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# Scoping Out Our Work for 2016

*GGRA Reauthorization... What Do We Know About 40  
by 30... Draft MWG 2016 Schedule*

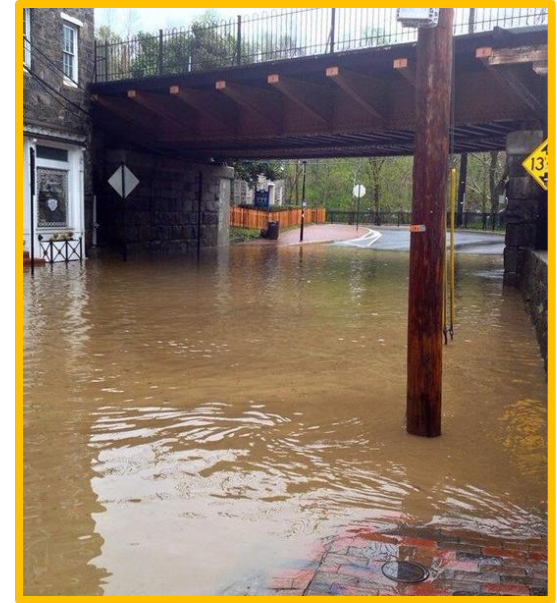


Tad Aburn  
Mitigation Working Group Meeting  
February 29, 2016

# Presentation Overview

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- Greenhouse Gas Emission Reduction Act (GGRA) Reauthorization
  - SB 323 / HB 610
- What's in the works for 40 by 30?
- MDE straw proposal
  - Priorities and schedule for MWG in 2016



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# Summary of SB 323

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- The GGRA was adopted in 2009
  - Requires a reauthorization in 2016 or the requirements of the law sunset
- SB 323 proposed by Senator Pinsky builds from the recommendations of the Maryland Climate Change Commission (MCCC)
  - Reauthorizes and enhances 2009 law
- Core elements of bill
  - 40% reduction by 2030
  - Must support a healthy economy and create new jobs
  - Maintains structure and safeguards from 2009 law



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# Key Safeguards in the 2009 GGRA

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- Maintaining the framework and safeguards of the 2009 law are an important part of SB 323
- Safeguards include:
  - Manufacturing sector not covered unless through a federal rule
  - Mid-Course status report from MDE on greenhouse gas (GHG) emission reductions, jobs and the economy
  - Mid-Course reaffirmation of goals by the General Assembly
    - ... or the law sunsets

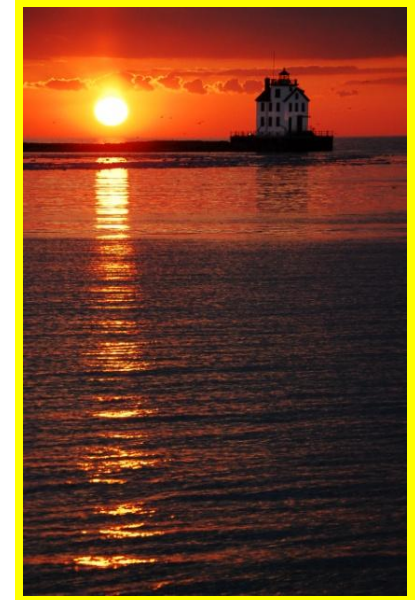


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# Other Critical Issues in SB 323

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- SB 323 maintains all of the key issues that were part of the balance that allowed the 2009 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 & 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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# Other Critical Issues in SB 323

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- The 40 by 30 Plan must (continued):
  - 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
  - Not disproportionately impact rural or low-income, low-to-moderate-income, or minority communities or any other particular class of electricity ratepayers
  - Minimize leakage



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# The 40 by 30 Schedule in SB 323

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- 2016, 2017 and 2018 - MDE, other State agencies, MWG and stakeholders research and build 40 by 30 plan
  - Stakeholder meetings across the State
- December 31, 2018 - Draft plan
- December 31, 2019 - Final plan
- 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
- October 1, 2027 – MDE owes second mid-course status report if the law is reauthorized



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A bright sun shining through a blue sky with white clouds. The sun is positioned in the upper right quadrant, casting rays across the sky. The clouds are scattered and fluffy, adding texture to the scene. The overall color palette is dominated by various shades of blue and white.

