Pre Research Workforce Analysis

The following report analyzes the findings from the states of Massachusetts and Rhode Island, along with targeting the biggest towns in our PCAP area, Providence and New Bedford, tracking their workforce numbers, spending, and carbon reduction rates. The report covers the main topics of Transportation, Electricity Generation, Buildings(Residential and Commercial), Waste Management & Materials, and Agriculture & Working Lands. The data provided is as up to date as government departments have been able to provide us with. Information in this report should be used as the baseline for our projections once data from our studies are available to analyze how on track these areas are to meet their climate goals.

Electric Vehicles

The transition to light-duty electric vehicles (EVs) is a significant step in addressing climate change and reducing greenhouse gas emissions. Various regions are investing substantially in electric vehicle infrastructure, focusing on installing and maintaining charging stations to support the shift from gasoline-powered cars to electric vehicles. States like Massachusetts and Rhode Island and cities like New Bedford and Providence prioritize EV infrastructure development as part of their broader climate and sustainability goals.

In Massachusetts there is a major initiative underway to support the transition to electric vehicles by investing in public EV charging stations. The state plans to build 35,000 public chargers, an effort expected to cost over $423 million. This infrastructure investment will create significant employment opportunities, generating an estimated 1,313 jobs. By providing the

necessary charging infrastructure for EVs, Massachusetts aims to reduce greenhouse gas emissions by more than 10.5 million metric tons of CO2 equivalent (MT CO2eq). This commitment reflects the state's ambition to encourage widespread EV adoption and address the environmental impacts of gasoline-powered vehicles.[1]

New Bedford's Climate Action and Resilience Plan aims for the city to be powered entirely by renewable energy by 2050. As part of this ambitious goal, the city has already made strides in supporting electric vehicle adoption by installing 30 charging stations, 22 of which are free of charge. These stations are part of an infrastructure designed to encourage the shift away from fossil fuels, aligning with broader sustainability efforts. ChargePoint and EVgo, two leading networks in the electric vehicle industry, are the primary providers of services in the area, helping to make New Bedford more accessible for electric vehicle users. This initiative reflects the city's commitment to reducing its carbon footprint and fostering a more sustainable urban environment for future generations, playing a crucial role in its long-term strategy for climate resilience.[2]

Similarly, Rhode Island has recognized the importance of addressing “Range Anxiety” – the concern that EV drivers may run out of battery power without sufficient access to charging stations. The state’s plan to expand its public EV charging infrastructure is integral to promoting EV adoption. To replace the state’s 832,800 gasoline-powered passenger vehicles with electric ones, Rhode Island will need to install 10,684 Level 2 chargers and 971 DC fast chargers, costing

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[1] Hoek Spaans, A., Skinner, L., Raman, A., Moskowitz, H., Packman, I., Shetler, M., Harper, B., Lamm, N., & Morley, J. (2024). (rep.). *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Pg 49-50.

[2] ChargeHub. *New Bedford, Massachusetts EV Charging Stations Info*, ChargeHub, chargehub.com/en/countries/united-states/massachusetts/new-bedford.html.

an estimated $138 million. In addition to the environmental benefits, this investment is projected to create 193 jobs. Regular testing and evaluation of EV chargers will be crucial to maintaining the reliability and availability of the infrastructure, ensuring that Rhode Island residents can confidently switch to electric vehicles.[3]

Providence, Rhode Island's capital city, is also making significant progress in expanding its EV infrastructure for government and public use. Currently, the town operates around 20 fully electric vehicles within its 700-vehicle municipal fleet, with 21 dedicated charging stations for the city's use. Providence has installed six public charging stations at the Public Safety Garage to encourage EV adoption among the general population, providing residents convenient access to EV chargers. Several key funding sources bolster the city's efforts. Providence received a $227,000 Energy Efficiency Block Grant from the Department of Energy, which will help update the city's EV infrastructure to align with its goal of achieving climate neutrality by 2040. In addition, the city has earmarked $100,000 from a master lease for further expansion of charging stations. Over the next three to five years, Providence plans to install more EV charging sites thanks to these funding sources, this comes alongside a separate grant from the state that will support the installation of EV charging stations at city parking lots through a three-phase plan.

Public Transit

In addition to promoting renewable energy and electric vehicle infrastructure, both Rhode Island and Massachusetts are focusing on reducing commuter emissions through various strategies. Investments in cleaner public transportation, such as electric buses and enhanced train

[3] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 40-41.

systems, play a central role. Both states are also developing bicycle and pedestrian-friendly infrastructure to encourage eco-friendly travel alternatives. Support for telecommuting technology is also growing, with initiatives aimed at reducing the need for daily commutes, further contributing to the reduction of transportation-related emissions.

The electrification of public buses in Massachusetts and Rhode Island represents a significant step towards sustainability and workforce development. The state is investing $3.67 billion in electrifying its public bus fleet in Massachusetts. This initiative is crucial for environmental reasons, with an expected reduction of 10,541,135 metric tons of CO2 equivalent emissions, but it will also maintain 10,250 existing jobs. The process of transitioning to electric buses also includes improvements to infrastructure and will contribute to the state's long-term sustainability goals.[4]

In New Bedford, Massachusetts, public transit currently accounts for only 3.6% of transportation, with buses contributing just 1% of the city's greenhouse gas emissions. The municipal fleet includes 23 electric vehicles, and transportation represents about 12% of New Bedford's total municipal emissions as of 2023. Expanding public transit availability, whether through buses or rail systems, could create new job opportunities in construction, vehicle maintenance, and operations, supporting the local economy while reducing emissions. [5]

Rhode Island is also making substantial strides in its public transit electrification efforts. The Rhode Island Public Transit Authority (RIPTA) plans to electrify 224 buses at a cost of $465

[4] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 49-50.

