~~Maryland Department of the Environment~~

The Greenhouse Gas Emission Reduction Act of 2009

Where We Are and What Has Already Been Accomplished

A Brief Overview of Maryland's Climate Change Efforts and Current Status

Tad Aburn, Air Director, MDE

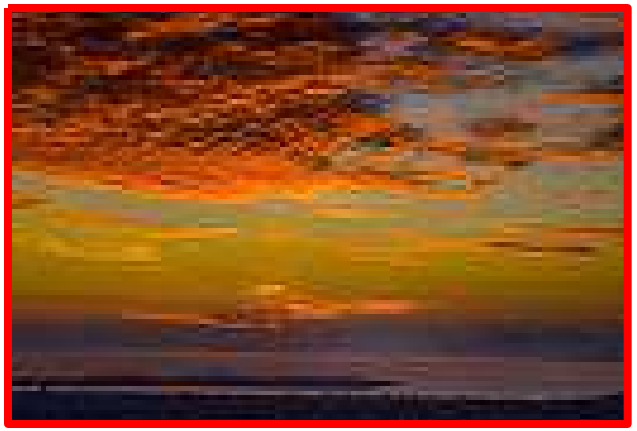
Mitigation Working Group Meeting – May 6, 2015

Overview

- 2006 to 2015 Efforts
- Current Status on Reductions
- Reduction Shortfalls
- Agency Responsibilities
- Want More Information?
- Working Group Input

Earliest Actions

- 2006 – Maryland Healthy Air Act
  - Multi-pollutant power plant reductions
  - Set up a process that lead to Maryland becoming a member of the Regional Greenhouse Gas Initiative (RGGI) in 2007
- 2007 – Maryland Clean Cars Act
  - Comprehensive effort to reduce a host of emissions from vehicles
  - Toughest standards allowed by law
  - Significant GHG reductions



Maryland Commission on Climate Change

- Established in 2007 by Governor's Executive Order 01.01.2007.07
- Cabinet Secretaries and six members from the General Assembly
- Charged with addressing Maryland's climate change challenge on all fronts
- Three specific areas of concern:
  - Mitigation (MDE)
  - Adaptation (DNR)
  - Science and effects in Maryland (UMD)
- Mandated that a State Climate Action Plan be developed by 2008

The Climate Action Plan

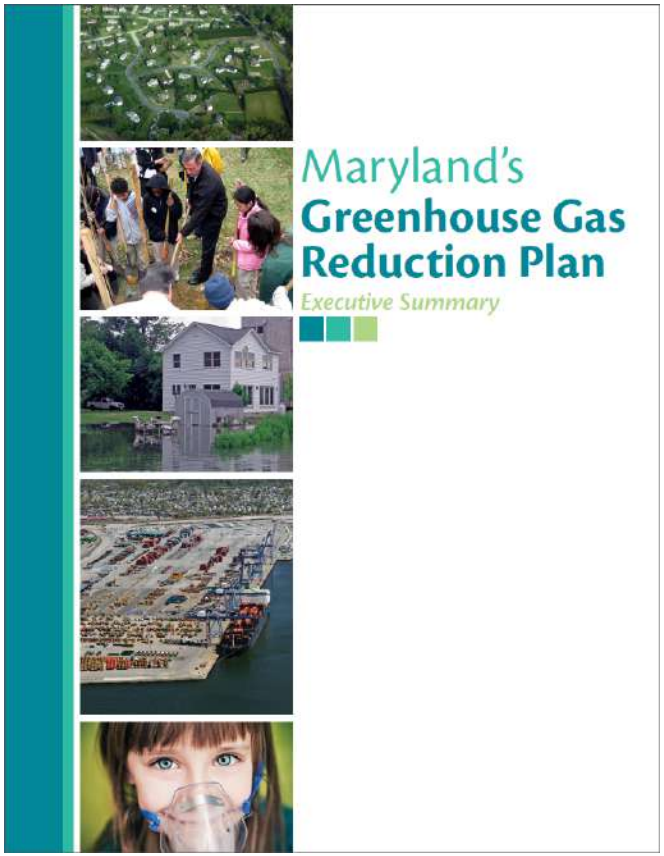
- Finalized in August, 2008
- Includes reports from the three Working Groups
- Addresses Five Sectors:
  - Energy Supply
  - Residential, Commercial, and Industrial
  - Transportation and Land Use
  - Agricultural, Forestry, and Waste
  - Cross Cutting
- Other sections on:
  - The cost of inaction
  - Maryland's effort into a future Federal program

