MARYLAND

Department of the Environment

The Greenhouse Gas Emission Reduction Act of 2009

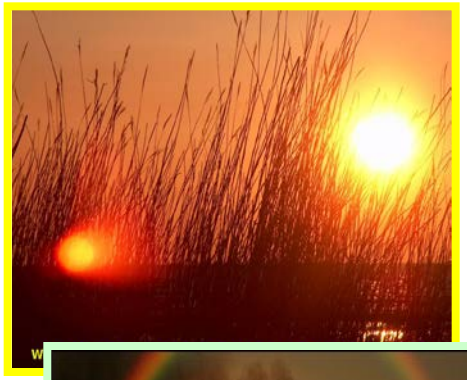
Step 1 – The 2011 Proposed Plan

March 26, 2012
MD Sustainable Growth Commission Meeting
Tad Aburn - Air Director, MDE

MDE

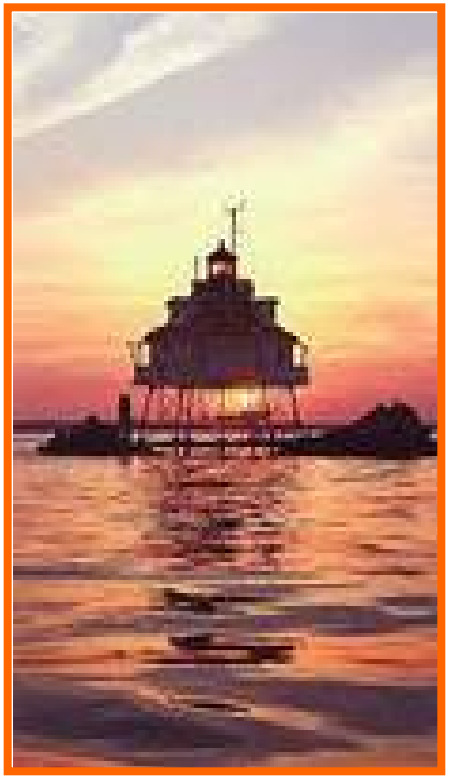
Topics

- The December 2011 Proposed Plan
  - What it is and what it is not
- Background
  - How did we get here?
  - What does the GGRA law require and by when?
- What's in the Plan?
  - What are the control measures?
  - Which agencies are responsible for which measures?
  - What are the reductions?
  - What are the implications for jobs and the economy
  - What's left do be completed by the end of 2012?
- The Schedule



The 2011 Proposed 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



The 2011 Proposed Plan

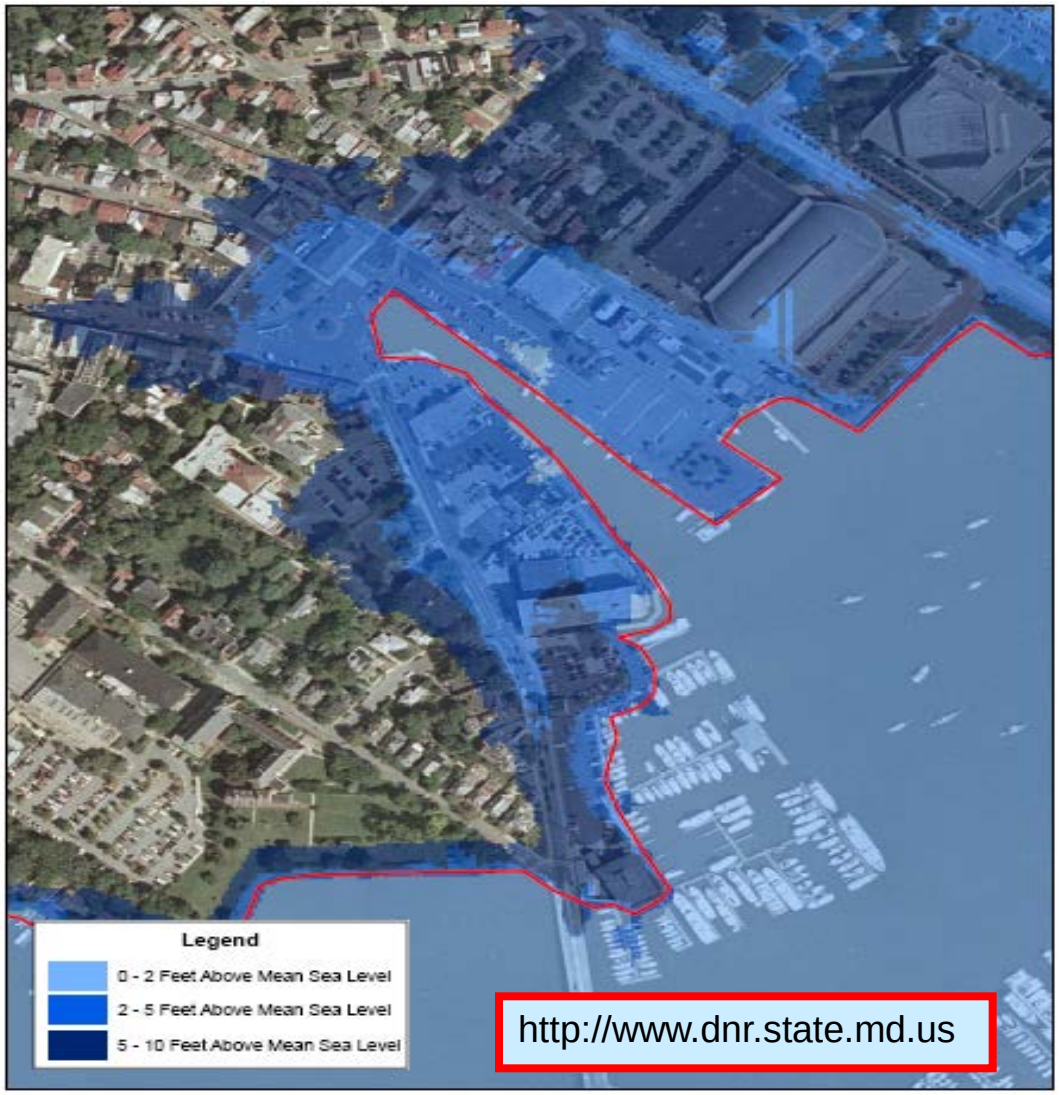
- What it is not …
  - A final plan
  - A last chance to provide input
    - “Across the State” public meetings in mid-2012
  - A complete picture of the technical and policy work underway at the State
    - There may be new programs added
      - Give us your ideas !!!
    - There is significant additional 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