[5] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Transportation & Land Use (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/transportation-and-land-use.

million over the next eleven years. This transition not only aims to reduce emissions but also to improve air quality and public health. The initiative includes building EV charging stations at bus depots and along transit routes. Additionally, Rhode Island plans to electrify its 683 state passenger fleet vehicles, with a total cost of $26.9 million. The introduction of a Green Fleet Employee Pricing Program, which offers discounted rates for state employees to purchase personal electric vehicles, is another economic stimulus attached to this effort.[6]

In Providence, the electrification of 14 buses on the R Line, which runs from Central Falls to Warwick, showcases the city's dedication to modernizing its transportation infrastructure. This project is a significant milestone for sustainability in the region, and similar efforts are planned for Newport routes, further demonstrating the city's commitment to eco-friendly public transportation. The broader impact of these investments in clean public transit is expected to enhance both environmental quality and economic development across the state.

The development of high-speed rail (HSR) in the New England region is poised to bring transformative economic and environmental benefits. Massachusetts is set to play a vital role in this initiative, with a projected cost of $12.5 billion to build out HSR by 2035. The construction effort will create over 110,000 direct, indirect, and induced jobs, marking a significant economic boost. The HSR service, which will connect critical cities like Springfield and Boston, could contribute to substantial environmental benefits by eliminating 2,480,236 metric tons of CO2 equivalent (MTCO2eq) annually. [7]

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[6] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 39

[7] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, from https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 47

In Rhode Island, the introduction of HSR as part of the proposed Amtrak corridor offers similarly promising benefits. The project is expected to create 352,000 jobs over a span of 13 years, encompassing the entire multi-state route. The implementation of Local Hire Requirements for the Rhode Island sections will ensure that the economic benefits extend directly to local communities. High-speed rail is recognized for its efficiency and low carbon emissions, primarily when powered by renewable energy sources. HSR could help Rhode Island lower its transportation emissions by 335,538 metric tons of CO2 annually by reducing passenger vehicle miles, significantly improving air quality and contributing to the state's climate goals. The overall cost of this HSR development is estimated at $110 billion, a significant investment in infrastructure and sustainability.[8]

Bicycle and Pedestrian Infrastructure

The development of bicycle and pedestrian infrastructure in Massachusetts and Rhode Island is gaining momentum as part of broader efforts to promote sustainable transportation, enhance public safety, and stimulate local economies. In Massachusetts, the South Coast Bikeway (SCB) is an ambitious project aimed at creating a network of bicycle facilities that will connect the coastal communities of southeastern Massachusetts, from Swansea to Wareham. This project has been guided by the South Coast Bikeway Alliance (SCBA), which secured funding from the Community Preservation Act in 2018 to initiate a Feasibility Study. This study, conducted in collaboration with the Southeastern Regional Planning and Economic Development District (SRPEDD), completed its first phase in 2020, analyzing crucial aspects such as routing,

[8] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 41

land ownership, environmental concerns, safety, and equity. Phase 2, funded by a MassTrails Grant, further assessed proposed routes, evaluated benefits and constraints, and estimated costs, laying the groundwork for future design and construction phases. The SCB project represents a critical step toward expanding regional connectivity through cycling infrastructure while addressing environmental and social equity issues.[9]

In New Bedford, Massachusetts, currently only 8% of transportation occurs through biking or walking. Increasing the availability and safety of bicycle and pedestrian paths could lead to job creation in areas such as construction, bicycle sales and repair, and path maintenance. Such developments would not only encourage more people to adopt cycling or walking as a mode of transport but would also stimulate the local economy through the creation of new employment opportunities.[10]

Rhode Island is also making significant strides in enhancing its bicycle and pedestrian infrastructure as part of its Transit Forward RI 2040 plan. This plan focuses on improving accessibility and safety at key transit hubs by upgrading sidewalks, pedestrian crossings, and mobility hubs at bus stops and rail stations. It also emphasizes integrating bicycles into the broader transit system through shared bus lanes, bike-share programs, and the installation of bike storage facilities at major hubs. The development of these mobility hubs is vital in creating seamless transitions between different modes of transport, helping to extend the reach of public transit and increase ridership. These efforts involve collaboration between local governments, community organizations, and state agencies like RIPTA and RIDOT, which are exploring

[9] SRPEDD, SCBA, & South Coast Bikeway, Closing the Gap: Connecting the South Coast Bikeway from Fall River through Westport, Dartmouth, and New Bedford (2021). SRPEDD. Retrieved August 2024, from https://srpedd.s3.amazonaws.com/wp-content/uploads/2021/07/12151625/SCBA-Phase-2-063021.pdf.
[10] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Transportation & Land Use (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/transportation-and-land-use.

rideshare partnerships to enhance connectivity further. This comprehensive approach is expected to generate jobs and stimulate economic growth while making Rhode Island's transportation system more accessible and environmentally sustainable.[11]

In Providence, Rhode Island, bicycle infrastructure development has faced delays under the new administration, but recent signs of progress have emerged. The city secured a $27 million grant to upgrade bike infrastructure, and a contract has been awarded to Safe Street Infrastructure, highlighting renewed efforts to improve cycling safety. Providence remains committed to the Vision Zero program, which aims to eliminate traffic fatalities, and these recent advancements reflect the city's dedication to prioritizing sustainable transportation. While challenges remain, Providence is steadily moving toward creating safer, more accessible cycling infrastructure that will contribute to its long-term environmental and public safety goals.

