SCHOOL OF PUBLIC POLICY
CENTER FOR GLOBAL SUSTAINABILITY

Maryland Department of the Environment

Pathways to Maryland's GHG Reduction Goals

Mitigation Working Group Meeting
Mar 16, 2023

Agenda

- Overview of two primary modeled scenarios:
  - Current policies scenario
  - CSNA scenario
- Impact assessment
  - Health
  - Economic indicators

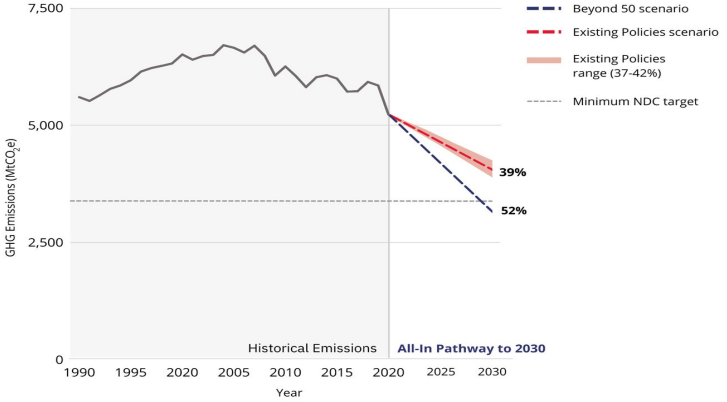
Current policies scenario

- Key policies included:
  a. **Power:** RPS, RGGI, Planned coal retirements, IRA incentives
  b. **Transport:** ACC II, IRA incentives, IIJA infrastructure funding, CAFE standards, VMT reduction policies
  c. **Buildings/Industry:** Energy efficiency standards, EmPower, Building Energy Performance Standards, IRA incentives
  d. **Non-CO2s:** AIM Act/MD HFC Regulations, Methane regulations
  e. **Other:** COVID impacts, GHG constraint on rest of world, Technology cost update
- Preliminary results show that current policies achieve over 40% reductions (GGRA estimated ~35%)

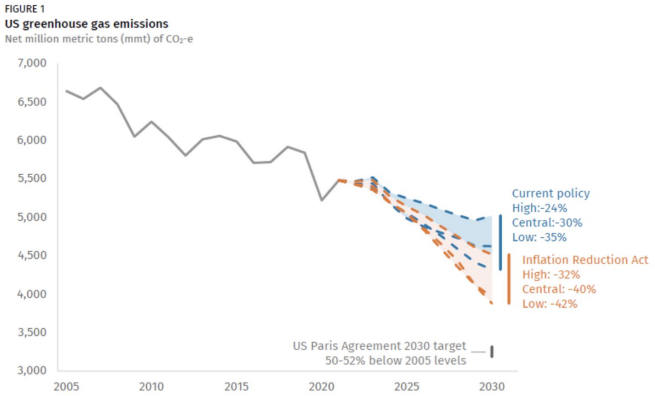
IRA projections are aligned with other models

- Our IRA scenario achieves 39% GHG emissions reductions below 2005 by 2030 in the U.S.
- Energy Innovation, Rhodium Group and Princeton REPEAT projects 39%-42% emissions reductions in their IRA scenarios.
- There are some differences in assumptions around how IRA will be implemented and impact emissions.
    - We can test different sensitivities around IRA implementation.

Our IRA scenario



Rhodium Group's IRA scenario



CSNA scenario

Process:

- **Step 1**: Exploratory scenario with current policies and an emissions constraint to show which sectors have room for further reductions
- **Step 2**: Core scenario that includes “Best practices” policies, drawing on our previous work for *America is All-In* where relevant
- **Step 3**: Alternative pathways with sectoral or technological variation where possible
- **Step 4**: Sensitivity analysis. Potential variations include:
    a. IRA sensitivities around tax credits, MD adoption rate, etc.
    b. Demand-side sensitivities (buildings, transportation)
    c. Variations on different state-level policies

Health impacts assessment - COBRA

- CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) was developed by EPA and previously used in 2030 GGRA Plan
  - Partnering with an existing EPA effort to harmonize GCAM outputs and COBRA inputs
- Models the emission and dispersal of particulate matter (PM2.5), sulfur dioxide (SO_2), nitrogen oxides (NO_X), ammonia (NH_3), and volatile organic compounds (VOCs)
- Translates emissions into health effects at the state level, with the potential for county-level data
- Enables comparison of health outcomes between different scenarios
  - *Ex*. Policy scenario X leads to 1000 fewer deaths and $1,000,000 dollars saved from work loss days due to air pollution compared to policy scenario Y.

Economic impact assessment - REMI

- Partnering with the Regional Economic Studies Institute (RESI) at Towson University to model economic impacts with REMI PI+
  - RESI team previously provided economic impact analysis for the 2030 GGRA Plan
- Currently working to harmonize GCAM outputs with REMI inputs
- Expected output is similar to 2030 GGRA Plan:
  - Job growth broken out by region
  - Gross state product growth
  - Personal income growth with distributional impacts

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Thank you!

Dr. Kathleen Kennedy, Postdoc Research Fellow, Center for Global Sustainability, University of Maryland School of Public Policy

Alicia Zhao, Research Manager, Center for Global Sustainability, University of Maryland School of Public Policy

Dr. Steve Smith, Senior Fellow, Center for Global Sustainability, University of Maryland School of Public Policy;
Earth Scientist, JGCRI/PNNL

Prof. Ryna Cui, Assistant Research Director, Center for Global Sustainability and Assistant Research Professor, University of Maryland School of Public Policy. ycui10@umd.edu

Prof. Nate Hultman, Director, Center for Global Sustainability and Professor, University of Maryland School of Public Policy.
hultman@umd.edu