

# The air we breathe

The state of Minnesota's air quality 2017

TAB Technical Advisory Committee

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# Key take-aways

- ≈ Air quality affects our health
- ≈ There are inequities in exposure and health outcomes
- ≈ Minnesota's air quality is good, but more is needed to protect our most vulnerable
- ≈ Most air pollution in MN comes from our everyday activities

# AIR QUALITY AFFECTS OUR HEALTH

# Health impacts of air pollution

Air pollutants can have a serious impact on human health. Children and the elderly are especially vulnerable.



## Cardiovascular

- Chest tightness
- Heart attacks
- Stroke



## Respiratory

- Wheezing
- Cough
- Asthma attacks
- Infections
- Reduced lung function



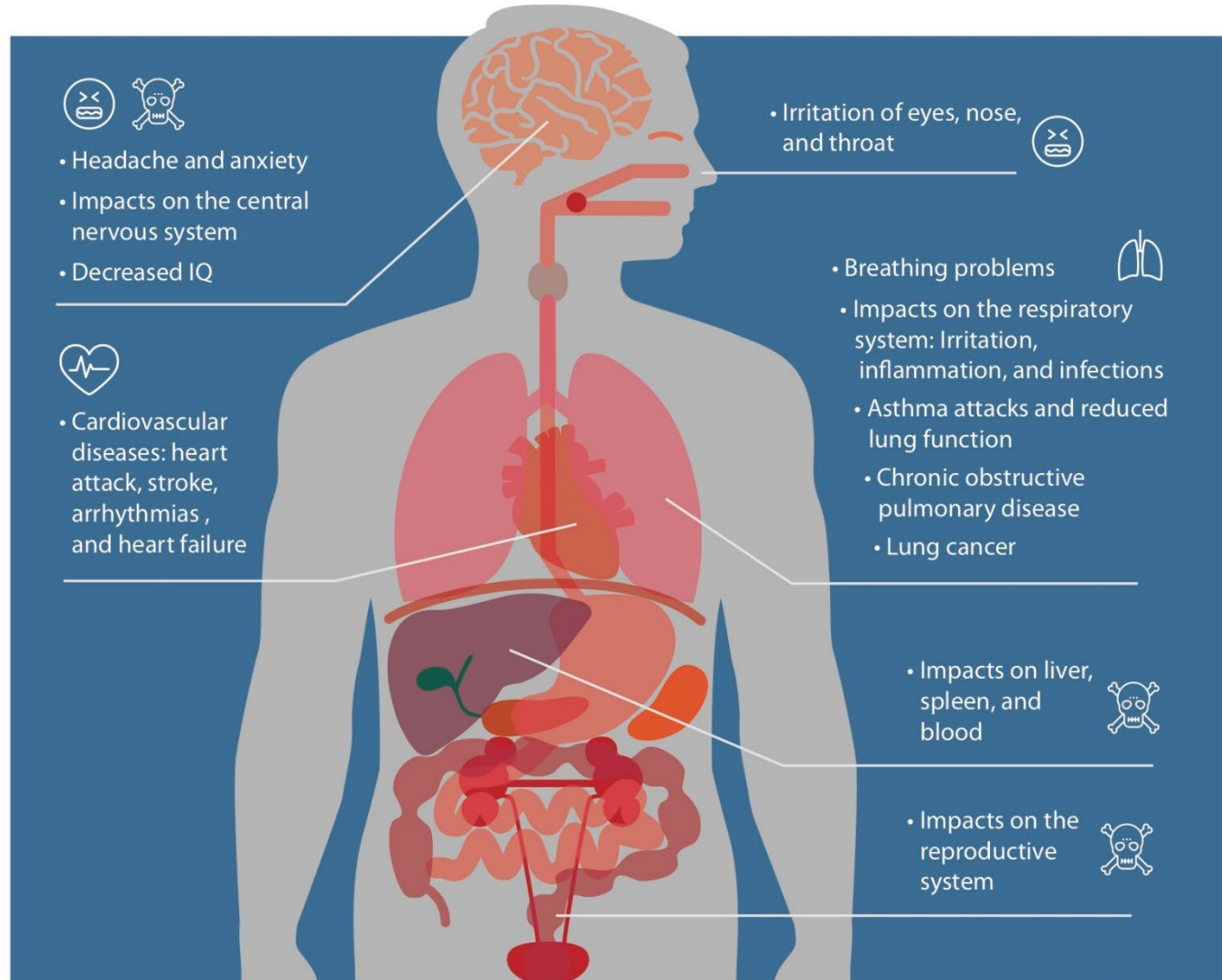
## Irritation

- Scratchy throat
- Runny nose
- Watery eyes
- Excess mucus



## Toxic effects

- Nerve damage
- Decreased organ function
- Birth defects
- Cancer

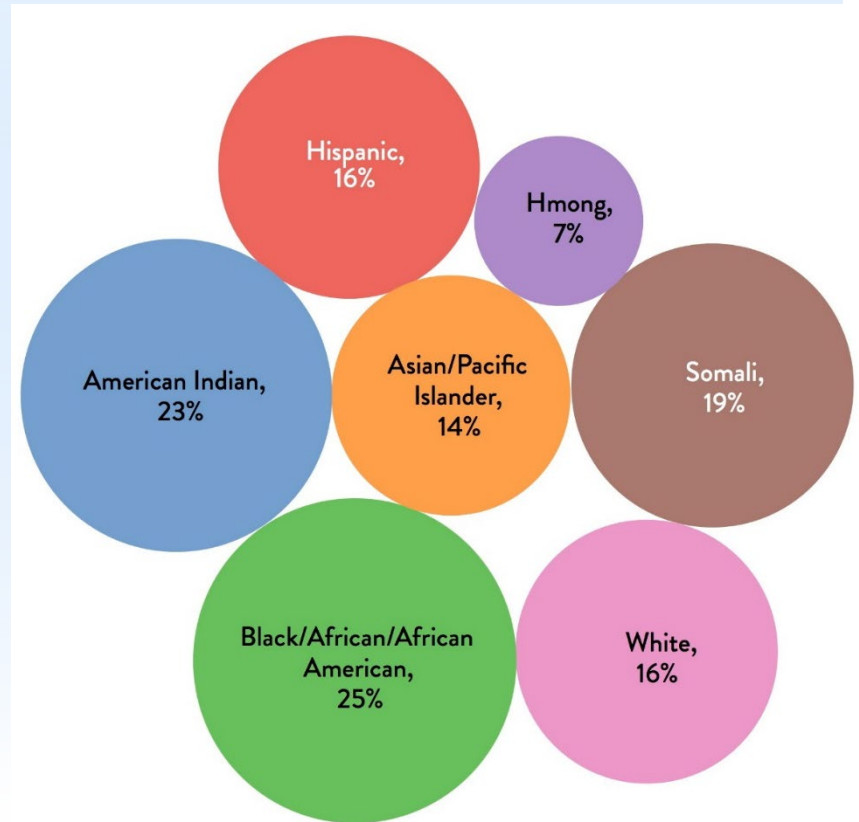


# Who is affected by air pollution?

- ≈ Anyone, especially on bad air days
- ≈ Some people are more affected than others:
  - ≈ People with heart and lung conditions
  - ≈ The elderly
  - ≈ Children
  - ≈ People who are active outdoors

# Environmental justice

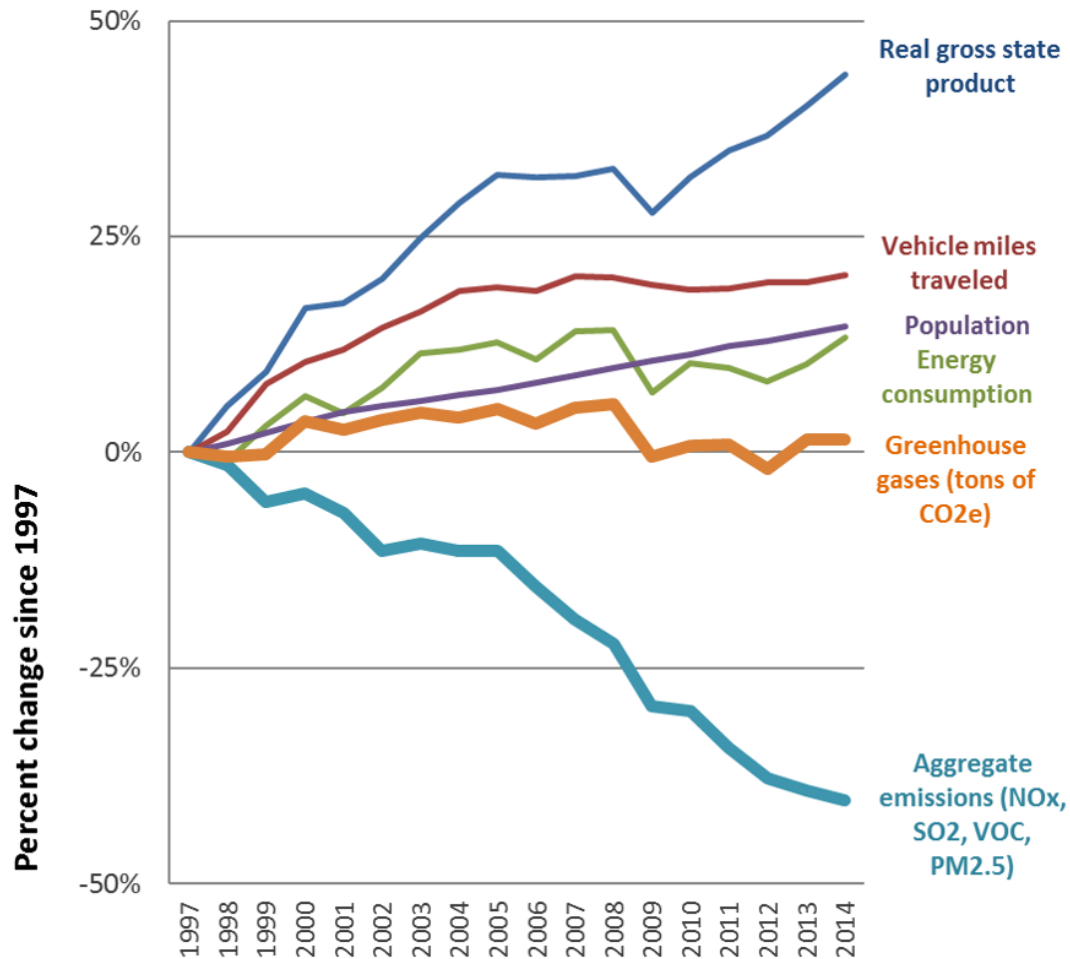
- ≠ Inequities in exposure and health outcomes for some groups
  - ≠ People of lower income
  - ≠ People of color



Percentage of 8<sup>th</sup> graders diagnosed with asthma by race/ethnicity in MN

