

Results Tier	Source	ID#	Recommendation
1	MDE Straw Man	R9a	The 2020 manufacturing study required by the GGRA should explore the general feasibility of, and mechanisms for potential modifications or enhancements to the current "buy local" provisions in the GGRA Plan, including the use of domestic iron, steel, and manufactured products in energy-related construction.
1	MDE Straw Man	R9b	The 2020 manufacturing study required by the GGRA should explore the general feasibility of, and mechanisms for "Buy USA-Made" policies.
1	MDE Straw Man	R9c	The 2020 manufacturing study required by the GGRA should explore the general feasibility of, and mechanisms for the development of an in-state supply chain to create lasting manufacturing and other jobs related to renewable energy infrastructure, including (a) committing additional funding for state-certified apprenticeship programs to support the workforce needs of clean energy industries and (b) collaborating proactively with industry and unions to develop local manufacturing capacity for offshore wind and solar industries.
1	MDE Straw Man	R8	The 2020 manufacturing study required by the GGRA should explore the overall costs and benefits (both economic and environmental) of the Maryland GGRA on the manufacturing sector.
1	MDOT	R41	MDOT should develop tracking of key indicators of greenhouse gas reduction strategies to monitor progress of achieving our goals. Examples include state facilities and fleet adoption of renewable/low-emissions energy sources, ZEV penetration, equity indicators to track participation, congestion levels, VMT per capita, mobility access and adoption of low-emissions vehicle technology for personal use.
1	MDE Straw Man	R6	The State's 40 by 30 Plan should include information and analysis on efforts to address social equity and how strategies impact underserved and environmental justice communities. This should address public health, environmental, economic, and job creation impacts.
1	MDOT	R42	MDOT, MDE, MEA and the Department of General Services (DGS) should review state fleet procurement procedures and practices and provide direction on electric vehicle (EV) procurement and EV charging station installation guidance and targets by October 2019.
1	MDE Straw Man	R4a	For programs that have been finalized [for inclusion in the 40 by 30 Plan], the GHG reductions and economic benefits should be quantified and included in the 2018 draft GGRA Plan. Examples include the 2018 enhancements to RGGI, the Healthy Soils Program, new programs to address short-lived climate pollutant (SLCPs), and new transportation initiatives in State plans, including the Consolidated Transportation Plan (CTP) and Transportation Improvement Plans (TIPs) adopted by MPOs that include Maryland jurisdictions.
1	MDE Straw Man	R1	The State's 40 by 30 Plan should build from the over 100 programs contained in the final 2012 GGRA Plan (the 25% by 2020 Plan), as many of those measures will generate even deeper reductions after 2020.
1	MEA	R38	Maryland should create a statewide CHP stakeholder working group, led by MEA, to discuss key issues and develop standardized processes across the State of Maryland, and to engage in outreach to smaller utilities in order to provide technical support for CHP projects.
1	MDOT	R43	The costs and benefits of supporting deployment opportunities of ZEV school and transit buses in Maryland should be researched. The analysis should include: (1) capital, maintenance and operating cost comparisons; (2) research into the viability of zero emission vehicles (ZEVs) as well as hybrid and alternative fuel technologies; and (3) emissions reduction benefit summaries.

