



## Maryland Commission on Climate Change Scientific and Technical Working Group Meeting

### Summary of June 20, 2017 Meeting

**Meeting agenda and participants.** The meeting was held at the University System of Maryland Office, Adelphi, Maryland. Members of the Scientific and Technical Working Group (STWG) present in person or by teleconference were Ghassem Asrar, Don Boesch (chair), Belay Demoz, Eric Davidson, Russ Dickerson, Gerrit Knaap, and Dave Vanko. Rubie Mize represented member Adel Shirmohammadi. Also in attendance were Stuart Clarke (Commission Vice Chair and Town Creek Foundation); Lee Sobel, Joe Tassone and Stephanie Martins (Maryland Department of Planning); Colleen Turner (Maryland Department of Transportation); Jim Frazier (Michael Baker International); Daniel Engelberg (National Center for Smart Growth); Tim Welch (Georgia Tech); and Pat Harcourt (University of Maryland Center for Environmental Sciences). Brian Hug (Maryland Department of the Environment) participated by telephone.

**Scope of the meeting.** The STWG's work plan for 2017 includes the specific objective of strategically improving the technical effectiveness of the inventory of greenhouse gas sources and sinks for Maryland. This responds to one of the working group actions mandated in the Maryland Commission on Climate Change Act. Periodic inventories are essential for tracking progress on Maryland statutory requirements to reduce greenhouse gas emissions by 40% by 2030. Because economic, demographic, technological and land-use conditions change over time, projections of how these changes affect Maryland's emissions must also be considered in addition to periodic inventories. The June 2017 STWG meeting focused on these inventories and projections with an [agenda](#) that included four relevant presentations.

**Overview of Maryland's Greenhouse Gas Emission Inventory methods.** Brian Hug presented an overview of these methods, using this [presentation](#). There was a particular emphasis in the presentation and discussion on sources and sinks involving agriculture, forestry and land use. Questions and discussion addressed methods used for estimating carbon sequestration in wetlands and soils, as well as on emissions of methane and N<sub>2</sub>O, including methods developed by Delaware, Colorado State University, and the Intergovernmental Panel on Climate Change.

**Department of Planning Growth Simulation Model.** Joe Tassone [presented](#) an overview of the growth simulation model that incorporates development, sea-level rise and storm surge impacts, as well as impacts on forests, farmland, and estuarine land. Questions and discussion addressed the assumptions related to sea-level rise and land and wetland loss, growth patterns outside of Maryland's Priority Funding Areas, and the use of projections in state transportation planning.

**Department of Transportation On-Road Mobile Source Inventory methods and projections.** Colleen Turner presented an overview of the on-road inventory development process, using this

[presentation](#). Questions and discussion addressed projections for the growth of electric and autonomous vehicles and public transportation and the potential co-benefits of transportation alternatives.

**Plan for Regional Sustainability Tomorrow modeling for transportation and development.**

Gerrit Knaap [presented](#) an overview of the PRESTO model that employs four different scenarios of growth, development and policies. Questions and discussion addressed the reasons for the differences in projections of emissions under business-as-usual between PRESTO and the MDE Climate Action Plan, public investments required under the various scenarios, and metropolitan region-wide models.

**Summary of Observations for the Maryland Climate Change Commission.** Based on the presentations and Working Group discussions, these key points concerning were written up and circulated to the STWG prior to presentation at the June 21 full Commission meeting:

1. MDE's inventories are adequate for the purpose of three-year snapshots of Maryland's greenhouse gas emissions. Emissions from electricity (36%) and fuel use (17%) are based on direct measurements. Those from transportation (36%) are indirectly estimated from conventional models, but are realistic. Together, these account for 89% of emissions. Remaining emissions are also indirectly estimated and, while improvements could be attained, they would amount to a small percentage of emissions.
2. Estimation of the net sinks is another matter. This is based on generalized rates of forest carbon flux and organic biomass storage and do not include fluxes from wetlands and waterways and agricultural soils management, which may constitute sources as well as sinks. This is non-trivial because the emissions inventory assumes that Maryland's gross emissions of 92.7 MMTCO<sub>2</sub>e are offset by 11.8 MMTCO<sub>2</sub>e of sequestration (almost 13%). Better estimation is important as the state pursues strategies to increase offsetting sequestration, such as through the healthy soils initiative.
3. The STWG will assemble an expert group to identify critical uncertainties in and methods to improve the estimation of greenhouse emissions from forests, agriculture, wetlands and waterways.
4. Growth simulation modeling suggests that Maryland will confront significant land-use and land-cover changes by 2030 and beyond. This has quantitatively significant implications for net greenhouse gas emissions (including sequestration) from forests, agricultural lands, and wetlands, as well as for vehicle miles travelled (VMT) and, consequently, on-road vehicle emissions.
5. On-Road Mobile Source Inventory methods apply generally accepted methodologies. Projections show declining emissions despite the continued growth of VMT, such that a 30% reduction from the baseline is projected by 2030. However, these projections are heavily dependent on the execution of national standards for passenger vehicles and trucks that the Trump Administration has indicated it plans to rescind or delay. Furthermore, not only does the projected reduction fall short of 40%, but it is also clear that other significant changes in transportation systems and efficiencies will be required to achieve additional emissions reductions that will be required after 2030.

6. PRESTO modeling demonstrates the value of using scenarios that represent greater changes in the economy, societal choices, or public policies than presently included in the state's greenhouse gas emissions forecasts. The Maryland Climate Change Commission should encourage and support collaborative efforts in forecasting future emissions in order to provide a more dynamic basis for evaluating public policy options that achieve the needed greenhouse gas emission reductions together with other social and economic objectives.

**Potential Impacts of the FY 2018 Trump Budget Proposal on Climate Science in Maryland.** The STWG briefly reviewed a draft of a document entitled "Climate Science in Maryland: Potential Impacts of the FY 2018 Trump Administration Budget Proposal" that was prepared in response to discussions at the April STWG meetings about the severe risks to Maryland's climate science enterprise. Additional comments were welcome during the next 24 hours before its presentation at the Maryland Climate Change Commission meeting.

**Scheduling and focus of September 2017 meeting.** The next STWG meeting is scheduled for Tuesday, September 13. The meeting will focus on:

- A follow up on an expert group to identify critical uncertainties in and methods to improve the estimation of greenhouse emissions from forests, agriculture, wetlands and waterways.
- The consequences of climate change for Maryland agriculture: reducing emissions and adapting to the changing climate.
- The Maryland Energy Innovation Institute.

**Public comments.** Opportunity for comments from the general public was provided, but none were offered.