Telecommuting Technology Support

The state is actively addressing connectivity barriers in Massachusetts through a new program funded by the Bipartisan Infrastructure Law. With an allocation of $14.1 million, this initiative is part of a broader $800 million national effort under the Digital Equity Capacity Grant fund. The program focuses on improving broadband access, affordability, and online inclusivity, with a particular emphasis on digital literacy, privacy, cybersecurity, and the provision of affordable consumer devices with technical support. Beyond this, Massachusetts has made additional state-level investments, including over $40 million through the Digital Equity Partnerships program and $22 million for the Residential Internet Retrofit Program. The state is

[11] Rhode Island Public Transit Authority, & Rhode Island Public Transit Authority, Transit RI Forward 2040: Rhode Island Transit Master Plan (2020). Rhode Island Public Transit Authority. Retrieved August 2024, from https://www.ripta.com/wp-content/uploads/2021/07/TFRI-Recs-Briefing-Book-Final-201230.pdf.

also assisting 80 communities with strategic digital equity planning via the Municipal Digital Equity Planning Program. In June 2023, Massachusetts secured an additional $147 million from the federal Broadband Equity, Access, and Deployment (BEAD) program, further underscoring the state's commitment to improving digital access and supporting telecommuting.[12]

In New Bedford, Massachusetts, the telecommuting trend is emerging gradually, with about 6% of the city's workforce working from home as of 2021. This figure highlights the potential for growth in remote work if supported by continued improvements in digital infrastructure, which could further drive local economic development and flexibility in employment options.[13]

Rhode Island, meanwhile, is enhancing its telecommuting capabilities with over $108 million from the BEAD program, as part of the Biden-Harris Administration's Internet for All initiative. This funding, part of the $42.45 billion Bipartisan Infrastructure Law, is aimed at deploying or upgrading high-speed internet networks across the state. The goal is to ensure reliable, affordable internet access for all residents, which is critical to supporting telecommuting, digital inclusion, and workforce development. Rhode Island's efforts also include programs to promote internet adoption, provide training, and strengthen workforce development in digital fields, all of which contribute to building a robust infrastructure for telecommuting.[14]

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[12] Massachusetts Government . (2024, April 1). Massachusetts Receives $14.1 Million in Federal Funding to Expand Digital Access. *Mass.Gov*. Retrieved August 2024, from https://www.mass.gov/news/massachusetts-receives-141-million-in-federal-funding-to-expand-digital-access.
[13] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Transportation & Land Use (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/transportation-and-land-use.
[14] NTIA, Office of Public Affairs. (2024, July 17). Biden-Harris Administration Approves Rhode Island's "Internet for All" Initial Proposal. *NTIA.Gov*. Retrieved August 2024, from https://www.ntia.gov/press-release/2024/biden-harris-administration-approves-rhode-island-s-internet-all-initial-proposal.

Green Port Developments

Green port developments in Massachusetts and Rhode Island are critical to advancing sustainable economic growth while reducing environmental impact. In Massachusetts, the Baker-Polito Administration allocated over $11 million in Seaport Economic Council grants in 2022 to fund 24 projects in southeastern cities such as New Bedford, Fall River, Fairhaven, Dartmouth, and Marion. Among the notable projects, the City of New Bedford and the Community Boating Center received $50,000 for a footprint feasibility study. At the same time, the New Bedford Port Authority was awarded $880,000 for design and permitting efforts at Homer's Wharf. Additionally, $320,000 was allocated for updating the New Bedford and Fairhaven Municipal Harbor Plan, and Fairhaven's Union Wharf improvements received a $1 million grant. Other key projects include the $40,000 grant for a dredging feasibility study in Padanaram Harbor and a $32,000 economic impact assessment. City Pier development was funded in Fall River with $640,822, while Marion's Maritime Center project was granted $300,000. These projects are currently in progress, although their completion timelines remain uncertain.[15]

New Bedford stands out as a pivotal economic hub, with its port industry generating $11 billion in annual revenue and supporting 40,000 jobs. The city's port activity also contributes to environmental sustainability by significantly reducing carbon emissions, as the use of the port instead of trucking eliminated 244,000 tons of CO2 emissions in 2017.[16]

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[15] Reports, S. (2022, December 16). *New Bedford among local communities awarded grants through Seaport Economic Council*. New Bedford Standard-Times. https://www.southcoasttoday.com/story/news/politics/state/2022/12/16/new-bedford-among-local-communities-awarded-seaport-grants/69731158007/

[16] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Economy & Jobs (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/economy-and-jobs

In Rhode Island, the state has dedicated $60 million to infrastructure upgrades at the Port of Davisville, focusing on constructing the Terminal 5 Pier, carrying out dredging, expanding storage space, and reinforcing Pier 1. These enhancements, led by the Quonset Development Corporation, aim to facilitate offshore wind projects from Cape Cod to New Jersey. In addition, the state has invested $35 million to transform East Providence's South Quay Marine Terminal into a central hub for the offshore wind industry.[17]

In Providence, a long-term plan is underway to foster a greener and more sustainable port. ProvPort and the city's Planning Department are working together on a port master plan that emphasizes community engagement and sustainability. A dedicated chapter of the plan will address community benefits to ensure that development aligns with local needs. The updated Comprehensive Plan includes provisions supporting zoning changes to attract cleaner and healthier businesses to the port area, promoting economic growth and environmental responsibility.

