

# **The Global Warming Solutions Act: 1990 Greenhouse Gas Emissions Baseline and 2020 Business As Usual Projection**

Sharon Weber  
Massachusetts Department  
of Environmental Protection

April 13, 2010



# The Global Warming Solutions Act

- **Mandatory Reporting of GHG Emissions**
  - Large facilities must also report emissions from Motor Vehicles they own or lease (not employees' vehicles)
- **Track Statewide GHG Emissions**
- **Convene Advisory Committees**
  - Transportation & Land Use Planning Sectoral Subcommittee
- **Develop Limits and Plans to Achieve Statewide Reductions**
- **Develop 1990 Baseline and 2020 BAU Projection**

# 1990 Baseline and 2020 BAU Projection

- Requirement
- 1990 Baseline
  - Purpose
  - Methodology
- 2020 BAU Projection
  - Purpose
  - Methodology

## Legislative mandate

*The department shall, pursuant to chapter 30A, determine the **statewide greenhouse gas emissions** level in calendar year 1990 and reasonably project what the emissions level will be in calendar year 2020 if **no measures** are imposed to lower emissions **other than those formally adopted and implemented as of January 1, 2009**. This projection shall hereafter be referred to as the projected 2020 business as usual level.*

## Purpose of 1990 Baseline

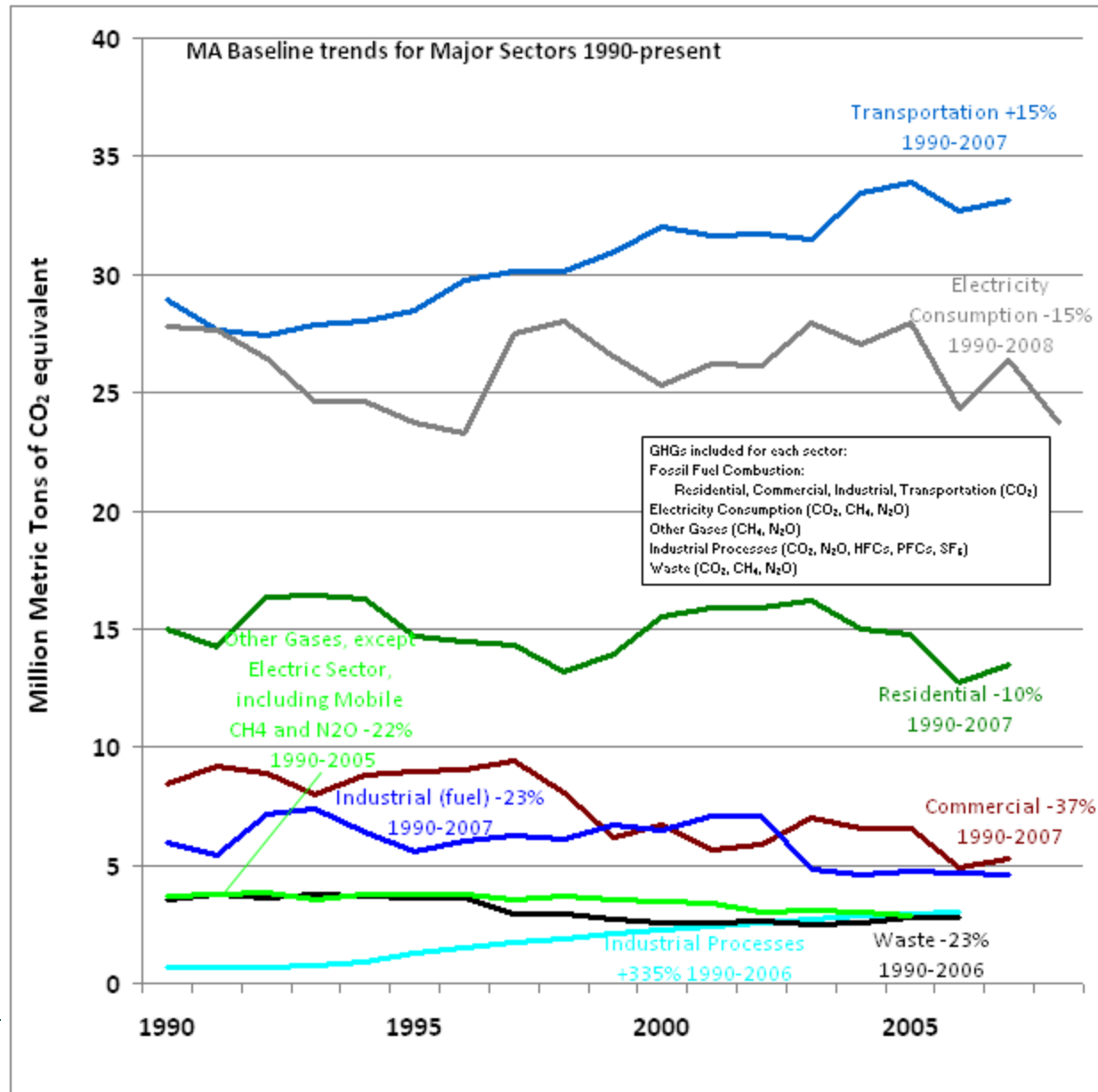
- Future emission reductions will be measured from the 1990 Baseline.