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1	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13c	As part of the process the insure that the state meets its current EV goals and projections, the Commission should urge MDE to specifically assess advancing policies that make it easier to install EV charging infrastructure at multi-family housing locations with attention to high density, urban populations.
1	MDOT	R39	MDOT should continue to research and evaluate the greenhouse gases emission reduction potential of vehicle and infrastructure technologies including, connected and autonomous vehicles (CAV), electric vehicles (EVs), and system operations. The evaluation effort should include consideration of safety, congestion, and equity issues including public health, economic, and workforce impacts.
1	MDE Straw Man	R3	The State's 40 by 30 Plan should continue to enhance the process, started in the 2012 GGRA Plan, of looking at measures that may be critical for meeting long-term goals, such as an 80%-90% reduction in GHG emissions or carbon neutrality by 2050.
1	MDOT	R40	MDOT should continue to enhance travel demand management strategies (TDM), land use / smart growth, active transportation, and intercity travel strategies in collaboration with MDP.
1	MDE Straw Man	R5	The State's 40 by 30 Plan should include explicit discussions of uncertainty. Examples include emission reduction quantification, economic and job creation analysis, life-cycle emissions and the potency of SLCPs. To the extent possible, these uncertainties should factor into efforts to exceed the 40% by 2030 reduction goal as long as there continues to be net economic benefits and net increase in jobs.
1	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R15e	The Commission should urge MDE to include in the 40 by 30 plan specific goals, objectives, action plans, and evaluation and reporting protocols in the area of improving resilience in vulnerable communities.
2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13a	As part of the process the insure that the state meets its current EV goals and projections, the Commission should urge MDE to specifically assess bolstering the State's consumer purchasing incentives for ZEVs and regulatory and financial incentives (for high power/speed ZEV infrastructure installation) with particular attention to investments and incentives for urban and rural residents.
2	MDE Straw Man	R7	The State's 40 by 30 Plan should include analysis and information on efforts designed to ensure a just transition for fossil fuel dependent workers and other workforce-related issues linked to the State's efforts to reduce GHG emissions.
2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13b	As part of the process the insure that the state meets its current EV goals and projections, the Commission should urge MDE to specifically assess advancing policies that employ Maryland's public utilities to aid in efforts to rapidly and equitably expand EV infrastructure in Maryland with specific targets in rural areas.

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2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R10	The Commission should urge MDE, in collaboration with other State agencies, to seek and work with relevant assistance from Maryland academic institutions to develop a robust evaluation component as part of the 40 by 30 plan. A sound evaluation component would include goals, objectives, indicators, metrics, implementation benchmarks, timelines and reporting protocols that would allow for 'clear and complete understandings of the strengths, weaknesses, successes, and shortcomings of the strategies and programs that the state is employing'.
2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R11	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan a section that is specifically focused on identifying and assessing longer-term greenhouse gas emission reduction strategies. This section should explicitly address steps that can be taken to insure that proposed 40 by 30 programs and strategies are compatible with achieving zero net emissions in the 2050 to 2060 timeframe.
2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R15a	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan specific goals, objectives, action plans, and evaluation and reporting protocols in the area of insuring equitable distribution of economic benefits produced by climate action strategies, policies, and programs.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R15b	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan specific goals, objectives, action plans, and evaluation and reporting protocols in the area of insuring the production of sustainable economic benefits from climate action strategies, policies, and programs.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13d	As part of the process the insure that the state meets its current EV goals and projections, the Commission should urge MDE to specifically assess requiring the MDOT and the DBM to establish state fleet procurement and EV charging station installation targets and procedures to ensure that no less than 5% of the State's light duty motor vehicle fleet is comprised of ZEVs by 2020, 25% by 2025, and 80% by 2030.
2	MDE Straw Man	R4	The State's 40 by 30 Plan should include new programs that have been discussed by MWG and may have been finalized by State or legislative action.
3	MDE Straw Man	R4b	For evolving programs that have been discussed [for inclusion in the 40 by 30 Plan] but not adopted, the draft GGRA Plan should provide available information as well as pros and cons on each of these measures and ask for specific comment. Examples include a carbon tax, the "Grid of the Future" concept being considered by the Maryland Public Service Commission (PSC) and a market-based program to address transportation emissions.
3	MDE Straw Man	R2	The State's 40 by 30 Plan should strive to achieve GHG emission reductions greater than 40% by 2030 as long as there continues to be net economic benefits and a net increase in jobs.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan strategies and programs that will insure that the state meets and accommodates its current EV goals and projections (60,000 EVs by 2020; 300,000 by 2025) with continued vigorous increase after 2025 that is compatible with long-term net zero emissions two to three decades after 2030.