Grid modernization and maintenance

Grid modernization and maintenance initiatives in Massachusetts and Rhode Island are critical to creating jobs, improving energy efficiency, and building resilience against climate change. In Massachusetts, grid modernization is projected to create 1,645 direct jobs by 2027, with an additional 11,902 jobs expected from the installation of high-voltage transmission infrastructure by 2040. These grid upgrades are estimated at $514.3 million by 2026, while new high-voltage transmission infrastructure could cost up to $3.72 billion by 2040. These

[17] Buljan, A. (2022, March 21). *Rhode Island ports to undergo offshore wind upgrades with USD 95 million State support*. Offshore Wind. https://www.offshorewind.biz/2022/03/21/rhode-island-ports-to-undergo-offshore-wind-upgrades-with-usd-95-million-state-support/

investments underscore the state's commitment to a modern, reliable energy grid that meets future demands.[18]

The City of New Bedford, Massachusetts, is at the forefront of this transition, aiming to lead in climate and energy solutions through an ambitious energy grid modernization plan. Central to New Bedford's goals is the achievement of 100% renewable energy by 2050. In the near term, the city is working to reduce energy consumption across residential, municipal, and commercial sectors by 35% by 2030, using 2013 levels as a baseline. Concurrently, New Bedford plans to cut community-wide greenhouse gas emissions by 35% compared to 2017 levels by 2030, positioning itself for net-zero emissions by 2050. The city's efforts include enhancing system resilience against extreme weather and peak demand by partnering with key stakeholders to strengthen energy infrastructure. Already, New Bedford has demonstrated its commitment to sustainable energy development by replacing 8,000 street and traffic lights with energy-efficient LEDs, adding 23 electric vehicles to its municipal fleet, and installing over 400 residential rooftop solar systems. Additionally, the city has saved residents $4 million through energy aggregation since June 2014.[19]

In Rhode Island, grid modernization is projected to create 1,867 direct jobs by 2030 under a scenario that emphasizes distributed energy resources and advanced metering technologies. To ensure the creation of high-quality jobs, the state plans to require Project Labor Agreements (PLAs) for all transmission and modernization work, ensuring that these jobs are

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[18] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 34-35

[19] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Climate & Energy (2021). NB Resilient. Retrieved September 2024, from https://kladashboard-clientsourcefiles.s3.amazonaws.com/New+Bedford/New_Bedford_FACTSHEET_Climate_FINAL.pdf

filled by highly skilled workers in a safe environment. The PLA also aims to foster pathways into the construction industry for under-resourced communities, contributing to economic equity. The cost of Rhode Island's grid modernization efforts is estimated at $583 million, positioning the state for a more resilient, efficient, and future-proof electrical grid.[20]

Renewable energy infrastructure development

Renewable energy infrastructure development in Massachusetts and Rhode Island is rapidly advancing, with substantial investments in solar power, offshore wind, and energy storage, all of which promise significant economic and environmental benefits. In Massachusetts, solar power infrastructure, with a capacity of 30 GW, requires an investment of $77.3 billion and is expected to create 293,664 direct jobs. Offshore wind, projected to generate 26 GW, demands a significantly smaller investment of $8.5 billion, yet will create 30,634 jobs. Energy storage solutions, accounting for 6 GW, will involve an expenditure of $1.04 billion, resulting in 3,636 jobs. In addition to the economic benefits, these renewable energy projects contribute to massive emission reductions: solar energy is set to avoid 33,895,999 metric tons of CO2 emissions, offshore wind will prevent 77,315,161 metric tons, and energy storage will reduce emissions by 160,358 metric tons of CO2 equivalent. These developments are a testament to Massachusetts' commitment to transitioning toward cleaner energy sources.[21]

The City of New Bedford is leading by example with significant solar and wind energy advancements. The city government has installed over 16 MW of solar power across various

[20] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 26

[21] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 32-33

facilities, producing enough electricity to power more than 2,500 homes. Additionally, New Bedford residents have added 11 MW of solar capacity on private properties, further contributing to the city's renewable energy goals. A key highlight of New Bedford's clean energy journey is the Vineyard Wind project, the first large-scale offshore wind farm in the United States. Once operational, it will produce 800 MW of electricity to power over 400,000 homes. Despite these accomplishments, New Bedford continues to rely heavily on natural gas and petroleum products for energy. To lower greenhouse gas emissions, the city is actively working to transition toward electricity powered by renewable energy sources.[22]

In Rhode Island, the state has set ambitious renewable energy targets for the coming decades. By 2030, Rhode Island aims to install 900 MW of solar energy across utility, commercial, and residential sectors, with a long-term goal of 2,000 MW by 2040. The state is also expanding its offshore wind capacity, aiming for 1,300 MW by 2030 and 3,000 MW by 2040. To support these renewable energy initiatives, Rhode Island plans to modernize its electrical grid by 2030, ensuring it can efficiently manage and distribute the increased renewable energy production. These plans will help Rhode Island position itself as a leader in renewable energy infrastructure, supporting the state's long-term sustainability goals.[23]

Providence, Rhode Island, is also making significant progress in expanding its renewable energy infrastructure. The city operates a large net-metering project that currently generates about half of the energy used by the city government and the Providence Public School District (PPSD). Though the Renewable Energy Credits (RECs) from this project are currently owned by

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[22] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Climate & Energy (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/climate-and-energy

[23] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 6

the developer, Providence will take ownership of these credits starting in 2029, allowing the city to apply them toward its carbon neutrality goals. In addition to this project, Providence is expanding its solar capacity with the installation of rooftop solar panels at five locations, which will collectively generate 722 kW of electricity. Feasibility studies are also being conducted to identify additional buildings that could accommodate rooftop solar or solar canopies, further reducing the city's reliance on non-renewable energy sources.