Pause For A Few  
Questions



# 40 by 30 - What Do We Know?

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- Many of the control programs in the 25 by 20 plan will continue to generate deeper reductions as they are implemented through 2030
  - Mobile source measures will be critical as 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 appear to be close to 30 (not 25) by 2020 with the current plan
  - Natural gas and travel trends continue to be interesting



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# Four Steps to 40 by 30

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1. What is the 40 by 30 reduction goal?
2. How far will the 25 by 2020 plan get us?
3. What “On-the-Books” or “On-the-Way” (OTB/OTW) programs in the 25 by 2020 plan achieve even deeper reductions between 2020 and 2030?
4. How can enhancements to the 2020 plan and “new” strategies help close the gap?



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# 40 by 30 - The Numbers

A 40% by 2030 reduction goal requires not only a 40% reduction from 2006 levels but also that all growth between 2006 and 2030 be offset. All values in MMtCO<sub>2</sub>e.

The 2030 goal (40% below 2006 Baseline) = 64

Where will we be in 2030 with no action?  
Emissions = 121 to 125

Reduction Required to meet 2030 goal = **57 to 61**  
(121 - 64 = 57 / 125 - 64 = 61)

These are very rough estimates and much of the work for the MWG over the next 3 years will be to strengthen and refine these numbers.

# Approaching 30% by 2020?

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- We have historically used a reduction factor of 30% to discount emission reduction estimates because of quantification uncertainties and potential overlapping programs
  - Current analyses indicate that 10% may be a more appropriate reduction factor
  - This will be an issue that the MWG will work on over the next 3 years
- 2020 reductions with 30% factor are approximately 38 MMtCO<sub>2</sub>e (about a 26% reduction)
- 2020 reductions with 10% factor are approximately 41 MMtCO<sub>2</sub>e (about a 28% reduction)



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# Progress Summary - Step 2

*... with nothing but 2020 reductions from 2020 plan*

<b>Reduction Scenario</b>	<b>Estimated Reductions Most Optimistic</b>	<b>Estimated Reductions Least Optimistic</b>
Reductions needed by 2030	57 MMtCO <sub>2</sub> e	61 MMtCO <sub>2</sub> e
Benefits from 2020 plan in 2030	41 MMtCO <sub>2</sub> e	38 MMtCO <sub>2</sub> e
Gap with no new 2020 to 2030 reductions at all	16 MMtCO <sub>2</sub> e	23 MMtCO <sub>2</sub> e

# The Gift that Keeps on Giving

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- Many of the strategies in the 2020 plan continue to generate even deeper reductions between 2020 and 2030
  - These reductions are already on-the-books or on-the-way (OTB/OTW)
- This is most obvious in the transportation sector where the strategies provide greater and greater reductions as the vehicle fleet turns over between 2020 & 2030
- Other examples include forestry and energy efficiency programs



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# Transportation Sector

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*OTB/OTW Programs that will drive post 2020 reductions*

## **OTB/OTW Mobile Source Programs**

**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)**

**An additional 3 to 6 MMtCO<sub>2</sub>e  
between 2020 and 2030**

# Energy and Other Sectors

*OTB/OTW Programs that will drive post 2020 reductions*

## **OTB/OTW Energy Sector**

**Regional Greenhouse Gas Initiative (RGGI)**

**Potential Clean Power Plan (inside Maryland and in states that Maryland imports energy from)**

**Empower Maryland**

**Renewable Energy**

## **OTB/OTW Other Sectors**

**Forestry and Sequestration**

**Building Codes and Trade Codes**

**Leadership by Example**

**An additional 2 to 4 MMtCO<sub>2</sub>e  
between 2020 and 2030**

# Progress Summary – Step 3

*... adding in the OTB/OTW reductions*

<b>Reduction Scenario</b>	<b>Estimated Reductions Most Optimistic</b>	<b>Estimated Reductions Least Optimistic</b>
Reductions needed by 2030	57 MMtCO <sub>2</sub> e	61 MMtCO <sub>2</sub> e
Benefits from 2020 plan in 2030	41 MMtCO <sub>2</sub> e	38 MMtCO <sub>2</sub> e
Benefits from 2020 to 2030 OTB/OTW	10 MMtCO <sub>2</sub> e	5 MMtCO <sub>2</sub> e
Gap with OTB/OTW 2020 to 2030 reductions	6 MMtCO <sub>2</sub> e	18 MMtCO <sub>2</sub> e

