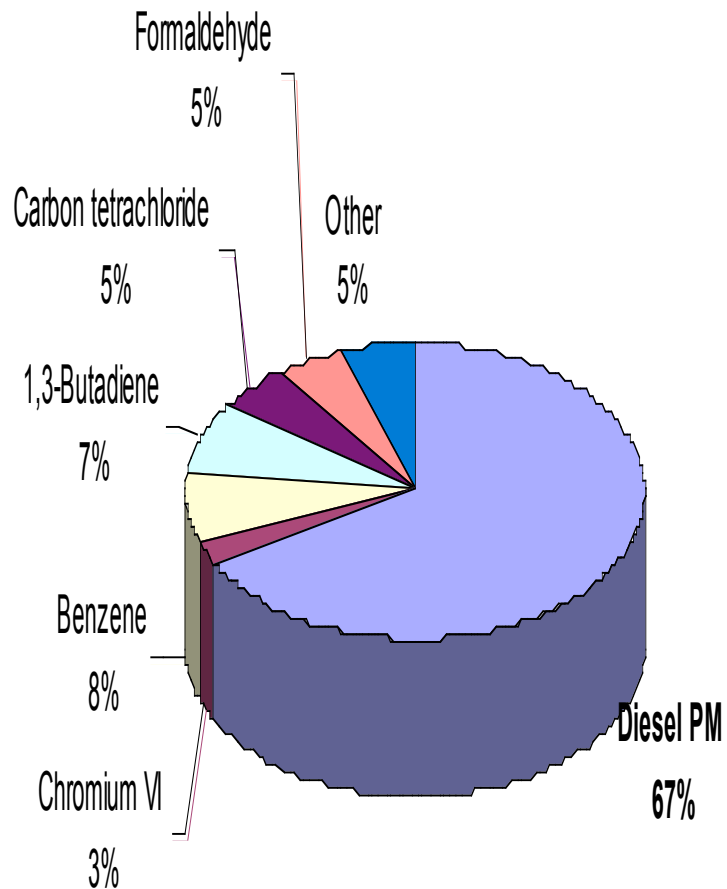
Air Contaminant Cancer Risks

Apportionment of Lifetime Cancer Risk from Emissions of Air Toxics in Metro Vancouver (overall risk 526 per million)