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3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R17	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan a section that is explicitly focused on 'just transition'.
2	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R17c	The 'just transition' section in the 40 by 30 plan should identify strategies, policies, programs and actions that can be taken to mitigate negative impacts (including related public health concerns) and expand and accelerate positive impacts.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R17a	The 'just transition' section in the 40 by 30 plan should identify fossil-fuel dependent workers and communities in Maryland.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R17b	The 'just transition' section in the 40 by 30 plan should identify, as specifically and quantitatively as possible, the existing and prospective GHG reduction programs and policies that may or do have negative or positive impacts on these groups.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R13e	As part of the process to insure that the state meets its current EV goals and projections, the Commission should urge MDE to specifically assess setting a goal to fully electrify bus transport in Maryland by 2035, including aggressive targets for the rapid deployment of EV school buses, as well as provisions for low-interest financing.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R15c	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan specific goals, objectives, action plans, and evaluation and reporting protocols in the area of addressing economic dislocations caused by climate strategies, policies, and programs.
1	DNR	R31	MDE, MDNR and MDA should utilize best available scientific data on land based carbon sequestration and GHG emissions for existing natural and working lands programs included in the GGRA, in collaboration with the UMD/NASA Carbon Monitoring System research group, Maryland Forest Service, US Forest Service, MDA, UMD Extension, and the MCCC Science and Technical Working Group.
3	DNR	R34	MDE, MDNR, and MDA should adopt the term "Natural and Working Lands" to refer to all GGRA programs concerning land based carbon sequestration and avoided emissions of carbon or other GHG's. This will allow Maryland to better align with the effort coordinated by the US Climate Alliance.
4	DNR	R32	MDNR should add a program on Avoided Carbon Emissions to the GGRA Plan which will quantify the carbon benefit of land conservation actions taken by the state and avoided forest conversion through compliance with Maryland's Forest Conservation Act.

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5	DNR	R33	MDNR and MDE should continue tracking progress of wetland restoration, geologic sequestration opportunities, ecosystem marketplaces, and biomass to energy but do not project a carbon reduction associated with these programs, due to uncertainty in the net GHG benefit of wetlands, viability of geologic sequestration, and establishment of ecosystem service markets or new biomass to energy facilities in the state. The agencies should plan to reassess the potential carbon benefits of these programs at the 2025 midpoint assessment.
4	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R16	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan a section that is explicitly focused on 'social and environmental justice'. We'd urge that this section be developed through outreach and in partnership with urban and rural communities that have experienced particular socio-economic disadvantage and environmental burden.
3	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R16a	The 'social and environmental justice' section in the 40 by 30 plan should specifically identify the strategies, programs, and actions in the plan that are expected to advance social and environmental justice objectives.
4	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R16b	The 'social and environmental justice' section in the 40 by 30 plan should specifically identify the objectives that these strategies, programs, and actions are expected to advance.
4	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R16c	The 'social and environmental justice' section in the 40 by 30 plan should specifically identify the process by which progress towards these objectives will be assessed.
4	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R15d	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan specific goals, objectives, action plans, and evaluation and reporting protocols in the area of reducing energy burdens in low-income households.
4	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R27	The Commission should urge the General Assembly and the Governor to enact, by 2020, specific programs to implement more climate friendly agricultural practices, including regenerative agriculture and other practices that sequester carbon by improving soil health.
5	MEA	R35	Maryland should expand net metering from CHP to 10 MW; if not for all CHP customers then potentially for critical customers such as datacenters, the government, and/or critical infrastructure including: hospitals, emergency shelters, wastewater treatment assets, and public safety/correctional assets.

