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GGRA Modeling Update

This presentation does not represent any state policy positions nor does it represent a proposed state climate plan. This is a scenario specified by the MWG. It is one of several to be used to guide the state in developing a climate plan. These materials are informational only and should not be used for any other purpose.

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Policy Scenario Modeling

1. Reference Case: "Business-as-usual" scenario incorporating effects of major policies as they currently exist on the books.

2. Policy Scenario 1: Extension of current program framework (e.g. EmPOWER extension, higher RPS goal).

3. Policy Scenario 2: New programs and changing program frameworks (e.g. CES instead of RPS).

4. Policy Scenario 3: MWG scenario: Carbon Price and complementary policies.

5. Policy Scenario 4: "Clean-up" scenario at the end of the process incorporating final decision of programs to include in draft plan.

TODAY: Preliminary PS3 (Carbon Pricing) Results

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Policy Scenario 3 (Carbon Pricing)

Assumptions set by MWG

Second of Four scenarios

Economywide carbon price. Revenues invested in:

- 50%: Consumer Rebates
- 30%: Mitigation
- 10%: Adaptation & Resilience
- 10%: Just Transition
- $10M/yr: Administration (taken out of Mitigation)

Assumptions determined by MWG, not MDE

Policy Scenario 3 (Carbon Pricing)

Price covers combustion of fossil fuels within MD, excluding manufacturing

Does not cover non-combustion emissions like agriculture methane, industrial process emissions, etc.

Assumes MD-only program.

Year	Carbon Price (2018$ per MT)
2020	$ 20.00
2021	$ 24.23
2022	$ 28.45
2023	$ 32.68
2024	$ 36.90
2025	$ 41.13
2026	$ 45.35
2027	$ 49.58
2028	$ 53.80
2029	$ 58.03
2030	$ 62.25
…	
2040	$ 74.70
…	
2050	$ 85.91

Assumptions determined by MWG, not MDE

Carbon Pricing Modeling Approach

1. Consumption Response
   - Reduce energy consumption in response to higher prices (short-run elasticity estimates from CTAM).
   - Evaluate impact of higher per-unit energy costs and lower energy use in REMI.

2. Investment Response
   - Reduce long-term energy consumption as higher prices affect investment decisions (long-run elasticity estimates from CTAM).
   - Evaluate impact of higher capital costs and lower energy use in REMI.

3. Electricity Supply Response
   - Reduce dispatch of in-state fossil generation in favor of imports and in-state renewables.

4. Mitigation Spending
   - Implement mitigation measures funded by fee revenues.
   - Evaluate impact of transfer payments in REMI.

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Policy Scenario 3 Results: Overall

Meets 2030 GHG goal, but not 2050

PS3 Impact relative to Reference	Through 2030	Through 2050
GSP Impact*	$ 6.67 billion	$ 1.59 billion
Average job impact**	+10,672	+7,328
Climate Benefits* (Social Cost of Carbon)	$ 5.3 billion	$31 billion

*Cumulative, Net Present Value using 3% discount rate

** Average number of job-years created or sustained each year

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Significant Uncertainty in PS3 Modeling

- Cost of Investment Response
- Mitigation Spending Decisions
- Interaction between mitigation spending and revenues available for mitigation spending
- Electricity sector leakage / import response
- Other sector leakage

…what else have we missed?

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Upcoming: Policy Scenario 2

Some overlap with PS3 mitigation measures

Major programs:

1- Clean & Renewable Energy

2- Declining RGGI Cap

3- More EVs

4- Building Electrification

5- More Transportation Measures

6- Additional Soils & Forestry Sequestration

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