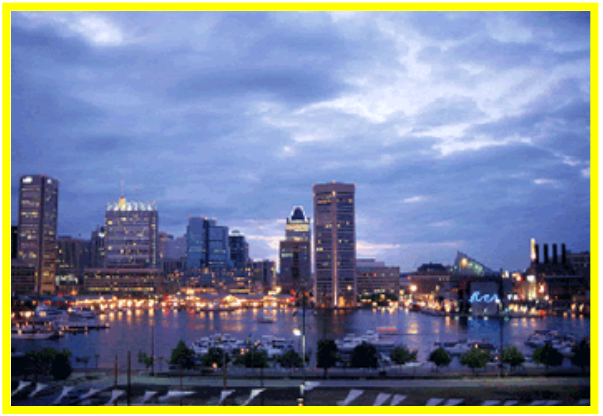
- **Thanks to MD DNR and UMCES**
- **See web link for more detail**

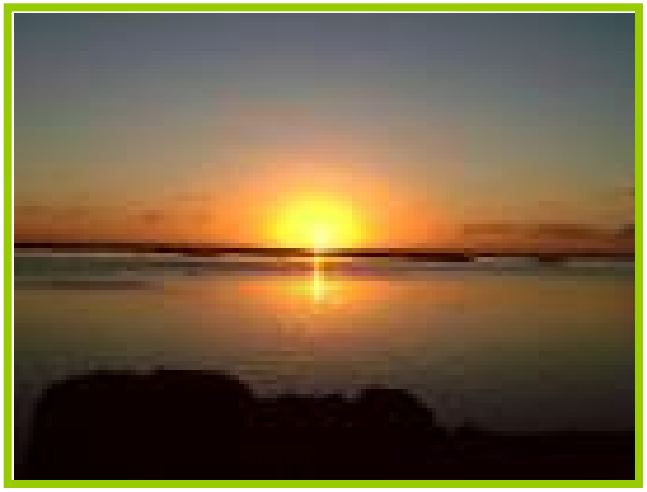
Background

- Maryland Commission on Climate Change
- Early Actions
- The 2008 Maryland Climate Action Plan
- The GGRA of 2009

Commission on Climate Change

- 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 Standards (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

The Economic Studies

- Multiple Studies
  - Towson's Regional Economic Studies Institute (RESI)
  - University of Maryland's Center for Integrative Environmental Research (CIER)
- Two major products
  - 2011 RESI Study
    - Economic and job benefits from each of the 65 programs in the plan
  - 2010 RESI and CIER Synthesis Analysis
    - Synthesis of conclusions from earlier studies
      - 2008 Climate Action Plan
      - DBED, RGGI and other studies
- All studies see an overall positive impact on jobs and the economy

Economics and Job Growth

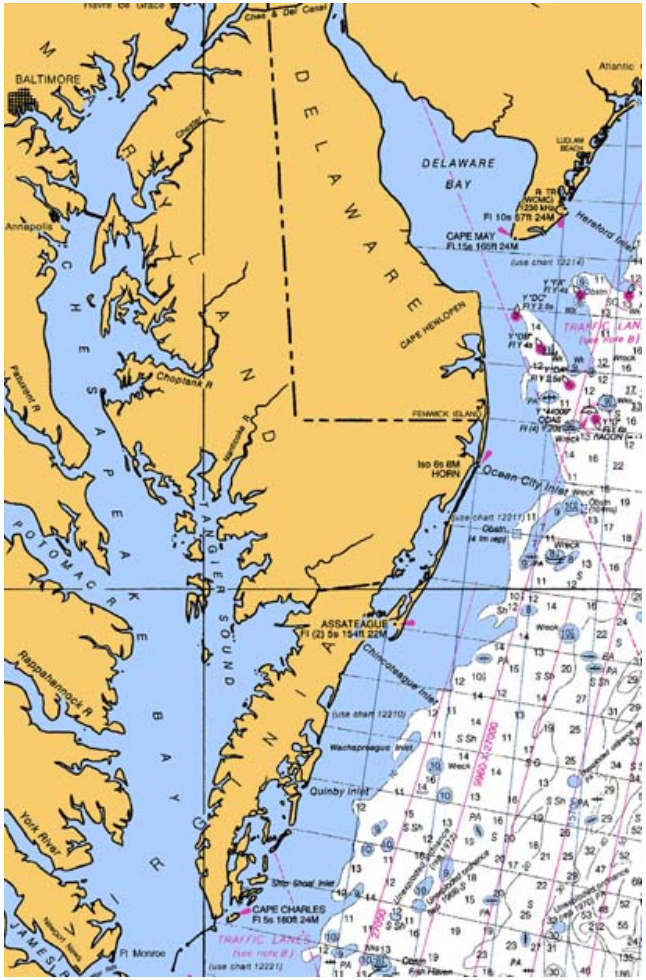
- GGRA requires that the 2012 Plan
  - Reduce GHG emissions by 25% in 2020
  - Have a net economic benefit to Maryland, and
  - Create new jobs

