

New York State Energy Planning Board

Health and Energy Planning

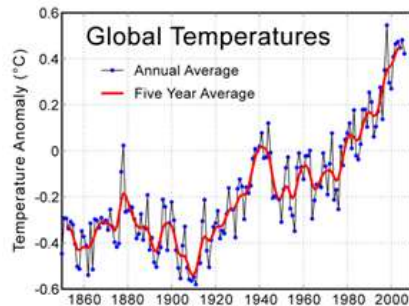
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NYSDOH

- Mission - To protect, improve and promote the health, productivity, and well-being of New Yorkers
- Vision - New Yorkers will be the healthiest people in the world
- Examples of DOH roles potentially relevant to energy
 - Work with DEC & other agencies & local partners to develop & implement regulatory and other programs in consideration of public health
 - Implement studies to evaluate health risks
 - Communicate risk and promote healthy behavior
 - Respond to community health concerns
 - Conduct health outcome surveillance

Potential sources of health concern associated with energy production, use and distribution



Health endpoints of concern

- Examples:
 - Respiratory disease
 - Cardiovascular disease
 - Cancer
 - Central nervous system effects
 - Heat-related morbidity/mortality

Asthma

Major public health problem in NYS

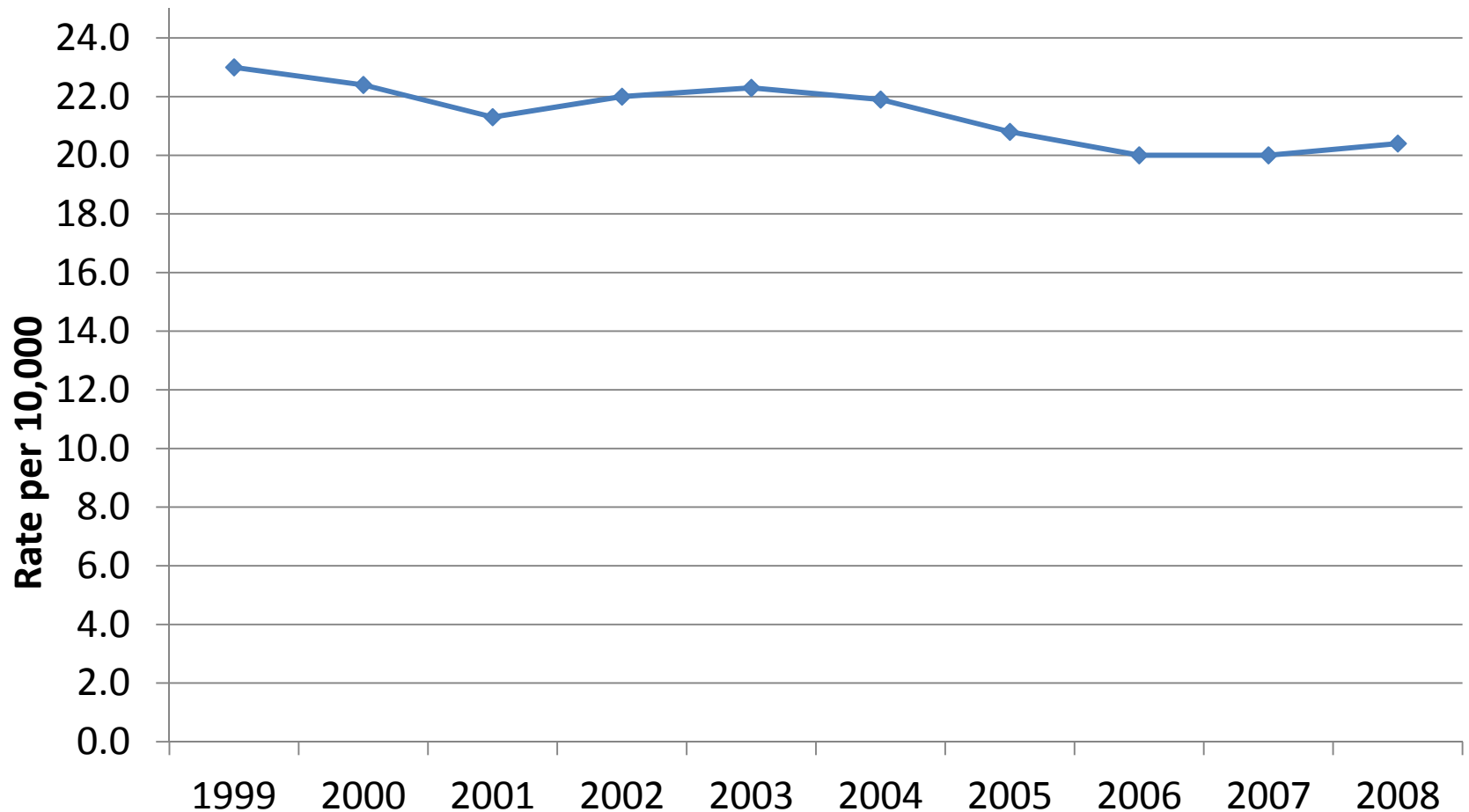
- 1 in 11 adults and children (1.3 Million adults, 475,00 children)
- Prevalence > national average
- \$535M in annual hospitalization costs; **plus** additional costs of medication and missed work due to illness, death
- Hospitalization and death rates higher in poor, minority residents than in higher income whites
- Hospitalization rate 5 times higher in Hispanics & blacks than in whites

