

AC1—Summary of Major Legislation and Executive Branch Action in Mass. since 2007 Related to Reducing Greenhouse Gas Emissions

(Policies are summarized in more detail in a longer background document.)

Green Communities Act (GCA, Chapter 169 of the Acts of 2008) - comprehensive reform of the state's energy policies. It includes (a) Efficiency program expansion - requires investor owned utility companies to purchase all available energy efficiency improvements that cost less than generating power to meet the same energy need; (b) Green communities program - partners with cities and towns by providing support and technical assistance, and up to \$10 million per year statewide in grants, to promote energy efficiency and renewable energy; (c) Regional Greenhouse Gas Initiative (RGGI) - gives legislative approval for participation in RGGI, requires auctioning of pollution allowances, and directs RGGI auction revenues to be used primarily for energy efficiency programs; (d) Updating of state building code - requires the State Board of Building Regulations and Standards to adopt, as its minimum standard, the latest edition of the International Energy Conservation Code; (e) Renewable energy goals - doubles the rate of increase in the Renewable Portfolio Standard (RPS), requiring utilities and other electricity suppliers to obtain energy from renewable power, so that Massachusetts will generate 15% of its electricity from renewables by 2020.

Decoupling – The Dept. of Public Utilities revised utility rate structures so that they have a revenue-based incentive to promote efficiency.

Global Warming Solutions Act (GWSA, Chapter 298 of the Acts of 2008) - requires the state to adopt an enforceable statewide GHG emission limit for 2020 by Jan. 1, 2011 that is 10% to 25% less than emissions in 1990, interim limits for 2030 and 2040, and a limit of 80% below 1990 levels in 2050, along with plans to achieve these limits. Every five years, EEA will report on the implementation of global warming regulations, including cost effectiveness, societal benefits, impacts on low-income communities, leakage, and cost minimization.

Clean Energy Biofuels Act (Chapter 206 of the Acts of 2008) – (a) Tax Exemption for Cellulosic Biofuels - exempts cellulosic biofuel from the state's gasoline tax, but the biofuel must yield at least a 60% reduction in lifecycle GHG emissions relative to petroleum based fuel sold

in 2005; (b) Low carbon fuel standard - requires that the state attempt to implement a regional low carbon fuel standard (LCFS) for transportation fuels among the northeast states, with a goal of reducing the average carbon content of transportation fuels by 10%; (c) Biodiesel mandate - mandates that a percentage of both diesel motor fuel and home heating oil consist of fuel derived from renewable biomass, which must also yield at least a 50% reduction in lifecycle GHG emissions. The fraction begins at 2% in July, 2010, and grows to 5% by July, 2013.

Green Jobs Act (Chapter 307 of the Acts of 2008) - created the Massachusetts Clean Energy Center to accelerate job growth and economic development in the state's clean energy industry.

Wind power - Governor Patrick has set a goal of 2,000 MW of wind energy installed in Massachusetts before 2020; the Mass. Renewable Energy Trust will provide technical and/or financial assistance for wind projects; the state has provided all necessary state approvals for the Cape Wind project in Nantucket Sound; and the state passed the Oceans Act, which will identify locations in state waters for potential development of renewable energy facilities.

Commonwealth Solar – the state has set a goal of having in place 250 MW of solar PV by 2017, and is providing subsidies to assist this development.

Mass. Environmental Policy Act (MEPA) GHG policy -- major private developers are now required to analyze strategies for mitigating GHG increases due to their developments.

Emissions-Based Vehicle Registration Fees – the Governor's proposed Transportation Reform Bill includes a provision to have vehicle registration fees vary based on GHG emissions.

AC2—Massachusetts participation in federal policymaking on energy and climate

The American Climate and Energy Security Act

Testimony of Ian Bowles, Secretary, Executive Office of Energy and Environmental Affairs, Commonwealth of Massachusetts, before the House Subcommittee on Energy and Environment, Committee on Energy and Commerce, Friday, April 24, 2009.

Letter of Secretary Ian Bowles to California Air Resources Board Chairman Mary Nichols, in reference to the need to include Indirect Land Use Effects in the lifecycle greenhouse gas calculations for biofuels, December 23, 2008.