- Preliminary analyses show that the plan – once fully operational – will support annual benefits of:
  - About 36,000 jobs
  - About $6 Billion in economic output
  - About $2 Billion in wages

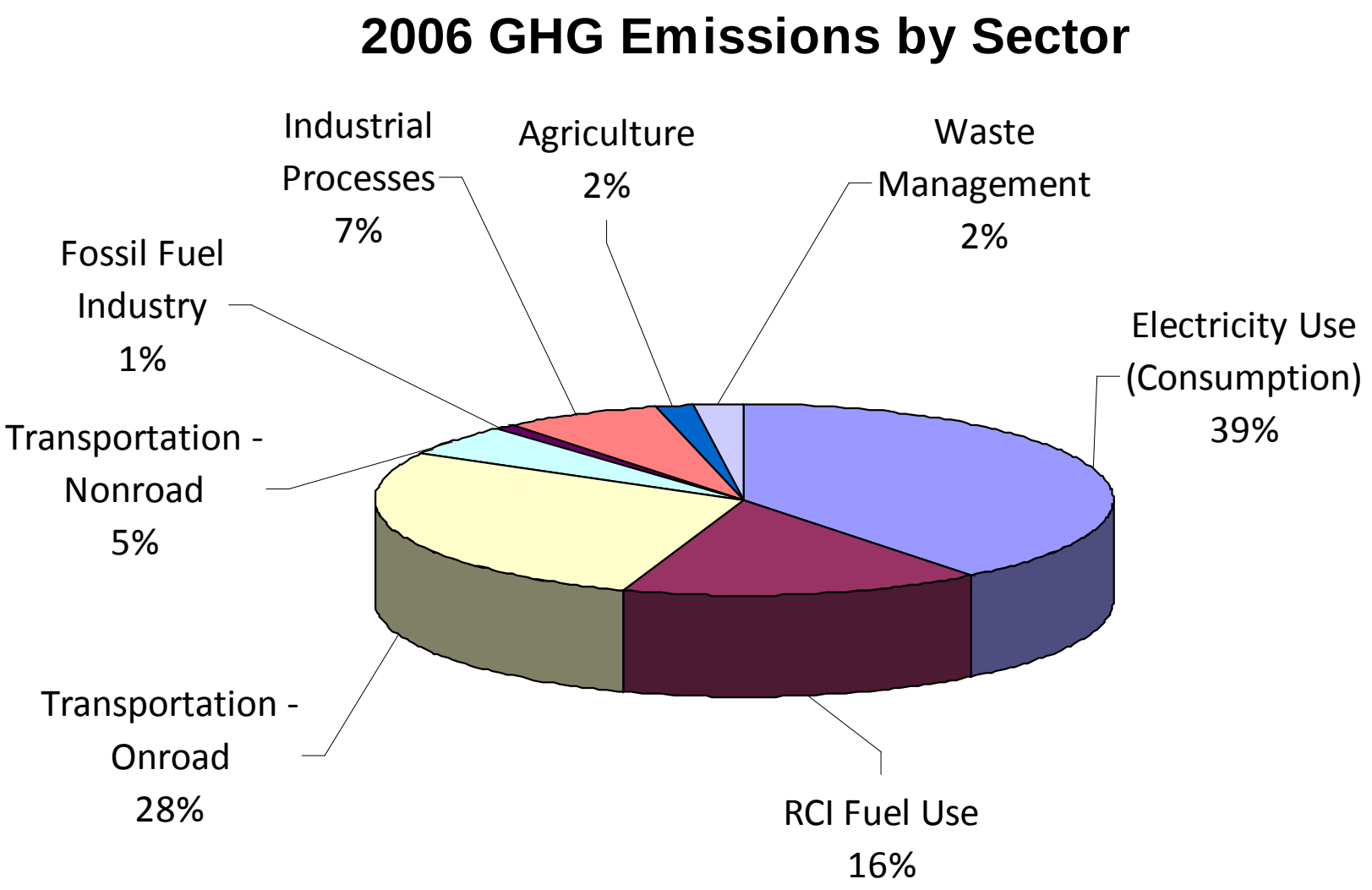
- More detailed analysis is being developed and will be in the final December 2012 Plan

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
  - Periodic inventory designed to track progress

