Delaware 2025 Climate Action Plan
Draft Strategies and Actions
for Public Review

This document contains a list of draft goals, strategies and actions for potential inclusion in the 2025 Delaware Climate Action Plan. This list is the result of 18 months of research, community meetings, workshops and consultations with experts led by DNREC's climate planning team.

- A ***goal*** is a broad, overarching objective to achieve. For example, "Modernizing Delaware's Electric Grid" is a goal featured in the Electricity and Grid Infrastructure section.

- A ***strategy*** outlines one of many possible approaches for achieving the goal. For example, a strategy under "Modernizing Delaware's Electric Grid" is "Strategy E9: Accelerate Battery Storage."

- An ***action*** is an example of a specific step that can be taken within the next five years to support a strategy. An action listed under the strategy "Accelerate Battery Storage" is "E9.4: Create financing opportunities and incentives to promote battery storage systems."

The Climate Action Plan is intended to be a living document. Strategies and actions included in the plan can be taken over time as resources, data and partnerships develop and evolve. Implementation of many of the actions will also include additional opportunities for public and stakeholder input.

You are invited to provide feedback on this list. Feedback is requested by October 10, 2025.

Feedback can be provided several ways:

1. **Fill out a questionnaire in person at one of three public engagement sessions**
2. **Submit comments via email to declimateplan@delaware.gov**
3. **Fill out a questionnaire online by visiting de.gov/climateplan**

(**complete list of goals, strategies and actions on following pages)**

Emissions Reduction and Carbon Capture Strategies

Agriculture

Goal: Reduce Emissions and Support Carbon Sequestration on Crop Lands

Strategy A1: Encourage cropland management practices that increase and maintain soil-carbon sequestration.

A1.1. Launch research program on soil carbon changes and sequestration to inform best management practices.
A1.2. Continue to support no-till and low-till practices in Delaware.
A1.3. Cover an additional 3,000 acres with cover crops through cost share programs and conservation district partnerships.
A1.4. Expand support for agricultural producers to adopt practices that increase soil-carbon.
A1.5. Promote emissions reductions by encouraging and supporting practices that enhance irrigation efficiency.

Strategy A2: Encourage adoption of agroforestry practices.

A2.1. Increase agroforestry with a goal of 1000 additional acres.
A2.2. Increase use of forest or grass buffers adjacent to croplands.

Strategy A3: Reduce emissions from nutrient and manure management.

A3.1. Expand adoption of enhanced efficiency fertilizers to 80% of producers
A3.2. Study benefits of slow-release synthetic nitrogen fertilizer.
A3.3. Support and expand the adoption of in-season soil nitrate sampling including plant tissue testing.
A3.4. Expand the adoption of seasonally splitting nitrogen applications to 80% of farmers.
A3.5. Incentivize adoption of in-furrow soil application of nutrients.

Strategy A4: Reduce emissions and energy demand through precision agriculture practices.

A4.1. Support the use of variable rate technologies for all nutrient applications.
A4.2. Expand Delaware-based research and demonstration projects for precision agriculture methods applications.
A4.3. Support integration of precision agriculture methods into education and training for workforce development.
A4.4. Develop and enhance partnerships to collaborate with the private sector on expanding precision agriculture adoption.

Strategy A5: Preserve agricultural lands.

A5.1. Support research and pilot programs on innovative agrivoltaics (solar panels on agricultural lands) to balance land use between agricultural production and energy solutions.

A5.2. Support increased voluntary agricultural land preservation to help achieve the agricultural land preservation goals.
A5.3. Update and increase funding for the Aglands Preservation Fund to keep pace with rising costs of land over time.
A5.4. Explore zoning mechanisms to incentivize conservation of agricultural lands.

Goal: Reduce Emissions from the Livestock Industry

Strategy A6: Reduce operational emissions in the poultry industry.
A6.1. Expand programs for solar panel installation on poultry houses.
A6.2. Research contribution and management of nitrous oxide emissions from poultry houses.
A6.3. Research the impact of routine mortality poultry composting on emissions reductions.
A6.4. Investigate the feasibility of on-site anaerobic digestion of organic waste from poultry houses to offset energy demand.

Strategy A7: Improve management of and reduce emissions from pasturelands.
A7.1. Expand silvopastural practices in Delaware to encompass at least 500 acres of pasturelands.
A7.2. Support practice of seasonal split nutrient applications and reduce applications based on soil nitrate sampling.
A7.3. Encourage practices of minimal soil disturbance in fertilizer application.

Residential and Commercial Buildings

Goal: Strengthen Energy Conservation Codes and Establish Building Performance Standards

Strategy B1: Strengthen energy conservation codes for new construction.
B1.1. Conduct statewide energy code compliance studies every three to five years to assess implementation effectiveness, inform future code updates, and identify technical assistance needs.
B1.2. Use code compliance study findings to set performance targets and develop technical assistance and training resources for builders and code enforcement officials.
B1.3. Support local code adoption by providing counties and municipalities with technical assistance, policy toolkits, model stretch codes, and training resources.

Strategy B2: Establish Building Performance Standards to improve energy use in existing buildings.
B2.1. Complete an economy-wide energy benchmarking study to establish baseline data for building performance standards.
B2.2. Establish mandatory energy benchmarking, disclosure, and Building Performance Standards for large commercial, institutional, and multi-family residential buildings to drive continuous energy and emissions reductions.

B2.3. Explore a Home Energy Score or residential energy labeling program to provide standardized energy performance information at the time of home sale or rental, empowering homeowners and buyers to make energy-conscious decisions.

<u>Strategy B3</u>: Facilitate sustainable building standards for affordable housing developments.

B3.1. Require electric appliances and heat pumps in new affordable housing projects supported by state financing programs.

B3.2. Incentivize affordable housing projects that meet Passive House, Living Building Challenge, or other green building standards.

Goal: Increase Energy Efficiency in New and Existing Buildings

<u>Strategy B4</u>: Advance adoption of high-efficiency, low-carbon building heating and cooling systems.

B4.1 Develop new, substantial incentives to encourage voluntary transition to high-efficiency heat pumps for heating and cooling in existing buildings.

B4.2 Assess feasibility of establishing statewide requirements for all-electric HVAC systems sales by 2040.

