
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
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
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
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
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
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
**Transportation Sector**

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

<table>
<thead>
<tr>
<th>State and Federal Mobile Source Programs</th>
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<tbody>
<tr>
<td>The Maryland Clean Cars Program</td>
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<td>Federal Tier 3 Vehicle and Fuel Standards (2017 to 2025)</td>
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<td>Federal GHG Reductions from Aircraft (just starting)</td>
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Energy and Other Sectors

Key Programs that will drive post-2020 reductions

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<tr>
<th>Energy Sector</th>
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<tr>
<td>Regional Greenhouse Gas Initiative (RGGI)</td>
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<tr>
<td>Potential Clean Power Plan/CPP Plan/CPP (within Maryland and in states from which Maryland imports energy)</td>
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<td>Empower Maryland/PSC 2015 Energy Efficiency Goals</td>
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<td>Renewable Portfolio Standard</td>
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<tr>
<td>Forestry and Sequestration</td>
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<td>Building Codes and Trade Codes</td>
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<td>Leadership by Example/Partnerships</td>
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New and Enhanced Programs

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

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<td>Short-Lived Climate Pollutants</td>
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<td>Creative Financing</td>
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<td>Enhanced State/Local/Federal Partnerships</td>
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<th>Low Hanging Fruit Enhancements</th>
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<td>Zero Emission and Electric Vehicle Efforts - Electric Vehicle Infrastructure Council Transportation Climate Initiative (TCI)</td>
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<tr>
<td>Continued Efforts on Energy Efficiency and Renewable Energy Initiatives</td>
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<tr>
<td>Sequestration Efforts</td>
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<td>Zero Waste and Recycling Efforts</td>
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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 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
MDE Current Projection:
Reductions needed to meet GGRA Goals

The 2030 Goal (40% below 2006 Baseline) = 57-61 MMTCO2e
MDE Initial Projection

... the challenge of 40 by 30

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<th>Estimated Reductions Needed</th>
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<tr>
<td><strong>Most Optimistic</strong></td>
<td><strong>Least Optimistic</strong></td>
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<td>Reductions needed by 2030 to achieve a 40% reduction (with different growth assumptions)</td>
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<td>57 MMtCO₂e</td>
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<td>-2 MMTCO₂e (surplus - more than 40 by 30)</td>
<td>16 MMtCO₂e (additional reductions needed)</td>
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MMtCO₂e = Million Metric Tons of Carbon Dioxide Equivalent
Questions?