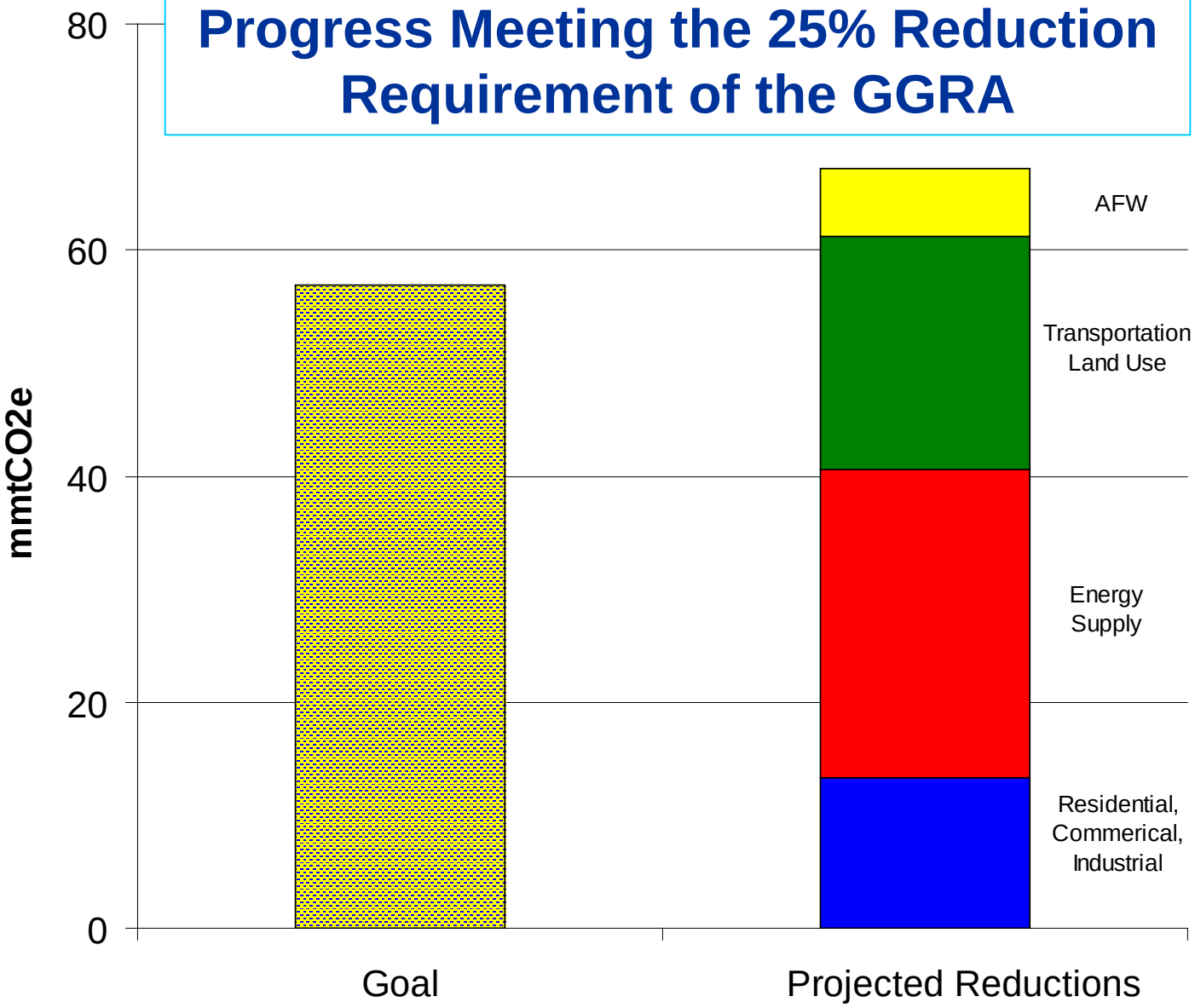


Maryland's Emissions



The Bottom Line

Progress Meeting the 25% Reduction Requirement of the GGRA



Comparing the Proposed GGRA Plan

… to the 2008 Climate Action Plan

- 65 control programs now – 42 in 2008
- 57 Million metric ton reduction required now – 50 in 2008
  - To get to 25% by 2020
- Most programs now being implemented – Many, in 2008, more “conceptual”
- About $6 Billion net economic output estimated now - $2 Billion in 2008
- Silver buckshot … no silver bullets

