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The Greenhouse Gas Emission Reduction Act of 2016

40% by 2030



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CEEPC September 28, 2016

Presentation Overview

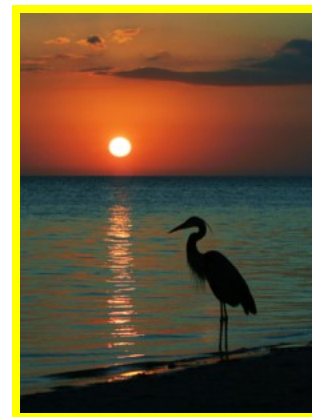
- The Greenhouse Gas Emission Reduction Act (GGRA) of 2009
- The Greenhouse Gas Emission Reduction Act (GGRA) of 2016
- What do we know about a 40% reduction by 2030?
- Process and schedule



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GGRA of 2009

- Required that Maryland develop and implement a plan to reduce greenhouse gas (GHG) emissions by 25% by 2020
- The law also required that the plan support a healthy economy and create new jobs
- Required a status report/update from MDE in October of 2015
 - The update report summarized
 - Emission reductions
 - Economic benefits and jobs
 - How to move forward
 - Numerous other issues



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The 2015 MDE Update Report

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- Generally good news and a path forward
 - The GGRA Plan appears to have us on a pace to meet the 25% reduction by 2020 GHG emission reduction requirement
 - We have achieved these reductions in a way that has a positive impact on Maryland’s economy and on job creation
 - The state should move beyond the 2020 GHG goal by adopting a “next step” of incremental progress towards the deeper reductions needed by 2050
 - This next phase should include an increased focus on a healthy economy and generating more jobs in Maryland
 - There are emerging issues that should be built into ongoing and future planning and analyses
 - Methane leakage, fast acting climate changers, increasing efforts on resiliency, etc.



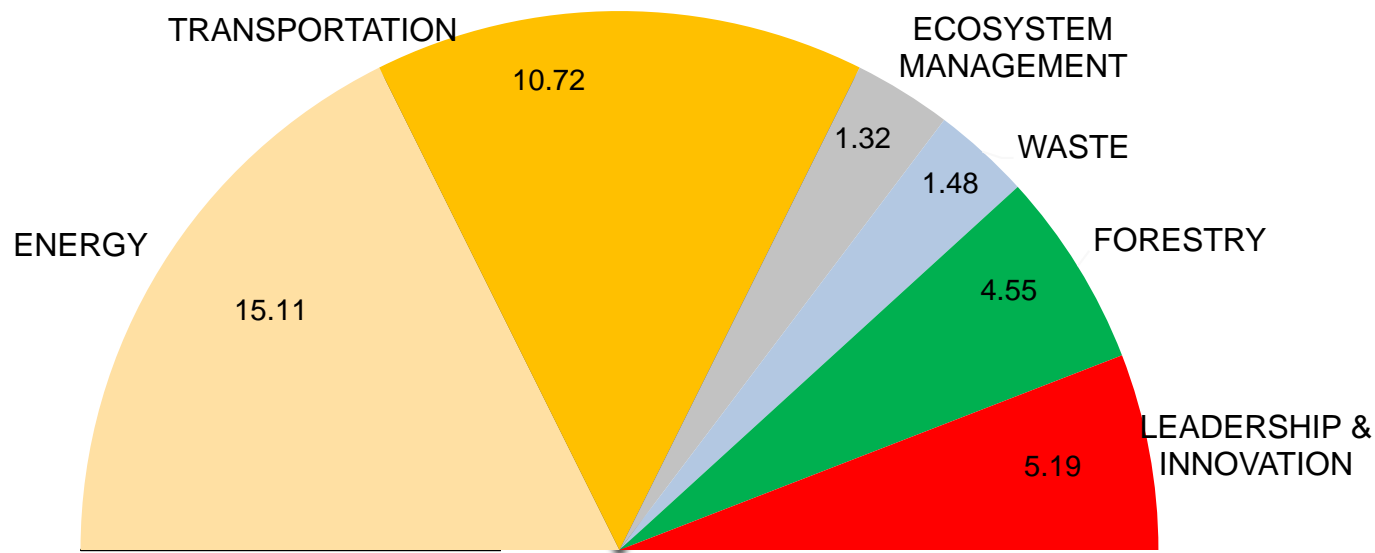
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GGRA 2020 Requirement

The Bottom Line

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- The 25% by 2020 Reduction Requirement = 34.36 MMtCO₂e*
- Reductions expected by 2020 = 38.37 MMtCO₂e



CO₂ Emission Reductions by Sector (MMtCO₂e)



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* MMtCO₂e = Million Metric Tons of Carbon Dioxide Equivalents

Economic Benefits and Jobs

- The 2015 GGRA Plan Update includes refined estimates of the economic benefits and job creation driven by the Plan
- Also includes real world examples of economic benefits and job creation
- Win, Win, Win programs are abundant – programs where we see reductions in GHG emissions, net economic benefits and additional new jobs