The Greenhouse Gas Emissions Reduction Act … of 2009

- The Greenhouse Gas Emission Reduction Act (GGRA) signed into law in April 2009
- Requires the State to develop and implement a Plan to reduce GHG emissions 25% from a 2006 baseline by 2020
- Must have a positive impact on Maryland's economy and jobs
- Climate Action Plan used as a "roadmap"

GGRA – The 2012 Plan

- 2008 Climate Action Plan used as a "roadmap"
- The Plan is comprehensive, multi-sector, and involves multiple State agencies
- Implementation of the 150-plus programs and initiatives described in the Plan will achieve 25% reduction required by GGRA
  - Must reduce Maryland's GHG emissions by 55 million metric tons of carbon dioxide-equivalent ($MMtCO_2e$) annually
    - This reduction includes offsetting growth that is expected to occur between 2006 and 2020



GGRA – The 2012 Plan - Continued

Jobs, the Economy, Science Updates and More

- Current analyses project that the Plan would result in estimated economic benefits of $1.6 billion and support over 37,000 jobs.
- Provides an update on climate change science
  - Based on materials provided by the University of Maryland Center for Environmental Science
    - Included an update on the cost of inaction in Maryland based on materials provided by the University of Maryland Center for Integrative Environmental Research.

More Recent Activities

- 2014: Executive Order 01.01.2014.14
  - Signed on November 19, 2014
  - Expanded the mission and membership of the Maryland Commission on Climate Change
  - Added new tasks
- 2015: Senate Bill 258
  - Maryland Climate Commission Act of 2015
  - Expected to be signed into law soon
  - Established the Maryland Commission on Climate Change as statute
  - Adds new members and new tasks
- Additional information provided during May 6 meeting

Critical Upcoming GGRA Activities

- Totally separate from the E.O. and SB 258, the GGRA of 2009 also requires major efforts in late 2015
  - By October 1, 2015 MDE must submit a report to the Governor that includes:
    - A summary of the State's progress toward achieving the 2020 emissions reduction goal.
    - An update on emerging technologies to reduce GHG emissions.
    - A review of best available science regarding the level and pace of GHG emissions reductions and sequestration needed.
    - Recommendations on the need for adjustments to the requirement to reduce statewide GHG emissions by 25% by 2020.
    - A summary of additional revised regulations/control programs/incentives that are necessary to achieve the 25% reduction goal.
    - The state of any federal program to reduce GHG emissions.
    - An analysis of the overall economic costs and benefits to the state's economy, environment, and public health of a continuation or modification of the requirements to achieve a 25% reduction.
- In 2016, the General Assembly must take an action to keep, change or enhance the goals of the GGRA or the laws requirements sunset

Current Status of Reductions

Overall Progress	Estimated Emissions (Million Metric Tons)	2013 Actual vs. Business As Usual	Metric Tons Reduced
0% 25%	2013	Actual Emissions	Since Baseline (2006)
9.7% Decrease in Maryland's Annual Greenhouse Gas Emissions since 2006	96.8 Million Metric Tons	96.8 Million Metric Tons	10.4 Million Metrics Tons
	2006	Business as Usual (BAU)	From BAU Estimate
	107.2 Million Metric Tons	121.5 Million Metric Tons	24.7 Million Metric Tons
PROGRESSING	9.7% DECREASE	20% DECREASE	ON TRACK

This site was last updated on December 5, 2014.