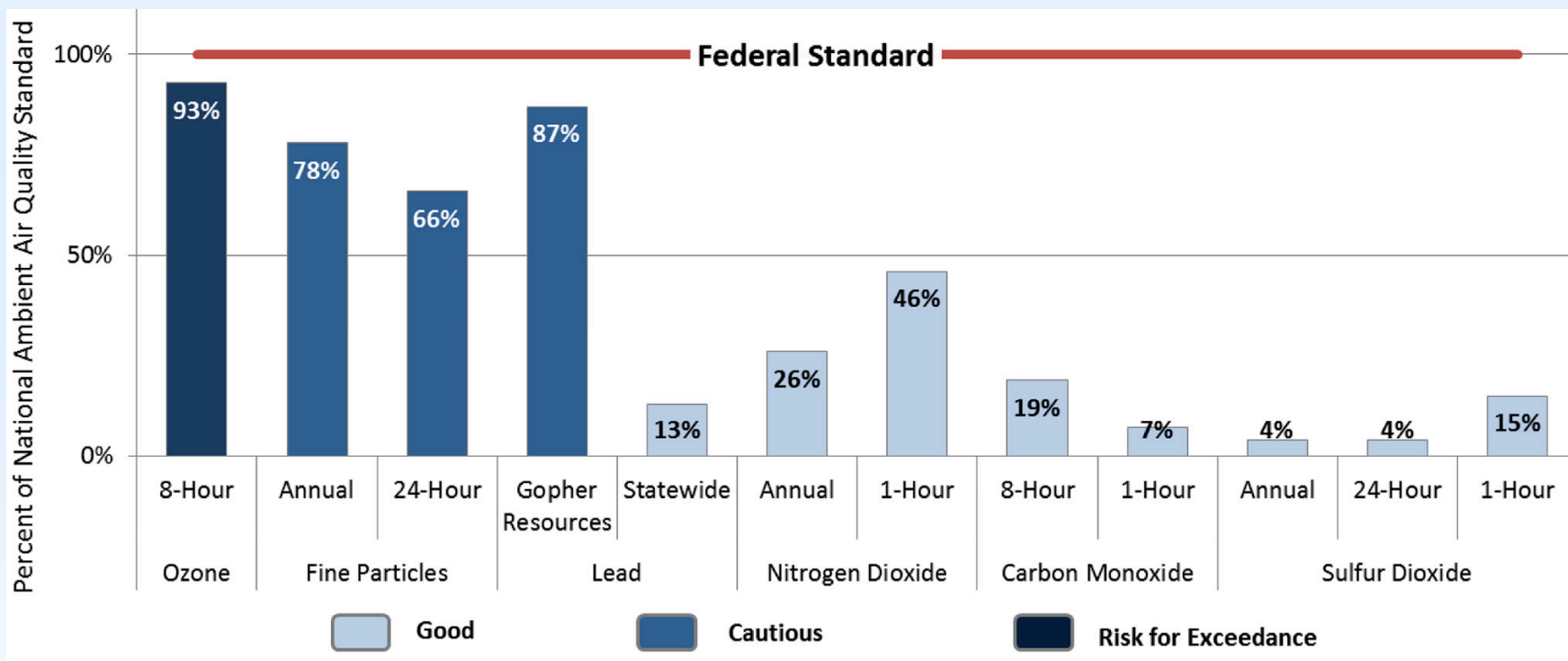
# MINNESOTA'S AIR QUALITY

# Air pollution and our economy



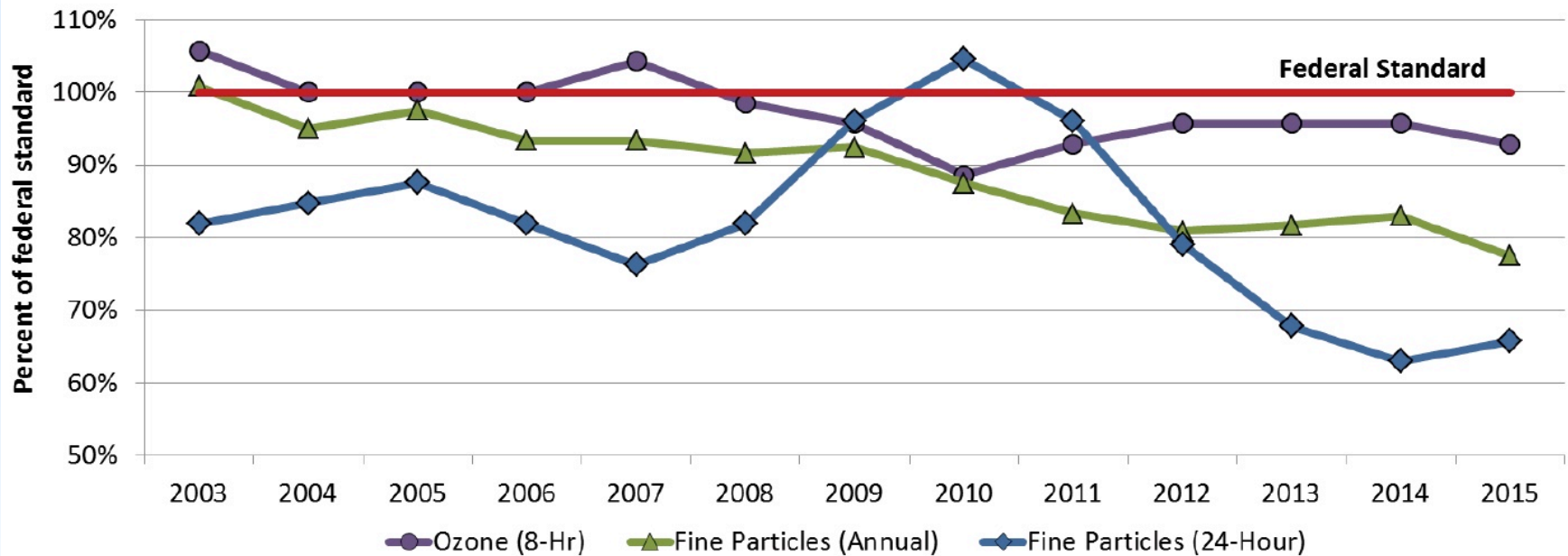