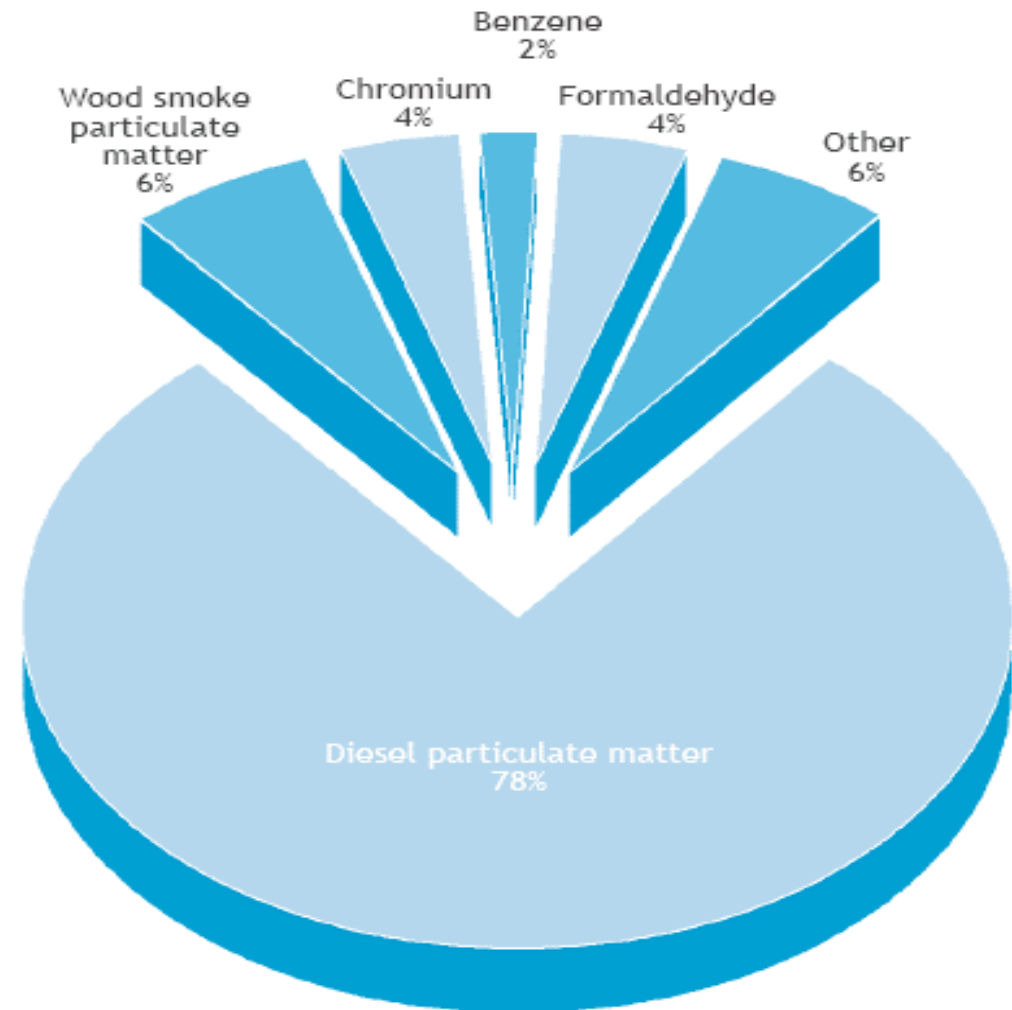


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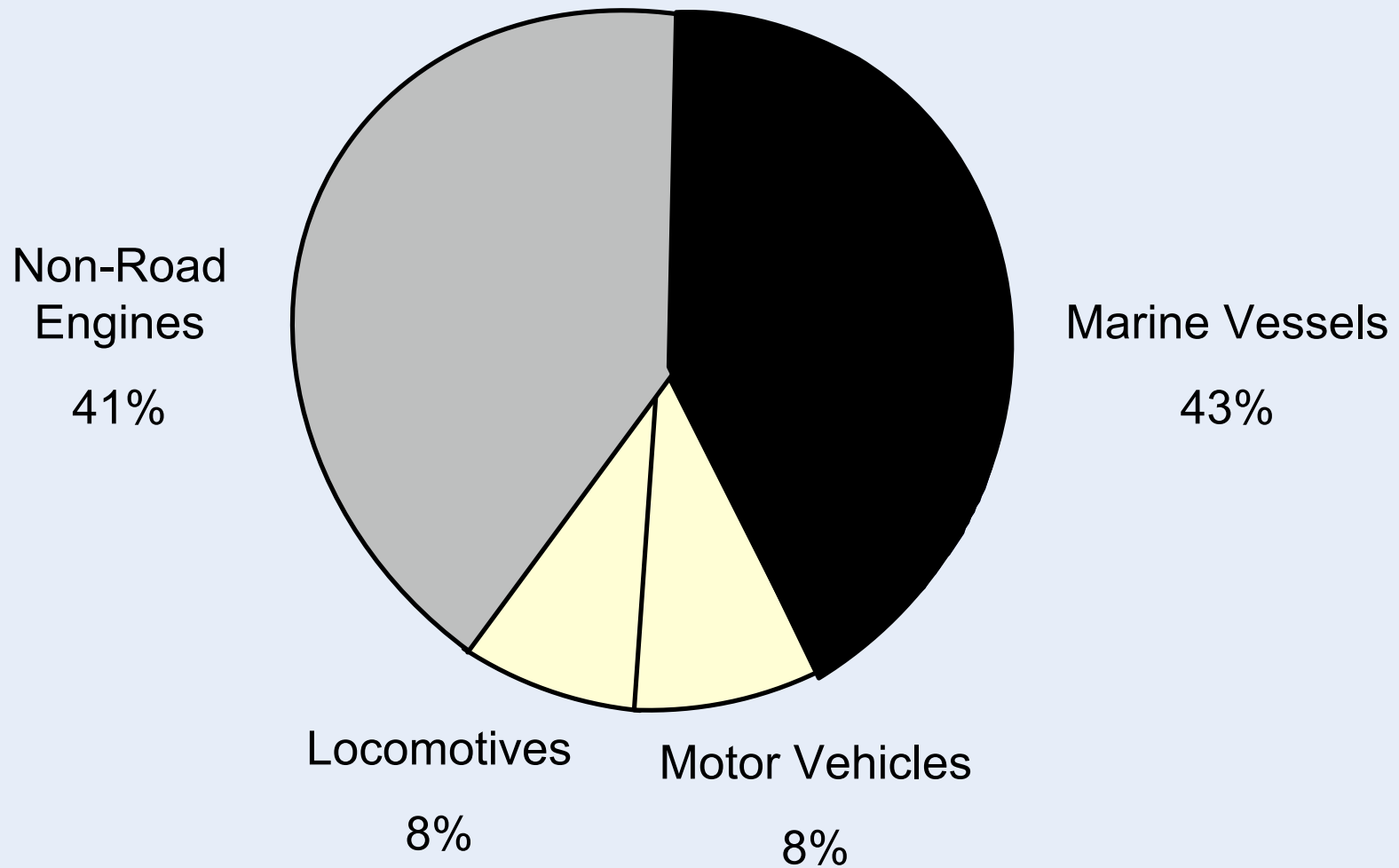


Greatest air toxics contributors to potential cancer risk**



**Puget Sound Air Toxics Evaluation, 2003

Diesel PM Emissions in Metro Vancouver



Why is MV Focusing on Existing Non-Road Engines

- Feds/Province addressing other sources
- Emission standards only for new engines
- Engines last a long time (30+ years)
- More amenable to local regulation
- Regional focus is protection of human health
- Existing Non-Road engines represent greatest health threat due to:
 - Quantity of emissions
 - Emission proximity to people (exposure)