Creation of Microgrids

The development of microgrids in Massachusetts and Rhode Island is emerging as a vital component of modern energy strategies aimed at enhancing energy resilience and sustainability. In Massachusetts, the implementation of microgrids is projected to create 320 direct jobs by 2030, with an estimated cost of $100 million. In New Bedford, the creation of microgrids is a key part of the city's broader energy strategy. Recognizing the intermittent nature of renewable energy sources such as solar and wind, New Bedford views microgrids as a way to provide a consistent secondary power source, ensuring that energy gaps are filled when more significant power plants experience fluctuations. The construction, maintenance, and potentially the design of these microgrids are expected to generate local jobs, further contributing to New Bedford's clean energy economy.[24]

Rhode Island, in particular, has made significant strides in the microgrid sector. By 2020, the state-supported 451 jobs in the microgrid industry, accounting for 2% of all U.S. microgrid employment, a concentration that is 2.8 times higher than the national average. Rhode Island's

[24] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 36-37

Office of Energy Resources (OER) has been instrumental in this progress, allocating $1.5 million from the Regional Greenhouse Gas Initiative (RGGI) for community-based microgrid projects. These efforts not only enhance energy resilience but also stimulate local employment and support the state's transition to a more sustainable energy grid.[25]

Providence is actively exploring the potential for microgrid development as part of its commitment to sustainability. Although no microgrids are currently operational in Providence, city officials are considering implementing them at critical locations. These plans align with Providence's ongoing efforts to expand its solar capacity through rooftop solar projects. Microgrids, in conjunction with solar energy, are seen as crucial for boosting energy resilience, reducing dependency on traditional power grids, and facilitating the city's transition to renewable energy sources.

Training and Education Professionals

Massachusetts is making significant strides in advancing green workforce training through initiatives such as the "Climate Jobs Roadmap." This program aims to support pre-apprenticeship opportunities and address challenges faced by financially vulnerable workers. The City of Boston's Office of Workforce Development is providing funding to enhance these efforts; however, there is still a need for more comprehensive outreach and wraparound services to ensure the success of these programs. Additionally, the Inflation Reduction Act has allocated $2.2 billion for Environmental and Climate Justice block grants, which can be utilized for workforce development aimed at reducing greenhouse gas emissions. Massachusetts is also

[25] Jordan, P., Young, R., Schirch, M., Lehmann, S., Williams, V., & Frongillo, C., 2020 Rhode Island Clean Energy Industry Report (2020). BW Research Partnership. Retrieved August 2024, from https://energy.ri.gov/sites/g/files/xkgbur741/files/cleanjobs/2020/RICEIR-2020-Report.pdf.

eligible to receive up to $5 million from the U.S. Department of Labor's Building Pathways to Infrastructure Jobs Grant Program. These funds are intended to prioritize rural and underserved communities, expanding access to green jobs and fostering a more equitable workforce development landscape.[26]

In New Bedford, Massachusetts, the focus is on preparing education professionals to facilitate the community's transition into the clean energy sector. This includes training for roles such as data analysts, HVAC technicians, electricians, and offshore wind turbine technicians. The city is leveraging strategic cross-sector partnerships to create clear pathways for professional development and leadership within the local workforce. This initiative emphasizes inclusivity by engaging a diverse range of community members, including youth, seniors, veterans, immigrants, and individuals who have been previously incarcerated. By equipping these groups with the necessary skills, New Bedford is building a robust and diverse workforce that is well-positioned to thrive in the growing clean energy industry.[27]

In Rhode Island, a strong push exists to create a just transition for climate-related jobs that ensures worker protection and high wages. This effort includes the proposal to establish a multi-stakeholder Office of Just Transition with labor representation on government agency councils responsible for climate change mitigation and adaptation. To safeguard workers' rights and promote economic equity, legislation is recommended to enforce Prevailing Wage, Project Labor Agreements, Labor Peace, Build RI, and Buy America provisions. These measures aim to expand job opportunities in the non-residential renewable energy sector. Furthermore, all projects

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[26] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 66-67

[27] MassCEC. (n.d.). *Students & Job Seekers*. https://www.masscec.com/students-job-seekers

funded by Rhode Island's Renewable Energy Fund and Infrastructure Bank should adhere to these labor standards. Establishing a Wage Board to set a minimum wage specific to the renewable energy industry is also seen as a critical step in ensuring fair compensation for workers in this emerging sector.[28]

Green Housing Construction and Retrofitting

Green housing construction and retrofitting initiatives in Massachusetts and Rhode Island are designed to significantly reduce emissions, promote energy efficiency, create jobs, and enhance housing availability. In Massachusetts, a substantial effort is underway to implement Project Labor Agreements (PLAs) for all publicly funded net-zero affordable housing projects. These agreements ensure that skilled, union labor is used, which includes training new workers through pre-apprenticeship programs and setting participation goals for apprentices. Furthermore, the "Buy American, Build Massachusetts" provision will boost local supply chains, helping create more domestic jobs. This initiative, estimated to cost $69.4 billion, is expected to generate 319,065 direct jobs while ensuring that new housing developments have no additional Scope 1 or Scope 2 emissions and minimize Scope 3 emissions from building materials. Public transparency regarding workforce demographics, local hires, and pay will also be enforced, promoting accountability and equity in the green housing sector.[29]

New Bedford is actively pursuing green housing construction and retrofitting through progressive zoning reforms and policy changes. The city is revising zoning regulations, such as

[28] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 76-77

[29] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 18-19

reducing minimum lot sizes and adjusting other dimensional requirements, to facilitate the development of sustainable housing. Additionally, New Bedford plans to lower parking minimums for residential developments, encouraging space-efficient and eco-friendly designs. A key component of New Bedford's green housing strategy is the introduction of Transit-Oriented Development (TOD) districts near intercity rail stations. These TOD zones will promote housing construction near public transportation hubs, reducing car reliance and supporting energy-efficient urban living. Through these initiatives, New Bedford aims to create a more sustainable and accessible housing landscape while promoting environmental responsibility.[30]