B4.3 Improve heat-pump training opportunities for HVAC professionals, especially retrofits of existing homes.

<u>Strategy B5</u>: Scale-up residential and commercial energy efficiency programs to accelerate building decarbonization.

B5.1. Develop a Strategic Energy Management program to help Delaware businesses integrate energy management strategies into business practices to optimize energy use and reduce operating costs.

B5.2. Expand the Energy Efficiency Investment Fund eligibility to include all Delaware businesses and non-profits, broadening access to financial support for upgrades.

<u>Strategy B6</u>: Enhance access to energy efficiency programs for low- and moderate-income residents and small businesses to reduce energy burdens and support economic opportunity.

B6.1. Expand the Weatherization Assistance Program to include additional cost-effective measures such as low-cost interior storm windows and reflective roof coatings for older homes.

B6.2. Partner with other agencies and community organizations to provide comprehensive energy efficiency education for clients of assistance programs, empowering residents to maintain savings and improve comfort.

B6.3. Expand existing energy efficiency programs to increase participation and support for minority-, women-, and veteran-owned small businesses.

B6.4. Increase energy-related subsidies, including a low-income rate for electricity, to help reduce utility costs for low- and moderate-income households.

Goal: Support the Long-Term Transition to Electrification in New and Existing Buildings

Strategy B7: Electrify appliances and systems in residential and commercial buildings to accelerate the transition to cleaner, more efficient buildings.

B7.1. Assess feasibility of adopting state appliance efficiency standards, including for space heating, water heating, and cooking appliances.
B7.2. Phase-out incentives for fossil-fuel powered equipment in state-funded energy efficiency and electrification programs.
B7.3. Expand incentive programs for heat pump water heaters, clothes dryers, stoves and other high-efficiency appliances.
B7.4. Develop education and training resources on electric cooking appliances for commercial kitchens, residents, and contractors by 2030.

Electricity Generation and Grid Infrastructure

Goal: Accelerate Deployment of Solar and Wind Energy

Strategy E1: Increase grid-scale solar capacity statewide.

E1.1. Develop a statewide approach to solving interconnection delays and accelerating the permitting, siting, and installation of grid-scale solar projects.
E1.2. Expand financing opportunities for solar energy projects with additional incentives for non-profit and local government ownership of community solar.
E1.3. Develop solar energy project siting guidance to support identification of optimal sites based on site conditions, land use, equity, natural resources, and other concerns.

Strategy E2: Increase distributed solar capacity statewide.

E2.1. Launch an initiative to support developers, property owners, and residents that are considering solar and energy efficiency upgrades.
E2.2 Establish solar incentive programs for municipal and cooperative electric customers.
E2.3. Expand existing renewable energy incentive programs to include solar plus storage systems.

Strategy E3: Advance the development and scaling of offshore wind.

E3.1. Engage local governments and communities to maximize participation in offshore wind initiatives.
E3.2. Foster strategic partnerships with neighboring states to enhance regional cooperation on offshore wind development opportunities.

Strategy E4: Adopt new renewable and clean energy adoption targets.

E4.1 Amend the Renewable Energy Portfolio Standards Act to establish a 2050 target.
E4.2 Explore a Clean Energy Standard to supplement the Renewable Energy Portfolio Standards.
E4.3. Conduct a net-zero grid study for Delaware to inform target setting.

Goal: Support Emerging Clean Energy Technologies

Strategy E5: Evaluate the potential of small modular nuclear reactor technology in Delaware's energy future.

E5.1. Explore feasibility of small modular nuclear reactors, including permitting barriers, human health and evacuation concerns.
E5.2. Enhance public awareness of small modular nuclear reactor technology by providing clear, accurate information and analyses.
E5.3. Work with neighboring states on a possible regional approach to new nuclear power development.

Strategy E6: Explore the feasibility and potential benefits of thermal energy networks and district heating.

E6.1. Conduct a cost-benefits analysis to assess potential benefits of thermal energy networks, focusing on environmental impact and integration with existing infrastructure.
E6.2. Identify key locations, like urban neighborhoods, university campuses, and industrial zones, where district heating systems could be most beneficial.
E6.3. Partner with utilities, local municipalities, businesses, and academic institutions to develop pilot projects for thermal energy networks.

Goal: Modernize Delaware's Electric Grid

Strategy E7: Support utility efforts to modernize transmission infrastructure.

E7.1. Collaborate with neighboring states to develop a multi-state solution for transmission upgrades.
E7.2. Promote deployment of grid-forming inverters and advanced controls to support grid reliability as more distributed energy resources come online.
E7.3. Support deployment of 'Virtual Power Plants' to leverage renewable and stored energy to reduce costs and increase reliability.
E7.4. Support efforts to incorporate future climate conditions into energy load forecasting.

Strategy E8: Work with utilities to support emissions reduction and cost savings programs.

E8.1 Update Delaware's energy efficiency laws to create mandatory energy efficiency goals, including cost-recovery.
E8.2. Advance innovative rate structures for renewables, storage, and cost saving programs.

Strategy E9: Accelerate battery storage.

E9.1 Develop a comprehensive framework to accelerate battery storage deployment by setting targets and streamlining permitting, regulations, and grid integration standards.
E9.2. Conduct a battery storage needs assessment to support and inform Public Service Commission and energy utility decision making.
E9.3 Develop plans to integrate demand response and time of use rates into utility tariffs to optimize the use of battery storage technologies.

E9.4. Create financing opportunities and incentives to promote the adoption of battery storage systems.

Strategy E10: Ensure electric vehicle technology contributes to enhanced grid stability and resilience.

E10.1 Develop enhanced time-of-use rates that incentivize electric vehicle charging during off-peak hours.
E10.2. Integrate electric vehicle charging demand management and vehicle-to-grid technologies into utility system planning.
E10.3. Launch a vehicle-to-grid pilot program using electric school buses to evaluate grid stabilization benefits, revenue opportunities for school districts, and the feasibility of broader implementation.

Strategy E11: Prepare for data center impacts on grid stability, costs, and emissions.