# New Efforts and...

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## *... lower hanging fruit enhancements*

- There are new initiatives we will be considering and enhancements to some of the programs in the 2020 plan that might be considered “low hanging fruit”
  - A key driver for finding new and enhanced efforts will be finding programs that reduce GHG emissions while also clearly helping the State with economic progress and job creation
- Some MDE thoughts on new programs and win/win/win enhancements



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# New and Enhanced Programs

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

## **New**

**Short-Lived Climate Pollutants**

**Creative Financing**

**Enhanced Partnerships**

## **Lower Hanging Fruit Enhancements**

**Zero and Electric Vehicle Efforts - Transportation Climate Initiative**

**Energy Efficiency and Renewable Energy Initiatives**

**Sequestration Efforts**

**Zero Waste and Recycling Efforts**

**An additional 2 to 8 MMtCO<sub>2</sub>e  
between 2020 and 2030**

# Progress Summary – Last Step

*... adding in new and enhanced programs.*

Reduction Scenario	Estimated Reductions Most Optimistic	Estimated Reductions Least Optimistic
Reductions needed by 2030	57 MMtCO <sub>2</sub> e	61 MMtCO <sub>2</sub> e
Benefits from 2020 plan in 2030	41 MMtCO <sub>2</sub> e	38 MMtCO <sub>2</sub> e
Benefits from 2020 to 2030 OTB/OTW	10 MMtCO <sub>2</sub> e	5 MMtCO <sub>2</sub> e
Benefits from 2020 to 2030 New and Enhanced Programs	8 MMtCO <sub>2</sub> e	2 MMtCO <sub>2</sub> e
Gap after OTB/OTW and New/Enhanced	<b>-2 MMtCO<sub>2</sub>e</b> (more than 40 by 30)	16 MMtCO <sub>2</sub> e



# Getting to 40 by 30

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- The 2020 Plan has us on a good path to get to 40 by 30
  - If growth is similar to past 10 years - our job is easier
  - If we implement the OTB/OTW programs well - our job is easier
  - If we succeed with new initiatives - our job is easier
  - If we can find win-win-win enhancements - our job is easier
- The MWG has its work cut out for the next 3 years



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# Priorities and the 2016 MWG Work Plan

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- The MWG needs to finalize a 2016 work plan by April MCCC meeting
- That work plan should build from the schedule in the 40 by 30 legislation and address highest priority issues first
- Three sets of information on priorities
  - MDEs July 2015 initial 40 by 30 briefing
  - Priorities from 2015 MCCC report
  - Initial prioritization discussion from November 2015 MWG Meeting



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# MDE Priorities...

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*... from July 16, 2015 initial briefing on 40 by 30*

- Enhanced Economic Analysis
- Enhancements to Existing Programs
- Short-Lived Climate Pollutants
- Innovative Financing
- Regional Partnerships
  - State Partnerships
    - ZEV/EV/\_CPP/RGGI/TCI
  - Local Partnerships
    - COG, BMC, Counties, Cities, etc



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# Priorities from November 2015 MWG Meeting

## Priorities to Address Earlier

- Continued evaluation of enhancements of top ten programs
- Enhanced economic analysis including social equity issues
- CPP/RGGI
- Methane Leakage
- Program Tracking/Emissions, Economy, Jobs
- Transportation/ZEV/EV



## Other Priorities

- Adaptation driven mitigation strategies
- Coordination with ARWG on resilience
- Continued evaluation of other lessons learned
- Continue to analyze key market trends in partnership with STWG
- Energy efficiency
- Fast acting climate changers
- Innovative financing
- Quantification/Valuation of public health benefits
- Regional and local partnerships
- Renewable energy/RPS
- RPS calculations/imported energy
- Transportation and land use