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5	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R24	The Commission should urge the General Assembly to implement stricter building code and other energy efficiency upgrades, including the establishment of annual residential and commercial building retrofit targets (e.g. 100% commercial building compliance by 2040), the requirement that all new residential and commercial buildings be carbon neutral by 2030, and an expansion of government and utility supported efficient electric heating and cooling system policies and programs.
5	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R26	The Commission should urge the General Assembly to enact, by 2020, a sustainable agricultural land preservation law which permits/facilitates the deployment of joint renewable energy and regenerative agriculture development, in order to simultaneously maximize the reduction and sequestration of carbon emissions while improving soil health.
5	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R14	The Commission should urge MDE, in collaboration with other State agencies, to include in the 40 by 30 plan strategies and programs that will be sufficient to increase average daily public transportation ridership in each major transit centers in the State by 2% or more per year through 2035. We further recommend that the Commission urge MDE to specifically assess an expansion of public transportation investments including existing WMATA and MTA funding as well as in projects that integrate transportation and more sustainable land use planning (e.g. Corridor Cities Transit, Red Line, MARC expansion initiatives).
5	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R22	The Commission should urge the General Assembly to enact legislation requiring the ramping up of efficiency in the EmPOWER Maryland program to 3% per year by 2025 and maintain that pace at least until 2030. This efficiency target should be exclusive of conversion of fossil fuel transportation and fossil fuel heating in buildings to efficient electric systems for which a separate efficiency and GHG reduction accounting should be done.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R28	The Commission should urge the General Assembly and the Governor to require net forest and tree canopy gains in Maryland by 2025 through the enactment of various forest management and tree planting programs and initiatives; including a strengthened Forest Conservation Law.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R19	The Commission should urge MDE to initiate the production of annual greenhouse gas emissions inventories that utilize a leak rate of at least 2.3% and a 20-year radiative forcing estimate for methane, and also account for all out of state emissions associated with the production, processing, transmission, and distribution of natural gas consumed in Maryland.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R12	The Commission should urge MDE, in collaboration with other State agencies, to support and include in the 40 by 30 plan a regional transportation sector carbon emissions cap and invest program that requires allowances (at the wholesale level) for selling GHG emitting motor vehicle fuels in the region, such as has been described and analyzed by the Transportation and Climate Initiative.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R25	The Commission should urge the Public Service Commission, in collaboration with other State agencies, to model a policy or program that drives at least \$100 million in the 2020 – 2025 period to incentives for switching from oil or gas heating systems to efficient electric heat pumps in the residential and light commercial building sectors.

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6	MEA	R36	The key to a stable and growing CHP market in Maryland is long term consistency in order to overcome the large upfront costs and long cost recovery period; and in order to develop an educated and skilled CHP workforce. Maryland should include CHP and other renewable technologies that generate useful thermal energy at a certain efficiency (>60%) which are connected to Maryland's distribution system in the Maryland RPS's first tier ("Tier 1").
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R29	The Commission should urge the General Assembly and the Governor to enact, by 2022, more aggressive and explicit compact development and sustainable growth incentive and management programs and regulations.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R18	The Commission should consider taking a step beyond its 2015 recommendation about implementation reporting and recommend that the General Assembly establish an independent Climate Action Office that would routinely measure, track, and report on the status and impacts (including equity, environmental justice and cost/benefit impacts) of the State's current and proposed GGR policies and programs (prioritizing KEY mitigation programs) and recommend adjustments and additions when warranted.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R20	The Commission should urge the General Assembly to require the development, by 2020, of a responsible plan for phasing out our six large-scale coal electricity generators over the ensuing decade, and the establishment of programs that protect and support communities and workers traditionally reliant on these fossil fuel facilities. We also recommend that the Commission urge the General Assembly to require the development of a responsible plan to phase out natural gas use in the electricity sector by 2040 and in buildings by 2050 (exempting some industrial processes). We further recommend that the Commission urge MDE to analyze and report on the health benefits of the reduction of air pollution that would accompany the measures recommended here, both in terms of reduced morbidity and mortality and in terms of the reduced health care expenditures, with special emphasis on the communities that bear a disproportionate share of the burden of pollution today.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R21	The Commission should urge the General Assembly to increase the state's RPS to at least 50% by 2030 and include a 20% carve out for offshore wind, a 20% carve out for in-state solar, and an appropriately sized dispatch-able energy storage capacity target.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R23	The Commission should urge the General Assembly to alter the distribution of SEIF funds such that all solar investments be directed to low income citizens and communities.
6	Clarke, Knapp, Makhijani, McNeilly, Toles O'Laughlin, Uehlein	R30	The Commission should urge the General Assembly and the Governor to enact the following zero waste policies: ending the permitting of solid waste landfill capacity by 2019; requiring large producers (more than 2 tons per month) of organic waste to compost or anaerobically digest all of their waste by 2020; and increase state government and local jurisdiction recycling rates to 60% by 2020 and 80% by 2035.