



Department of the Environment

Implementing Maryland's Greenhouse Gas Emission Reduction Act of 2009

Step 1 – The December 2011 Draft of the Plan



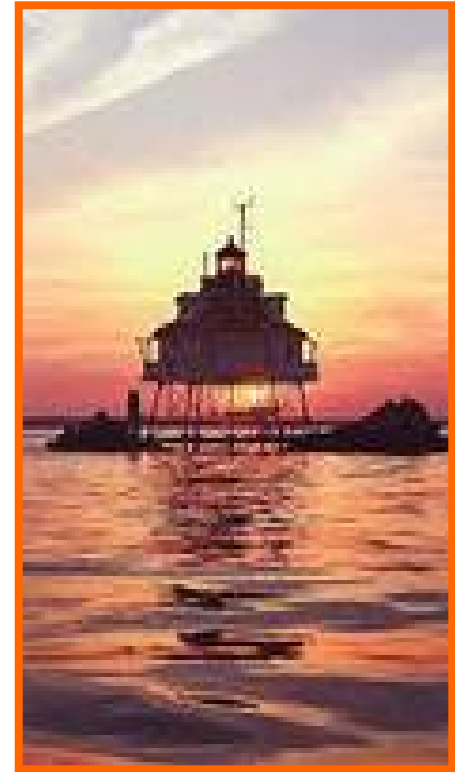
May-June 2012





The December 2011 Draft Plan

- What it is ...
 - A snapshot in time of the States efforts to develop the Plan required by the Greenhouse Gas Emission Reduction Act of 2009 (GGRA)
 - Final Plan due by December 2012
 - A “multi-pollutant” plan that will also provide meaningful benefits to State efforts to further clean up the Chesapeake Bay and air pollution
 - An opportunity for the General Assembly and the general public to comment on and bring forward new ideas on programs to reduce greenhouse gas (GHG) emissions



- What it is not ...
 - A final plan
 - A last chance to provide input
 - A complete picture of the technical and policy work underway at the State
 - There may be new programs added
 - Give us your ideas !!!
 - There is significant additional technical work underway
 - Emission reduction quantification
 - Economic benefits
 - Job creation
 - More