Rhode Island has set ambitious goals for green housing construction, with plans to build 35,000 affordable net-zero housing units by 2035 and complete deep-energy retrofits on 50% of cost-burdened households by 2030. The state also intends to transition all municipal buildings to net-zero emissions by 2030, further supporting its sustainability goals. Rhode Island's infrastructure strategy includes repairing buildings and infrastructure to meet green standards by remediating and replacing 20,000 lead service lines by 2030. Additionally, the state requires corrosion prevention training for construction work on critical infrastructure and mandates climate vulnerability assessments before making significant alterations. These efforts are geared toward creating equitable access to green infrastructure and promoting sustainable development across the state.[31]

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[30] City of New Bedford, Building New Bedford: Strategies to Promote Attainable Housing for All in a Thriving New Bedfo. City of New Bedford. Retrieved September 2024, from https://s3.amazonaws.com/newbedford-ma/wp-content/uploads/sites/58/20230329092131/BUILDING-NEW-BEDFORD.pdf.

[31] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 6-7

Providence, Rhode Island, is leading efforts in retrofitting buildings for sustainability. The city recently passed a carbon-neutral buildings ordinance that mandates full electrification of all buildings by 2040, with city-owned facilities required to produce as much renewable energy on-site as possible. This ordinance is central to Providence's broader goal of reducing greenhouse gas emissions and combating climate change. The city's Department of Sustainability is also developing a decarbonization plan to ensure the effective implementation of these electrification efforts. A key project in progress is the design of a fully electrified Department of Public Works (DPW) facility that will serve as a model for future infrastructure projects. Providence is also renovating or constructing three schools per year to meet Northeast Collaborative for High-Performance Schools (NE CHPS) standards, ensuring they are fully electric and solar-ready. Additionally, the city is electrifying its recreation centers, with grants supporting the electrification of four out of its 13 centers. These retrofitting projects are part of Providence's long-term strategy to reduce energy consumption and emissions in public buildings, demonstrating the city's commitment to sustainability and clean energy.

Insulation Installation and Heat Resilience

The investment in insulation installation and heat resilience initiatives in Massachusetts and Rhode Island is poised to create a significant economic and environmental impact, with a focus on reducing energy consumption and promoting sustainability. In Massachusetts, a $13.5 billion investment in heat resilience for housing construction and green schools is expected to generate 59,524 direct jobs. This initiative aligns with the state's broader efforts to transition public K-12 schools to net-zero emissions, which will lead to an annual reduction of 879,131

metric tons of CO2 emissions. These efforts not only contribute to environmental sustainability but also foster economic growth by creating jobs in construction and green infrastructure.[32]

In New Bedford, the city's goal of achieving 100% renewable energy by 2050 is accompanied by a more immediate target of cutting energy consumption within its borders by 35% by 2030. A key strategy for achieving this reduction involves retrofitting existing buildings with improved insulation and raising standards for newly constructed buildings. Enhancing insulation will allow HVAC systems to operate less frequently, significantly reducing energy usage. Since HVAC systems account for a substantial portion of energy consumption, improving insulation is expected to play a crucial role in helping the city meet its ambitious energy reduction goals, without requiring significant lifestyle changes for residents.[33]

Rhode Island is also investing heavily in transitioning its public K-12 schools to net-zero emissions, which is estimated to create 11,209 direct jobs over eight years, averaging approximately 1,401 jobs per year. To ensure these are high-quality jobs, the state will implement Project Labor Agreements (PLAs) that guarantee union workers perform the work safely and to high standards. This transition to net-zero schools is projected to reduce carbon emissions by 105,913 metric tons of CO2 equivalent by 2030. The initiative comes at an estimated cost of $2.45 billion, with the dual goals of significantly reducing the carbon footprint and promoting job growth.[34]

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[32] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 73-74

[33] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Climate & Energy (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/climate-and-energy

[34] Skinner, L., Mijin Cha, J., Hoek Spaans, A., Moskowitz, H., & Raman, A. (2022). (rep.). *Building A Just Transition For A Resilient Future : A Climate Jobs Program for Rhode Island*. Cornell University School of Industrial and Labor Relations. Retrieved August 2024, from https://www.cjnrc.org/wp-content/uploads/2022/02/Rhode-Island-Report-Final-2.3-Compressed.pdf. Pg 14

Thermal Utility Districts

The development of Thermal Utility Districts in Massachusetts and Rhode Island is a critical step in advancing energy efficiency, reducing carbon emissions, and creating new jobs. In Massachusetts, the Commonwealth has committed to the development of Thermal Utility Networks, which are projected to cost $5.12 billion and create 14,847 direct jobs. These networks, alongside the deployment of heat pumps—which will require an additional $27.9 billion investment and create 72,540 jobs—are expected to reduce emissions by 21 million metric tons of CO2 equivalent. Ensuring the successful implementation of these projects requires the involvement of highly trained personnel and the incorporation of best practices, which the state plans to achieve by consulting with unions and industry experts to minimize risks and ensure safety.[35]

In Rhode Island, the state has been a leader in implementing thermal utility district technologies and has taken a proactive approach to adopting renewable thermal energy initiatives. One of the state's key accomplishments is its biodiesel blending mandate, which requires a minimum B5 blend (5% biodiesel) by 2017, the first statewide mandate of its kind in the Northeast. Rhode Island also offers incentives to promote renewable thermal technologies, including grants for solar thermal projects through the Rhode Island Renewable Energy Fund and rebates for air-source heat pumps (ASHPs) through National Grid's energy efficiency program. Looking ahead, the Rhode Island Office of Energy Resources is planning to expand renewable thermal policies and is incorporating thermal load considerations into the State Energy Plan. The

