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The Greenhouse Gas Emission Reduction Act of 2016

August 2016 Update - What do we know about 40 by 30?

Brian Hug, Program Manager

Mitigation Working Group Meeting - August 22, 2016

Presentation Overview

- The Greenhouse Gas Emission Reduction Act (GGRA) of 2016
- What do we know about a 40% reduction by 2030?
- The Mitigation Working Group (MWG) process and schedule

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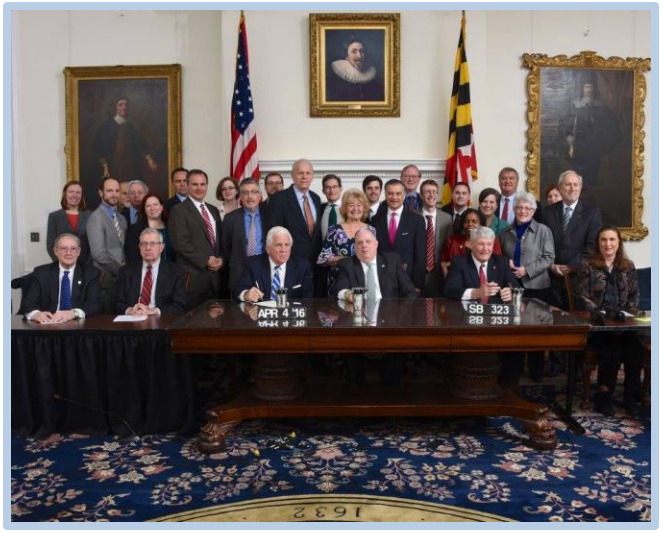
Summary of GGRA of 2016

- Original GGRA was adopted in 2009
  - 25% reduction by 2020
- Reauthorized and enhanced GGRA of 2016 signed into law on April 4, 2016
- Builds from recommendations of the Maryland Climate Change Commission (MCCC)
  - Senator Pinsky and Delegates Stein and Barve sponsored and shepherded identical bills that moved steadily and smoothly through the General Assembly
  - Many other MCCC members played critical roles
- Core elements of new law
  - 40% reduction by 2030
  - Must support a healthy economy and create new jobs
  - Maintains structure and safeguards from 2009 law



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GGRA - A Balanced Approach to Address Climate Change

- The law continues to include a balanced set of requirements and safeguards
  - Greenhouse gas (GHG) emission reductions, economic progress, new jobs and more…
- Key safeguards include:
  - Manufacturing sector not covered unless through a federal rule
  - Mid-Course status report from MDE on GHG emission reductions, jobs and the economy
  - Mid-Course reaffirmation of goals by the General Assembly
    - … or the law sunsets

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Other Critical Balancing Provisions

- Reauthorized GGRA maintains all of the key issues that are part of the balance that allowed the 2009 and 2016 legislation to pass with support from all interested parties

- For example, the 40 by 30 Plan must:
  - Produce a net economic benefit to the State's economy and a net increase in State jobs
  - Encourage new employment opportunities in the State related to energy conservation, alternative energy supply, and greenhouse gas emissions reduction technologies
  - Ensure that the plan does not decrease the likelihood of reliable and affordable electric service and statewide fuel supplies

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More Balance

- The 40 by 30 Plan must also:
  - Not disproportionately impact rural or low–income, low–to-moderate–income, or minority communities or any other particular class of electricity ratepayers
  - Not directly cause the loss of existing jobs in the manufacturing sector
  - Consider the impact on rural communities of any transportation related measures
  - Provide credit for voluntary action
  - Consider whether the measures would result in an increase in electricity costs to consumers in the State
  - Attract, expand and retain aviation services
  - Conserve, protect, and retain agriculture
  - Minimize methane emissions

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The Basic 40 by 30 Schedule

- 2016, 2017 and 2018 - MDE, other State agencies, MWG and stakeholders research and build the 40% by 2030 reduction plan
  - Stakeholder meetings across the State
- December 31, 2018 - Draft plan to Governor and General Assembly
- December 31, 2019 - Final plan to Governor and General Assembly
- October 1, 2022 - MDE owes mid-course status report
  - Emission reductions
  - Jobs, the economy … more
- October 1, 2022 – Manufacturing study due
- December 1, 2023 – Law terminates if not reauthorized

40 by 30 - What Do We Know?