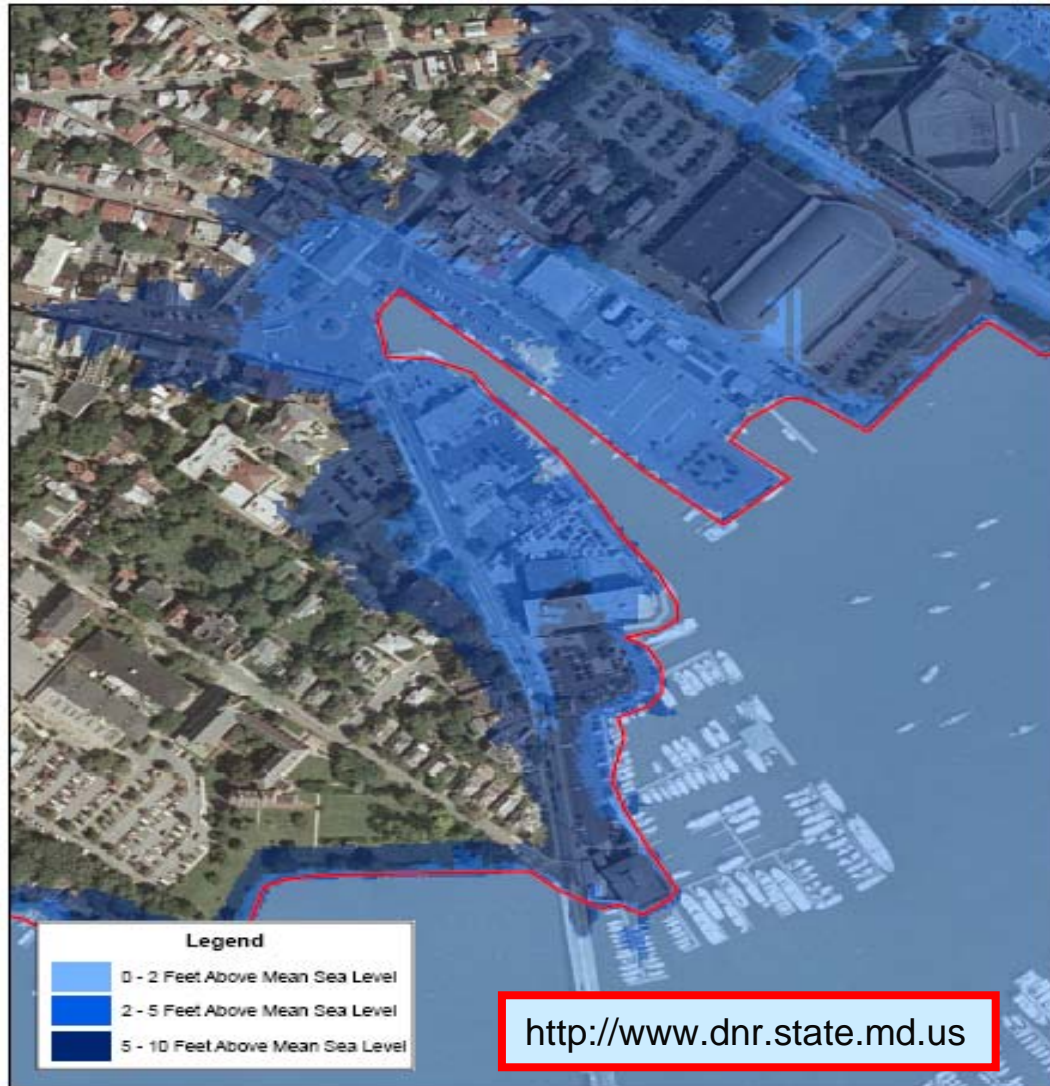
Background

- Maryland is the fourth most vulnerable state to sea level rise
 - One of the major implications of Climate Change
- Maryland is one of five leadership states implementing some form of a state law that requires specific GHG emission reductions
 - Many states have voluntary climate action plans
 - There is no comprehensive Federal program
- Ultimate solution needs to be global
 - State action to “lead the way” is critical



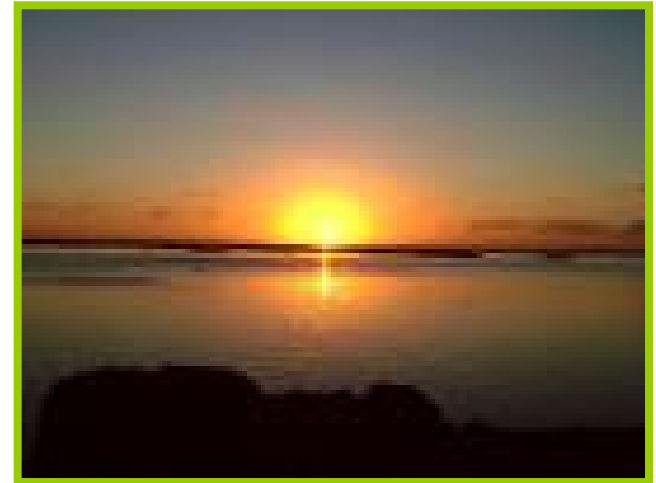
An Example

- Maryland's Vulnerability to Sea Level Rise & Coastal Storms



- Thanks to MD DNR and UMCES
- See web link for more detail

- Established in 2007 by Governor's Executive Order
- 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 (U of M)
- Climate Action Plan finalized in 2008



Early Initiatives in Maryland

- RGGI
 - The Regional Greenhouse Gas Initiative
 - Part of the 2006 Healthy Air Act
- Clean Cars Act of 2007
- EmPOWER Maryland Energy Efficiency Act of 2008
- Renewable Portfolio Standard (RPS)