MDE Programs

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

MDOT Programs

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

MEA Programs

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

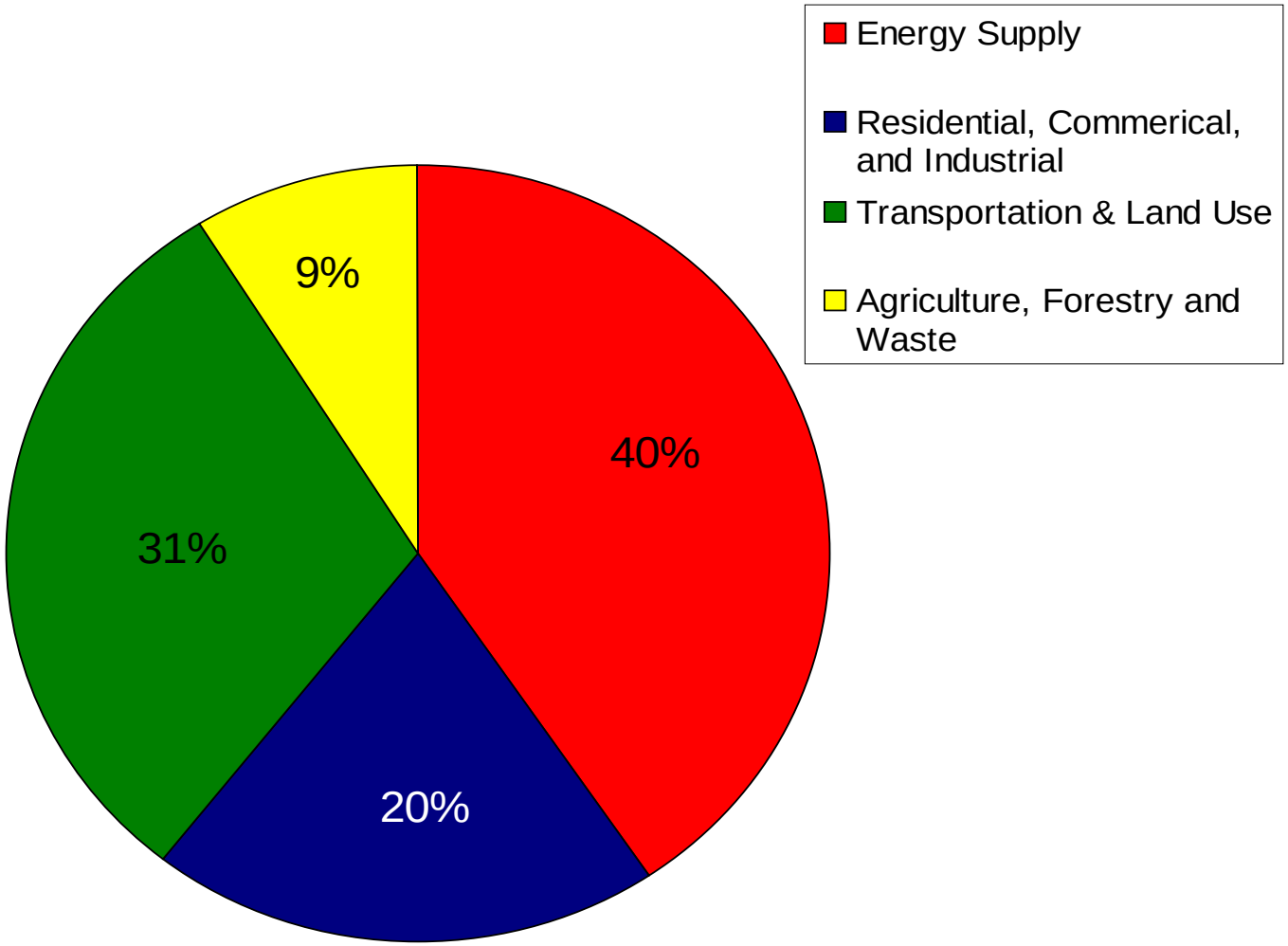
DNR Programs

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

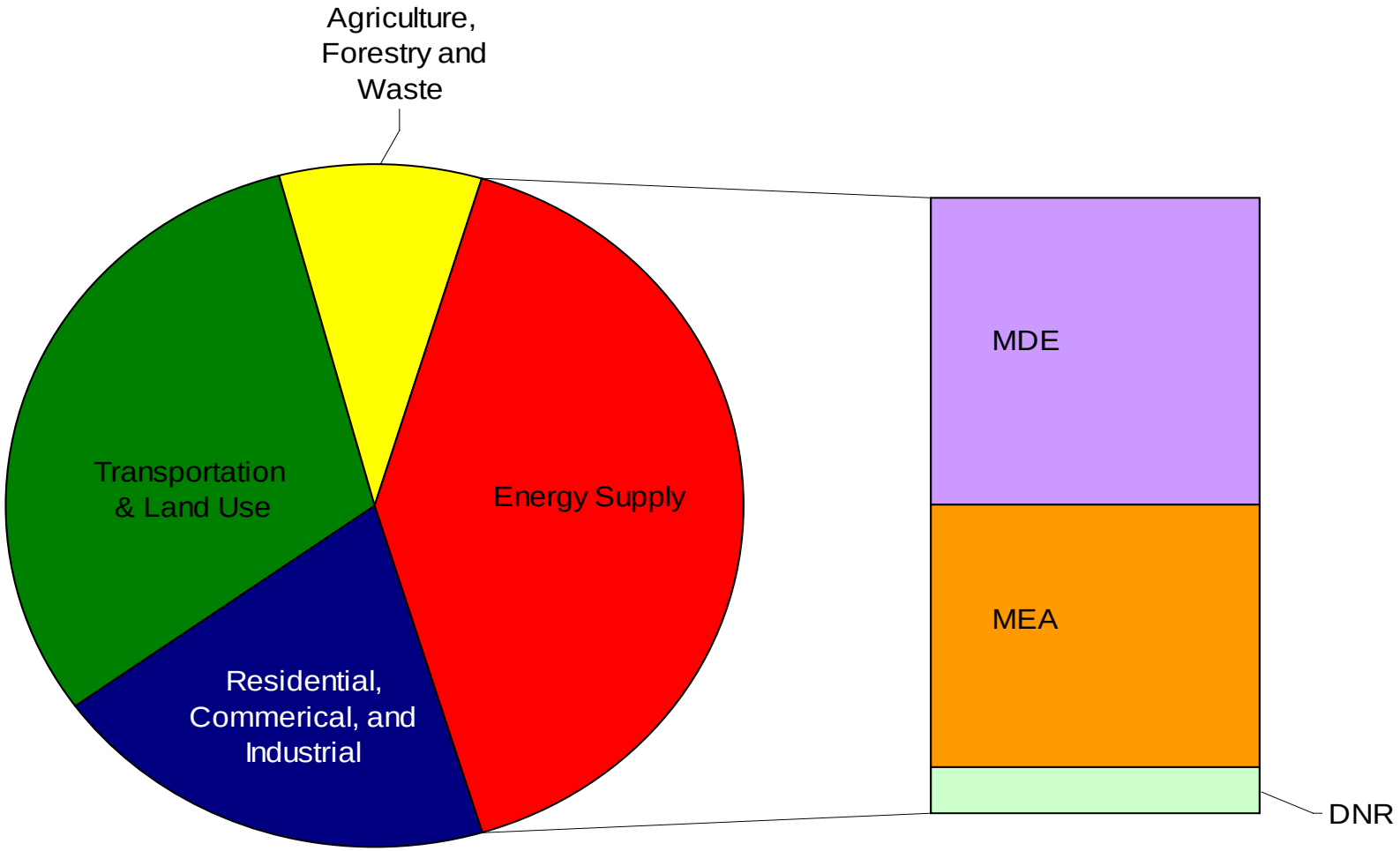
Other Agencies' Programs

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