Testimony of David Cash, Assistant Secretary for Policy, Massachusetts Executive Office of Energy and Environmental Affairs, on the U.S. Environmental Protection Agency's Reconsideration of the Request for Waiver of Federal Preemption for California State Motor Vehicle Pollution Control Standards, March 5, 2009.

Testimony of Massachusetts Department of Energy Resources Commissioner Philip Giudice to the U.S. Senate Committee on Energy and Natural Resources on behalf of the Commonwealth of Massachusetts and the National Association of State Energy Officials, February 26, 2009.

Energy Efficiency: Complementary Policies for Climate Legislation

Testimony of Philip Giudice, Commissioner, Department of Energy Resources, Commonwealth of Massachusetts, before the Subcommittee on Energy and Environment, Committee on Energy and Commerce, Tuesday, February 24, 2009

AC3—Summary of the Global Warming Solutions Act

Chapter 298 of the Acts of 2008, the Massachusetts Global Warming Solutions Act (GWSA),¹ was passed by the legislature and signed into law by Governor Patrick in August 2008. The Act gives Massachusetts one of the most ambitious regulatory programs to address climate change in the country.

GHG Emissions Limits for 2020 through 2050 and Plans. By January 1, 2011, the Executive Office of Energy and Environmental Affairs will adopt an enforceable statewide GHG emission limit for 2020 that is 10 to 25% less than emissions in 1990 and will establish interim limits for 2030 and 2040 such that the Commonwealth can achieve the emissions limit for 2050 which is set in the Act – 80% below 1990 levels. It will also adopt plans to achieve these limits. Every 5 years, EEA will report on the implementation of global warming regulations, including cost effectiveness, societal benefits, impacts on low-income communities, leakage, and cost minimization.

1990 GHG Emissions Baseline and 2020 Business as Usual Projection. By July 1, 2009, MassDEP will determine the level of greenhouse gas emissions in 1990 (1990 baseline) and will project the level of GHG emissions that would otherwise exist in the year 2020 if measures to reduce emissions were not implemented, i.e. business as usual.

Greenhouse Gas (GHG) Reporting and Inventory. On December 29, 2008, MassDEP adopted regulations that require facilities that emit greater than 5,000 tons of GHG and all Clean Air Act Title V Operating Permit holders to report GHG emissions to a regional GHG emissions registry, that require retail sellers of electricity to report emissions, and provide the means for voluntary reporting by facilities not required to report. In addition, by December 31, 2010 MassDEP will publish a greenhouse gas emissions inventory and update it every three years.

Climate Protection and Green Economy Advisory Committee. The Act establishes a committee to advise EEA on how best to achieve the goals of the Act through strategies that both combat climate change and drive job creation and economic prosperity. The Act also creates an **Adaptation Advisory Committee** and requires an assessment of statewide impacts of climate change by December 31, 2009.

¹ Found at: <http://www.mass.gov/legis/laws/seslaw08/sl080298.htm>

AC4—Regional Greenhouse Gas Initiative Summary

A four-page summary document prepared by RGGI Inc., a nonprofit corporation created to provide technical and administrative services to the Regional Greenhouse Gas Initiative CO2 budget trading programs of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont..

http://www.rggi.org/docs/RGGI_Executive%20Summary_4.22.09.pdf



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AC5—Summary of the Green Communities Act

Governor Deval Patrick signed the Green Communities Act (GCA) into law on July 2, 2008. The GCA (Chapter 169 of the Acts of 2008) is a comprehensive reform of the state's energy policies. Along with the Global Warming Solutions Act, the Green Jobs Act, the Oceans Act, and the Clean Energy Biofuels Act, the Green Communities Act demonstrates the Commonwealth's commitment to creating a greener energy future.

The Green Communities Act includes the following:

1. Enables **energy efficiency** programs to compete on price with traditional energy supply, by requiring investor owned utility companies to purchase all available energy efficiency improvements that cost less than generating power to meet the same energy need
2. Creates the **Energy Efficiency Advisory Council (EEAC)** to review the Massachusetts Program Administrators' efficiency plans and budgets, and evaluate the availability, reliability, cost-saving and environmental benefits of their energy efficiency and demand reduction programs
3. Increases available **rebates** and other **incentives** from utility companies for their customers to upgrade lighting, air conditioning, and industrial equipment to more efficient models
4. Partners with cities and towns by providing support and technical assistance, and up to \$10 million per year statewide in grants, to promote energy efficiency and renewable energy through the **Green Communities Program**
5. Gives legislative approval for participation in the **Regional Greenhouse Gas Initiative (RGGI)**, requires auctioning of pollution allowances, and directs the investment of RGGI auction revenues
6. Requires the State Board of Building Regulations and Standards to adopt, as its minimum standard, the latest edition of the International Energy Conservation Code as part of the **State Building Code**. This will keep Massachusetts building standards at the highest international levels of energy efficiency
7. Sets **renewable energy goals** in Massachusetts by doubling the rate of increase in the Renewable Portfolio Standard (RPS), requiring utilities and other electricity suppliers to obtain energy from renewable power and putting Massachusetts on track to generate 15% of its electricity from renewable by 2020

AC6—Climate Protection and Green Economy Advisory Committee

Charge to the Committee

Signed by Governor Patrick in August, 2008, the Climate Protection and Green Economy Act gave Massachusetts one of the most ambitious regulatory programs to address climate change in the country. The Act requires that economy-wide greenhouse gas emissions are reduced 80 percent from 1990 levels by 2050, and calls on the Executive Office of Energy and Environmental Affairs to set a 2020 target between 10 and 25 percent below 1990 levels, and to develop a plan for achieving that reduction. Furthermore, the Act calls upon the Secretary to adopt interim emissions limits for 2030 and 2040.

The Climate Protection and Green Economy Advisory Committee, established by the Act, will advise the Executive Office of Energy and Environmental Affairs as it develops the Commonwealth's economy-wide plan to meet the goals and deadlines for reducing greenhouse gas emissions that are set out in the Act. The Committee will advise the Commonwealth on how best to achieve these goals through strategies that both combat climate change and drive job creation and economic prosperity.

AC7—Interaction between Climate Protection and Green Economy Advisory Committee and the Climate Adaptation Advisory Committee

In addition to the Climate Protection and Green Economy Advisory Committee, the Global Warming Solutions Act (Section 9), requires the Secretary to convene an advisory committee to analyze strategies for adapting to the predicted impacts of climate change in the commonwealth. The advisory committee will have representation from a variety of disciplines and is required to file a report of its findings December 31, 2009. There will be overlap between the two GWSA advisory committees, including some of the committees' members, the technical and policy disciplines being addressed, and the tools and resources used in analyses. To take advantage of complementarities in possible policies and to avoid unintended consequences, agency staff will work together to coordinate these two efforts. This will involve ongoing communication between staff, the sharing of reports and documents, and the inclusion and attendance of representatives from each committee at the other's internal planning meetings and advisory committee meetings. In addition, each committee will seek comments and recommendations from the other committee on issues such as common strategies (i.e. those strategies that address both mitigation and adaptation) as well as areas of potential conflict. A coordinated effort will ensure consistency between the committees and enhance their efficiencies and effectiveness.

**AC8—
GWSA – Proposed 1990 Greenhouse Gas Baseline Emissions and
2020 Business As Usual Projection**

Proposed 1990 Baseline (MMTCO₂e)