GGRA of 2009

- Sponsored by Governor O'Malley
 - Supported by many stakeholders
- Minimum 25% GHG emissions reduction (from 2006) by 2020
 - Plan by December 2012
 - Must have a positive impact on Maryland's economy and jobs
- Mandated a multi-agency planning process
 - Coordinated by MDE
- 2008 Climate Action Plan as a roadmap



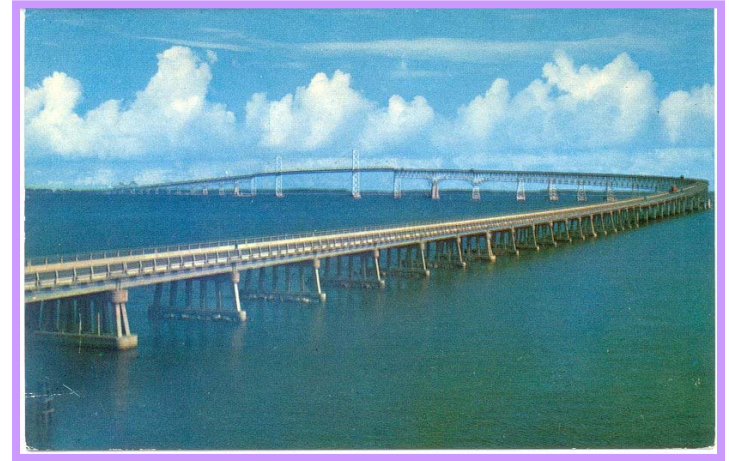
Current Status of the GGRA Plan

- Shows that we are on track to get the 25% by 2020
 - But ... still much work to do
- Programs are the strength of the Plan
 - Efforts to quantify GHG reductions and show job and economic benefits will continue to improve through 2012
- Final plan to Governor and General Assembly by December 2012



Multi-Pollutant Benefits

- More than just a GHG reduction plan
 - The GGRA Plan will also help Maryland meet other critical environmental challenges:
 - Chesapeake Bay
 - Air pollution
 - Ground level ozone
 - Fine particles
 - Nitrogen dioxide
 - Sulfur dioxide
 - Air toxics
 - Mercury
 - Regional haze/visibility



Economics and Job Growth

- GGRA requires that the 2012 Plan
 - Reduce GHG emissions by 25% in 2020
 - Have a net economic benefit to Maryland, and
 - Create new jobs
- Current analyses show that economic benefits could be up to \$6.1 billion by 2020
- Current job creation estimates project as many as 36,000 new jobs from implementing the GGRA
- More detailed, program specific data is being developed and will be in the final December 2012 Plan



