Rational decisions by individuals acting independently will deplete a shared resource.
Oregon Clean Diesel Initiative
Oregon Clean Diesel Initiative
• Diesel exhaust is a complex mixture of gases and fine particles

• Engines have historically contributed significant amounts of NOx, particulate matter to air pollution
Portland Area Toxics Study

PATS 2017
MODELING RESULTS
DIESEL
PARTICULATE
MATTER
ALL SOURCES

- PATS Study Area boundary
- Benchmark contour (0.1 µg/m³)

Annual average concentration
- < ½X benchmark
- ½X - 1X benchmark
- 1X - 2X benchmark
- 2X - 3X benchmark
- 3X - 5X benchmark
- 5X - 10X benchmark
- > 10X benchmark

NOTE: Areas beyond the modeling domain (color-shaded region) are beyond the scope of this project.

REFERENCES:
Concentration data from DEQ Portland Air Toxics Study (PATS)
Basemap from Metro and ESRI data.
Climate Change Agents

Climate Forcings (W/m²): 1850-2000

From Hansen and Saito, 2001
or …when will the coldest temperatures in the future be hotter than the warmest temperatures than anyone has seen since your great, great grandparents were alive?"
Camilo Mora et al., *The projected timing of climate departure from recent variability*, Nature, October 2013
Dirty vs. Clean Diesel

Real time measurements of particulate matter pollution inside a car “chasing” a diesel refuse truck before and after retrofitting.

Courtesy of Clean Air Task Force
Economics of Diesel

$ 410 billion Diesel contribution to American economy

$ 296 billion Health/environmental impacts associated with highway, nonroad, marine and locomotive diesel vehicles
Economics of Clean Diesel

Per vehicle:
- Filter costs: $16,000
- Environmental/Public health costs: $52,000

@ 1500 hr/yr

Social Return on Investment:
Environmental/Public health breakeven - less than 5 months
Clean Diesel Projects
Progress to date
Projected Diesel PM Risk in Oregon

Cancer risk per million

Reduce risk to 1 in 1 million by 2017

1996 2002 2010 2017 2018 2026
Oregon Clean Diesel Initiative

- Benefits are disbursed and in the future
- Solutions come at a cost
- Can require substantial effort
- Legacy problem
- Voluntary vs. regulatory
Oregon Clean Diesel Initiative

- Addresses a serious need
- Solution readily available
- Cost effective
- Substantial gains in protecting public health and the environment
Is exposure to diesel exhaust a public health concern?

Is this an issue that you can contribute a resolution to?

What can you do to help?