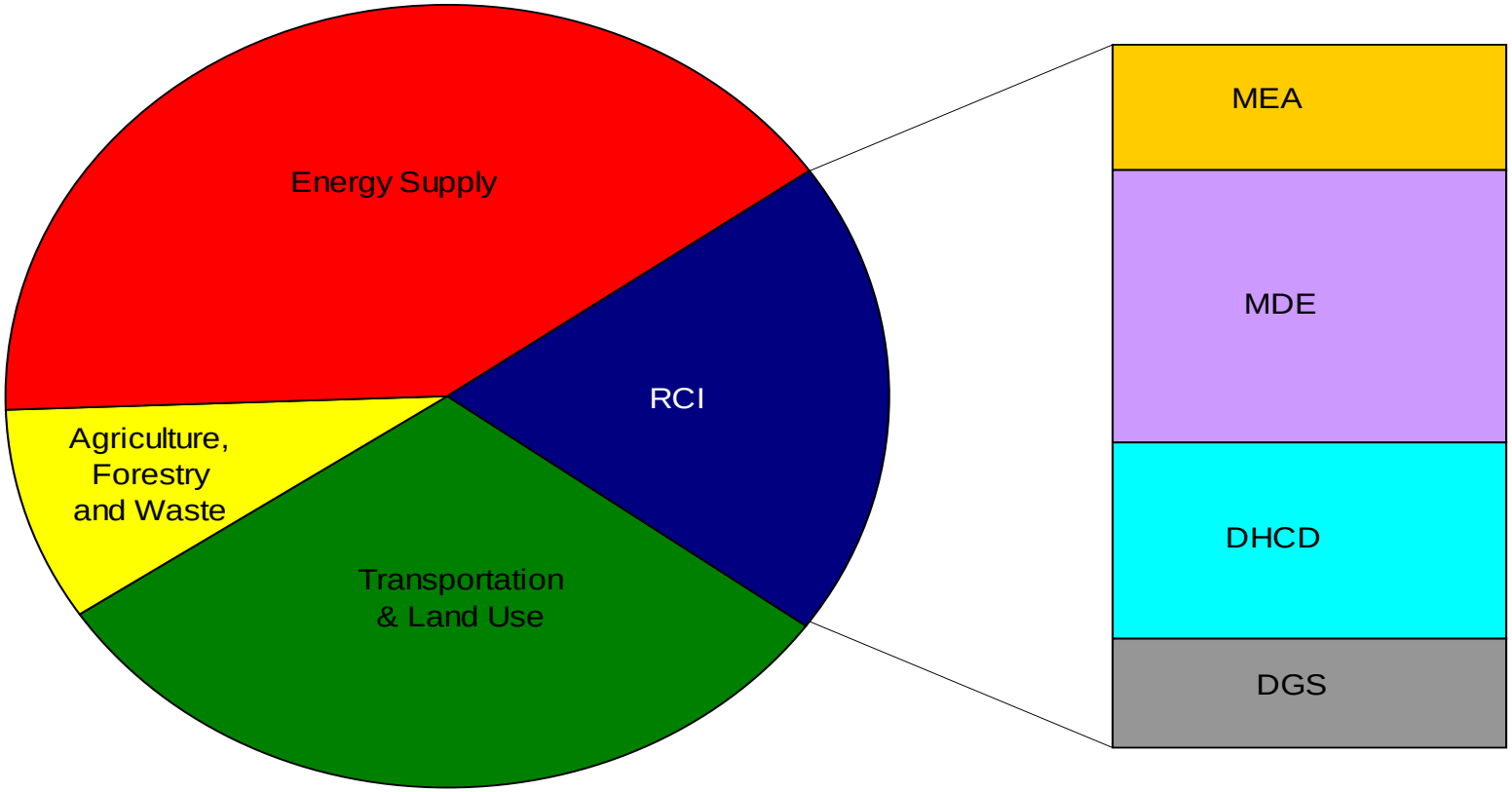
Reductions by Sector



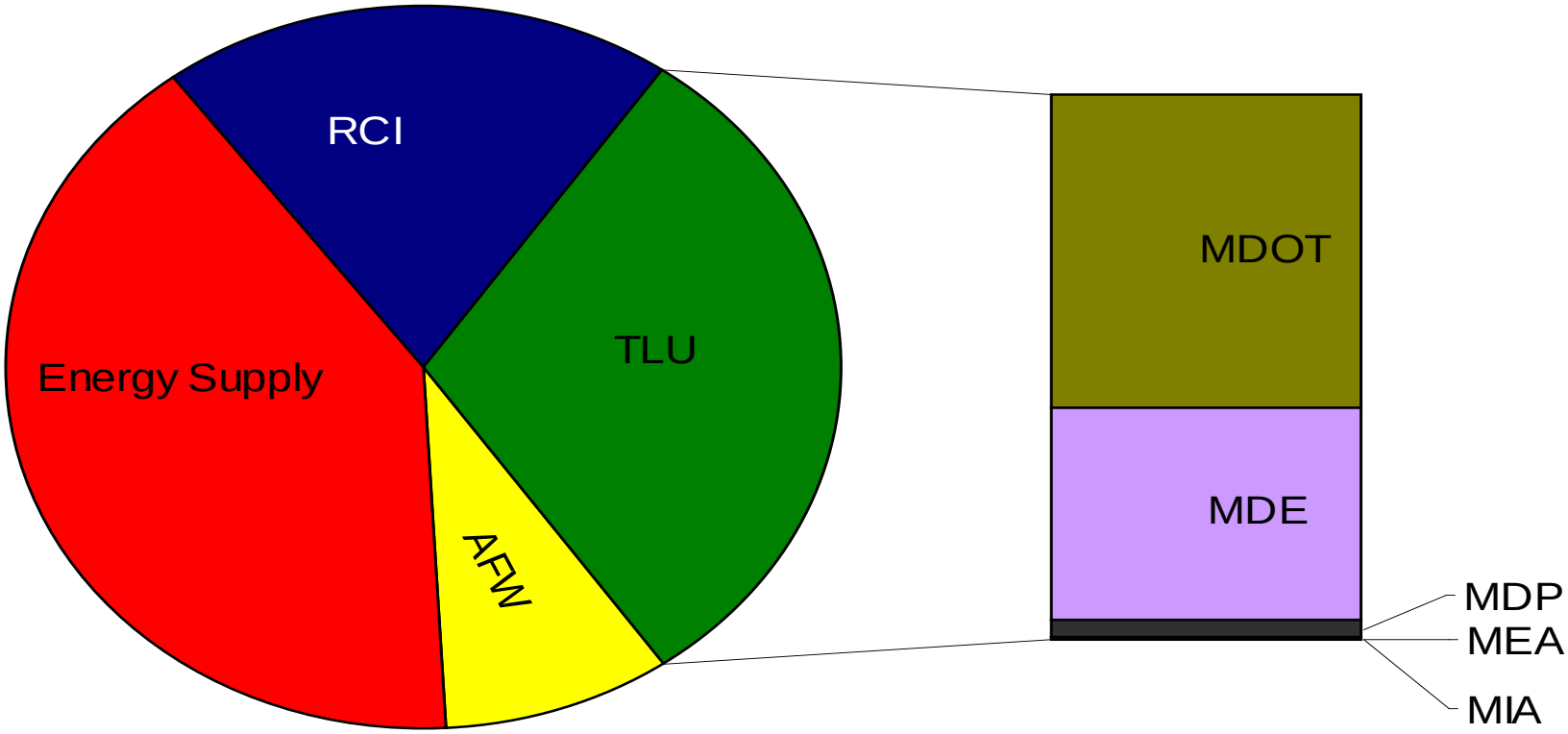
Energy Sector Reductions



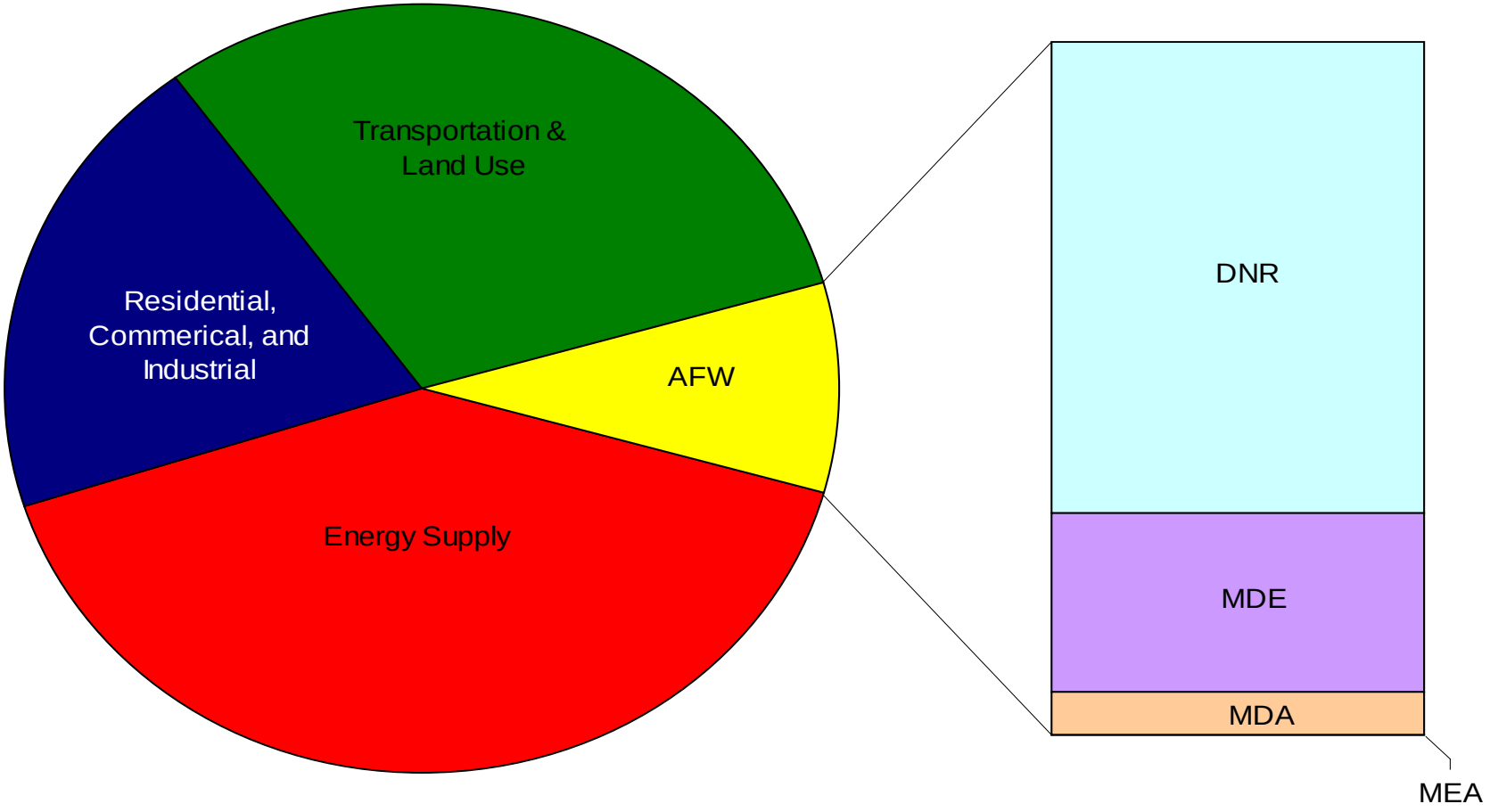
Residential, Commercial and Industrial Sector Reductions



Transportation Sector Reductions



Agricultural, Forestry and Waste Sector Reductions



Example Programs

- RGGI
- Clean Cars
- Buy Local

RGGI

- Lead Agency: MDE
- A regional cap-and-trade program (9 Northeast and Mid-Atlantic States)
  - Reduce GHG emissions from power sector by 10% by 2019
- About 17 million metric ton reduction by 2020
- By 2020:
  - Projected to create and retain about 430 jobs
    - About $23 Million in wages
  - Annually contributes about $83 Million to State GDP
- Program mandated by State law
  - Fully implemented and enforceable through MDE regulations