Maryland
jobs

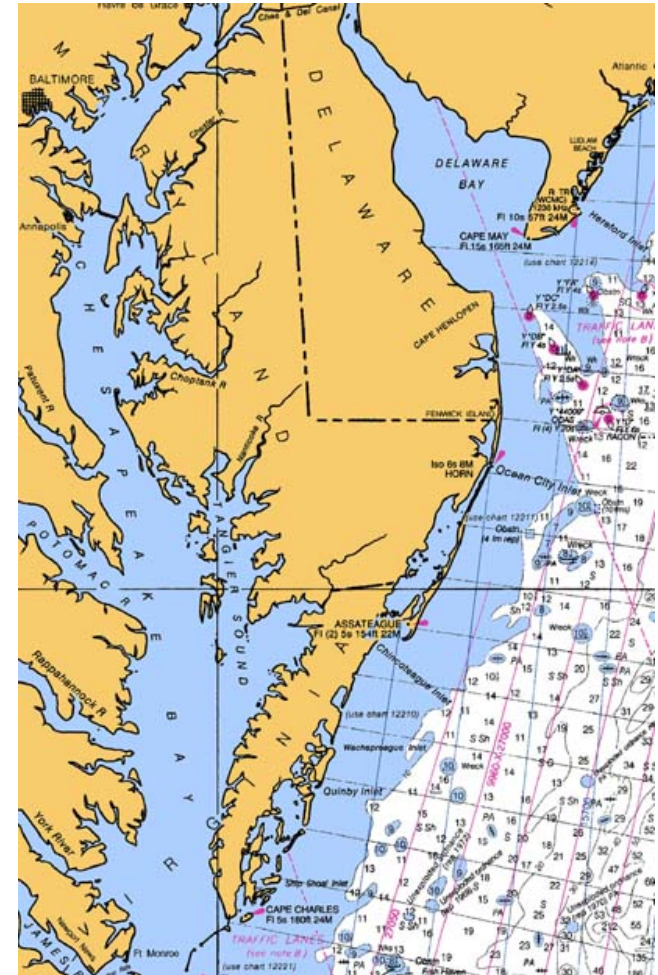
Economic and Job Benefits

- Each \$1 million invested in program implementation generates:
 - 15 jobs
 - \$0.6 million in wages
 - \$1.8 million in output
- Programs will support a total of:
 - 35,981 jobs
 - \$2.1 billion in wages
 - \$6.1 billion in output