E11.1 Establish minimum on-site clean energy requirements for new data centers.
E11.2 Develop policies and utility rate structures that prevent the costs of data center-driven infrastructure upgrades, energy demand, and water consumption from being passed on to ratepayers.
E.11.3 Require data centers to provide long-term energy demand forecasts for utility planning.
E11.4 Establish energy efficiency standards and reporting requirements for data centers.
E11.5. Explore the feasibility of implementing waste heat recovery and water reuse technologies at data centers.

Industry

Goal: Support Data Collection, Technical Assistance, and Regional Cooperation

Strategy I1: Help industrial facilities decarbonize.

I1.1. Explore the tools and technical assistance needed to assist businesses to create short- and long-term decarbonization plans.
I1.2. Establish a community of practice for industrial organizations and businesses engaged in advancing sustainability.

Strategy I2: Develop comprehensive industrial emissions policies through regional collaboration and improved reporting.

I2.1. Expand State and Local Emissions Inventory System to require more complete emissions inventories, including greenhouse gases.
I2.2. Evaluate the feasibility of a regional industrial cap-and-trade program.

Goal: Advance Energy Efficiency in Industrial Buildings and Processes

Strategy I3: Advance on-site energy storage at industrial facilities.

I3.1. Facilitate pilot projects to develop case studies and proof-of-concepts for energy storage.

I3.2. Support investments in industrial battery storage to reduce demand charges and improve grid reliability.
I3.3. Explore the feasibility of thermal and chemical energy storage systems.

Strategy I4: Advance deployment of Combined Heat and Power technology and energy efficient equipment at industrial and manufacturing facilities.
I4.1. Explore improved financing mechanisms for energy efficient combined heat and power systems and large industrial equipment.
I4.2. Conduct feasibility analyses for on-site use of captured waste heat.
I4.3. Explore the potential for industrial district heating systems to share waste heat with nearby buildings.

Goal: Advance Electrification in Industrial Buildings and Processes

Strategy I5: Electrify low-temperature industrial heat processes.
I5.1. Support pilot programs for electric and hybrid boiler replacements for low-pressure steam boilers.
I5.2. Support pilot programs for industrial heat pumps.
I5.3. Explore incentives for electric ovens and fryers in industrial food preparation.
I5.4. Explore incentives to replace low-pressure steam boilers with industrial heat pumps.

Strategy I6: Prepare for technology advancements for medium- and high-temperature industrial heat processes.
I6.1. Support research, development, and pilot projects to replace hydrocarbon-based heat with electricity.
I6.2. Conduct a feasibility analysis of using heat pumps for hot oil heating.

Goal: Advance Low-Carbon Fuels, Feedstocks, and Energy Sources

Strategy I7: Advance the production and use of low-carbon fuels and energy sources.
I7.1. Identify incentives for on-site renewable energy systems at industrial facilities.
I7.2. Evaluate the potential for biofuel production and use in Delaware.
I7.3. Assess renewable natural gas potential and opportunities to expand fueling station infrastructure.

Strategy I8: Advance the use of low-carbon feedstocks.

I8.1. Provide economic incentives for storing and reusing materials.
I8.2. Facilitate material and waste exchange among facilities via pilot programs and demonstration projects.

Strategy I9: Encourage technological advancement of clean hydrogen production and applications in industrial sector processes.

I9.1. Support research and development for clean hydrogen production.
I9.2. Support pilot projects for clean hydrogen end uses.
I9.3. Maintain partnerships to support the emerging regional clean hydrogen innovation and industry.

Strategy I10: Prepare Delaware for the clean hydrogen industry.
I10.1. Conduct a legal analysis to prepare for permitting and regulation of hydrogen production, refining, and use.
I10.2. Investigate opportunities and challenges for clean hydrogen production and end-uses.
I10.3. Support workforce training and development for clean hydrogen technology and end uses.
I10.4. Partner with emergency managers to establish clear safety protocols and promote transparency.

Goal: Advance Development of Carbon Capture, Utilization, and Storage

Strategy I11: Support the development and scaling of Carbon Capture, Utilization and Storage.
I11.1. Conduct a comprehensive assessment of carbon capture technology deployment opportunities across Delaware's industrial sector.
I11.2. Develop a regulatory framework and identify suitable sites for carbon capture, utilization, and storage infrastructure.
I11.2. Identify financing mechanisms and incentives for pilot projects and deployment.

Natural Lands, Forests and Trees

Goal: Maximize Carbon Sequestration and Environmental Co-benefits Potential of Delaware’s Forests and Urban Tree Canopies

Strategy N1: Protect, conserve, and expand forested lands.
N1.1. Identify optimal sites for afforestation and reforestation on public and private lands and prioritize them for investment.
N1.2. Increase conservation efforts through expanded funding for education, outreach, and reinstated technical assistance for landowners.
N1.3. Enact a statewide forest and riparian buffer protection law that includes assistance for municipal governments.

Strategy N2: Expand tree planting and land management in urban and suburban areas.
N2.1. Provide technical assistance for including tree canopy cover and forest planning targets in municipal and county comprehensive plans.

N2.2. Expand the Urban and Community Forestry Program and Tree for Every Delawarean Initiative.
N2.3. Provide model ordinances and tools to assist local governments in protecting existing trees and ensure appropriate planting of new trees.
N2.4. Encourage property owners to preserve high-value forests as Nature Preserves in the State's Natural Areas Preservation Program.
N2.5. Support a community assistance program to help municipalities place lands into conservation easements to retain ecosystem services.

Strategy N3: Improve forest management to protect habitats and reduce emissions.
N3.1. Conduct research, including pilot projects, to determine the optimal silvicultural practices for Delaware for carbon storage and sequestration
N3.2. Promote proper forest management and silvicultural best management practices to maintain and restore forests for water quality, wildlife, and climate resilience.

Strategy N4: Improve forest and tree inventories and metrics measurement and tracking.

N4.1. Improve statewide greenhouse gas inventory and emissions reduction planning through a synchronized inventory of Delaware's total tree cover.
N4.2. Promote improved urban tree canopy management, tracking, and mapping by providing technical assistance to local governments and municipalities.
N4.3. Conduct a baseline forest carbon inventory by utilizing aerial mapping and remote sensing technologies.