- Many of the control programs in the current "25% by 2020" plan will continue to generate deeper reductions as they are implemented through 2030
  - Mobile source measures will be critical as federal rules kick in and fleets "turn over"
  - Energy sector reductions should also continue to increase

- Other factors should also be helpful in getting to 40 by 30
  - As we continue to improve reduction estimates, we may be able to use less cautious discount factors for projected benefits
    - We currently discount the credit for many measures by 30%
  - Natural gas and travel trends continue to be interesting

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Transportation Sector

Key mobile source programs that will drive significant post-2020 reductions

State and Federal Mobile Source Programs
The Maryland Clean Cars Program
Federal Light Duty Fuel Economy (CAFÉ) Standards (2012 to 2016)
Federal Tier 3 Vehicle and Fuel Standards (2017 to 2025)
Federal Phase 1 Medium and Heavy Duty GHG Standards (2014 to 2018)
Federal Renewable Fuel Standards
Federal Phase 2 Medium and Heavy Duty GHG Standards (proposed)
Federal GHG Reductions from Aircraft (just starting)

Energy and Other Sectors

Key Programs that will drive post-2020 reductions

Energy Sector
Regional Greenhouse Gas Initiative (RGGI)
Potential Clean Power Plan/CPP Plan/CPP (within Maryland and in states from which Maryland imports energy)
Empower Maryland/PSC 2015 Energy Efficiency Goals
Renewable Portfolio Standard

Other Sectors
Forestry and Sequestration
Building Codes and Trade Codes
Leadership by Example/Partnerships

New and Enhanced Programs

… that may be a critical piece of post-2020 reductions

New
Short-Lived Climate Pollutants
Creative Financing
Enhanced State/Local/Federal Partnerships

Low Hanging Fruit Enhancements
Zero Emission and Electric Vehicle Efforts - Electric Vehicle Infrastructure Council Transportation Climate Initiative (TCI)
Continued Efforts on Energy Efficiency and Renewable Energy Initiatives
Sequestration Efforts
Zero Waste and Recycling Efforts

Some of the New Activities Considered in Today's Update to the 40 by 30 Projection

- MDOT updating transportation sector modeling to refine the emission reduction estimates for federal and state mobile source programs out to 2030
  - The Maryland Clean Cars Program
  - Federal Light Duty Fuel Economy Standards (2012 to 2016)
  - Federal Tier 3 Vehicle and Fuel Standards (2017 to 2025)
  - Federal Phase 1 Medium and Heavy Duty GHG Standards (2014 to 2018)
  - Federal Renewable Fuel Standards
  - Federal Phase 2 Medium and Heavy Duty GHG Standards (proposed)
  - Federal GHG Reductions from Aircraft (just starting)
- MDE is actively participating in the 2016 RGGI Program Review
  - An update on RGGI
  - Significant analysis ongoing
- MEA investigating the benefits of CHP (Combined Heat and Power) programs
- MDOT and MDE moving forward on zero emission vehicles (ZEVs) … including electric vehicles
  - Electric Vehicle Infrastructure Council (EVIC)

The Bottom Line

- Very difficult to project exactly how big the 40 by 30 challenge will be
- To provide a rough estimate, MDE staff has attempted to bound the challenge
- A very optimistic estimate and a less optimistic estimate