Maryland Clean Cars Program

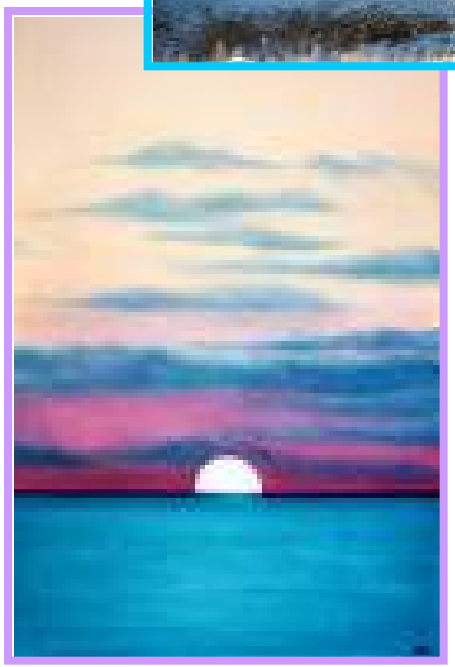
- Lead Agencies: MDE and MDOT
- Requires that cars sold in Maryland meet a GHG emission standard based on fleet-wide averages
  - Began with model year 2011
  - Links to federal fuel economy standards
- About 9.5 million metric ton reduction by 2020
- By 2020:
  - Projected to create and retain about 85 jobs
    - About $3 Million in wages
  - Annually contributes about $11 Million to State GDP
- Program mandated by the Maryland Clean Cars Act of 2007
  - Fully implemented and enforceable through MDE regulations

Buy Local Programs

- Lead Agency: MDA
- Promotes local farms as preferred sources of food to Marylanders
  - Helps agricultural producers market products directly to supermarket, food service, institutional, wholesale buyers, and consumers.
- A very small (0.05 million metric ton) reduction by 2020
- By 2020:
  - Projected to create and retain about 2,800 jobs
    - About $170 Billion in wages
  - Annually contributes about $481 Billion to State GDP
- A voluntary program

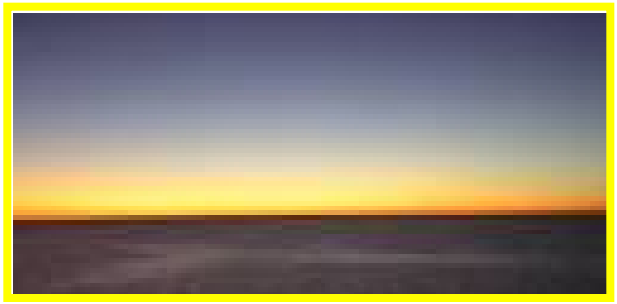
What else is in the draft plan?

- 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



The Schedule

- Early 2012
  - Proposed Plan to Governor and General Assembly
  - Briefings as requested
- Spring/Summer 2012
  - Public meetings and workshops across the State
- Spring/Summer/Fall 2012
  - Additional analyses by State agencies and expert contractors
- December 2012
  - Final plan submitted to the Governor and General Assembly
- 2015 – Status Report and Manufacturing Study
- 2016 – Reduction goals revisited by the General Assembly



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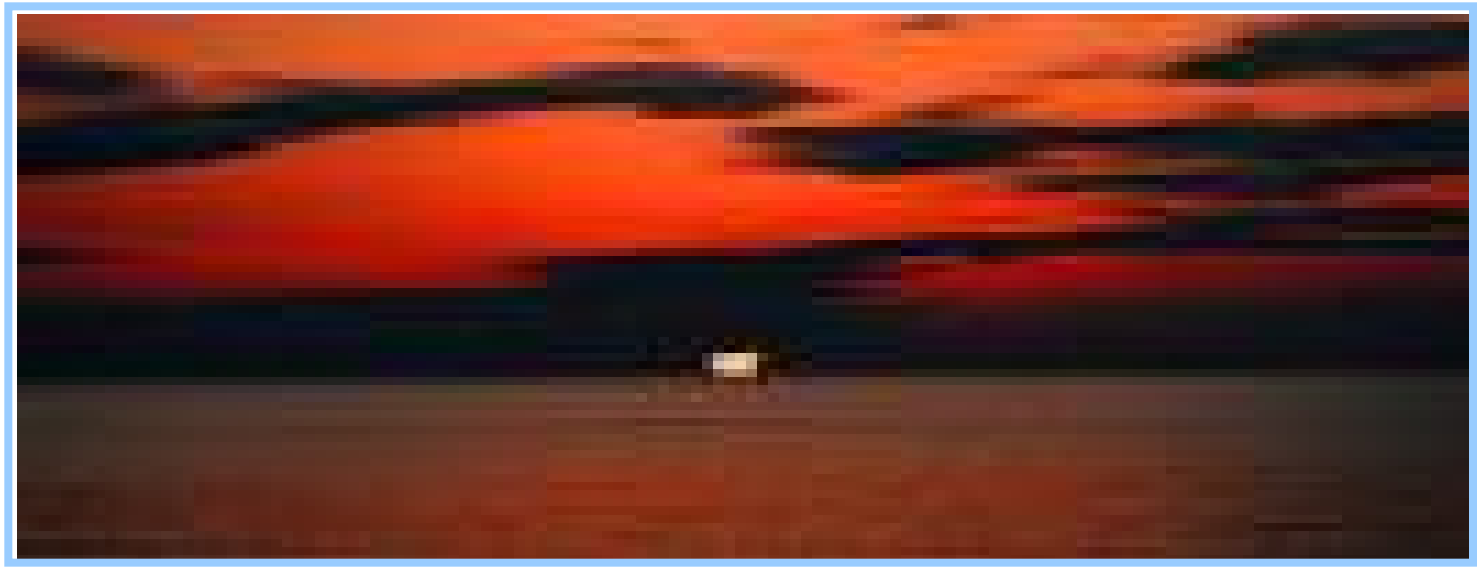
Questions?



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