Goal: Advance the Forestry Industry in Delaware

Strategy N5: Promote traditional and non-traditional forest industries.
N5.1. Create an updated economic impact study of Delaware's forest industry.
N5.2. Promote the importance of Delaware forests and forest industries.
N5.3. Support the Governor's Council on Forestry's effort to attract forest industries to Delaware.
N5.4 Create markets for low-quality fiber and biofuels.

Strategy N6: Ensure future native tree supply.
N6.1. Assess the feasibility of a state-run native plant and tree nursery to expand availability.
N6.2. Incentivize economic growth of local private native plant and tree nurseries.
N6.3. Support workforce development for the native plant and tree nursery industry.

Oceans and Wetlands

Goal: Maximize Carbon Sequestration in Delaware's Wetlands and Marine Waters

Strategy O1: Protect and preserve existing wetlands.

O1.1. Assist counties and municipalities with wetland preservation ordinances and practices.
O1.2. Strengthen Delaware's Wetlands Act to increase regulatory protections for tidal wetlands and include non-tidal wetlands.
O1.3. Expand marsh restoration efforts, especially those that increase carbon storage.
O1.4 Integrate carbon sequestration concepts into environmental and wetland education programs.

Strategy O2: Facilitate Marsh Migration.
O2.1. Identify areas most viable for marsh migration.
O2.2. Target conservation programs efforts to potential marsh migration sites with special focus on private lands.
O2.3. Incorporate marsh migration into comprehensive development plans.

Strategy O3: Enhance our ability to manage wetlands for carbon sequestration.
O3.1. Expand existing program for wetland elevation data collection and analysis.
O3.2. Support research to improve understanding of wetland carbon sinks and wetland methane sources.
O3.3. Where feasible, restore tidal wet by fully re-establishing tidal connections to reduce methane emissions.

Strategy O4: Protect and enhance carbon-storage capacity of coastal ecosystems.

O4.1. Map submerged aquatic vegetation (SAVs) and continue habitat suitability research.
O4.2. Continue and expand marine carbon restoration projects and environmental education programs.

Strategy O5: Assess marine carbon dioxide removal technologies.
O5.1. Monitor outcomes of pilot projects in the region.
O5.2. Advance Delaware-based research on the benefits and tradeoffs of marine carbon dioxide removal.
O5.3. Conduct an analysis of state regulations and policies for marine carbon dioxide removal projects.

Transportation

Goal: Expand Transportation Options

Strategy T1: Improve bus transit travel times, service frequency, efficiency, and coverage.
T1.1. Support the implementation of the DART Reimagined plan.
T1.2. Extend core local bus routes to state, county, and municipal parks on weekends as access to green space via public transit is currently limited.
T1.3. Identify priority corridors for bus rapid transit service in Delaware.
T1.4. Incorporate seating, lighting, weather protection, and clear signage at all bus stops statewide.

Strategy T2: Increase train ridership by improving travel times, service frequency, efficiency and coverage.

T2.1. Ensure continued regional rail service by maintaining SEPTA and AMTRAK service in Delaware.

T2.2. Support the ongoing feasibility study for Diamond State Rail which would provide rail service statewide.

Strategy T3: Expand multimodal transportation options in communities.

T3.1. Expand micro transit, shuttles, and other shared mobility services in areas where traditional transit is not cost effective.

T3.2. Invest in mobility hubs that allow safe and convenient transfers between buses, trains, carshare vehicles, bikes, and other forms of transportation.

Goal: Prioritize Safety and Access for Walking and Bicycling

Strategy T4: Adopt a plan to complete a statewide multi-modal network.

T4.1. Update DelDOT capital projects design guidance to prioritize safe bicycling design.

T4.2. Develop criteria that address the acute and cumulative effects of transportation pollution in roadway planning.

T4.3. Strengthen the standards and enforcement of Delaware's "Complete Streets" policy to accelerate and enhance existing efforts to create complete communities.

Strategy T5: Improve Access to Bikes.

T5.1. Implement incentive programs for bike and e-bike adoption in low-income communities.

T5.2. Pilot city-wide bike and community bike share programs.

T5.3. Provide model codes to municipalities for bike parking minimums and design.

Strategy T6: Design Communities for Pedestrian and Cyclist Safety.

T6.1. Encourage compact, mixed-use development, especially near transit and central business districts.

T6.2. Revise local zoning codes to reduce or eliminate minimum parking requirements, especially near transit and mixed-use areas.

T6.3. Develop pedestrian and cyclist only interconnections between businesses and residential areas.

T6.4. Invest in infrastructure upgrades to increase safety, such as signaling at crosswalks and intersections, raised crosswalks, and traffic calming measures.

T6.5. Improve community engagement in transportation planning by establishing more inclusive, transparent, and consistent processes.

Strategy T7: Expand multi-modal transportation infrastructure funding.

T7.1. Increase DelDOT Cycling Infrastructure Innovation Fund.

T7.2. Adopt a standard to spend at least 5% of annual state transportation funds for active transportation infrastructure and innovation.

T7.3. Support funding for education/access programs – e.g. DelDOT's Safe Routes to School program.

Goal: Reduce Light-Duty Vehicle Tailpipe Emissions and Accelerate Zero-Emission Vehicle Deployment

Strategy T8: Improve accessibility and feasibility of zero-emission vehicles for all Delawareans.

T8.1. Continue state rebate programs for electric and plug-in hybrid electric vehicle purchases and leases.

T8.2. Implement local electric vehicle car sharing programs to support access to zero-emission vehicle mobility for populations with limited access to personal vehicles.

T8.3. Launch an EV Facilitator program offering technical assistance and guidance to support residents and businesses adopting electric vehicles.

Strategy T10: Expand education and outreach to highlight the benefits of electric vehicles.

T10.1. Collaborate with schools to incorporate clean transportation topics into driver's education, environmental science, and vocational programming.

T10.2. Co-host electric vehicle ride-and-drives and dealer open houses, translate materials, and use trusted messengers to share information about electric vehicles, rebates, and charging with overburdened and under-resourced communities.

Strategy T11: Ensure convenient, reliable, and abundant access to electric vehicle charging stations.

T11.1. Create model ordinances for local governments to streamline permitting and installation of vehicle charging stations.

T11.2. Launch a pilot program for on-street charging.

T11.3. Continue state incentive programs for electric vehicle infrastructure.

T11.4 Consider implementing consumer protections related to electric vehicle charging.

