

PORTSMOUTH'S CLIMATE FUTURE

What Is Portsmouth Targeting For Greenhouse Gas (GHG) Emissions Reductions?

Portsmouth is making ambitious, yet achievable commitments to drawing down the GHG emissions generated within the community and by the local government. The following draft targets are built upon existing local, regional, and national commitments and are currently more ambitious than those of the State of New Hampshire. Their achievement will necessitate the acceleration of existing sustainable practices and a shared commitment to implement new and innovative measures.

Community-Scale Activities (In-Boundary Emissions)

2030 – 50% reduction from 2018 Levels

2040 – 80% reduction

2050 – Net zero emissions

Municipal Operations (Owned and Controlled Emissions)

2035 – 80% reduction from 2018 Levels

2040 – Net zero emissions

Both sets of targets are generally consistent with what climate science¹ tells us for achieving a long-term global warming outcome of below 1.5°C, enabling us to adapt to climate change successfully.

How Does Portsmouth Intend To Achieve Its Climate Mitigation Targets?

The following five pathways have guided the identification of specific climate mitigation measures for Portsmouth's Climate Future:

1. Building Energy Conservation and Efficiency
2. Clean Buildings and Transportation
3. Renewable Energy Production and Procurement
4. Sustainable Waste Management
5. Climate-Smart Land Use

What Else Is Portsmouth Hoping To Accomplish Through Its Climate Action Plan?

1. Prepare Portsmouth for the potential effects and impacts of climate change
2. Enhance our partnerships for exponential climate action progress
3. Leverage efficient use of public resources to foster community investment in climate action
4. Create a culture of climate action and shared responsibility

What Climate Mitigation Measures Has Portsmouth Prioritized?

Informed by feedback obtained from stakeholders and the community at large, the Team behind Portsmouth's Climate Future identified over 80 measures that are both relevant and impactful to reducing GHG emissions at the community scale and within local government operations. Each measure was evaluated for its cost-benefit using the criteria shown to the right. The results of this evaluation enabled the Team to rank the measures, with those measures ranking the highest listed on the following pages.

DEFINING NET ZERO

Striking a balance between GHG emissions emitted and removed from the atmosphere.

For the Portsmouth CAP, the commitment to reduce emitted GHGs covers Scope 1 (direct, owned and controlled) and Scope 2 (indirect, purchased electricity) emissions. Further, the following gases are included:

- Carbon Dioxide
- Methane
- Nitrous Oxide

In addition, the City of Portsmouth shall seek opportunities to influence reductions under Scope 3 (indirect, uncontrolled emissions) wherever feasible.

COST-BENEFIT EVALUATION CRITERIA

- GHG Emissions Benefits
- Upfront Cost
- Implementation Complexity
- Staffing Needs
- Sustainability Co-Benefits
- Support For Climate Adaptation

¹ The Intergovernmental Panel on Climate Change (IPCC). (2023). AR6 Synthesis Report Climate Change 2023. Retrieved from, <https://www.ipcc.ch/sr15/>

BUILDING ENERGY CONSERVATION AND EFFICIENCY

MEASURES: MITIGATION

ID*	Measure
Community	
C.BE-1	Adopt tax incentives (e.g., preferential rates) for multi-family and commercial buildings that are both highly efficient and fossil-fuel-free.
C.BE-2	Implement and enforce building energy performance standards. Require buildings of a certain size to report their energy usage and GHG emissions to the City for purposes of enforcement and benchmarking. ENERGY STAR Portfolio Manager can be used to track, benchmark, and report data.
C.BE-3	Adopt an advanced energy code, with an incentivized net-zero pathway. Include solar- and EV-capable, ready, and install requirements. Once adopted, ensure that resources are put in place to support code compliance.
C.BE-4	Provide financing options to support energy efficiency retrofits, especially the older housing stock, potentially through financing options similar to the Powering Affordable Clean Energy (PACE) Program.
Municipal	
M.BE-2	Ensure all new municipal construction projects (new or major renovations) are net zero-ready. To support performance verification and reporting, adopt a requirement that these projects meet the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) Zero Energy.
M.BE-3	Implement a Building Energy Management System (BEMS) to monitor, measure, and control energy use in municipal buildings. Investigate a demand response and/or routine load-sharing program.
M.BE-4	Continue to convert City-owned streetlights and traffic signals to LEDs and continue to monitor for efficiency improvements.
* C = Community or Community + Municipal Measure, M = Municipal Measure	