# Federal standards



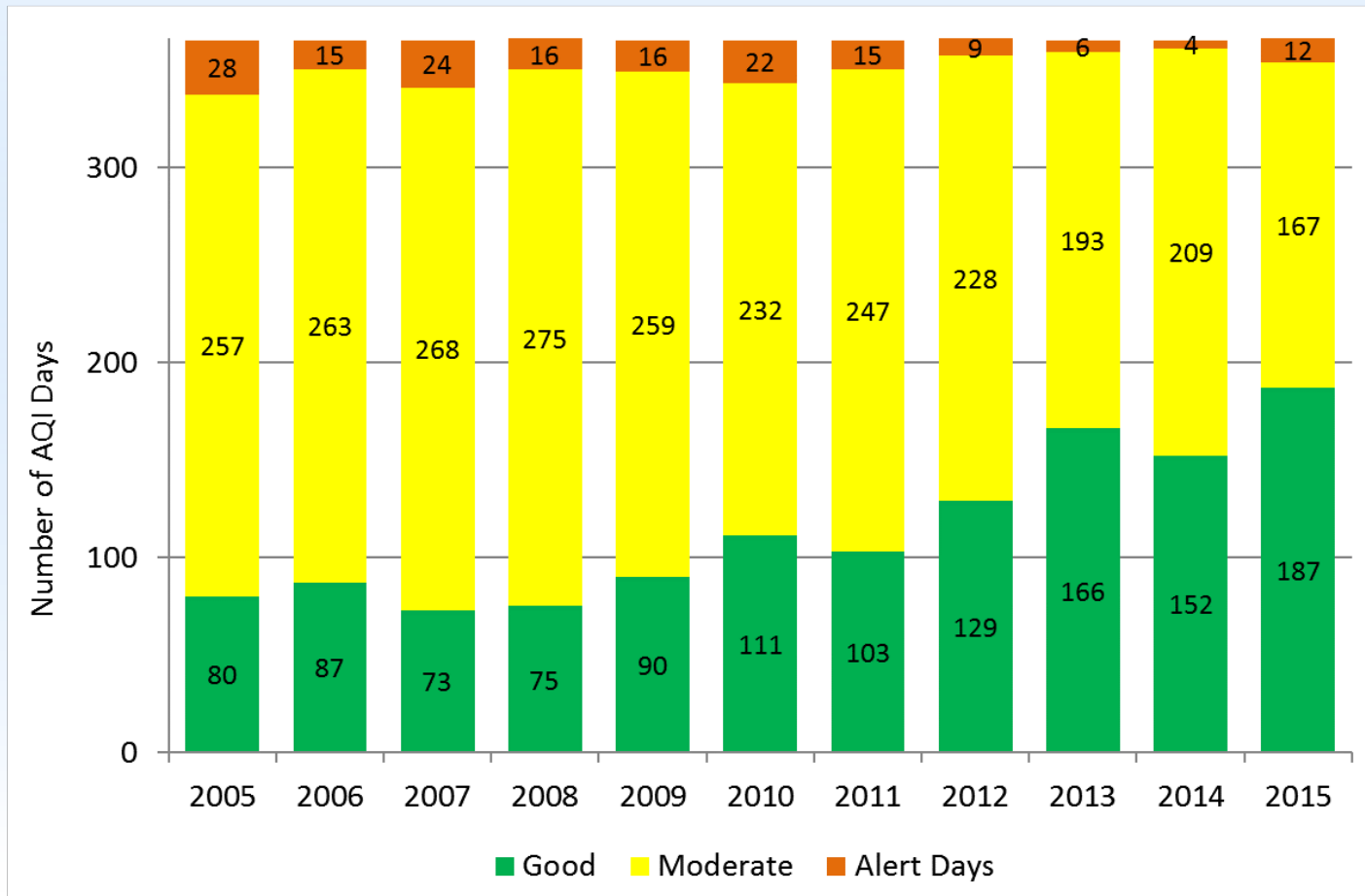
# Ozone and fine particles

Trends in ozone and fine-particle pollution levels (2003-2015)