Goal: Reduce Tailpipe Emissions from Medium- and Heavy-Duty Vehicles

Strategy T12: Incentivize the adoption of electric medium- and heavy-duty vehicles.

T12.1. Identify locations and deploy charging infrastructure for medium- and heavy-duty electric vehicles through the multi-state Clean Corridor Coalition.

Strategy T13: Advance implementation of school bus electrification and charging infrastructure.

T13.1. Continue efforts to address challenges and opportunities for installation and operation of school bus charging stations (also see E10.3)

T13.2. Encourage electrification of privately contracted school buses.

Strategy T14: Reduce emissions associated with freight and shipping operations.

T14.1. Support the adoption of idle mitigation strategies and logistics management strategies.

T14.2. Encourage freight businesses to adopt best practices for route optimization, last mile solutions, and mode switching.

T14.3. Improve marketing of existing incentive programs for fuel-switching to accelerate the transition to zero-emission vehicles.

Strategy T15: Assess the feasibility of adopting emerging low-carbon fuels.

T15.1. Assess potential applications for hydrogen fuel cells, renewable natural gas, and renewable diesel where feasible.

T15.2. Work with industry partners to understand fueling infrastructure needs for alternative fuels.

T15.3. Explore pilot projects to test emerging low-carbon fuels.

Goal: Reduce Emissions from Off-Road Engines and Equipment

Strategy T16: Reduce greenhouse gas emissions from lawncare equipment.

T16.1. Expand existing and create new programs to incentivize the electrification of commercial lawn equipment.

T16.2. Work with affordable housing partner organizations to provide zero-emission lawn care equipment to new homeowners, especially in overburdened or under-resourced communities.

T16.3. Launch an outreach campaign to educate residents, landscaping professionals, and property managers on the benefits of zero-emission lawncare equipment.

T17: Explore opportunities for Sustainable Aviation Fuel.

T17.1. Track innovations in sustainable aviation fuel production and potential opportunities for Delaware agricultural producers

T17.2. Explore pathways for increasing the use of sustainable aviation fuel.

T18: Support electrification of vessels and equipment at Delaware ports and ferry terminals.

T18.1. Consider pilot programs for port equipment electrification and renewable shore power.

T18.2. Reduce barriers to electrification by working with utilities to reduce electricity demand charges.

Waste – Solid Waste and Wastewater

Goal: Reduce Operational Emissions at Landfills and Wastewater Treatment Plants

Strategy W1: Reduce methane emissions from solid waste and wastewater treatment operations.

W1.1. Assess anaerobic digesters to plan maintenance or replacement of floating roofs with fixed roofs.
W1.2. Encourage stringent methane monitoring programs and technologies to promote timely repair or replacement of leaking floating anaerobic digester roofs.
W1.3. Promote on-site anaerobic wastewater treatment at manufacturing facilities to reduce outflow to wastewater treatment plants and energy use.
W1.4. Continue landfill gas capture and beneficial reuse practices.

Strategy W2: **Reduce energy consumption and fossil fuel use at solid waste and wastewater treatment operations.**
W2.1. Promote use of anerobic digestion at public wastewater treatment plants over aerobic digestion.
W2.2. Explore Delaware-specific standards for reduced motor sizes at pumps and sewer lift stations to increase energy efficiency.
W2.3. Increase use of incentives like DNREC's Clean Water State Revolving Fund for energy efficiency upgrades and on-site renewable energy.
W2.4. Investigate feasibility of establishing single-hauler districts to reduce emissions from transporting household waste.
W2.5. Explore electrification of on-site vehicles and equipment.

Goal: Reduce and Divert Solid Waste

Strategy W3: **Divert non-organic waste to recycling and other measures.**
W3.1. Enhance program participation and effectiveness through recycling assessments and public education.
W3.2. Update state agency procurement requirements for recycled products.
W3.3. Develop material-specific recycling targets for glass, metal, paper, and plastics.
W3.4. Prepare for emerging high-impact waste streams, such as e-waste from data centers, solar panels, and EV batteries.
W3.5. Explore regional waste management strategies, such as Extended Producer Responsibility programs.

Strategy W4: **Divert organic material to composting and other management methods.**
W4.1. Expand community composting access, zoning, education, and pilot programs through schools, farmers markets, and community partnerships.
W4.2. Assess the need for an industrial-scale composting facility in Delaware.
W4.3. Study the feasibility of a centralized industrial-scale sludge management facility.

ADAPTATION AND RESILIENCY

Adaptation Goals -- the strategies below support these five goals

1. Improve data collection, research and decision support tools
2. Support community resilience and preparedness
3. Enhance technical support and design
4. Enhance outreach, engagement and collaboration
5. Protect natural resources

Heat

Strategy H1: Improve understanding of extreme heat vulnerability on human health and wellbeing.

H1.1 Develop a statewide map of heat exposure and urban heat islands that incorporates social and public health data to create a heat risk index for prioritization of adaptation actions.

H1.2 Explore utilizing new and existing heat sensors through the Delaware Environmental Observing System (DEOS) at key locations, like urban areas, to monitor temperatures and inform extreme heat alerts.

H1.3 Conduct heat vulnerability assessments focused on public transit riders and pedestrians with options for heat relief such as adding shade structures.

H1.4 Enhance understanding of the effects of extreme heat on worker health and safety through targeted research assessments.

H 1.5 Conduct vulnerability assessments on Delaware's prisons and correctional facilities to address extreme heat exposure among incarcerated individuals.

Strategy H2: Improve data tools for excessive heat impacts on natural resources and agriculture.

H2.1 Work with the Cooperative Extension to develop and incorporate worker and crop risk assessments and planning tools into existing agricultural guidance for natural resource professionals and farmers addressing extreme heat impacts.

H2.2 Conduct vulnerability studies to understand the impacts of extreme heat on poultry, livestock, and marine resources such as fisheries and aquaculture.

Strategy H3: Strengthen collaboration with health providers and other trusted partners to advance heat monitoring and risk prevention.

H3.1 Continue to support collaborations with hospitals and emergency departments to improve data sharing on critical heat illness metrics such as My Healthy Community and the Heat-Related Illness in Delaware Report.

H3.2 Reconvene the Climate + Health Conference to share findings and address climate change impacts exacerbating public and environmental health.