How We Might Succeed

Policy Scenario (all in $MMtCO_2e$)	Initial GGRA Plan Reductions	With Plan Enhancements
Total GHG Emissions Reductions	38.87	55.47
Revised Minimum GGRA Goal	55.26	55.26
Goal Shortfall without Market Trends (in red)	**16.39**	0.21
Forecasted Fuel Switching Reductions	4.44	4.25
Transportation Plans and Programs VMT Update	2.78	2.78
Goal Shortfall including Market Trends (in red)	**9.17**	7.24
Revised NET Goal Status that will include upper and lower bounds on projected progress (2015)	**To be determined later this summer after state agency data is received and processed**	**To be determined later this summer after state agency data is received and processed**

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We expect the final status to show that we are very close … or just below … reduction goals with enhancements completed to date and other data updates

Assignments - MDE

Agency	Program
MDE	**C. The Regional Greenhouse Gas Initiative**
MDE	D.1.A. Boiler Maximum Achievable Control Technology (MACT)
MDE	D.1.B. GHG New Source Performance Standard
MDE	D.1.C. GHG Prevention of Significant Deterioration Permitting Program
MDE	E.1.A. Maryland Clean Cars Program
MDE	E.1.C. National Fuel Efficiency and Emission Standards for Medium and Heavy-Duty Trucks
MDE/MDOT	H.1. Evaluating the GHG Emissions Impact of Major New Transportation Projects
MDE	**L. Zero Waste: Maryland's Long-Term Strategy to an 85% Reduction in Generation of Solid Waste by 2030**
MDE	M.2. Leadership-By-Example: Maryland Colleges and Universities
MDE	M.3. Leadership-By-Example: Federal Government
MDE	M.4. Leadership-By-Example: Local Government
MDE	N.1. Voluntary Stationary Source Reductions
MDE/MDOT	O.1. The Transportation and Climate Initiative
MDE	O.2. Clean Fuels Standard
MDE	**Q. Outreach and Public Education**

Assignments - MEA

Agency	Program
MEA	**A. EmPOWER Maryland**
MEA	A.1. EmPOWER Maryland: Energy Efficiency in the Residential Sector
MEA	A.2. EmPOWER Maryland: Energy Efficiency in the Commercial and Industrial Sectors
MEA	A.3. EmPOWER Maryland: Energy Efficiency in Appliances and Other Products
MEA	A.4. EmPOWER Maryland: Utility Responsibility
MEA	A.5. Combined Heat and Power
MEA	**B. The Maryland Renewable Energy Portfolio Standard (RPS)**
MEA	B.1. The Maryland Renewable Energy Portfolio Standard (RPS) Program
MEA	B.2. Fuel Switching
MEA	B.3. Incentives and Grant Programs to Support Renewable Energy
MEA	B.4. Offshore Wind Initiatives to Support Renewable Energy
MEA/MDOT	E.3. Electric and Low Emitting Vehicle Initiatives

Assignments - MDOT

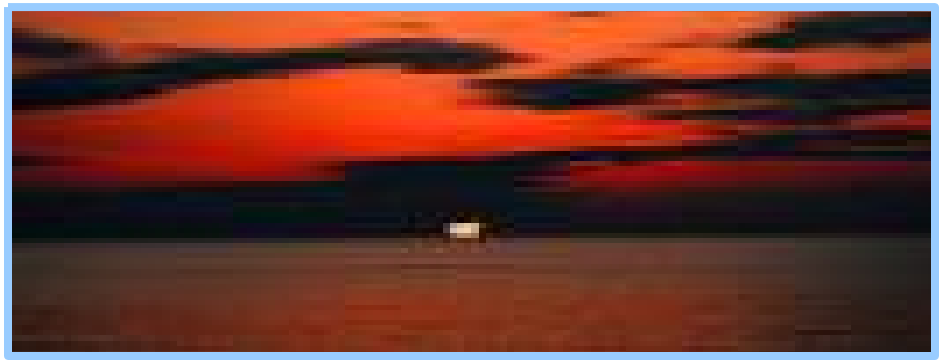
Agency	Program
MDOT	E.1.B. Corporate Average Fuel Economy Standards (CAFÉ): Model Years 2008 – 2011
MDOT	E.1.D. Federal Renewable Fuels Standards
MDOT	E.2. On Road, Airport, Port and Freight/Freight Rail Technology Initiatives
MDOT	E.2.A. On Road Technology
MDOT	E.2.B. Airport Initiatives
MDOT	E.2.C. Port Initiatives
MDOT	E.2.D. Freight and Freight Rail Programs
MDOT	E.3. Electric and Low Emitting Vehicle Initiatives
MDOT	**F. Public Transportation**
MDOT	F.1. Public Transportation Initiatives
MDOT	F.2. Intercity Transportation Initiatives
MDOT	**G. Pricing Initiatives**
MDOT	H.2. Bike and Pedestrian Initiatives
MDOT/MDE	O.1. The Transportation Climate Initiatives