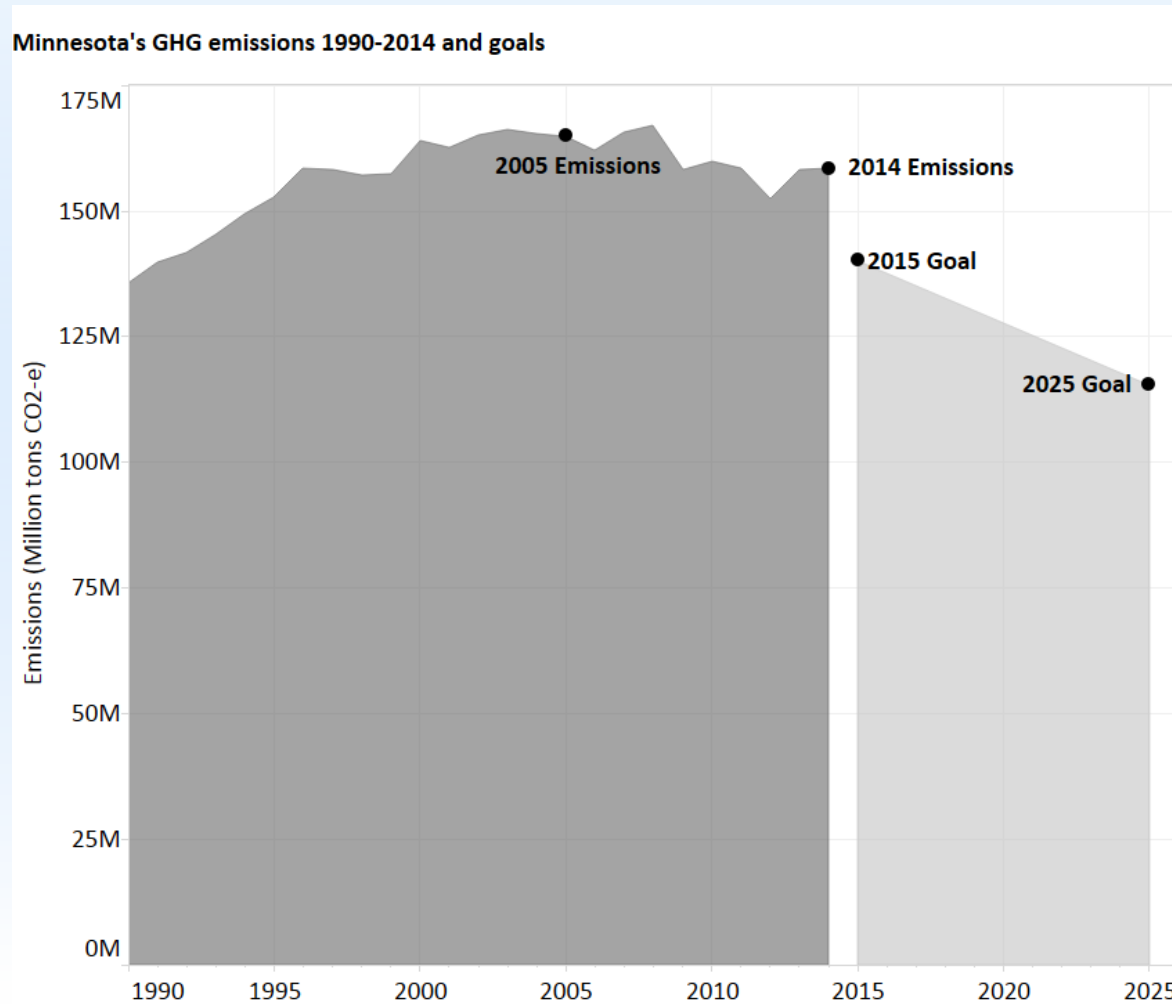


# Bad air days

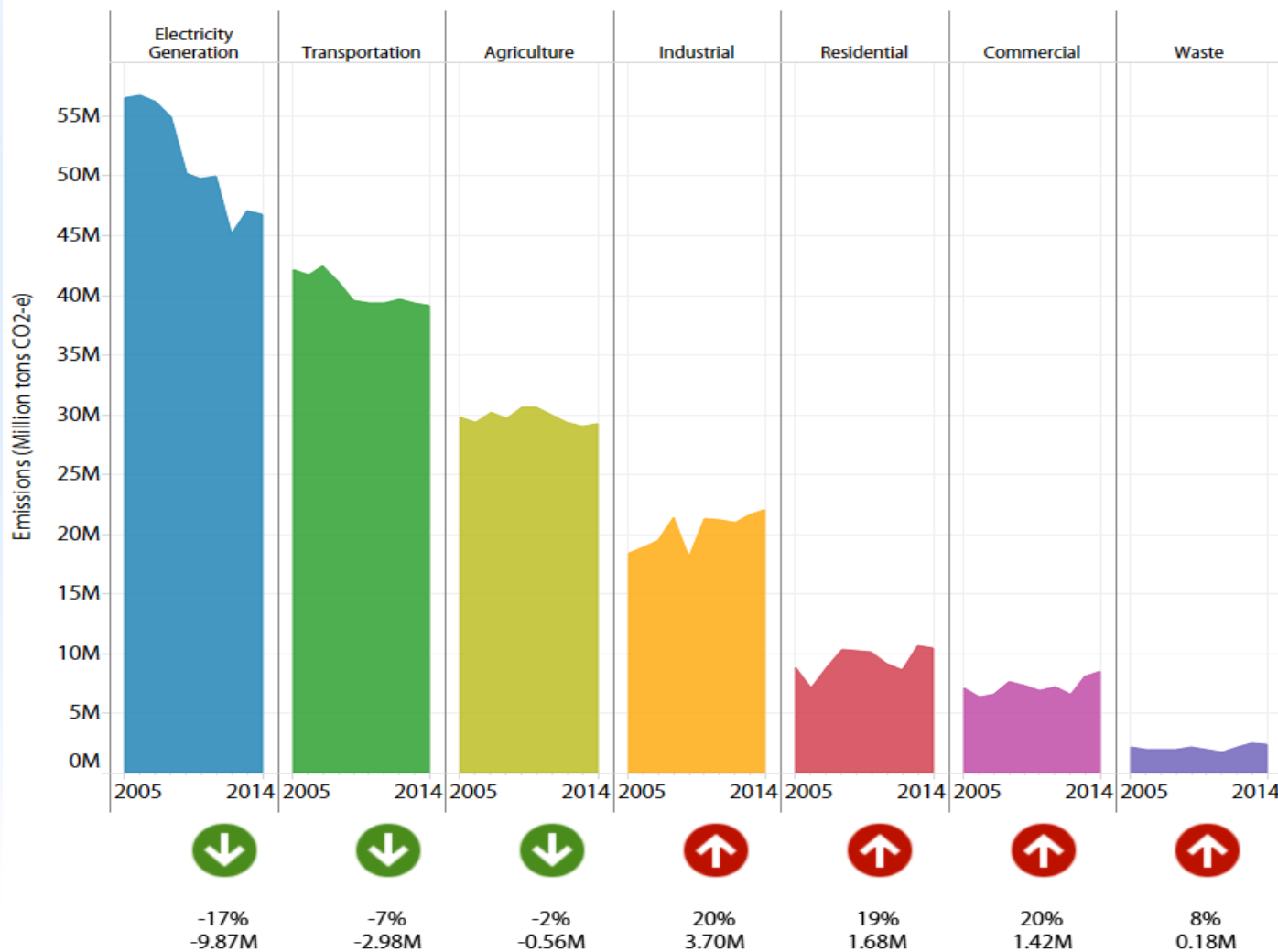
## Statewide trend in Air Quality Index days, 2005-2015