CLEAN BUILDINGS AND TRANSPORTATION

MEASURES: MITIGATION

ID*	Measure
<i>Community</i>	
C.CBT-1	Ensure an update to the City's 2014 Bicycle and Pedestrian Plan supports the creation of a viable alternative transportation network that reduces the community's dependence on motor vehicles, thus reducing overall vehicle miles traveled. Implement associated recommendations in a timeframe consistent with the interim and final targets of Portsmouth's Climate Future.
C.CBT-2	Prepare an electric vehicle charging plan to identify feasible and strategic locations for the installation of publicly available charging supply equipment. Engage in partnerships to enable the installation of charging stations at priority locations, while promoting their co-location with renewable energy systems to improve the clean energy profile of transportation electrification.
C.CBT-3	Expand public transportation within as well as into and out of Portsmouth to attract more "choice" riders (i.e., those that can utilize other modes of transportation) regularly and more efficiently serve "captive" riders (i.e., those that must take public transportation). This includes making bus connections to regional transportation hubs, such as the rail stations in Dover and Exeter, as well as exploring new forms of public transit (e.g., passenger rail). To maximize the sustainability benefits of public transportation, plan to electrify the fleet and prioritize City investment in options benefiting lower-income communities.
C.CBT-4	Work with local and regional transportation partners in conducting a microtransit feasibility study to identify projects that would augment and/or replace fixed-route public transit service.
<i>Municipal</i>	
M.CBT-1	Develop and implement a fleet electrification plan. Ensure that this plan adequately assesses future charging needs by department and vehicle use types. Install additional Level 2 (240V) and DC Fast (480V) charging stations, as appropriate. The cost of this strategy may be offset through funds available through the Granite State Clean Fleets program.
M.CBT-2	Assess opportunities to optimize the size of the municipal fleet to ensure the fleet inventory does not exceed operating requirements.
M.CBT-3	Work with the School Department to electrify the school bus fleet.
M.CBT-4	Eliminate building systems that utilize fossil fuel sources (i.e., oil, natural gas, propane) for space heating and hot water and replace these systems with electric alternatives in all municipal and School Department buildings.
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RENEWABLE ENERGY PRODUCTION AND PROCUREMENT

MEASURES: MITIGATION

ID*	Measure
<i>Community</i>	
C.RE-1	Amend zoning and other City policies to eliminate existing barriers to solar development. For example, consider allowing solar arrays as a principal use and adopting a policy that allows more visible PV Solar Arrays in the Historic District.
C.RE-2	Establish targets to increase participant sign-ups for the "Clean 100" option (i.e., 100 percent renewable content) under the Portsmouth Community Power program, established under RSA 53-E. Achieve these targets through continued education and awareness building among residents and businesses, as well as continuous efforts to ensure the option is price competitive.
C.RE-3	Promote renewable energy development through regulatory incentives. For example, adopt dimensional incentives/density bonuses for new or redeveloped sites that incorporate solar power energy systems into building design (including their parking lots). Consider expediting the building permit and inspection process as well as lowering permitting fees for renewable energy distributed generation systems.
C.RE-4	Encourage the development of community solar projects, consistent with RSA 362-A:9, XIV (as amended), where residents who are unable to install solar PV on their own accord (e.g., due to living in multi-family residential developments, financial limitations) can access the benefits of owning a solar PV system (e.g., credits on their electricity bill).
C.RE-5	Actively promote offshore wind interconnection through the Piscataqua River into existing electric infrastructure in Newington/Portsmouth to improve the renewable energy mix in the ISO-NE grid.
<i>Municipal</i>	
M.RE-1	Plan, design, and build solar arrays with battery storage of sufficient generating capacity to power municipal buildings. Solar panels could be distributed across building roofs and parking lots or aggregated into one site. The Public Undeveloped Land Assessment lists several sites that may be suitable. Loans and grants are available to support municipal renewable energy development (e.g., NH CDFA Clean Energy Fund), as are ownership and financing options (e.g., power purchase agreements [PPAs]).
M.RE-2	Track the City's renewable electricity supply, produced and/or procured, and supplement as needed with certified renewable energy certificate (REC) purchases to ensure that 100 percent of the City's electricity consumption is covered by renewable energy projects. RECs generated from solar and wind facilities located in Northern New England should be favored over those from outside the region.
* C = Community or Community + Municipal Measure, M = Municipal Measure	

