
# Catalog of State Actions
# Michigan Climate Action Council
# Energy Supply Technical Working Group

A catalog of state-level, GHG-reducing actions and policy options based on actions undertaken or considered by state, local and private actors.

**Key to Future Rankings of Options in the Tables that Follow:**

| Potential GHG Emission Reductions* | Potential Cost or Cost Savings*† |
|---|---|
| **High (H):** At least 1.0 million metric tons (MMt) carbon dioxide equivalent ($CO_2e$) per year by 2020 | **High (H)**: $50 per metric ton $CO_2e$ ($tCO_2e$) or above |
| **Medium (M):** From 0.1 to 1.0 $MMtCO_2e$ per year by 2020 | **Medium (M):** \$5-50/$tCO_2e$ |
| **Low (L):** Less than 0.1 $MMtCO_2e$ per year by 2020, or 1 MMtCO2e by 2050 | **Low (L):** Less than \$5/$tCO_2e$ |
| **Uncertain (U):** Not able to estimate at this time | **Negative (Neg):** Net cost savings |
| | **Uncertain (U):** Not able to estimate at this time |

*Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

†Costs are denoted by a positive number. Cost savings (i.e., "negative costs") are denoted by a negative number.

**Definition of "Priorities for Analysis":**

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low**: Low priority options will be analyzed last, time and resources permitting.

| Option No. | GHG Reduction Policy Option | Potential GHG Emissions Reduction | Cost per Ton | Externalities, Feasibility Considerations | Priority for Analysis | Notes / Related Actions in MI |
|---|---|---|---|---|---|---|
| **ES-1** | **EMISSIONS POLICIES AND OVERARCHING ITEMS** | | | | | |
| 1.1 | GHG cap-and-trade | | | | | |
| 1.2 | Carbon (GHG) tax | | | | | |
| 1.3 | Generation performance standards and/or mitigation requirements for electricity | | | | | |
| 1.4 | Integrated resource planning (IRP) \ | | | | | Executive Directive 2006-02 established the "21st Century Electric Energy Plan for Michigan" to identify the State's future energy needs; provide for a reliable, cost effective supply, and to establish goals for energy efficiency, use of alternate and renewable energy technologies; and to protect Michigan's natural resources. |
| 1.5 | Voluntary GHG commitments | | | | | |
| 1.6 | Technology Research & Development | | | | | |
| 1.7 | GHG Emission reporting and disclosure | | | | | |
| **ES-2** | **RENEWABLE ENERGY AND ENERGY EFFICIENCY** | | | | | |
| 2.1 | Renewable and/or Environmental Portfolio Standard (RPS) | | | | | |

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|---|---|---|---|---|---|---|
| 2.1.1 | Energy Efficiency Portfolio Standard (EEPS) | | | | | |
| 2.1.2 | Emissions Reducing Technologies Portfolio Standard (ERTPS) | | | | | |
| 2.2 | Grid-based renewable energy incentives and/or barrier removal | | | | | Wind energy development projects located or planned in Michigan by private investors include projects initiated by John Deere Wind, Noble Environmental Power, DTE Energy, and others. |
| 2.3 | Distributed renewable energy incentives | | | | | The Michigan Public Services Commission is leading various efforts to revise net-metering and interconnection policies and procedures for small and large renewable energy systems. |
| 2.3.1 | Distributed Renewable Energy Barrier Removal | | | | | Wind Working Group Collaborative was formed by the Michigan Public Service Commission and the DLEG, Energy Office with over 50 stakeholders. This collaborative has created the Wind Siting Guidelines for small- and large-wind systems. |

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| 2.4 | Green power purchases and marketing | | | | | Michigan Renewable Energy Program (MREP) was established under Section 10r(6) of 2000 PA 141. The MREP is charged with informing customers of the availability and value of using renewable energy generation, the potential for reduced pollution, promoting the use of existing renewable energy sources, and encouraging the development of new renewable energy facilities. |
| 2.5 | Combined Heat and Power (CHP) standards, incentives and/or barrier removal | | | | | |
| 2.6 | Pricing strategies to promote renewable energy and/or CHP (e.g. net metering) | | | | | |
| 2.7 | Renewable energy development issues (zoning, siting, etc.) | | | | | Michigan Renaissance Zones were established Under Public Acts 270 and 273 of 2006. These acts expanded eligibility under the existing Michigan Renaissance Zone act to allow for 10 additional zones to offer tax incentives to renewable energy production facilities, including agricultural processing facilities. |

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| 2.8 | Technology-focused initiatives (biomass co-firing, energy storage, fuel cells, etc.) | | | | | The Michigan Department of Labor and Economic Growth's "Energy Office" has created a Biomass Energy Program. The goal of this program is to encourage increased production and use of energy derived from Michigan's biomass resources through program policies, public and private partnerships, information dissemination, and state project grants. |
| 2.9 | Public Benefits Charge | | | | | |
| 2.10 | State lead by example – green power purchasing | | | | | |
| 2.11 | District heating and cooling | | | | | |
| **ES-3** | **FOSSIL FUEL AND NUCLEAR ELECTRICITY** | | | | | |
| 3.1 | Advanced fossil fuel technology (e.g. IGCC, CCSR) incentives, support, or requirements | | | | | |
| 3.2 | New Nuclear Power | | | | | |
| 3.3 | Re-licensing/Up-rating Existing Nuclear Power | | | | | |
| 3.4 | Efficiency improvements and re-powering existing plants | | | | | |
| 3.5 | Technology-focused initiatives | | | | | |

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| 3.6 | Power plant replacement | | | | | |
| **ES-4** | **FUEL PRODUCTION, PROCESSING AND DELIVERY** | | | | | |
| 4.1 | Oil and gas production: GHG emission reduction incentives, support, or requirements | | | | | |
| 4.2 | Reduction in emissions from natural gas transmission and distribution | | | | | |
| 4.3 | Oil Refining: GHG emission reduction incentives, support, or requirements | | | | | |
| 4.4 | Coal Production: GHG emission reduction incentives, support, or requirements | | | | | |
| 4.5 | Coal-to-liquids Production: GHG emission reduction incentives, support, or requirements | | | | | |
| 4.6 | Low-GHG Hydrogen production incentives and support | | | | | |
| 4.7 | Recovery of stranded oil | | | | | |
| **ES-5** | **CARBON CAPTURE AND STORAGE OR REUSE** | | | | | |

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|---|---|---|---|---|---|---|
| 5.1 | CCSR incentives, requirements and/or enabling policies (administration, regulation, liability, incentives) | | | | | |
| 5.2 | R&D for CCSR | | | | | The DEQ Office of Geological Survey (OGS) has been working with the Midwest Regional Carbon Sequestration Partnership (MRCSP), a United States Dept of Energy sponsored partnership, on a pilot project to test the potential for sequestering carbon dioxide underground. |
| **ES-6** | **OTHER ENERGY SUPPLY OPTIONS** | | | | | |
| 6.1 | Transmission system upgrading | | | | | |
| 6.2 | Reduction of transmission and distribution line losses | | | | | |
| 6.3 | General distributed generation support (interconnection rules, net metering, etc.) | | | | | |
| 6.4 | Landfill Gas Recovery (see also Waste) | | | | | |
| 6.5 | Waste to Energy | | | | | |
| 6.6 | N2O Reduction Co-benefit | | | | | |

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|---|---|---|---|---|---|---|
| 6.7 | Smart Grid | | | | | The Michigan Public Service Commission has convened a statewide collaborative on smart grid infrastructure to improve the state's electric grid by including emerging technologies designed to improve the efficiency, reliability and security of the electric grid. |