Strategy H4: Support a coordinated network of community cooling centers to ensure all Delawareans have access to safe cooling spaces.

H4.1 Improve communications from agencies to the public around cooling opportunities (centers, stations, sites, etc.) with identifiable heat thresholds and protocols for activating heat relief services statewide.

H4.2 Increase resources and capacity to operate cooling centers to extend hours of relief as need be.

H4.3 Prioritize creating cooling centers in vulnerable neighborhoods and areas located in urban heat islands.

H4.4 Share information on access to cooling centers with vulnerable populations, such as older adults and people living with disabilities.

Strategy H5: Support infrastructure and building designs that minimize the impacts of heat.

H5.1 Support collaboration to create cool roof programming, including white roofs on buildings, bus stops, and other structures.

H5.2 Examine opportunities to adapt existing paved areas with reflective or cooling coatings and use sustainable materials that reflect heat at newly paved sites.

H5.3 Expand the use of publicly accessible shade structures across the state, such as in parks, at public transit stops, and along sidewalks.

H5.4 Explore shade cover minimums for construction of new parking lots and car parks.

Strategy H6: Share climate research and opportunities to advance heat informed planning efforts.

H6.1 Develop guidance and technical support for local land-use laws that consider extreme heat and accelerate cooling strategies for outdoor environments, such as establishing minimum standards for landscaping.

H6.2 Support municipalities in developing urban tree inventories and forestry plans that encourage native plantings and incorporate long-term maintenance.

H6.3 Provide climate planning scenarios including extreme temperature projections and technical support for planning purposes.

Strategy H7: Educate the public and businesses about heat risks.

H7.1 Provide accessible public education, messaging, and training opportunities in English, Spanish and Haitian Creole related to extreme heat, with a focus on signs, symptoms, and prevention strategies available on PrepareDE.

H7.2 Educate visitors to parks, wildlife areas, forests, and historic sites about extreme heat and encourage precautions against heat-related illness.

<u>Strategy H8:</u> Conduct targeted educational and risk reduction efforts for vulnerable communities, such as those located in urban heat islands.

H8.1 Expand outreach for the Weatherization Assistance Program (WAP) and the Low-Income Home Energy Assistance Program (LIHEAP).
H8.2 Target tree planting and maintenance programs to urban heat islands.
H8.3 Pilot cool roof and street programs in areas with urban heat islands.
H8.4 Fund and support sustainable building designs and practices to minimize heat at brownfield sites, including options for solar, ecological restoration and native plantings.

<u>Strategy H9:</u> Conduct targeted efforts to protect Delaware's workforce, especially outdoor workers, from adverse extreme heat impacts.

H9.1 Review and improve existing policies and regulations for outdoor worker safety.
H9.2 Identify best practices to reduce extreme heat risks to workers, with a focus on high-risk sectors (e.g., agriculture, transportation, construction).
H9.3 Develop outreach materials focused on heat safety for outdoor workers and make these materials widely available to Delaware businesses.

Precipitation, Inland Flooding and Sea Level Rise

<u>Strategy P1:</u> Increase awareness and understanding of impacts from sea level rise, precipitation and flooding through technical research and monitoring.

P1.1 When conducting flood vulnerability assessments for management or planning, consider future flood conditions.
P1.2 Conduct a risk analysis and resiliency assessment for Delaware's affordable housing properties.
P1.3 Conduct an assessment of the economic and social impacts of frequent flooding events on critical infrastructure, including drinking water and wastewater infrastructure.
P1.4 Pursue a state Probable Maximum Precipitation (PMP) study to be used in designs of critical facilities.
P1. 5 Conduct research and a feasibility study on state Fortified Building Programs for potential implementation in Delaware.

<u>Strategy P2:</u> Protect and preserve tidal and non-tidal wetlands.

P2.1 Strengthen the Delaware Wetlands Act to increase regulatory protections for tidal wetlands and include non-tidal wetlands. *Also see action O1.2*
P2.2 Preserve and acquire land as necessary to allow for landward marsh migration and connectivity. *Also see Strategy O2.*

<u>Strategy P3:</u> Protect and preserve wildlife and fisheries.

P3.1 Incorporate climate change considerations into wildlife and fisheries management plans.
P3.2 Incorporate climate change considerations into agriculture and natural areas management.

Strategy P4: Maintain and protect stormwater, wastewater and drinking water infrastructure.

P4.1 Evaluate the current Tax Ditch Law to consider changes and new regulations to account for future development and impacts of increased flooding and drainage issues.

P4.2 Revisit stormwater regulations to consider future precipitation conditions.

P4.3 Update stormwater models to incorporate projected precipitation patterns, drainage constraints, and capacity issues.

P4.4 Develop a plan for municipalities to evaluate the vulnerability of sewer line check valves.

P4.5 Ensure all new construction of wastewater treatment plants occurs outside of the 100-year floodplain.

P4.6 Develop a plan adapting all groundwater uses (irrigation, wells, etc.) to saltwater intrusion and salinization.

Strategy P5: Create or enhance green spaces.

P5.1 Develop example ordinance language that prevents deforestation for development; when unavoidable, require reforestation or the inclusion of green space.

P5.2 Incorporate into municipality stormwater planning wetland restoration, development, or enhancement in urban parks and other areas that flood frequently.

P5.3 Create green spaces on vacant lots through the DNREC Brownfield Program.

Strategy P6: Create safer homes and buildings.

P6.1 Evaluate and update as needed building safety guidelines outlined by local floodplain ordinance and building codes.

P6.2 Elevate energy infrastructure to be resilient to flooding.

P6.3 Explore ways to fund community-based flood mitigation projects.

Strategy P7: Protect and maintain our shorelines.

P7.1 Incorporate future climate conditions into the Beach Preservation Act.

P7.2 Support financial programs that promote living shorelines as a nature-based approach for certain shoreline management.

Strategy P8: Prevent contaminant releases.

P8.1 Implement best practices for hazardous substance investigation and clean-up plans to prevent contaminant release due to increased precipitation, inundation, flooding, sea level rise, or changing groundwater geochemistry.

P8.2 Prioritize assessing and remediating flood prone properties in areas subject to flooding and future inundation.