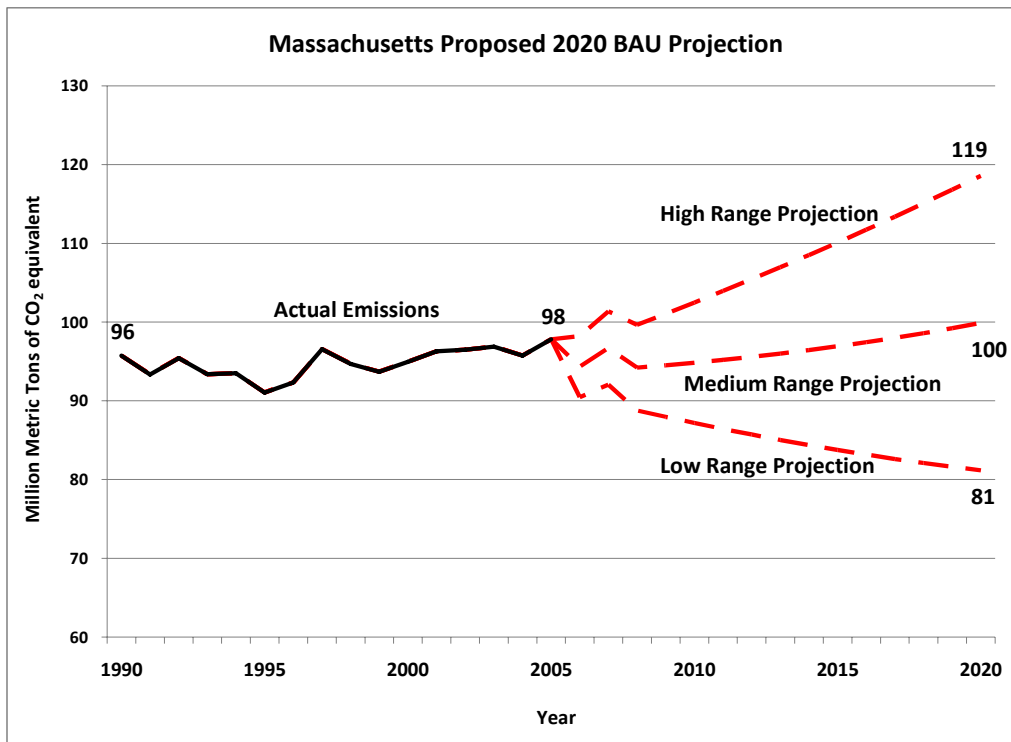
Transportation	30
Electricity	28
Residential	15
Commercial and Industrial	15
Other (Agriculture, Waste, and Natural Gas transmission and distribution)	7
Total	96

MassDEP estimates that economy-wide GHG emissions in 1990 were 96 million metric tons of carbon dioxide equivalents (MMTCO₂e). The table to the left shows a breakdown of the GHG emission data by economic sector.

For the purpose of calculating the GHG emissions for 1990 and other historical years, MassDEP took the following general approach:

1. Used United States (US) Environmental Protection Agency (EPA) and US Department of Energy’s Energy Information Administration (EIA) data, where available, as presented in EPA’s State Greenhouse Gas Inventory Tool (SGIT) software.
2. Supplemented EPA/EIA Electricity sector emissions data by adding emissions of imported electricity, to track emissions associated with total electricity consumption (in-state power plants only generate about 75-80% of the electricity used in Massachusetts).
3. Reported estimates of gross emissions (which do not account for carbon sequestration in forests, oceans and lakes, and soils) rather than net emissions due to a great deal of uncertainty around historical data on GHG sinks (the storage of carbon in natural environments such as forests).
4. Did not account for GHG emissions embodied in manufactured goods, food and all other imports except electricity, for data quality reasons.

The 2020 BAU Projection has been developed by extrapolating from historical emissions trends.² The projection, which estimates 2020 BAU emissions at 100 MMTCO₂e and is labeled “medium range projection” in the figure below, is based on a straightforward extrapolation of reliable historical data rather than on a complex model that attempts to predict what the future holds. The “high” and “low range projections” reflect a reasonable range of uncertainty in emissions given the variability inherent in GHG drivers such as economic activity and fuel prices. These ranges are based on historical variability (one standard deviation) rather than on analysis of what factors might drive emissions higher or lower than the historical trend line, and by how much.



² The “kink” in the projected lines for the years 2006-2008 in the figure results from the inclusion of actual data from the electricity sector for those years.

AC9—Technical Working Groups

Global Warming Solutions Act

5/4/09

Scope of Analysis

- Policy mechanisms (menu of options)
- Costs
- Benefits
- Implementation/feasibility
- Green economic growth opportunities

Possible Topic Areas for Technical Working Groups

1. Transportation end-use efficiency -- passenger and freight, road and non-road
2. Buildings end-use efficiency -- residential and commercial
3. Industrial end-use efficiency -- manufacturing, water treatment, etc
4. Low-carbon supply -- electricity generation both central and distributed, transportation fuels, heating fuel (several subcommittees likely here)
5. Energy sector sequestration -- geologic sequestration at power plants
6. Reducing energy demand drivers -- vehicle-miles traveled (VMT), building space required, etc
7. Materials and waste management -- reducing materials usage, recycling, etc
8. Process emissions (non-energy) -- industrial processes, refrigerants, etc
9. Agricultural emissions (non-energy)—tilling, fertilizer, etc
10. Land-use management -- afforestation, reforestation, and deforestation
11. Economy-wide policies
12. Modeling/integration of analysis from all committees