

# Greenhouse Gas Emissions in New Jersey

New Jersey Department of Environmental Protection  
Office of Climate and Energy

Air and Waste Management Association  
February 23, 2010

# Background

- Statewide Greenhouse Gas Inventory
  - Recent Results and Trends
- Mandatory Greenhouse Gas Reporting in New Jersey
- EPA Mandatory Greenhouse Gas Reporting

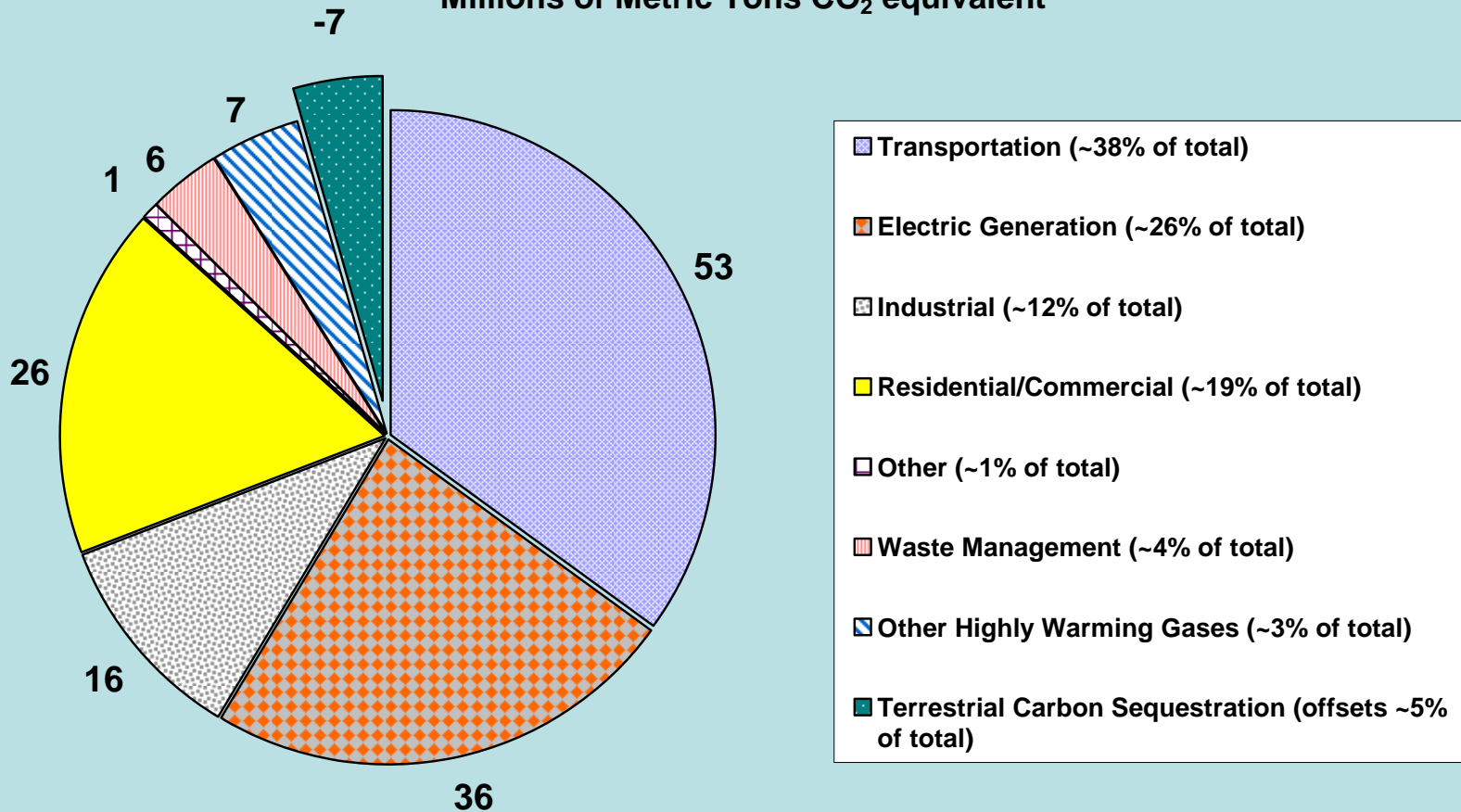
# Statewide Greenhouse Gas Inventory

- Required under the Global Warming Response Act
- Estimate releases from all sources and sinks
- “Top Down” approach using national/state level summary data, beginning to use “bottom up” data for certain sectors (electric generation)
- Used to measure progress towards statewide limits