P8.3 Incorporate climate change planning and flooding considerations into the remedial action process and regulations.

Emergent Hazards

Drought

Strategy D1: Incorporate drought considerations into state operations, plans, and policies.

D1.1 Support existing water supply management committees and programs, including those managing agriculture irrigation, to manage water sources under future climate conditions.
D1.2 Continue to provide a forum for partner organizations to discuss irrigation issues through the agriculture irrigation well advisory committee.
D1.3 Future allocation permits for water suppliers should include Drought Emergency Plans for the purchase of emergency supplies and have established emergency interconnection/distribution processes.

Strategy D2: Enhance understanding of drought risks and vulnerabilities.

D2.1 Increase awareness, general accessibility and functionality of the Drought Resources Page, hosted by the Delaware Climate Office, to increase public awareness of current efforts to bolster drought preparedness and water conservation actions.
D2.2 Continue to use geospatial analysis to map water infrastructure and assess drought impacts and vulnerability.
D2.3 Conduct research relating to water demand and how it is influenced by factors such as a potential increase in demand from longer growing seasons and landscape irrigation.
D2.4 Provide trainings through the agriculture irrigation advisory committee on how to use the Delaware Irrigation Management System, as well as other tools and best practices related to irrigation management.

Wildfire

Strategy F1: Increase our understanding of urban fires and wildfire risk.

F1.1. Utilize existing research and Indigenous Knowledge to create Delaware-specific best management practices to reduce wildfire fuel load through prescribed burns.
F1.2. Conduct wildfire risks assessments to better understand the relationship between wildfire risk and energy infrastructure.

Strategy F2: Reduce risk of wildfire through landscape management.

F2.1. Create a program to expand prescribed fire burns for wildfire reduction focusing on fuel breaks and buffers at wildland and urban interfaces.

Strategy F3: Increase our readiness and preparedness for wildfires.

F3.1. Adapt policies to promote best practices in fire management while protecting the wildland fire workforce by scaling up equipment and firefighting personnel.
F3.2 Increase awareness of, and capacity to assist communities in creating Community Wildfire Protection Plans.

F3.3 Evaluate and implement best communication practices regarding smoke conditions.

Extreme Weather – Tornadoes, Coastal Storms, and Hurricanes

Strategy S1: Improve communications and response to severe weather.

S1.1 Encourage small businesses to create an Emergency Response and Resilience Plan.

S1.2 Continue to improve accessible warning, awareness, and emergency communication systems for increased reach.

S1.3 Create standard impacts and response procedures to ensure continuity of operations and services for critical facilities and government agencies during natural disasters.

Strategy S2: Monitor severe weather conditions to inform emergency alerts and future policies.

S2.1 Expand monitoring by the Center for Environmental Monitoring and Analysis (CEMA) and the Office of the State Climatologist to track frequency and severity of tropical and extratropical cyclones and tornadoes in the Mid-Atlantic region.

Strategy S3: Understand how tornadoes affect forest ecosystems.

S3.1 Increase invasive species monitoring and management in habitats disturbed by tornadoes.

Vector-borne Illness and Invasive Species

Strategy V1: Increase public understanding of vector-borne illnesses.

V1.1 Increase awareness of human health impacts associated with livestock diseases and mortality.

V1.2 Develop accessible educational materials, including information in English, Spanish and Haitian Creole, for the public and schools on tick safety, mosquito control, and the link between warmer winters and insect-borne illness.

Strategy V2: Increase technical understanding of vector-borne illnesses.

V2.1 Increase testing of ticks for a wider array of tick-borne illnesses in Delaware to better track and prevent transmission to humans in the state.

V2.2 Perform needs assessments with local health providers and public health clinics to prepare for and respond to emergent disease risks.

Strategy V3: Support further data collection and research to inform invasive species management.

V3.1 Continue to use and enhance biological indicators to track changes in Delaware's ecosystems and wildlife species.

V3.2 Increase the frequency, scale and efficacy of pest and invasive species monitoring; implement invasive species management plans as needed.

V3.3 Conduct scenario planning for anticipated expanded mosquito production season and increased nuisance wildlife complaints.

Ocean and Coastal Acidification

Strategy OC1: Research and monitor the impacts of coastal acidification.

OC1.1 Collaborate with the Mid-Atlantic Coastal Acidification Network (MACAN) to expand continuous coastal acidification monitoring to inform future adaptation methods.

OC1.2 Support high-resolution monitoring, particularly near shorelines, to gain a better understanding of potential long-term acidification.

OC1.3 Expand near-shore, pH monitoring sites to measure all four parts of the marine carbonate system, establishing a repository to hold data. Coordinate with regional partners to ensure consistency in shared watersheds.

OC1.4 Conduct vulnerability assessments for shellfisheries, aquaculture, and the industries they support, such as seafood processors/distributors and tourism, to ocean and coastal acidification.

OC1.5 Conduct analyses to identify gaps in monitoring, policies, or regulations addressing drivers of coastal and ocean acidification.

Strategy OC2: Use ocean acidification research to inform planning and preparedness efforts.

OC2.1 Develop an ocean acidification action plan to address impacts to fisheries, aquaculture, and ocean resilience.

Comprehensive Resilience

Strategy R1: Enhance the resilience of natural landscapes and agricultural lands.

R1.1 Continue to use and improve the State's Natural Areas Preservation System, Conservation Easement Program, Open Space Program, Delaware's Agland Preservation Program, and Land Evaluation Site Assessment (LESA) scores to prioritize and protect natural and agricultural lands.

R1.2 Continue to support the Community Conservation Assistance Program, the Land Conservation Loan Program, and other programs to help municipalities put lands into conservation easements to retain ecosystem services.

R1.3 Create an Urban Forest Conservation Easement Program that aligns with proposed state flood mitigation grants to maximize funding availability and resiliency.

R1.4 Continue to foster pilot projects that demonstrate the effectiveness of best management practices for agricultural lands affected by climate change.

R1.5 Create guidance outlining next steps for landowner assistance programs to encourage farmers, foresters, and other resource managers to incorporate future climate conditions into their management practices.

<u>Strategy R2:</u> Invest in nature-based solutions and infrastructure improvements that support resilience to multiple hazards.