Energy and asthma

- Significant percentage of pollutant emissions in NYS can be attributed to the energy system (2007 data)
 - 63% of $PM_{2.5}$
 - 99% of NO_x
 - 97% of SO_2
- Air pollution (PM , NO_x , SO_2 , O_3 ,) can exacerbate asthma
- For example, summer ozone has been associated with 10-20% of respiratory hospital visits/admissions in northeastern US
- Air quality is improving, but 66% of the State's population live in the 11 counties that are not in attainment of one or more health-based National Ambient Air Quality Standards ($PM_{2.5}$ annual, $PM_{2.5}$ 24-hour or ozone).

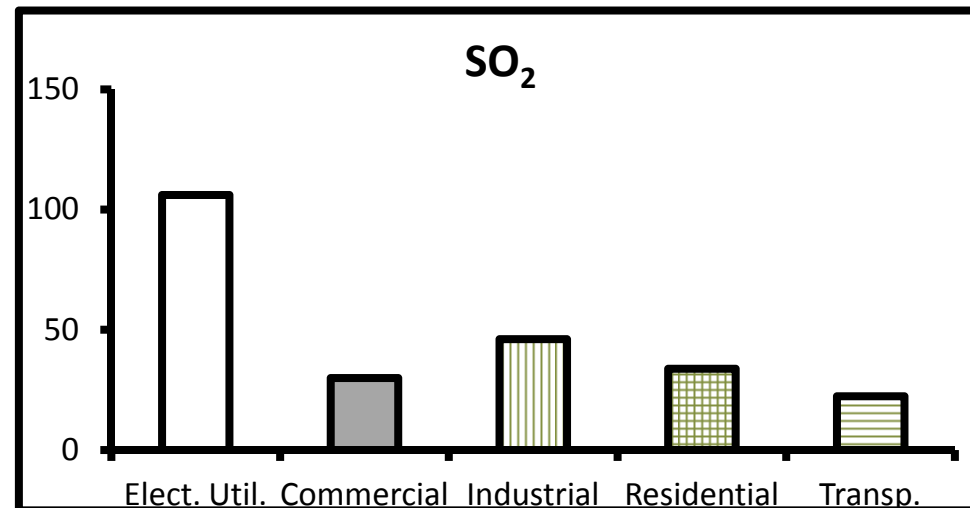
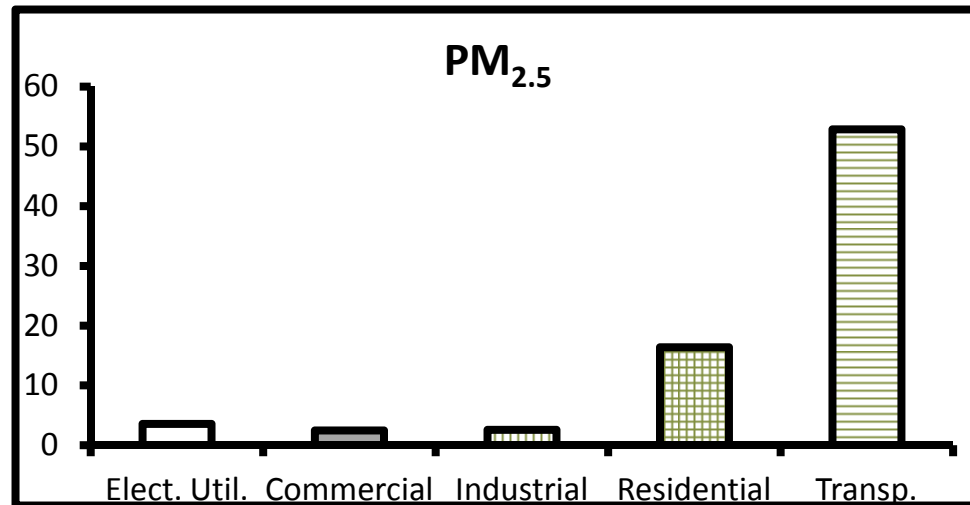
Asthma hospital discharge rate