GGRA Inventory and Forecast

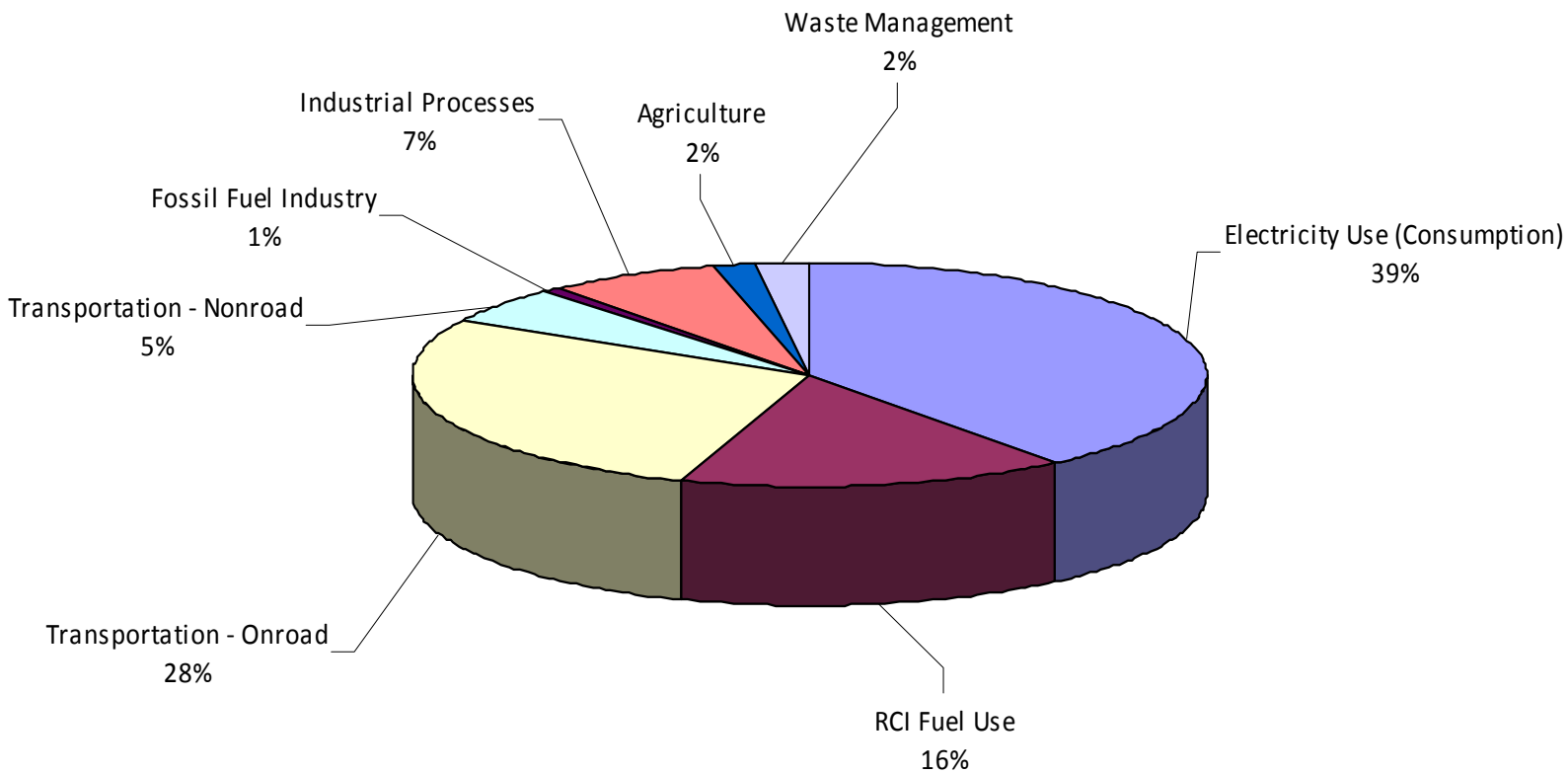
- Update to 2006 inventory used for the Climate Action Plan
- Made available - June 1, 2011
 - 2006 Baseline Inventory
 - Bottom-up
 - 2020 Forecast
 - “Business as Usual”
- Updated inventory for 2011 and every third year thereafter



