

# DRAFT Terms of Reference - Manufacturing Study

January 14, 2022

- Project:** Manufacturing Study
- Purpose:** An independent study of the economic impact of requiring greenhouse gas emissions reductions from the manufacturing sector in Maryland
- Contractor:** An institution of higher education in the State of Maryland
- Oversight:** Maryland Commission on Climate Change (MCCC)

## Background

When Maryland's Greenhouse Gas Emissions Reduction Act (GGRA) passed into law in 2009, labor unions were concerned that the State's greenhouse gas mitigation activities would cause job loss in Maryland's manufacturing sector. The General Assembly addressed these concerns by including certain provisions in the GGRA. Specifically, the Maryland Code, Environment Article, provides:

### § 2-1205

- (f) (1) Unless required by federal law or regulations or existing State law, regulations adopted by State agencies to implement a final [GGRA] plan may not:
- (i) Require greenhouse gas emissions reductions from the State's manufacturing sector; or
  - (ii) Cause a significant increase in costs to the State's manufacturing sector.

The General Assembly also created a process to re-evaluate this provision:

### § 2-1207

- (a) (1) An institution of higher education in the State shall conduct an independent study of the economic impact of requiring greenhouse gas emissions reductions from the State's manufacturing sector.
- (2) The Maryland Commission on Climate Change shall oversee the independent study required by this section.
- (b) On or before October 1, 2022, the institution of higher education responsible for the independent study shall complete and submit the study to the Governor and, in accordance with § 2-1257 of the State Government Article, the General Assembly.

§ 2–1210

On review of the study required under § 2-1207 of this subtitle, and the reports required under § 2-1211 of this subtitle, the General Assembly:

- (1) May act to maintain, revise, or eliminate the 40% greenhouse gas emissions reduction required under § 2-1204.1 of this subtitle; and
- (2) Shall consider whether to continue the special manufacturing provisions in § 2-1205(f)(1) of this subtitle.

The Maryland Department of the Environment (MDE), which provides administrative support to the MCCC, intends to contract a research team at an institution of higher education in the State to conduct the study described in § 2–1207.

### Scope of Work

The research team will:

Task 1: Develop a profile of Maryland’s manufacturing sector.

In consultation with the MCCC and the Maryland Departments of Commerce, Environment, and Labor, define the boundaries to determine which activities will be included in the study. Identify sources of greenhouse gas emissions, jobs, and economic inputs/outputs (including the cost of energy) ~~from~~ for the manufacturing sector within the boundaries of Maryland.

**Commented [MS1]:** From the Manufacturers’ Alliance of Maryland and Mike Powell

**Commented [MS2]:** From the Department of Labor

Task 2: Develop a reference scenario.

Estimate how current state and federal policies and market forces may influence greenhouse gas emissions, jobs, and economic inputs/outputs ~~from~~ for Maryland’s manufacturing sector between now and 2050. Include expected job gains, such as those associated with offshore wind turbine manufacturing, and expected manufacturing job losses within Maryland associated with a transition to a clean energy economy.

**Commented [MS3]:** From Mike Powell

Task 3: Identify new state policies that could reduce emissions from manufacturing.

Based on a literature review and in consultation with the MCCC and the Maryland Departments of Commerce, Environment, and Labor, identify 3-6 policies that could be effective at achieving greenhouse gas emissions below reference scenario levels, between now and 2050, for the type of manufacturing activities that exist in Maryland. These must be new policies that do not already exist in current federal law or regulations or existing State law or the 2030 GGRA Plan.

**Commented [MS4]:** From the Manufacturers’ Alliance of Maryland and Mike Powell

Task 4: Estimate the impact of new state policies.

For policies identified in task 3, estimate the net changes from the reference scenario in greenhouse gas emissions, manufacturing jobs, and economic inputs/outputs within Maryland that would result from implementing each policy. Also consider how the new policies could impact Maryland’s competitiveness to attract new manufacturing investment.

**Commented [MS5]:** From Mike Powell

**Commented [MS6]:** From the Department of Commerce

Task 5: Identify and evaluate a greatest-benefit scenario

Identify the suite of policies that results in the greatest reduction of greenhouse gas emissions while achieving the greatest net increase in jobs within the manufacturing sector in Maryland. Estimate the net changes from the reference scenario in greenhouse gas emissions, jobs, and economic inputs/outputs that would result from implementing this scenario.

Task 6: Identify possible net-zero emissions pathways

Identify one or more suites of policies that would result in net-zero greenhouse gas emissions by 2045 from the manufacturing sector in Maryland. Estimate the net changes from the reference scenario in greenhouse gas emissions, jobs, and economic inputs/outputs that would result from implementing these scenarios.