# 1990 Greenhouse Gas Baseline Emissions

(million metric tons of carbon dioxide equivalents)

Transportation	30.4
Electricity	27.8
Residential	15.2
Commercial and Industrial	15.1
Other*	5.9
Total	94.4

\*"Other" includes Agriculture, Waste, and Natural Gas transmission and distribution



# Methodology for Historic Emissions

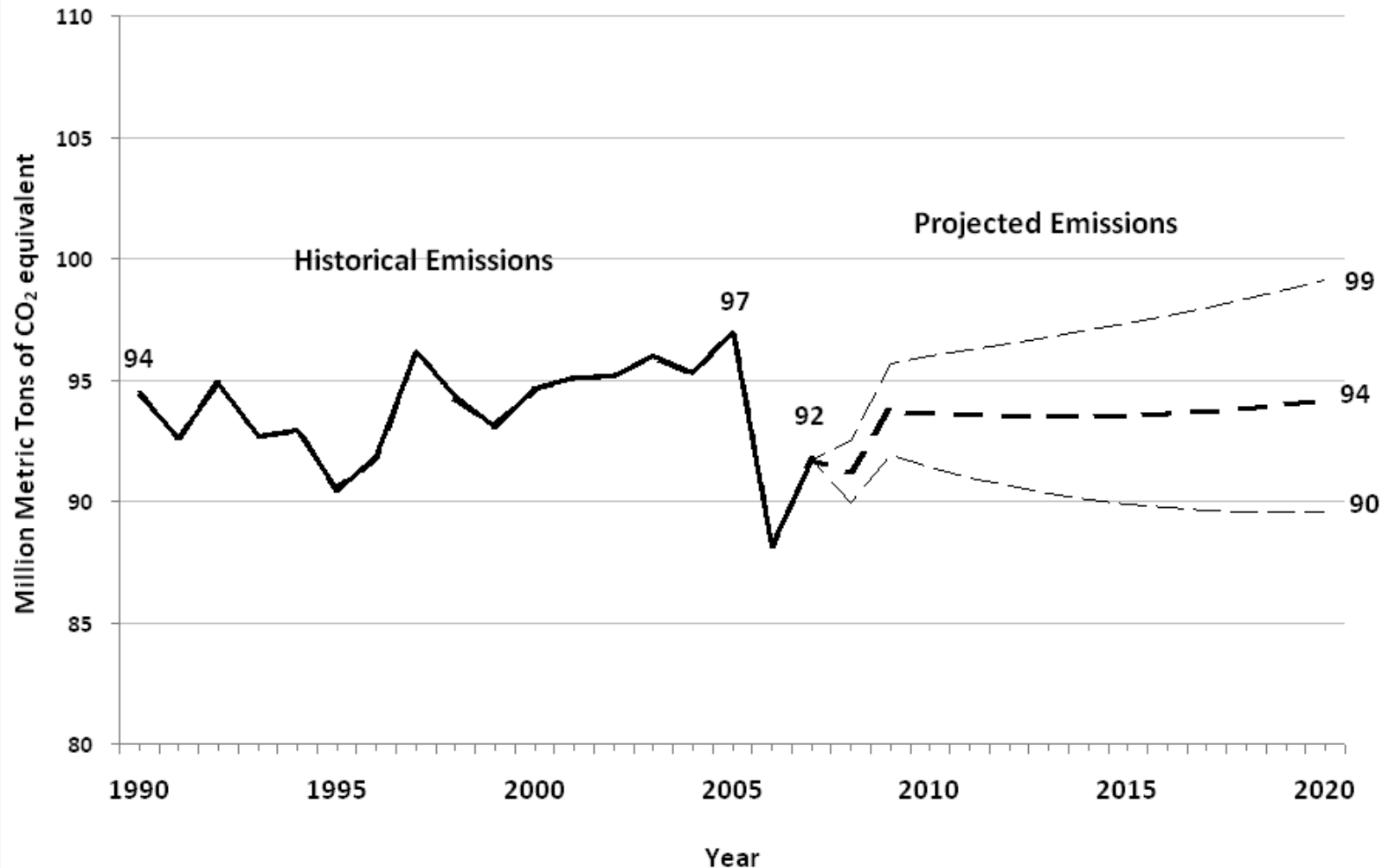
- The 1990 Baseline used a US EPA software tool designed to estimate GHG emissions and used data on electricity imports.
  - Methodologies used by State GHG Inventory Tool (SGIT) are described in EPA's *Inventory of U.S. Greenhouse Gas Emissions & Sinks: 1990-2007*  
<http://epa.gov/climatechange/emissions/usinventoryreport.html>
  - Volume of fuel used is the basis of transportation carbon dioxide (CO<sub>2</sub>) emissions
  - Volume of fuel, fuel and vehicle types, and vehicle miles traveled are the bases of transportation methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions
- Details in spreadsheet Appendix 1 to the 1990 Baseline/2020 BAU Projection on the MassDEP website  
[http://www.mass.gov/dep/air/climate/gwsa\\_docs.htm](http://www.mass.gov/dep/air/climate/gwsa_docs.htm)