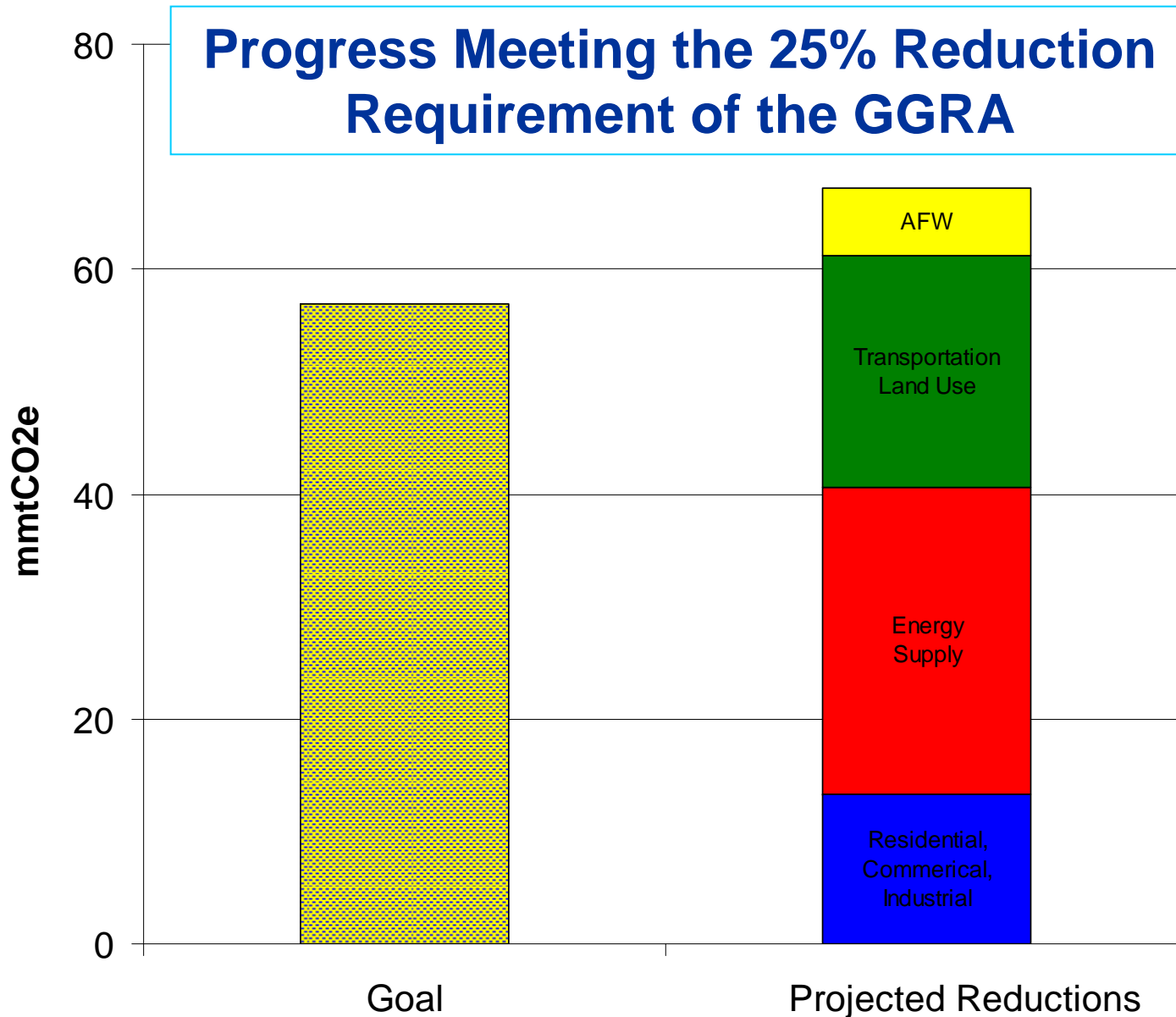


Maryland's Emissions

2006 GHG Emissions by Sector



The Bottom Line





MDE Programs

Program
The Regional Greenhouse Gas Initiative (RGGI)
Maryland Clean Cars Program
National Fuel Efficiency & Emissions Standards for Medium- and Heavy- Duty Trucks
Clean Fuel Standard
Recycling & Source Reduction
GHG Early Voluntary Reductions
GHG New Source Performance Standard
Title V Permits for GHG Sources
The Transportation and Climate Initiative
Leadership-By-Example: Local Government
Leadership-By-Example: Federal Government
Leadership-By-Example: Maryland Colleges and Universities
GHG Emissions Inventory Development
Program Analysis, Goals and Overall Implementation
Outreach and Public Education
GHG Emissions Reductions from Imported Power
Boiler Maximum Achievable Control Technology (MACT)
GHG Prevention of Significant Deterioration Permitting Program
Energy Efficiency in the Power Sector: General





MDOT Programs

Program
Public Transportation Initiatives
Initiatives to Double Transit Ridership by 2020
Intercity Transportation Initiatives
Bike and Pedestrian Initiatives
Pricing Initiatives
Transportation Technology Initiatives
Electric Vehicle Initiatives
Low Emitting Vehicle Initiatives
Evaluate the GHG Emissions Impacts from Major New Projects and Plans
Airport Initiatives
Port Initiatives
Freight and Freight Rail Strategies
Federal Renewable Fuels Standard
Corporate Average Fuel Economy (CAFÉ) Standards: Model Years 2008-2011





MEA Programs

Program
EMPOWER: Energy Efficiency in the Residential Sector
Promoting Hybrid and Electric Vehicles
EMPOWER: Energy Efficiency in the Commercial and Industrial Sectors
Energy Efficiency: Appliances and Other Products
EMPOWER: Utility Responsibility
The Maryland Renewable Energy Portfolio Standard Program
Incentives and Grant Programs to Support Renewable Energy
Offshore Wind Initiatives to Support Renewable Energy
Combined Heat and Power





DNR Programs

Program
Managing Forests to Capture Carbon
Creating Ecosystems Markets to Encourage GHG Emission Reductions
Increasing Urban Trees to Capture Carbon
Creating and Protecting Wetlands and Waterway Borders to Capture Carbon
Geological Opportunities to Store Carbon
Planting Forests in Maryland
Expanded Use of Forests and Feedstocks for Energy Production