Assignments – DHCD, DNR and MDA

Agency	Program
DHCD	D.2. Main Street Initiatives
DHCD	D.3. Energy Efficiency for Affordable Housing
DHCD	K. Building and Trade Codes in Maryland
DNR	I.1. Managing Forests to Capture Carbon
DNR	I.2. Planting Forests in Maryland
DNR	I.3. Creating and Protecting Wetlands and Waterway Borders to Capture Carbon
DNR	I.4. Biomass for Energy Production
DNR	I.6. Increasing Urban Trees to Capture Carbon
DNR	I.7. Geological Opportunities to Store Carbon
DNR	J.1. Creating Ecosystems Markets to Encourage GHG Emission Reductions
MDA	I.5. Conservation of Agricultural Land for GHG Benefits
MDA	J.2. Nutrient Trading for GHG Benefits
MDA	N.2. Buy Local for GHG Benefits

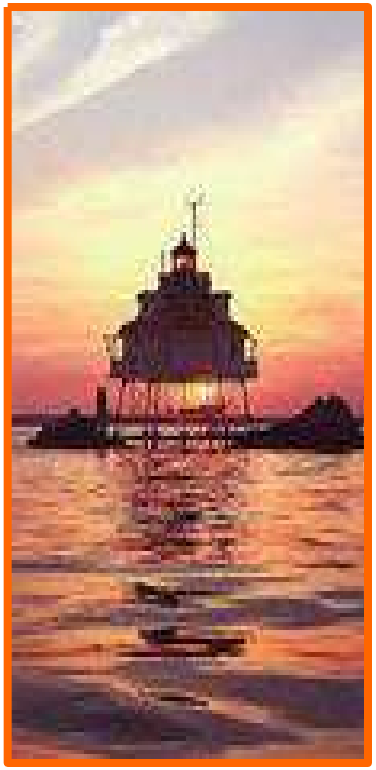
Assignments – DGS, MIA, DBED, MDP

Agency	Program
DGS	M.1. Leadership-By-Example: State of Maryland Initiatives
MIA	N.3. Pay-As-You-Drive Insurance in Maryland
DBED	N.4. Job Creation and Economic Development Initiatives Related to Climate Change
MDP	**P. Land Use Programs**
MDP	P.1. Reducing Emissions through Smart Growth and Land Use/Location Efficiency
MDP	P.2. Priority Funding Area (Growth Boundary) Related Benefits



Our Challenge – MWG Schedule

- May 6 – MDE Programs
- May 21 – MEA and DNR Programs
- June 4 – MDOT and other Agency Programs
- June 24 – With SWG … the science and goal setting, the cost of inaction and environmental justice and climate change (all third party contractual support)
- July 16 - Focus on RESI economic analyses, other contractor supported efforts on economic messaging and blending cost of inaction analyses with traditional economic analysis (all third party contractual support)
- August 14, 2015 – MWG "Mega-Meeting" … Draft Reports
  - 4 to 6 major reports, draft reports for GGRA (MDE lead) and Commission (MDE and MWG) and third party contractor reports
- MWG establishes meeting schedule (post-August 14) to finalize reports by September/October time frames



What We Need From Working Group

- Ways to Strengthen Programs
  - GHG reductions and jobs and the economy
- New Programs
- Potential New Program Components
- Missed Opportunities
- Thoughts on Goals and Programs for the 2030 to 2050 Timeframe
- Other Suggestions and Comments

For More Information

Maryland Department of the Environment

http://www.mde.state.md.us/Pages/Home.aspx

Maryland Smart, Green & Growing

http://climatechange.maryland.gov/