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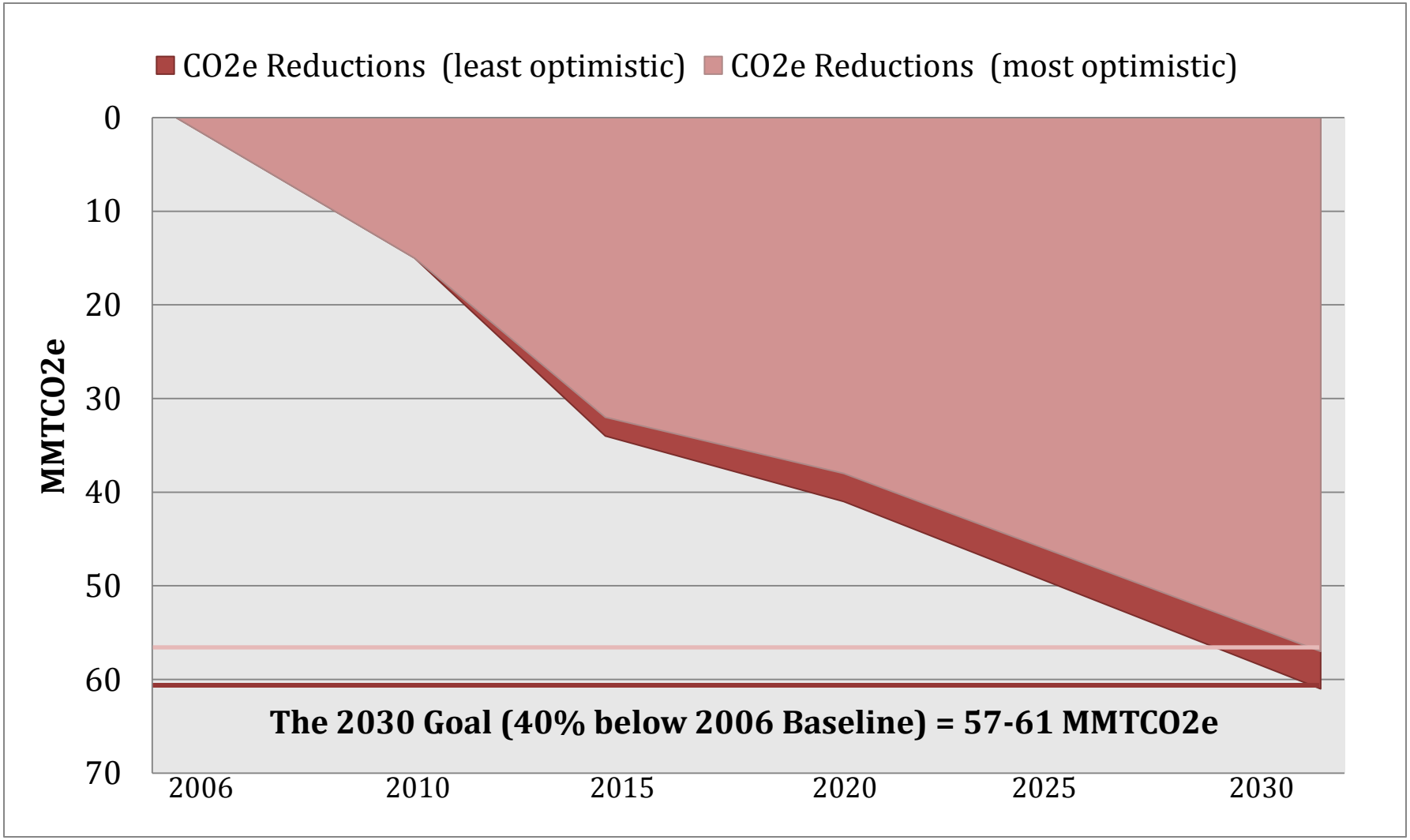
MDE Current Projection:
Reductions needed to meet GGRA Goals



MDE Initial Projection

… the challenge of 40 by 30

	Estimated Reductions Needed *Most Optimistic*	**Estimated Reductions Needed** *Least Optimistic*
Reductions needed by 2030 to achieve a 40% reduction (with different growth assumptions)	57 $MMtCO_2e$	61 $MMtCO_2e$
Rough, preliminary estimate of where we will be with 40 by 30 based upon programs that are in the works	**-2 $MMTCO_2e$ (surplus - more than 40 by 30)**	16 $MMtCO_2e$ (additional reductions needed)

$MMtCO_2e$ = Million Metric Tons of Carbon Dioxide Equivalent

Questions?

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