per 10,000 residents, NYS, 3-year rolling average, 1998-2009



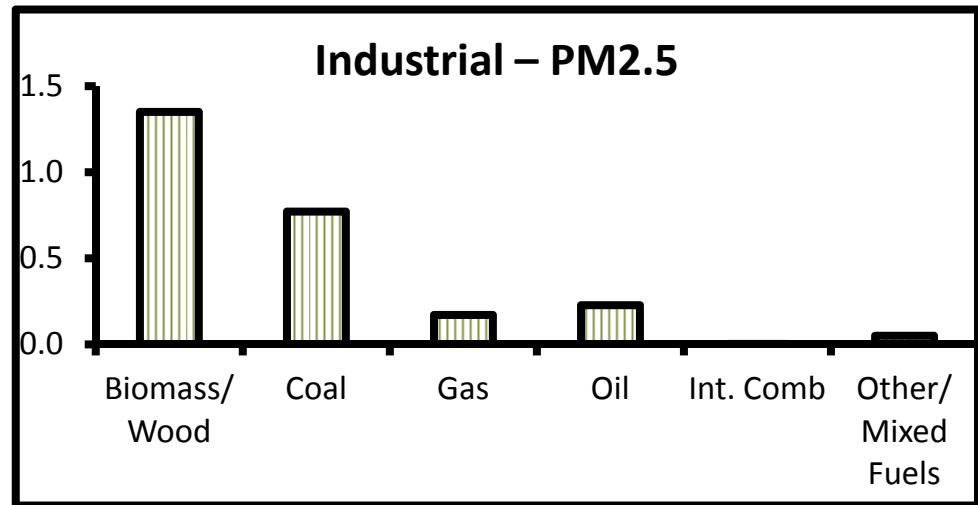
NYS air pollutant emissions across energy sectors (examples)

Data analysis can suggest opportunities for reductions in emissions and risk



NYS air pollutant emissions within an energy use sector (example)

Data analysis can suggest opportunities for sector-specific reductions



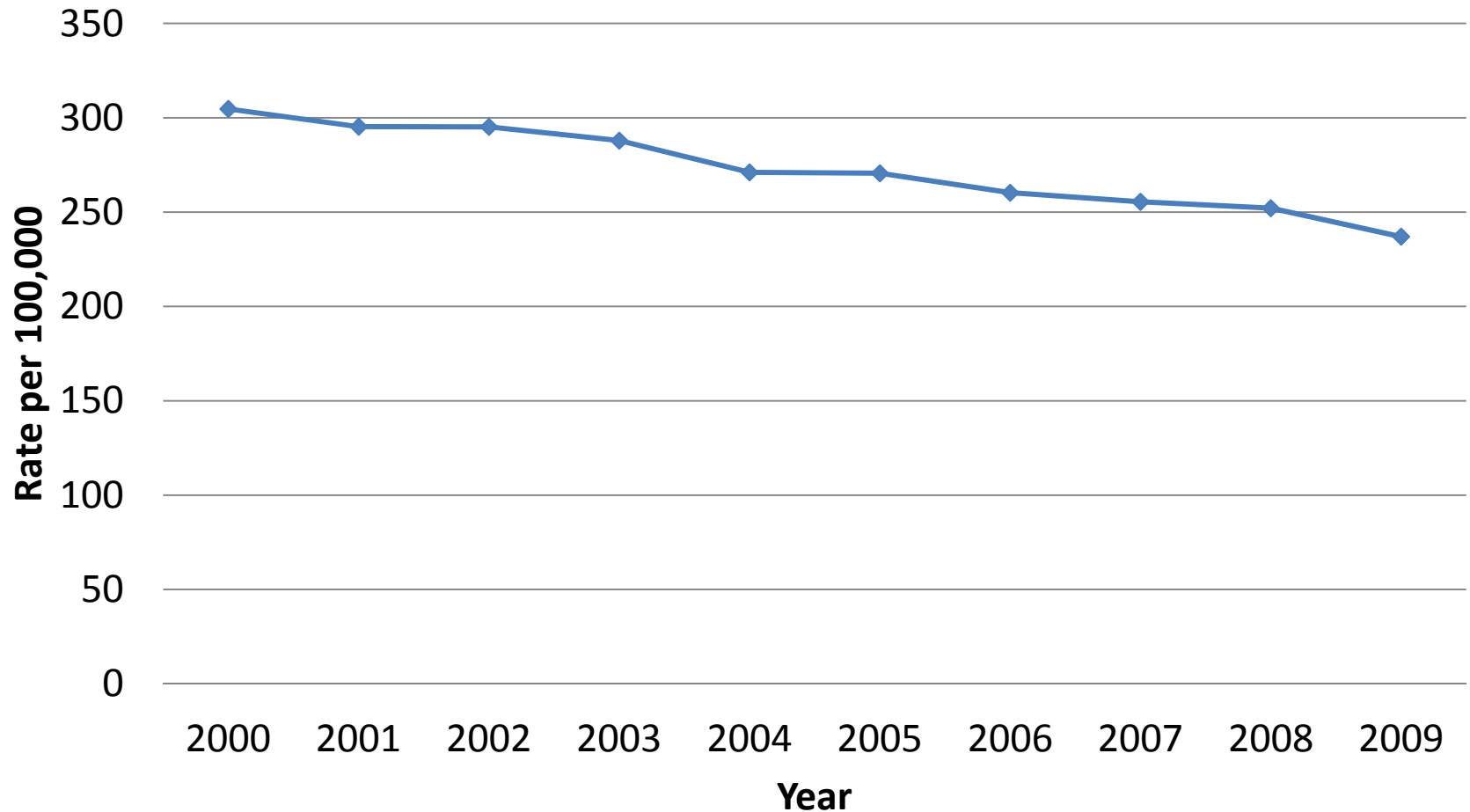
Cardiovascular disease (CVD)