[35] Hoek Spaans, Avalon, et al. Cornell University School of Industrial and Labor Relations, 2024, *Building the Clean Energy Commonwealth: A Climate Jobs Roadmap for Massachusetts*, https://www.ilr.cornell.edu/sites/default/files-d8/2024-05/Building%20the%20Clean%20Energy%20Commonwealth.pdf. Accessed Aug. 2024.Pg 73-74

Rhode Island Thermal Working Group continues to engage stakeholders to explore innovative solutions and support the state's transition to cleaner energy sources.[36]

Recycling Facilities

In Massachusetts, the logistics of recycling collection and processing play a significant role in the state's waste management strategy. Industry norms suggest that for every 1,000 tons of material recycled, at least one logistics job is created, covering aspects such as transportation and initial sorting. With Massachusetts generating several million tons of recycling waste annually, this equates to a minimum of 2,000 individuals currently employed in recycling logistics. If the volume of recycling waste were to double, the workforce requirement would rise to approximately 4,000, underscoring the need for a robust infrastructure to support such growth. Effective management and expansion of the workforce would be crucial to maintaining efficiency and meeting increased recycling demands.[37]

Between 2015 and 2019, the City of New Bedford experienced an increase of 1,013 tons in the total volume of landfilled and recycled materials. This uptick was driven largely by changes in community behaviors and lifestyles, leading to an average annual rise of 4.69 pounds of waste per person. To improve the city's diversion rate and reduce landfill dependency, New Bedford needs to significantly increase its recycling efforts. This necessitates not only an expansion in the volume of recyclable materials collected but also a corresponding increase in

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[36] Cook, R., Koo, J., & Veilleux, N., RHODE ISLAND RENEWABLE THERMAL MARKET DEVELOPMENT STRATEGY Prepared for Rhode Island Office of Energy Resources (2017). Meister Consultants Group. Retrieved August 2024, from https://energy.ri.gov/sites/g/files/xkgbur741/files/documents/Efficiency/Rhode-Island-Renewable-Thermal-Market-Development-Strategy-January-2017.pdf. Pg 17

[37] Environmental Protection Agency, Recycling Basics and Benefits (2023). Retrieved August 2024, from https://www.epa.gov/recycle/recycling-basics-and-benefits.

staffing to handle the heightened output. As recycling rates grow, so too does the demand for logistics support, including collection, sorting, and transportation services.[38]

Rhode Island has applied similar assumptions to those used for Massachusetts, but adjusting for the state's smaller scale, suggests that approximately 400 workers are engaged in recycling logistics. This workforce is essential for managing Rhode Island's recycling waste, which is about one-tenth of Massachusetts' output. With a smaller population and recycling volume, Rhode Island's logistics requirements are proportionately reduced but still crucial for maintaining effective recycling processes across the state.[39]

Providence, the capital of Rhode Island, faces specific challenges due to its low recycling rates. In response, the city has undertaken a comprehensive plan to revamp its waste management system, starting with the replacement and standardization of recycling and trash carts. This initiative aims to simplify waste separation for residents and improve the efficiency of waste collection across the city. Furthermore, Providence is considering new software to monitor and reduce contamination in recycling loads, ensuring better sorting and processing of recyclable materials. Alongside these infrastructure improvements, the city is launching an education and outreach campaign to promote proper recycling practices and highlight the environmental benefits of reducing contamination. By integrating enhanced infrastructure with community education, Providence is working towards significantly boosting its recycling rates and fostering a sustainable approach to waste management, reflecting its commitment to a cleaner and greener future for its residents.

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[38] Office of Environmental Stewardship , & City of New Bedford , NB Resilient:Infrastructure, Utilities, & Waste (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/infrastructure-utilities-and-waste#total-waste-reduction

[39] Environmental Protection Agency, Recycling Basics and Benefits (2023). Retrieved August 2024, from https://www.epa.gov/recycle/recycling-basics-and-benefits.

Composting Facilities

Composting facilities in Massachusetts are experiencing an increased demand for workers as the state intensifies its efforts to divert organic waste to specialized facilities. This shift, aimed at managing organic waste more effectively, requires approximately 1.5 workers per 1,000 tons of waste processed annually, similar to the staffing requirements in the recycling sector. As Massachusetts expands its organic waste diversion initiatives, the need for additional workers in composting facilities will grow accordingly.[40]

In New Bedford, Massachusetts, the city has introduced a comprehensive curbside composting program. Residents can participate by filling compost bins with up to 5 pounds of organic waste, which is then collected and transported to the city's recycling center for processing. Although the full scope of worker engagement required for this initiative is not yet fully understood, the program represents a significant step toward enhancing the city's waste management infrastructure.[41]

Rhode Island, while also facing similar worker demands for composting, has a smaller population compared to Massachusetts, resulting in a lower absolute number of workers needed for equivalent waste diversion efforts. Nevertheless, the state is actively pursuing composting and food waste diversion initiatives, particularly in its capital city, Providence. Providence is making substantial progress in its composting efforts through strategic partnerships and funding. A USDA grant has been instrumental in supporting local nonprofits and businesses engaged in

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[40] Mass.Gov. (2022, November 1). *Commercial Food Material Disposal Ban* . Retrieved August 2024, from https://www.mass.gov/guides/commercial-food-material-disposal-ban.

[41] City of New Bedford, Food Waste Drop-Off Program . City of New Bedford. Retrieved September 2024, from https://s3.amazonaws.com/newbedford-ma/wp-content/uploads/sites/40/20220825092137/Food-Waste-Drop-off-Program-Flyer.pdf.

community composting, allowing them to expand their services and outreach. The city's approach includes promoting backyard composting, setting up accessible drop-off sites, and offering bucket collection services for residents. These initiatives aim to make composting more accessible and encourage greater community participation in reducing food waste.