## Purpose of 2020 BAU Projection

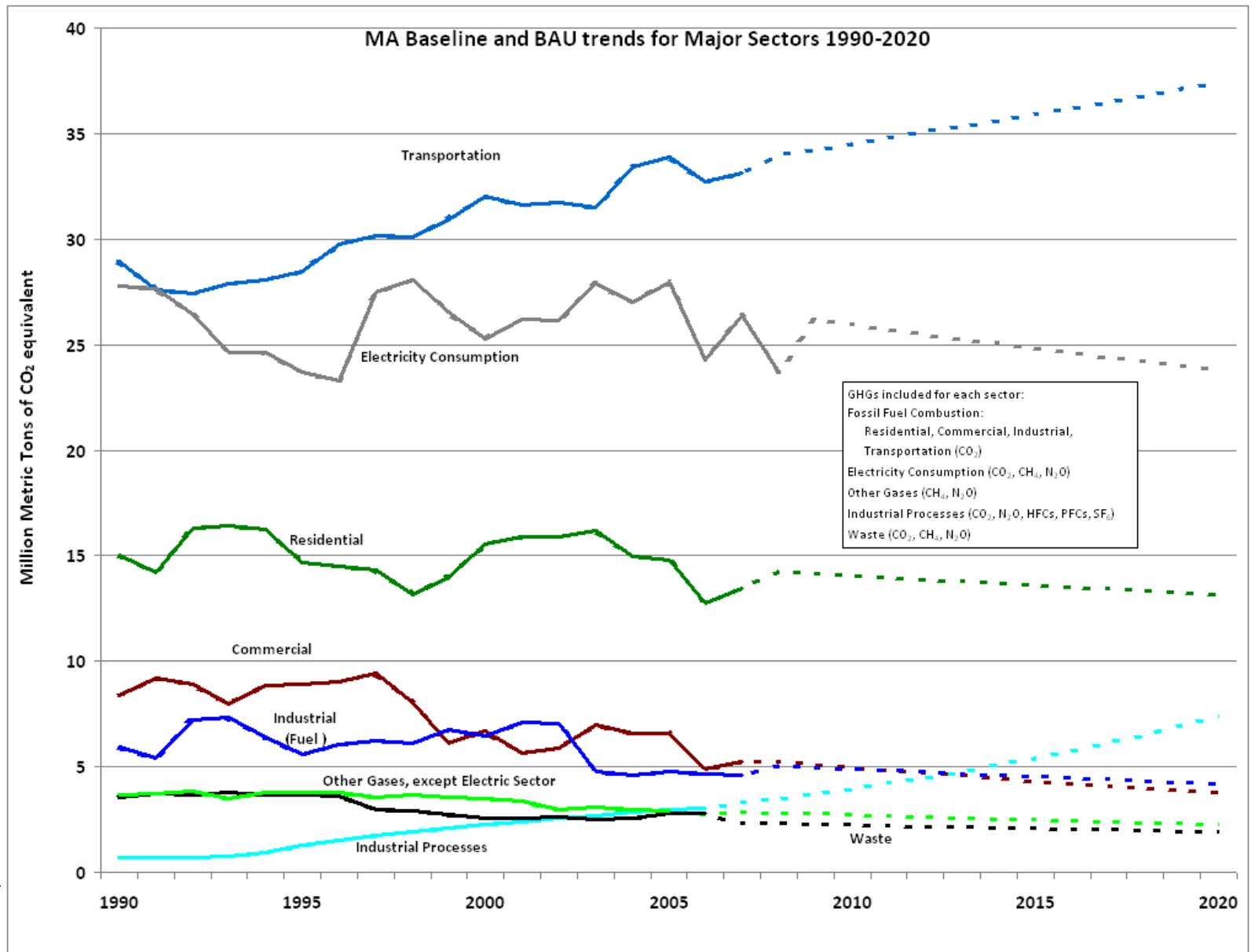
- Illustrates the magnitude of GHG reductions necessary to achieve the limit set for 2020 (10-25% below the 1990 Baseline).
- Provides context to understand the emissions reductions achieved by implementing future measures to reduce GHGs, compared to what emissions would be if such measures were not implemented, i.e., Business As Usual.

### Massachusetts 1990 Baseline and 2020 BAU Projection Gross emissions from fossil sources



## Methodology for 2020 BAU Projection

- Simple projection of historical trend for each sector



## Measures adopted as of January 1, 2009

- Certain measures adopted before January 1, 2009 are not reflected in 2020 BAU Projection because they are federal or regional in scope, and the specific emissions reductions in Massachusetts are not known
  - Regional Greenhouse Gas Initiative (RGGI)
  - revised Federal Corporate Average Fuel Economy (CAFE) vehicle efficiency standard
  - Federal Renewable Fuel Standard (RFS)
- These programs will be factored into setting the 2020 emissions limit and plan to achieve that limit.

## What's Ahead for GWSA?

- Develop and Evaluate Policy Options to Obtain Additional GHG Reductions
  - By sector and integrated
  - Trajectories to 2050
- By end of 2010:
  - Set 2020 Target (10-25% below 1990 levels)
  - Draft 2020 Reduction Plan