SUSTAINABLE WASTE MANAGEMENT

MEASURES: MITIGATION

ID*	Measure
<i>Municipal</i>	
C.WM-1	Conduct waste characterization studies to better understand the composition of the local government and community waste streams.
C.WM-2	Building off the waste characterization studies, prepare and implement a Zero Waste Plan, which would see the Portsmouth community reduce, reuse, recycle, and compost at least 90 percent of its solid waste.
C.WM-3	Create a voluntary certification program for Portsmouth restaurants working to reduce food waste (levels might include "skip the stuff", composting, and offering smaller portion sizes).
C.WM-4	Expand curbside food waste collection services, perhaps in coordination with existing private-led services, to all residential households that receive Municipal Solid Waste and recycling services. Require all new multi-family development projects to site potential locations for the adequate storage and handling of composting material should a municipal composting program become available in the future. Add information on at-home composting to the City's website.
<i>Community</i>	
M.WM-1	Adopt a municipal environmentally preferable purchasing policy that can be used as a model for the private sector.
* C = Community or Community + Municipal Measure, M = Municipal Measure	

CLIMATE SMART LAND USE

MEASURES: MITIGATION

ID*	Measure
<i>Community</i>	
C.LU-1	Strengthen Article 7.1 of the Site Plan Regulations to require Low Impact Development (LID) design practices and techniques in building design. Encourage the planting of trees and greenery around new or renovated buildings and sites that are being developed or subdivided. Prioritize the inclusion of open space.
C.LU-2	Rezone the Schiller Station area to ensure that the existing power infrastructure stays intact for future uses such as energy storage. Explore the opportunity for this site to support the conveyance and perhaps storage of power generated by off-shore wind projects.
C.LU-3	Identify publicly-owned land areas, or privately-owned lands for acquisition, that are suitable for new or enhanced greenhouse gas emissions sequestration and storage. For example, reforestation/afforestation, forest management, and wetland restoration. Work with private landowners and land trusts to develop and manage similar projects, where appropriate. This could include improved forest management plans.
C.LU-4	Study neighborhood completeness (i.e., amenities and services within walkable and bikeable areas) and work to address gaps through regulatory (e.g., zoning-based incentives) and non-regulatory (e.g., business recruitment, tax incentives) means.
C.LU-5	Implement blue carbon strategies (i.e., carbon sequestration through coastal resource conservation).
C.LU-6	Raise residential and commercial densities in areas that are within reasonable walking and biking distances to public transit stops. Identify opportunities to further mixed-use developments within these areas.
C.LU-7	Expand the City's tree cover to combat urban heat, enhance public health, and reduce the energy need for cooling. For example, plant a shade way at locations such as State Street in downtown and Parrott Ave from the Public Library to Junkins Avenue.
C.LU-8	Institute a tourism tax to reduce the greenhouse gas emissions associated with tourist activities. Projects to be funded through this tax could support the tourism industry by positioning Portsmouth as a "green destination".
* C = Community or Community + Municipal Measure	

As opposed to mitigation measures that aim to reduce GHG emissions, the following adaptation measures would help to prepare the City and its community for the potential effects and impacts of climate change.