Human Exposure



Objective & Strategy

Objective:

Reduce Harmful Non-Road Diesel Emissions

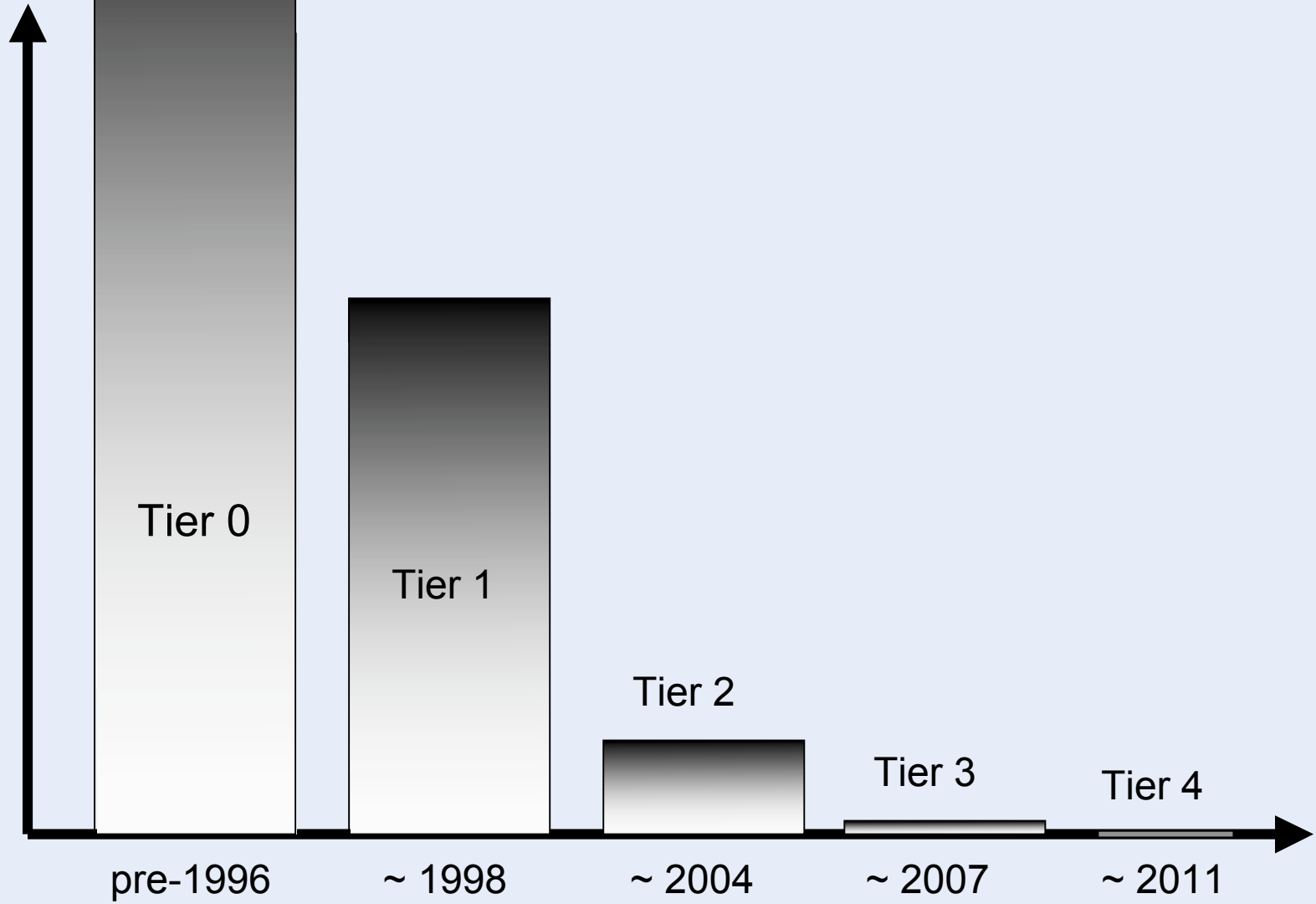
- How much? - 50,60,70+%
- How Quickly? - 5,7,10 years

Strategy:

- Regulatory Initiative
- Economic Incentives

Tiers

Diesel Particulate Emissions



Regulatory Options

- California Model, mandate
 - Declining Fleet average emission rate (gPM/bHP-hr) or
 - Horsepower-hour Retrofit/Repower/Replacement rate
- Low Emission Zone model
 - Tighter standards for densely populated areas
 - Standards increase in all areas over time
- Economic Instrument Model
 - Charge fees for private sector high emitting vehicles
 - Fees go towards emission reduction fund

Economic Incentive Options

- Contractual
 - Government contracts could require equipment providers to meet emission standards
 - Government contracts could provide selection points or financial bonuses for cleaner emitters

- Retrofit funds
 - Use fees from Economic Instruments to create emission reduction fund
 - Government provide (stimulus) funding for emission reductions

- Benefit estimates per \$1 spent on non-road retrofits
 - \$13 health benefits
 - \$6 economic activity

PAY NOW

OR

PAY LATER