Other Agencies' Programs

Program	Lead Agency
State of Maryland Initiatives to Lead by Example	DGS
State of Maryland Carbon and Footprint Initiatives	DGS
Green Buildings	DGS
Main Street Initiatives	DHCD
Building and Trade Codes in Maryland	DHCD
Energy Efficiency for Affordable Housing	DHCD
Reducing GHG Emissions from the Transportation Sector through Land Use and Location Efficiency	MDP
Transportation GHG Targets for Local Governments and Metropolitan Planning Organizations	MDP
Funding Mechanisms for Smart Growth	MDP
GHG Benefits from Priority Funding Areas and Other Growth Boundaries	MDP
Conservation of Ag Land for GHG Benefits	MDA
Buy Local for GHG Benefits	MDA
Nutrient Trading for GHG Benefits	MDA
Pay-As-You-Drive® Insurance in Maryland	MIA
Job Creation and Economic Development Initiatives	DBED
Public Health Initiatives Related to Climate Change	DHMH





The Regional Greenhouse Gas Initiative (RGGI)

- Lead Agency: MDE
- A regional cap-and-trade program (9 Northeast and Mid-Atlantic States)
 - Reduce CO₂ from power sector by 10% by 2019
 - Applies to fossil fuel-fired generators 25MW or greater
- 17.71 million metric tons of CO₂-equivalent estimated to be reduced by 2020
- Each \$1 million investment:
 - Creates 10.6 jobs
 - \$550,495 in wages
 - Contributes \$503,712 to State GDP
- By 2020:
 - Creates and retains 430.1 jobs
 - \$23,561,470 in wages
 - Annually contributes \$83,248,576 to State GDP
- Program mandated by State law
 - Fully implemented and enforceable through COMAR 26.09





Maryland Clean Cars Program

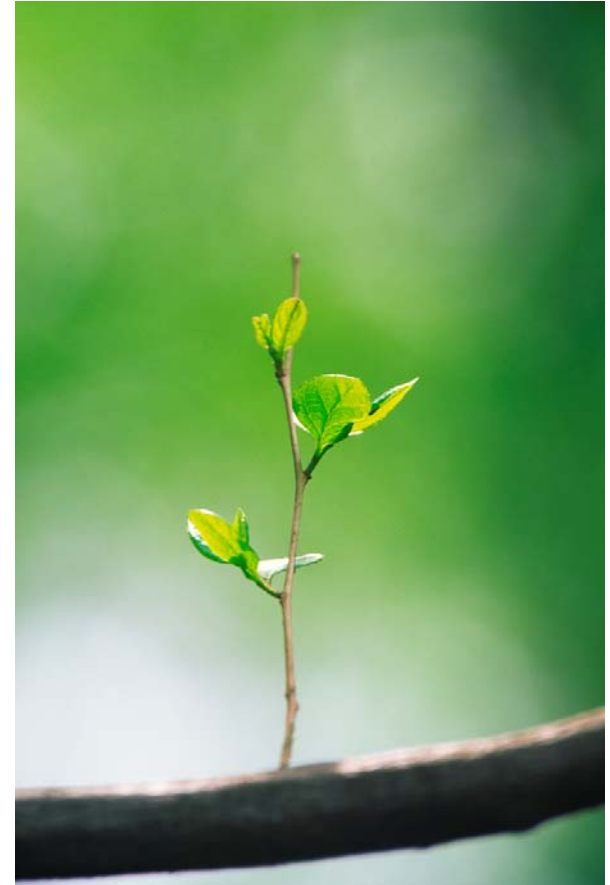
- Lead Agency: MDOT
- Maryland Clean Cars Act of 2007 required MDE to adopt and implement the California Clean Cars Program.
 - Establishes a GHG emission standard based on fleet-wide averages
 - Began with model year 2011
- 9.48 million metric tons of CO₂-equivalent estimated to be reduced by 2020
- Each \$1 million investment:
 - Creates 8.6 jobs
 - \$426,770 in wages
 - Contributes \$440,822 to State GDP
- By 2020:
 - Creates and retains 84.9 jobs
 - \$3,496,984 in wages
 - Annually contributes \$11,230,937 to State GDP
- Program mandated by the Maryland Clean Cars Act of 2007
 - Fully implemented and enforceable through COMAR 26.11.34





