New York State Energy Planning Board

Health and Energy Planning

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- 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.

Emissions in 1000’s tons/year; Data source: DOH analysis of 2007 NYS Emissions Inventory, Division of Air Resources, DEC
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, O$_3$, 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
How can we better integrate consideration of health impacts/benefits into energy policy?

- Other questions?

- Thank you