R2.1 Provide opportunities for communities to share best practices and lessons learned for implementing green infrastructure and ecosystem-based adaptation projects.

R2.2 Install appropriate cooling, heating and/or sheltering infrastructure in state natural and recreational areas to protect visitors from climate hazards.

R2.3 Establish landscape linkages to connect habitats, and increase protection for natural lands, open spaces, and parks.

R2.4 Support educational efforts by the Delaware Native Species Commission and the Invasive Species Council to plant and maintain native plants.

R2.5 Seek funding to develop new ways to design and manage coastal impoundments for recreation, mosquito control, and habitat provision.

<u>Strategy R3:</u> Continue to build relationships with Delaware's Tribal and Indigenous communities, partnering in climate planning, land stewardship and conservation.

R3.1 Acknowledge Traditional Ecological Knowledge (TEK) as a valuable resource in areas such as agroforestry, wildfire management, and watershed health.

R3.2 Identify opportunities to replicate and use the Fork Branch model where appropriate in the state.

R3.3 Include Indigenous partners in planning and implementation discussions around climate-aligned land use, fire practices, and ecosystem monitoring.

R3.4 Support capacity-building for tribal-led conservation initiatives that contribute to biodiversity, resilience, and long-term land stewardship.

<u>Strategy R4:</u> Provide technical assistance to local governments to incorporate climate change into planning efforts.

R4.1 Provide technical assistance and trainings, through the Coastal Training Program, on the use of state climate planning scenarios.

R4.2 Coordinate with the Counties and municipalities to identify technical assistance resources needed for updating county hazard mitigation plans.

R4.3 Support local governments and small communities with creating county- and municipal-level plans that support climate resilience.

R4.4 Continue to support statewide resilience coordination and technical assistance programs (such as the Resilient and Sustainable Communities League, Resilient Communities Partnership and the Grant Assistance Program) to build programs' capacity to ensure resilient technical assistance services.

<u>Strategy R5:</u> Align state investments with long-term resilience goals.

R5.1 Incorporate funding criterion into state-sponsored grant and loan programs that require applicants to consider projected climate conditions in project proposals.

R5.2 Assist towns and municipalities in developing their own funding mechanisms for resilience projects.

R5.3 Expand the Open Space Program to include a grant mechanism backed by new, increased funding to assist county, local governments and non-governmental organizations with land acquisition efforts.

R5.4 Establish a multiagency state-wide coastal resilience plan that includes long term options for adaptation and protection of communities and infrastructure, including options for strategic retreat of high-risk areas.

R5.5 Analyze the vulnerability of the state's insurance market to generate responsive recommendations to climate change risks and opportunities.

Strategy R6: Incorporate climate considerations into wastewater and hazardous waste remediation processes.

R6.1 Ensure future climate change impacts are incorporated and implemented into waste, wastewater, and hazardous substance plans and procedures.

R6.2 Work with businesses managing hazardous materials in industrial areas to assess climate change impacts for incorporation into facility emergency action plans.

R6.3 Encourage brownfield redevelopment through public and private partnerships to convert vacant brownfield sites to open, green spaces and parks to improve air quality and potential flood hazard mitigation and quality of life.

R6.4 Work with federal, state, and local entities on emergency management planning for waste and wastewater facilities.

R6.5 Plan for future climate hazard exposure when replacing equipment at waste facilities and implement appropriate green and gray infrastructure to protect facilities from natural hazards.

Strategy R7: Expand Resilient Transportation Structures and Systems.

R7.1 Continue to update and integrate climate resilience into bridge and highway design manuals strategies to address climate impacts.

R7.2 Review and adopt measures to improve evacuation flow and operations, sheltering and security concerns, like identifying evacuation routes that are resilient to hazards like flooding.

R7.3 Increase areas designated as Transportation Improvement Districts (TIDs) across the state.

R7.4 Review transportation system preservation plans to maximize long-term cost savings and reduce hazardous situations, particularly where climate risk is high.

R7.5 Protect transportation infrastructure and advance planning to redesign or relocate the most vulnerable transportation infrastructure where necessary.

Strategy R8: Promote Resilient Buildings and Design.

R8.1 Ensure resilience of buildings to natural hazards by reviewing and creating a model statewide building code to improve consistency and safety.

R8.2 Assess critical facilities to identify the most vulnerable sites to climate change impacts and the state's response capacity.

R8.3 Install emergency power sources in identified critical state-owned facilities.

R8.4 Support partnerships to establish resilience hubs at trusted community-run facilities to enhance local resiliency and provide resources on climate hazards and preparedness.

<u>Strategy R9:</u> Support accessible and transparent data collection and research to implement resilience strategies.

R9.1 Continue to develop an inventory of Delaware-specific data needs to support communities' resilience.
R9.2 Support easy to use tools and resources that provide accurate and detailed data for planning and decision-making for conservation, including foundational high-resolution geospatial data on land use types and high-resolution elevation datasets.
R9.3 Maintain Delaware's Climate Information Center as a publicly available tool to access up-to-date data on state climate projections.
R9.4 Assist property owners in assessing the vulnerability of their buildings to climate hazards.
R9.5 Continue to research the socioeconomic impacts of climate change on local communities including quantifying community benefits of resiliency projects and the cost of inaction.
R9.6 Use GIS mapping tools to identify and prioritize urban forest patches with the greatest climate resilience and equity benefits for conservation.

<u>Strategy R10:</u> Coordinate with healthcare institutions to track and provide a holistic response to the health impacts of climate change.

R10.1 Monitor statewide changes and trends in health relating to environmental and climate hazards through health impact assessments.
R10.2 Continue to integrate climate and health data tracking from Delaware Environmental Public Health Tracking Network into community planning efforts to further understand how climate change impacts public health.
R10.4 Continue developing and enhancing electronic reporting procedures for hospitals, laboratories, and other health sector partners to quickly identify climate related health impacts like heat stroke or Lyme Disease.
R10.5 Promote targeted education on the health impacts of climate change to vulnerable populations.

<u>Strategy R11:</u> Increase access and resources to climate change educational materials and involvement opportunities for students.

R11.2 Identify possible funding sources to provide scholarships for students to attend educational programming about climate change outside of the classroom.
R11.3 Support interdisciplinary climate education opportunities for lifelong learners.