FLOOD RESILIENCE

MEASURES: ADAPTATION

ID*	Measure
CA.FR-1	Continue to identify critical public and private properties and infrastructure subject to sea-level rise and identify potential adaptation measures for each location. Seek implementation financing through Coastal Resiliency Funds (RSA 36:53) and Coastal Resiliency and Cultural and Historic Resources District & Funds (RSA 12-A:68 & 69).
CA.FR-2	Establish a Coastal Flood Hazard District around the low-lying areas of the downtown area including North Mill Pond to Newcastle Ave that will require new and redevelopment projects to include flood protection measures including building floodproofing, higher floor elevations, and potential barriers to protect against future flooding from sea level rise and storm surge.
CA.FR-3	Establish a Coastal Flood Risk Mitigation Fund using a percentage of the local Room & Meal tax receipts, parking fees, or other local revenue sources to purchase and install temporary or permanent flood protection measures and establish a rebate program to encourage property owners to install flood protection measures.
CA.FR-4	Conduct and/or update previous hydraulic & hydrologic modeling studies of the City's storm drain system and major road culverts/bridges to identify and rank capacity constraints that contribute to land-based flooding affecting critical transportation corridors and properties. Identify any adjacent undeveloped areas and recreation areas that could provide additional temporary flood storage in flood-prone drainage areas. Build upon Coastal Hydraulic Model being developed by Rockingham Planning Commission.
CA.FR-5	Establish a more sustainable and consistent funding source, such as a Stormwater Utility Fee, to help plan for and fund stormwater capacity and flood resiliency improvements. A Stormwater Utility Fee would have the added benefits of encouraging the reduction of impervious surfaces through increased greenspaces.
CA.FR-6	Review, prioritize, and develop a plan to initiate the recommended adaptive strategies included in the Historic Vulnerability Assessment StoryMap, available at: https://portsmouthnh.maps.arcgis.com/apps/MapJournal/index.html?appid=302cb9580dfb4ddd66dbb39055a88e .
* CA = Climate Adaptation, FR = Flood Resilience	

HEAT RESILIENCE

MEASURES: ADAPTATION

ID*	Measure
CA.HR-1	Develop a Citywide Heat-Health Warning and Protection Plan to activate public health warnings, cooling centers, and other relief measures when air temperatures exceed 90° F for prolonged periods.
CA.HR-2	Assess and ensure public facilities, schools, and other critical community facilities are resilient to extreme heat and provide access to cooling.
CA.HR-3	Coordinate an Annual Heat Resilience Workshop to engage and support local/regional healthcare providers, health educators, and caregivers to develop a coordinated plan to screen and connect individuals at higher risk for heat-health impacts to prevention resources.
CA.HR-4	Integrate heat resilience goals, standards, and guidelines into open space and recreation planning for planned improvements to existing open space.
CA.HR-5	Work toward establishing a network of shaded pedestrian, bike paths, or recreation areas or "Cool Corridors" to have at least one shaded public area within a 5- or 10-minute walk.
* CA = Climate Adaptation, HR = Heat Resilience	

ENERGY RESILIENCE

MEASURES: ADAPTATION

ID*	Measure
CA.E-1	Encourage community-wide building weatherization measures for more resiliency during extreme weather events so that heating/cooling is more effective and efficient.
CA.E-2	Remove any barriers in the land use ordinances to enable the addition of exterior insulation and improve the efficiency in renovations to existing buildings while being sensitive to both historic preservation and fire and life safety.
CA.E-3	Identify and map vulnerable electric and gas infrastructure and work with Eversource and Unitol on adaptation strategies as infrastructure is maintained and upgraded. This may include converting existing overhead electric infrastructure to underground conduits if wind shear is a concern or relocating ground-mounted transformers to poles where flooding is a concern.
CA.E-4	Investigate the potential for an islandable microgrid of critical municipal and/or public infrastructure that could continue to provide services if the regional grid is offline. This would require integration of renewables and battery storage sufficient to power minimal facility electric/HVAC/refrigeration needs (e.g., shelter).
CA.E-5	Develop a citywide electric use notification system that has different advisory levels to encourage energy conservation during peak/high-cost periods.
CA.E-6	Consider a routine load-sharing program whereby peak demand energy use is reduced and operational changes are instituted to lessen overall energy demand year-round. ¹
CA.E-7	Site and permit public EV charging infrastructure, particularly fast charge stations, out of flood-vulnerable areas.
* CA = Climate Adaptation, ER = Energy Resilience	

¹ Portsmouth Renewable Energy Committee. *Final Report and Recommendations*. January 2018.