	2015 GGRA Update
Net Economic Benefit in 2020	\$2.5 to \$3.5 Billion in economic output
Jobs Created and Maintained in 2020	26,000 to 33,000 jobs



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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

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- 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



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 and the economy
- 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

The Bottom Line

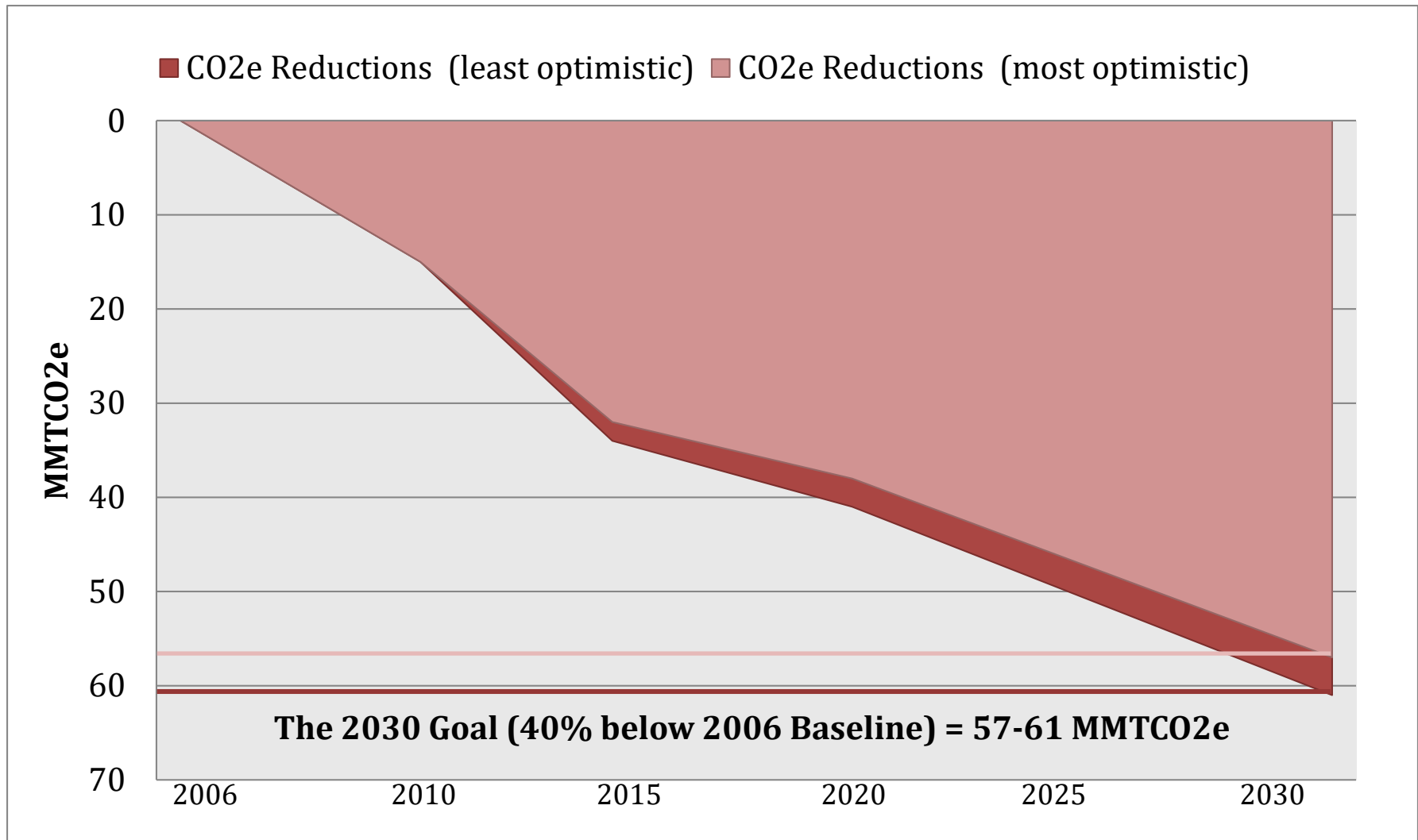
- Very difficult to project exactly how big the 40 by 30 challenge will be
- To provide a rough estimate, MDE staff has attempted to bound the challenge
- A very optimistic estimate and a less optimistic estimate



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MDE Current Projection: Reductions needed to meet GGRA Goals

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MDE Initial Projection

... *the challenge of 40 by 30*

	Estimated Reductions Needed <i>Most Optimistic</i>	Estimated Reductions Needed <i>Least Optimistic</i>
Reductions needed by 2030 to achieve a 40% reduction (with different growth assumptions)	57 MMtCO ₂ e	61 MMtCO ₂ e
Rough, preliminary estimate of where we will be with 40 by 30 based upon programs that are in the works	-2 MMtCO₂e (surplus - more than 40 by 30)	16 MMtCO ₂ e (additional reductions needed)

Questions?

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