**Timeline**

- Q1 2022 – MDE contracts a research team and the research team initiates the study
- Q2 2022 – Research team provides a midstream update to MCCC
- Q3 2022 – Research team completes the study, discusses findings with the MCCC, and submits the study to the Governor and General Assembly by October 1, 2022

**Points of Contact**

- MDE - Mark Stewart, Climate Change Program Manager. [mark.stewart1@maryland.gov](mailto:mark.stewart1@maryland.gov)
- Research Team - TBD

**Key Stakeholders**

- MDE
- Research Team
- Maryland Commission on Climate Change
- Manufacturers in Maryland
- Labor unions in Maryland
- Maryland Department of Commerce
- Maryland Department of Labor

**Definitions**

The following definitions are provided in the Maryland Code, Environment Article § 2–1202 and may be useful for determining the boundaries of the study:

- (a) In this subtitle the following words have the meanings indicated.

- (b) "Alternative compliance mechanism" means an action authorized by regulations adopted by the Department that achieves the equivalent reduction of greenhouse gas emissions over the same period as a direct emissions reduction.
- (c) "Carbon dioxide equivalent" means the measurement of a given weight of a greenhouse gas that has the same global warming potential, measured over a specified period of time, as one metric ton of carbon dioxide.
- (d) "Direct emissions reduction" means a reduction of greenhouse gas emissions from a greenhouse gas emissions source.
- (e) "Greenhouse gas" includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.
- (f) "Greenhouse gas emissions source" means a source or category of sources of greenhouse gas emissions that have emissions of greenhouse gases that are subject to reporting requirements or other provisions of this subtitle, as determined by the Department.
- (g) "Leakage" means a reduction in greenhouse gas emissions within the State that is offset by a corresponding increase in greenhouse gas emissions from a greenhouse gas emissions source located outside the State that is not subject to a similar state, interstate, or regional greenhouse gas emissions cap or limitation.
- (h) (1) "Manufacturing" means the process of substantially transforming, or a substantial step in the process of substantially transforming, tangible personal property into a new and different article of tangible personal property by the use of labor or machinery.
- (2) "Manufacturing", when performed by companies primarily engaged in the activities described in paragraph (1) of this subsection, includes:
- (i) The operation of saw mills, grain mills, or feed mills;
  - (ii) The operation of machinery and equipment used to extract and process minerals, metals, or earthen materials or by-products that result from the extracting or processing; and
  - (iii) Research and development activities.
- (3) "Manufacturing" does not include:
- (i) Activities that are primarily a service;
  - (ii) Activities that are intellectual, artistic, or clerical in nature;
  - (iii) Public utility services, including gas, electric, water, and steam production services; or
  - (iv) Any other activity that would not commonly be considered as manufacturing.
- (i) "Statewide greenhouse gas emissions" means the total annual emissions of greenhouse gases in the State, measured in metric tons of carbon dioxide equivalents,

including all emissions of greenhouse gases from the generation of electricity delivered to and consumed in the State, and line losses from the transmission and distribution of electricity, whether the electricity is generated in-State or imported.

#### **Additional Resources**

2030 GGRA Plan (including modeling data):

[https://mde.maryland.gov/programs/Air/ClimateChange/Pages/Greenhouse-Gas-Emissions-Reduction-Act-\(GGRA\)-Plan.aspx](https://mde.maryland.gov/programs/Air/ClimateChange/Pages/Greenhouse-Gas-Emissions-Reduction-Act-(GGRA)-Plan.aspx)

GHG Emissions Inventory for 2017:

<https://mde.maryland.gov/programs/Air/ClimateChange/Pages/GreenhouseGasInventory.aspx>

Impact Analysis of the GGRA of 2009 on Manufacturing Industry in MD (aka 2015 Manufacturing Study):

<https://mde.maryland.gov/programs/Air/ClimateChange/Documents/2030%20GGRA%20Plan/Appendices/Appendix%20H%20-%20Impact%20Analysis%20of%20the%20GGRA%20of%202009%20on%20Manufacturing%20Industry%20in%20MD.pdf>

Department of Commerce Manufacturing website:

<https://open.maryland.gov/industries/advanced-manufacturing/>

Regional Manufacturing Institute of Maryland: <https://rmiofmaryland.com/>

Maryland Manufacturing Extension Partnership: <https://mdmep.org/>

Maryland Manufacturing Data Dashboard: <https://mdmep.org/maryland-manufacturing-data/>

Maryland Manufacturing Advisory Board: <https://commerce.maryland.gov/commerce/maryland-manufacturing-advisory-board>