# Statewide Inventory

## GHG Emissions by Sector; New Jersey, 2007

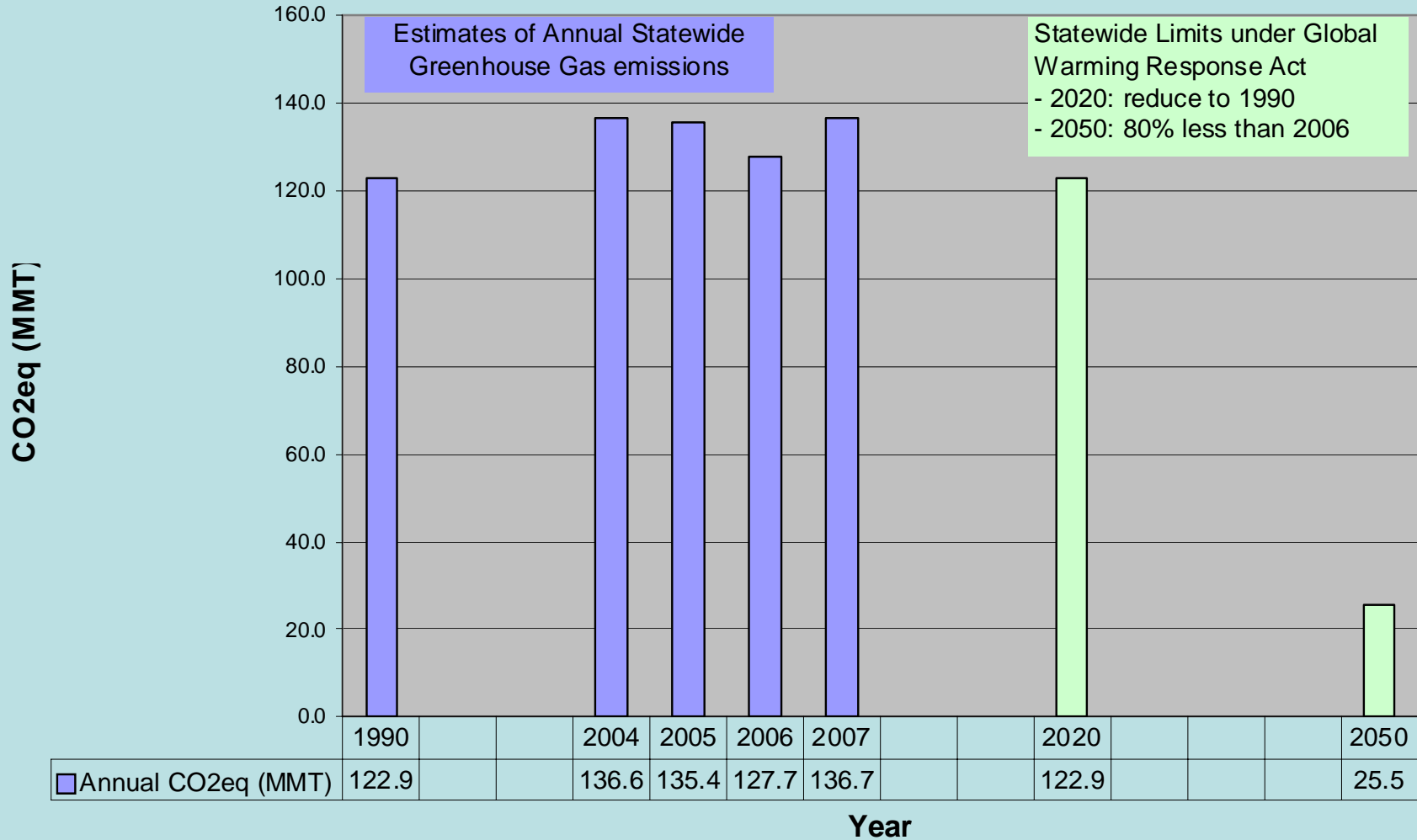
Millions of Metric Tons CO<sub>2</sub> equivalent



2007 Total: 136.7 MMT CO<sub>2</sub>eq

# Trends and Future Limits

Annual CO<sub>2</sub>eq (MMT)



# New Jersey Mandatory Greenhouse Gas Reporting

- Started in 2003
- CO<sub>2</sub> and Methane
- Thresholds based on release of criteria pollutants (potential to emit)
- Hierarchy of Quantification methods
  - Continuous Emissions Monitoring, Stack testing, Emission Factors
- Mandatory electronic reporting
  - Emission statement program (RADIUS)

# New Jersey Mandatory Greenhouse Gas Reporting

- Changes to reporting proposed 1/19/09
- Proposed changes to greenhouse gas reporting were NOT adopted
- Would have:
  - Added additional gases
    - (HFCs, PFCs, SF6, Fluorinated ethers, Nitrous Oxide)
  - Reporting by up-stream fossil fuel suppliers
  - Reporting of storage quantities of non-CO2 gases
    - Commercial/Industrial Refrigeration sources