# Greenhouse gas emissions

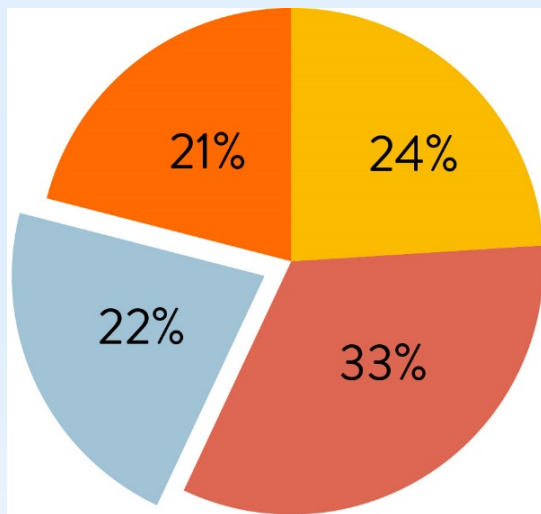


# Greenhouse gas reductions by sector



# **MOST AIR POLLUTION IN MN COMES FROM OUR EVERYDAY ACTIVITIES**

# Overall air pollution by type

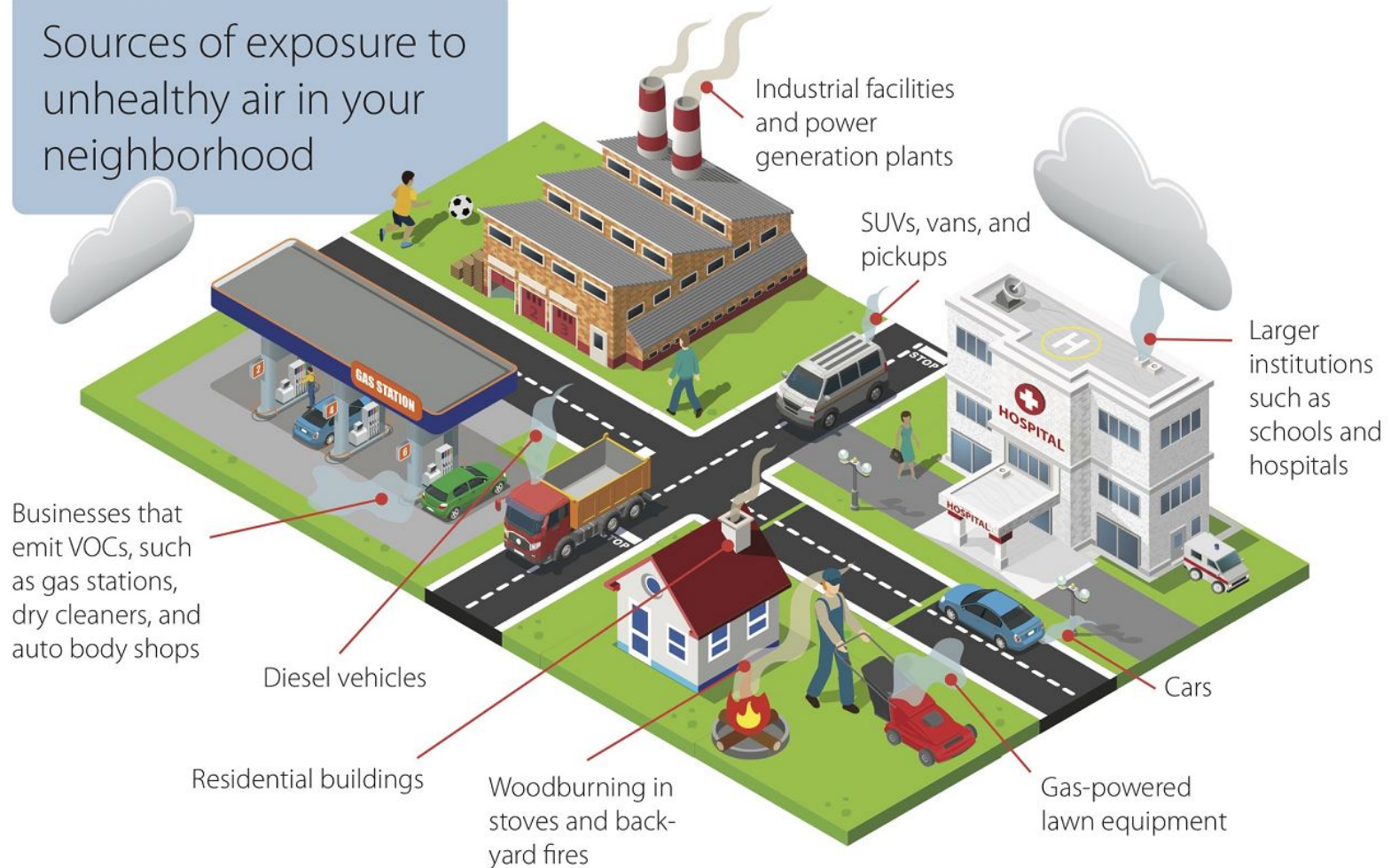


- On-road vehicles 24%  
*Cars, trucks*
- Non-permitted sources 33%  
*Small businesses, heating, woodsmoke*
- Off-road vehicles and equipment 21%  
*Construction and agricultural*
- Permitted sources 22%  
*Power plants, factories*

**Small and widespread sources are the largest portion** of overall air pollution emissions in Minnesota

# How are we exposed to air pollution?

Sources of exposure to unhealthy air in your neighborhood

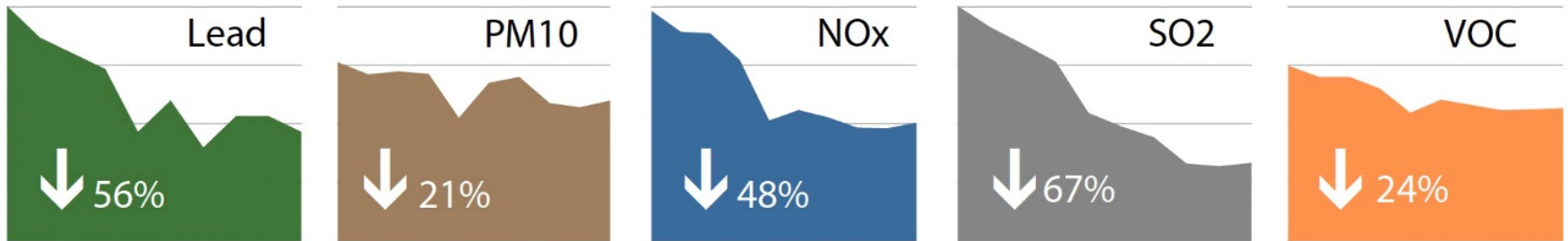




# WHAT WE'RE DOING

# Traditionally regulated facilities

Point source emissions 2005–2014



# Our homes and businesses

- ≈ Partnerships – Clean Air Minnesota
- ≈ Innovative solutions
- ≈ Voluntary efforts