Additionally, the USDA grant is supporting the Rhode Island School Recycling Partnership, which has introduced cafeteria food waste diversion programs in four Providence Public School District (PPSD) schools. By the end of the grant period, the program is expected to be implemented in 10 schools, empowering students and staff to contribute to the city's sustainability objectives. Furthermore, Providence has secured an EPA SWIFR grant to expand its food waste hauling and diversion infrastructure. This funding will assist a local business and a nonprofit organization in increasing their capacity to manage and divert food waste from landfills, reinforcing the city's commitment to building a sustainable and waste-conscious community.

Organic Waste Collection Services

The implementation of organic waste collection services in Massachusetts and Rhode Island would require a significant workforce expansion to manage the increasing volume of waste being diverted to composting facilities. In Massachusetts, with the state producing approximately 1 million tons of food waste annually, a workforce of at least 1,000 employees would be necessary to handle the collection if all this waste were to be diverted. This calculation is based on the same labor rate applied to recycling collection services, which is one worker per 1,000 tons collected annually. [42] Furthermore, with Massachusetts' plans to increase organic

[42] Massachusetts Department of Environmental Protection, & Bureau of Air and Waste , Fact Sheet: Food Waste Composting. Bureau of Air and Waste . Retrieved August 2024, from https://www.mass.gov/doc/massdep-food-waste-composting-fact-sheet/download.

waste diversion by an additional 500,000 tons each year until 2030, the demand for workers is projected to grow beyond 1,000, indicating a need for substantial recruitment and training to meet these targets.[43]

Similarly, Rhode Island faces a proportional need for workforce development in its organic waste collection services. The state generates approximately 250,000 tons of food waste annually, necessitating around 250 workers to manage the collection effectively under the same labor rate as Massachusetts. As both states aim to enhance their organic waste management systems, these estimates underscore the importance of strategic planning in workforce scaling to support the growing infrastructure for organic waste diversion and composting. This expansion will not only contribute to environmental sustainability but also create numerous job opportunities in the waste management sector, reinforcing the economic and ecological benefits of comprehensive organic waste collection services.[44]

Forestry Management & Tree Canopy Coverage

Forestry management and tree canopy coverage are critical components of urban and environmental planning, particularly in regions like Massachusetts, New Bedford, and Rhode Island. Massachusetts, with approximately 1.6 billion trees, faces a significant challenge in maintaining its forestry resources. It is generally recommended to have at least one forestry management worker for every few thousand trees, especially in areas designated for public use. If we assume that only 1% of the total tree population (16 million trees) requires active

[43] Executive Office of Energy & Environmental Affairs, & Massachusetts Department of Environmental Protection, Organics Action Plan (2023). Executive Office of Energy & Environmental Affairs. Retrieved August 2024, from https://www.mass.gov/doc/massachusetts-organics-action-plan-november-2023/download.
[44] Cotnoir, E. (2023, December 18). *Rhode Island is sending valuable food waste to a landfill*. Conservation Law Foundation. https://www.clf.org/blog/rhode-island-is-sending-valuable-food-waste-to-a-landfill/

maintenance, this would necessitate over 5,000 full-time forestry management employees.[45] As Massachusetts aims to increase tree planting to enhance carbon removal efforts, the demand for additional forestry workers will likely rise, further stressing the need for a robust workforce in this sector.[46]

In New Bedford, the Climate Action and Resilience Plan has set an ambitious goal to plant 5,000 new trees by 2030. This initiative is strategically designed to reduce urban heat islands by planting trees in areas that can have the greatest impact on local temperatures and air quality. Achieving this target will require a temporary but significant increase in landscaping workers and planners to identify optimal planting sites. Furthermore, the plan includes potential wetland restoration projects and aims to meet the National Recreation and Park Association's standard, which calls for at least 50% of parks to have adequate tree canopy coverage. This could lead to more job opportunities in landscaping, maintenance, and management as the city works to increase its tree canopy from 32.8% to 42.5%.[47]

Rhode Island, with approximately 165 million trees, has similar forestry management needs to Massachusetts, though on a smaller scale due to its size. Applying the same formula used for Massachusetts, Rhode Island would require around 500 employees to actively maintain its tree population. As with Massachusetts, additional workers would be needed to support efforts aimed at increasing carbon removal through tree planting.[48]

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[45] Forest Service, Forests of Massachusetts, 2017 (2017). USDA. Retrieved August 2024, from https://www.fs.usda.gov/nrs/pubs/ru/ru_fs161.pdf.
[46] Hauer, R., & Peterson, W., Municipal Tree Care and Management in the United States: A 2014 Urban & Community Forestry Census of Tree Activities (2016). Davey Research Group. Retrieved August 2024, from https://www3.uwsp.edu/cnr/Documents/MTCUS%20-%20Forestry/Municipal%202014%20Final%20Report.pdf.
[47] Office of Environmental Stewardship , & City of New Bedford , NB Resilient: Natural Resources (2021). NB Resilient. Retrieved September 2024, from https://nbresilient.com/category/natural-resources#urban-tree-canopy
[48] Forest Service, Forests of Rhode Island, 2016 (2016). USDA. Retrieved August 2024 from https://www.fs.usda.gov/nrs/pubs/ru/ru_fs131.pdf

In conclusion, this report has presented an analysis of the findings from Massachusetts and Rhode Island, focusing on the largest towns within our PCAP area—Providence and New Bedford—by tracking workforce numbers, spending, and carbon reduction rates. It has addressed key areas such as Transportation, Electricity Generation, Buildings (Residential and Commercial), Waste Management & Materials, and Agriculture and Working Lands. The data included represents the most recent information available from government departments and serves as a baseline for future projections. This will enable us to assess how effectively these areas are progressing towards their climate goals once our study data becomes available

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