<https://files.cityofportsmouth.com/files/planning/RenewableEnergyCommitteeFinalReportandRecommendations.pdf>

PORTSMOUTH'S CLIMATE FUTURE

ENABLING ACTIONS

The following enabling measures may not produce direct GHG emissions benefits on their own but will be critical to supporting those that do.

STAFFING

- Appoint a Climate Action Manager/Sustainability Manager in each municipal department to manage the implementation of Portsmouth's Climate Future using a bottoms-up approach consistent with our Eco-Municipality approach to sustainability.
- Identify staff to continue to monitor federal and state incentives, rebates, and tax breaks that support climate mitigation and resiliency.

POLICIES AND PROCEDURES

- Continue regularly updating the City's GHG Emissions Inventories, improving their accuracy and comprehensiveness. Institute data governance to support this effort.
- Launch a publicly available reporting dashboard to track progress toward achieving the GHG reduction targets included in Portsmouth's Climate Future. This dashboard should also report on implementation progress by prioritized measure.
- With state approval, as necessary, incorporate carbon emissions and the cost of carbon as evaluation criteria in the City's capital planning process and in department operating budget requests, where relevant.

EDUCATION AND AWARENESS

- Develop, launch, and maintain a consolidated community education program that engages residents and other property owners/developers to provide resources on a range of energy efficiency and transition technologies, relating to buildings (e.g., Weatherization Assistance Program) and building systems (e.g., NHSaves), electric vehicles (e.g., Granite State Clean Fleets, Plug-In Electric Drive Vehicle Tax Credit), and renewable energy deployments (e.g., Low-Moderate Income Solar Renewable Energy Grant). Organize such resources and information by their target audience. Afford this program a prominent place on the City's website, enlist staff and/or community members to serve as "Coaches" to perform direct engagements, and engage partners in planning and conducting community-scale education events.
- Raise awareness about local climate impacts through art - shows, installations, local cultural events, etc.
- Continue to hold community conversations on climate and sustainability topics to keep the momentum going upon completion of Portsmouth's Climate Future and to further the culture of climate awareness in Portsmouth. Hold these conversations across the City, but particularly in neighborhoods that experience/are exposed to the most impact.
- Provide resources about the installation of solar panels on historic properties. Information should be in line with the National Park Service and the Security of the Interior Design Standards for Rehabilitation.

PARTNERSHIPS

- Invest in workforce development to support clean energy jobs, including through partnerships with the School Department and local/regional colleges.
- Partner with utilities to evaluate the existing capacity and redundancy of the electric grid, considering the expected future demand due to electrification of vehicles and building systems. As part of this study, identify smart electric grid technologies that could be implemented. Additional considerations should include microgrid technology and distributed energy resources.
- Working with partners (e.g., the State, Eversource, and Offshore Wind Developers), leverage the City's coastal facilities to support offshore wind construction and energy production, including manufacturing/marshaling, transmission interconnection, and energy storage. Seek Host Agreements that would provide the City with various fiscal and economic benefits.

ADVOCACY

- Support carbon pricing policies at the state and federal levels. The Citizens Climate Lobby can be leveraged for support.
- Advocate for a state-level residential sector rebate for the purchase or lease of a new or used electric vehicle. Do so in partnership with other municipalities and in coordination with local and regional environmentally-conscience agencies.
- Advocate for a Clean Heat Standard in New Hampshire, similar to Massachusetts and Vermont. A Clean Heat Standard generally requires heating energy suppliers to replace fossil heating fuels with clean heat over time. Do so in partnership with other municipalities and in coordination with local and regional environmentally-conscience agencies.
- Advocate for an increase in the State's Renewable Portfolio Standard (RPS) requirements beyond 2025. Do so in partnership with other municipalities and in coordination with the Community Power Coalition of New Hampshire as well as with local and regional environmentally-conscience agencies.
- Serve as an active participant in future updates to the New Hampshire state-wide climate action plan.