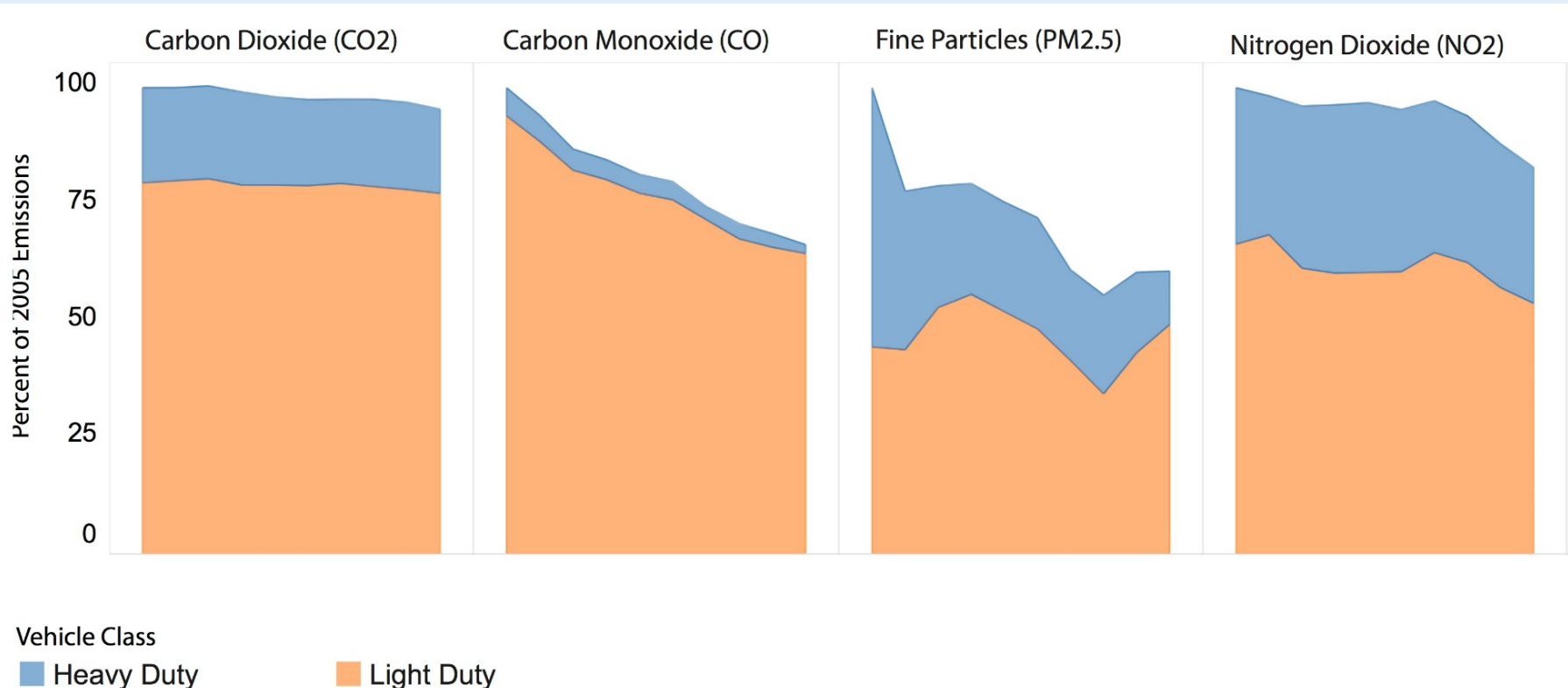
# Vehicles and heavy-duty equipment

- ≠ Federal actions
- ≠ Transportation planning
- ≠ Consumer and business decisions



# Federal standards

## Emission trends in MN for major vehicle-related pollutants 2005-2014



# Transportation planning

- ≠ Land-use planning
- ≠ Multi-modal transportation options
- ≠ Reducing congestion

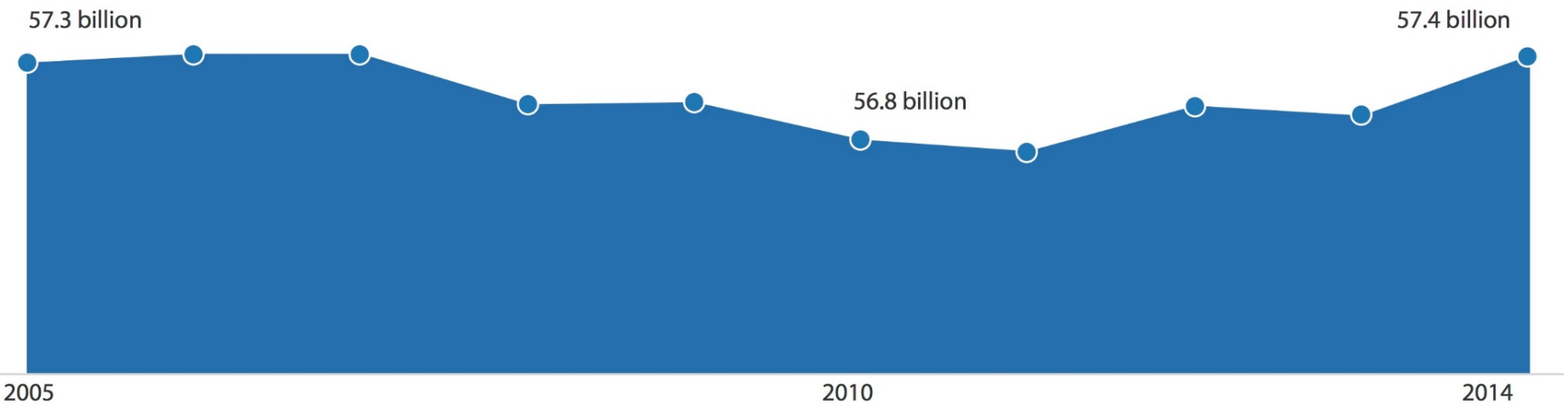


# Consumer and business choice

- ≠ Mode of travel
- ≠ Vehicle miles traveled
- ≠ Efficiency of vehicle
- ≠ Age of vehicle