- Major public health problem
 - leading cause of death in U.S. and NYS
 - \$32 billion total cost in NY (2008)
- Blacks have higher hospitalization and mortality rates than whites

Energy, CVD, diabetes and obesity

- Air pollution (PM, O₃, CO) is associated with increased CVD hospitalization and mortality
 - Reducing emissions may help reduce risks
- Diabetes and obesity (CVD risk factors) are also major public health problems, and increasingly significant
 - Sedentary lifestyle a risk factor
 - Providing opportunities for exercise (walkable communities, bike trails, community gardens) through “smart growth” may help reduce risks

Cardiovascular disease death rate per 100,000 residents, NYS, 2000-2009



Other energy-related health issues

- 15,000 **petroleum-related spills** occur in NYS each year (4,500 heating fuel spills, 3,000 at private residences)
 - DOH responds to >300 residential fuel oil spills per year
 - DOH facilitates relocation of significantly impacted residents to protect health
 - NYS has spent \$20M annually on spill cleanups
 - Common spill causes:
 - Over-pressurization/rupture of tanks during filling
 - Accidental deliveries to fill pipes from which tank had been removed

Other energy-related health issues

- Carbon monoxide (CO) poisonings
 - 15,000 CO poisoning emergency department (ED) visits in U.S. annually (home heating systems primary cause)
 - In NYS, about 2,000 ED visits for CO poisoning annually
 - Can also occur as result of power outages & generator use
 - (264 people poisoned during a winter storm of 2006)

Need for better understanding of energy-related health risks

Examples of completed/ongoing DOH studies

- NO_x State Implementation Plan Call
 - EPA's NO_x control policy may have had positive impact on both air pollution statewide and respiratory health in some NYS regions
- Residential biomass-burning
 - Outdoor Wood Boilers can significantly increase fine PM concentrations above regional background in outdoor air near residences
- Impacts of power outage
 - mortality and respiratory hospital admissions in NYC increased two- to eightfold during the 2003 Northeast blackout
 - Higher socioeconomic status more vulnerable

Need for better understanding of energy-related health risks

Examples of completed/ongoing DOH studies (cont.)

- Climate Change (increasing temperature)
 - increase in odds of hospitalization for acute renal failure
 - Increased daily minimum temperatures associated with increased risk for birth defects
 - Lower socioeconomic status, racial/ethnic minorities more vulnerable to heat-related cardiovascular, respiratory, and renal hospitalization

Need for better understanding of energy-related health risks

Examples of DOH programs

- Environmental Public Health Tracking (EPHT)
 - Tracking hazards, exposures, and diseases to understand how patterns and trends change over time and across regions
- DOH health outcome data
 - DOH began providing health data to DEC for review of major permit applications in EJ areas in 2006
 - Article 10 requires review of health data for permitting of power plants in EJ communities
 - DOH protocol describes selection of health outcomes and comparison areas, data display and analysis

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How can we better integrate consideration
of health impacts/benefits
into energy policy?

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Other questions?

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Thank you