# Priorities from MCCC 2015 Report

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- Reporting
- Methane leakage
- Additional strategies
  - Identifying additional climate strategies, goals, policies and programs that would:
    - Have the potential for significant near-term reductions in GHG emissions (“Short-Lived Climate Pollutants”)
    - Produce economic, environmental and public health benefits that are equitably distributed across Maryland’s population (including addressing the economic dislocations that they may generate)
    - Effectively address the impacts climate change will have on the state’s most vulnerable populations and communities
- Building resilience



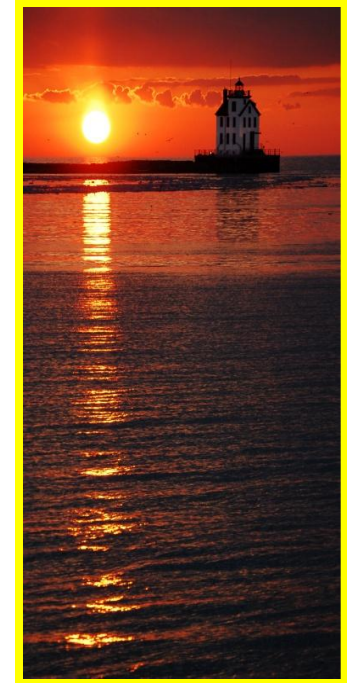
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# 2016 MWG Meetings

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- February – Monday the 29<sup>th</sup>, 12pm – 2pm
- March – Monday the 14<sup>th</sup>, 12pm – 2pm
- April – Monday the 25<sup>th</sup>, 12pm – 2pm
- May – Monday the 23<sup>rd</sup>, 12pm – 2pm
- June – Monday the 27<sup>th</sup>, 12pm – 2pm
- July – Monday the 25<sup>th</sup>, 12pm – 2pm
- August – Monday the 22<sup>nd</sup>, 12pm – 2pm
- September - Monday the 26<sup>th</sup>, 12pm – 2pm
- October – Monday the 24<sup>th</sup>, 12pm – 2pm
- November - Monday the 28<sup>th</sup>, 12pm – 2pm
- December - Monday the 19<sup>th</sup>, 12pm – 2pm



Starting in April the standing MWG meeting will be on the fourth Monday of every month from 12pm to 2pm at MDE



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# Next (March 14<sup>th</sup>) Meeting

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- Agenda
  - Update on legislation
  - Finalize work plan
  - Initial briefing/discussion on short-lived climate pollutants
- MDE presentation on legislation and work plan
- Briefing from CA on Fast Acting Climate Changers
- Formal adoption of work plan



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# Proposed Second Quarter Meetings\*

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- April 25 (Joint Meeting with STWG)
  - Legislative update - MDE
  - Methane Leakage
  - Panel with representatives from environmental advocacy, business and academic communities
- May 23
  - Energy efficiency, renewable energy and grid-of-the-future
  - Overview briefing - outside resource consultant
  - Panel with representatives from environmental advocacy, business and academic communities
- June 27
  - ZEVs/Electric Vehicles/TCI
  - Overview briefing - MDE and outside resource consultant
  - Panel: manufacturers, infrastructure, more



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# Proposed Third Quarter Meetings

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- July 25
  - 40 by 30 Update & Proposed Outline/Process for MWG input to the 2016 MCCC Report
  - Innovative Financing/Green Bank
    - MCEC and panel
- August 22
  - First Draft of MWG Input for 2016 MCCC Report
  - Enhanced Economic Analysis including social equity issues
    - MDE and Outside Resource Consultants
- September 26
  - MWG input and 2016 MCCC report
  - RGGI and the CPP
    - MDE Overview and panel
  - Annual Program Status Report



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# Proposed Fourth Quarter Meetings

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- October 24 (Joint Meeting with ARWG)
  - MWG input and Draft of 2016 MCCC Report
  - Linking mitigation and adaptation efforts
    - DNR, MDE and panel
- November 28
  - 2016 MCCC Report
  - Forestry and Sequestration Efforts - DNR/panel
  - Brainstorm 2017 priorities and work plan
- December 19
  - 40 by 30 update/status - MDE
  - 2017 work plan
  - 2017 meeting schedule



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# Questions and Discussion



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