# Vehicle miles traveled





# Vehicle type

47%

Cars

53%

Trucks, SUVs,  
vans



30%  
of emissions



70%  
of emissions

# Diesel trucks and equipment

One old truck can pollute more than 30 new diesel trucks

Depending on factors such as the age of the truck, how far it travels, and how much it idles, one old diesel truck can produce as much particle pollution as 25-50 modern trucks under the same operating conditions.

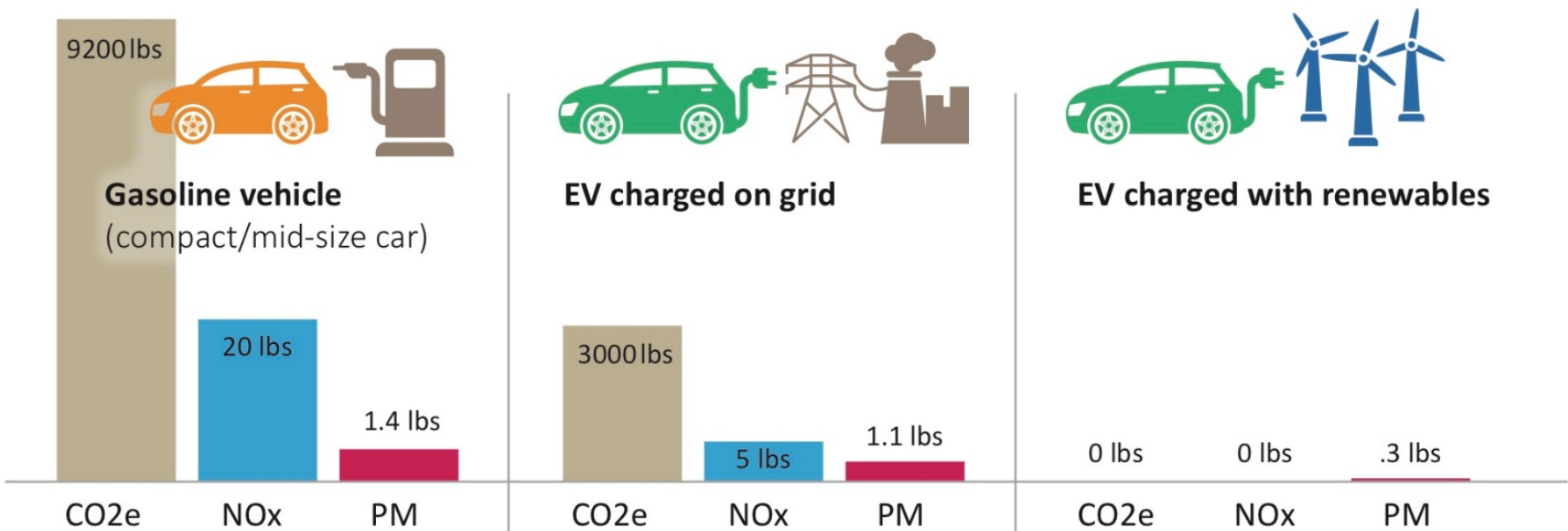


**vs.**



# Electric vehicles

## Annual vehicle emissions by fuel type (12,000 miles)



# WHAT YOU CAN DO

# Keep up the good work!

- ≈ Partnerships are critical
- ≈ Remember:
  - ≈ Land-use planning
  - ≈ Multi-modal transportation options
  - ≈ Congestion mitigation



# Get involved!

- ✧ Get involved with Clean Air Minnesota
- ✧ Be Air Aware MN:  
<https://www.beairawaremn.org/>
- ✧ Become an Air Aware Employer



# Sign Up for Air Mail

- ✧ Updates on air quality issues and the work of the MPCA and our partners.

[www.pca.state.mn.us/airmail](http://www.pca.state.mn.us/airmail)



# Check out the report

## ≠ The Air We Breathe

[www.pca.state.mn.us/air/air-we-breathe-2017](http://www.pca.state.mn.us/air/air-we-breathe-2017)



The screenshot shows the website for the Minnesota Pollution Control Agency. At the top, there is a navigation menu with items like "Air", "Water", "Waste", "Regulations", "Living Green", "Quick links", "Data", and "About the MPCA". Below the menu, the page title is "The air we breathe 2017". A paragraph of text explains that over the past 30 years, the federal Clean Air Act has resulted in drastic reductions in air pollution across the country, and that Minnesota's air quality is better than all national standards. To the right of the text is a sidebar titled "In this section:" with a list of links: "Why we care", "Air quality and health", "How's the air?", "Everyday pollution", "Vehicles and equipment", and "Industrial facilities". Below the text and sidebar are six thumbnail images, each with a title and a short description: "Why we care" (Clean air means healthier people and a better economy), "Air quality and health" (Exposure to air pollution can affect everyone's health), "How's the air?" (What the science says about Minnesota's air quality), "Everyday pollution" (Air pollution that is not from traditionally regulated point sources), "Vehicles &amp; equipment" (Pollution coming from cars, trucks, and heavy-duty equipment), and "Industrial facilities" (Pollution from Minnesota facilities we permit and regulate). At the bottom right of the page is a button that says "Read the full report".



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