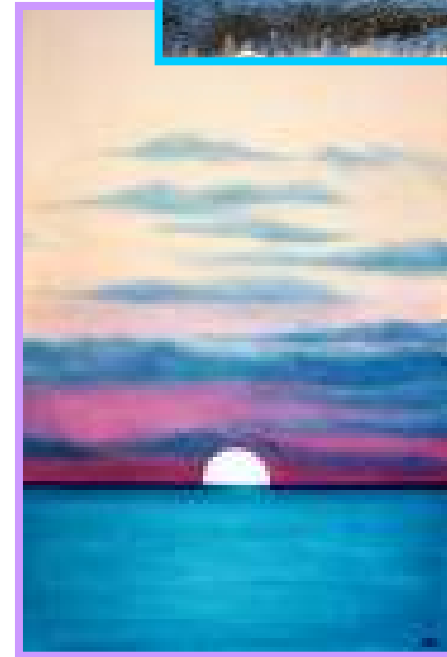
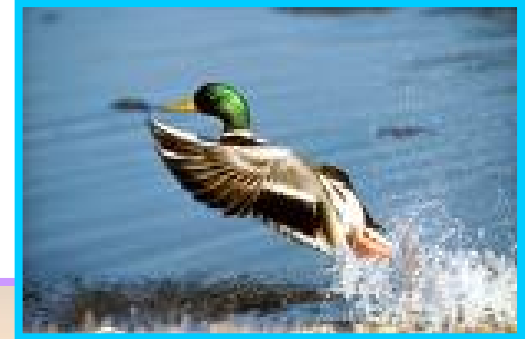
The EMPOWER Maryland Programs

- Lead Agency: MEA
- Launched by 2007 Executive Order and Codified in 2008
 - Reduce per capita electricity use by MD consumers by 15% by 2015
- 7.27 million metric tons of CO₂-equivalent estimated to be reduced by 2020
- Programs are mandated and funded by State law
 - State Government Article, §9-20B



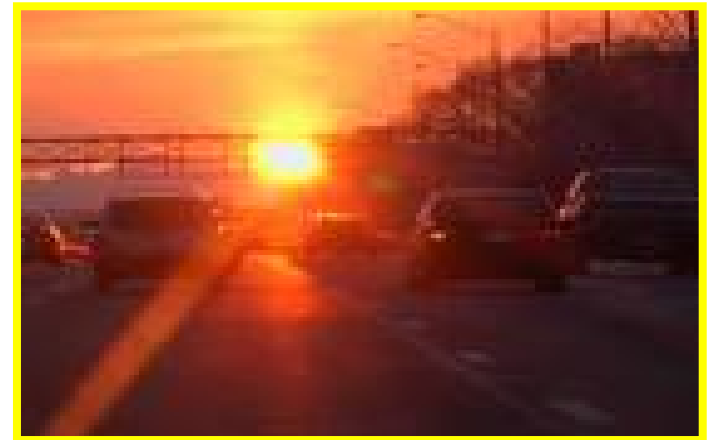
What else is in the draft plan?

- The multi-pollutant benefits of climate planning
- Economic benefits and job creation
- Cost of inaction update
- Update on adaptation policies
- Policy language and emission benefit estimates



A Work in Progress

- Two iterations of the Plan
 - December 2011 Draft GGRA Plan
 - Final to Governor and General Assembly in December 2012
- Significant additional analyses by the end of 2012
 - Emission reduction quantification
 - Economic benefits
 - Job creation and protection



The Schedule

- Draft GGRA Plan submitted to Governor and General Assembly
- Across-the-State stakeholder meetings in May and June 2012
 - Comments accepted through August 17, 2012
- All agencies continue to improve GHG reduction measures in the Plan and analyses of emission reductions, job creation and economic benefits
- Continue to implement existing programs like RGGI and EmPOWER Maryland
- Final Plan to Governor and General Assembly by December 2012



Questions?