# Results/Statistics

## Trends

| Emission Year | CO2eq MMT  | Number of Reporters |
|---------------|------------|---------------------|
| 2003          | 39,932,952 | 332                 |
| 2004          | 37,365,814 | 340                 |
| 2005          | 38,235,392 | 354                 |
| 2006          | 35,445,110 | 341                 |
| 2007          | 38,694,901 | 333                 |

## Sectors

| GHG Sector       | GHG Subsector    | fCO2eMT (2007) | Number of Reporters |
|------------------|------------------|----------------|---------------------|
| EGU              | fossil fuel      | 15,714,104     | 29                  |
| EGU              | Cogen            | 6,974,513      | 13                  |
| Industrial       | Refineries       | 6,462,251      | 6                   |
| Waste Management | Landfill         | 2,437,751      | 13                  |
| EGU              | Waste combustion | 2,391,440      | 5                   |
| POTW             | POTW             | 1,071,402      | 14                  |
| Industrial       | Pharmaceutical   | 441,751        | 14                  |
| Industrial       | Iron and steel   | 400,157        | 10                  |
| Commercial       | Colleges         | 321,527        | 13                  |
| Industrial       | Food             | 297,011        | 11                  |
| Industrial       | Glass            | 237,749        | 5                   |



# EPA Mandatory Reporting Rule

- Annual reporting of GHG by:
  - 25 source categories
    - “all-in” sources
    - “threshold” sources
  - 5 types of suppliers of fuel and industrial GHG
  - Motor vehicle and engine suppliers (except light duty sector)
- 25,000 metric tons CO<sub>2</sub> e per year reporting threshold for most sources; capacity-based thresholds where feasible
- Monitoring begins January 1, 2010; first reports due March 31, 2011
- **Direct reporting to EPA electronically**
- EPA verification of emissions data

# EPA Mandatory Reporting Rule

## Gases to be Reported

- CO<sub>2</sub>
- CH<sub>4</sub> (methane)
- N<sub>2</sub>O (nitrous oxide)
- Fluorinated GHGs
  - HFCs (hydrofluorocarbons)
  - PFCs (perfluorocarbons)
  - SF<sub>6</sub> (sulfur hexafluoride)
- Other fluorinated gases

# EPA Mandatory Reporting Rule

- “All-in” source categories:
  - Report even if releases < 25,000 metric tons
  - All of the facilities that have an “all-in” source category within their boundaries are subject to the rule.
- Threshold categories:
  - Aggregate these categories to meet the 25,000 metric tons CO<sub>2</sub> e per year reporting threshold

# All-in Source Categories

- Electricity Generation if report CO2 year-round through Part 75
- Adipic Acid Production
- Aluminum Production
- Ammonia Manufacturing
- Cement Production
- HCFC-22 Production
- HFC-23 Destruction Processes that are not collocated with a HCFC-22 production facility and that destroy more than 2.14 metric tons of HFC-23 per year
- Lime Manufacturing
- Nitric Acid Production
- Petrochemical Production
- Petroleum Refineries
- Phosphoric Acid Production
- Silicon Carbide Production
- Soda Ash Production
- Titanium Dioxide Production
- Municipal Solid Waste Landfills that generate CH4 equivalent to 25,000 metric tons CO2 e or more per year
- Manure Management Systems that emit 25,000 metric tons CO2 e or more per year

Taken from EPA <http://www.epa.gov/climatechange/emissions/downloads/FinalMRROverview.pdf>

Bold and underlined sources are “all in” sources expected in NJ

# “Threshold” sources

- Stationary Combustion Units
- Ferroalloy Production
- Glass Production
- Hydrogen Production
- Iron and Steel Production
- Lead Production
- Pulp and Paper Manufacturing
- Zinc Production

Taken from EPA <http://www.epa.gov/climatechange/emissions/downloads/FinalMRROverview.pdf>

Bold and underlined sources are “threshold” sources expected in NJ

# Suppliers of fuel and industrial GHG

- All producers of:
  - Petroleum products
  - Coal-based liquids
  - Industrial GHGs (F-GHG and N<sub>2</sub>O)
  - CO<sub>2</sub>
- Exporters of 25,000 metric tons CO<sub>2</sub> e per year
- Importers of 25,000 metric tons CO<sub>2</sub> e per year
- Natural gas and natural gas liquids
  - All fractionators
- All local gas distribution companies

# Overlap between EPA and NJ Rules

- Number of Reporters

| Year | CO2eMT     | # of Reporters | # Above 25,000 MTCO2e |
|------|------------|----------------|-----------------------|
| 2003 | 39,932,952 | 332            | 111                   |
| 2004 | 37,365,814 | 340            | 113                   |
| 2005 | 38,235,392 | 354            | 114                   |
| 2006 | 35,445,110 | 341            | 98                    |
| 2007 | 38,694,901 | 333            | 91                    |

- EPA is designing the electronic reporting system
- NJDEP staff participate on a working group to assist in design along with other states that have state reporting requirements