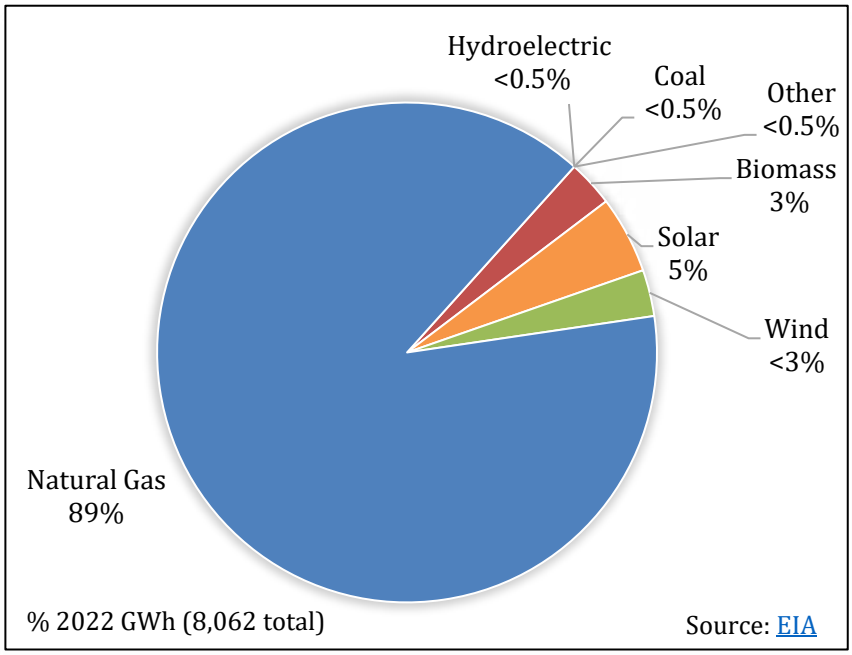
State Brief: Rhode Island

BACKGROUND

Rhode Island has the second lowest energy use per-capita behind Hawaii. Natural gas supplied approximately 89% of the state's net generation in 2022, the highest share in the country. Nearly 30% of Rhode Island's households, seven times the U.S. average, rely on heating oil as their primary source of heat, leaving residents vulnerable to supply disruptions and seasonal price hikes.

In 2007, Rhode Island joined the Regional Greenhouse Gas Initiative (RGGI), a 12-state cap-and-trade program intended to reduce carbon emissions from the power sector. Senate Bill 2274 (2022) amended the state's Renewable Energy Standard (RES) to require that 100% of electricity demand be met by renewable resources by 2033, with progressive annual targets. This is the most ambitious state timeline adopted to date.

Rhode Island's Estimated Net Annual Electric Generation, 2022



In 2017, the country's first offshore wind project, the 5-turbine Block Island Wind Farm, came online off of the coast of the Ocean State, providing 30 megawatts (MW) of wind capacity. The wind farm replaced the community's diesel generators, and today, Block Island is "the only community in the United States fully powered by offshore wind." Excess power is sent to mainland Rhode Island via an undersea cable. The 48 MW of wind capacity operational in the state in 2022 supplied a modest 2.6% of Rhode Island's generation mix. The Revolution Wind project is scheduled to enter operation in 2025 and will provide an additional 400 MW of offshore wind energy to the state. The completion of the second phase of the project, Revolution Wind 2, faces some uncertainty after Rhode Island Energy announced that it would not enter a power purchase agreement (PPA) with the developers. In 2023, the Solar Industries Association ranked Rhode Island 32nd in the nation in terms of installed solar capacity (669 MW) and 42nd in projected growth (738 MW) over the next five years.

The 2023 U.S. Energy and Employment Report found that in 2022, Rhode Island had an estimated 22,740 energy workers (4.7% of total state employment), which includes 10,990 workers employed in energy efficiency. In a 2022 report, Rhode Island ranked 39th nationally for clean energy jobs, with approximately 14,309 Rhode Islanders employed by the industry.

The Governor appoints the three members of the Rhode Island Public Utilities Commission (PUC). The PUC regulates three electric utilities and one gas utility. The state is under unified party control with Democratic majorities in both chambers of the General Assembly, and a Democratic Governor, Daniel McKee.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[1] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency

[1] V.A. Krasko and E. Doris. 2012. "Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions." *National Renewable Energy Laboratory*. Available: http://www.nrel.gov/docs/fy13osti/56428.pdf.

and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

INVESTING IN THE WORKFORCE

In 2022, there were nearly 3.1 million net-zero aligned jobs in the U.S., comprising over 40% of total energy jobs. However, a lack of qualified candidates across occupations and education levels could impede states' abilities to modernize their grids and deploy clean energy resources. To ensure that the workforce can meet industry demand, policymakers can consider several policies to educate and train qualified candidates. This can simultaneously enhance industry employment and provide economic opportunity to individuals and local communities.

Rhode Island's Office of Energy Resources released a 2021 Clean Energy Industry report that outlines clean energy industry jobs in the state and identifies areas where growth is occurring. It also identifies where barriers to job growth in the industry exist and where workforce development programs could help.

The policies states can explore to address workforce development include:

1. **Incentive Programs –** States can attract new workers to the field by providing financial and other incentives to students who pursue education in specified trades or in the science, technology, engineering, and math (STEM) fields. States might require that graduating students remain and work in the state for a given time to remain eligible for the incentive. In conjunction with this, states might also provide economic development incentives to companies employing students with training in specified STEM and trades fields. To ensure safety in the workplace, states can adopt programs that will cover the costs of OSHA training.

   Initiatives to improve access to broadband and public transportation in underserved communities can boost access to educational and employment opportunities.

2. **Education and Continuing Education –** Existing electrician training and mentorship programs can be expanded to encourage more young people to enter the industry. Policymakers can direct public colleges and universities, with input from industry, offices of economic and workforce development, and other interested parties, to create new trades and STEM programs. This could include the development of "green" credentialing programs. States can also provide financial resources to organizations that educate or retrain students in STEM and trades professions.

   For the state's existing energy workforce, policymakers might direct state departments of workforce services or their equivalent to work with utilities and other interested parties to develop continuing education and training programs for existing utility employees to remain in their field or to transition to a new role. Incentive programs might also be developed for employers that design roles that include ongoing skills development and continuous learning to help keep pace with evolving roles.

   The Rhode Island Builders Association has partnered with CLEAResult to form the Residential Construction Workforce Partnership to provide training and upskilling programs for green building jobs. The program will use IREC's Green Buildings Career Map. An offshore wind training partnership between Rhode Island, Ørstead, and Eversource was announced in 2022. The program will bring together education centers, workforce development programs, and labor organizations. In 2022, Rhode Island received $375,000 in federal funding for the establishment of a new offshore wind energy career and technical education certification program through

the state's Department of Education. State statute highlights clean energy sector workforce training under the State Career-Pathways System.

3. **Establishing an Office of Workforce Development –** States might also consider establishing a dedicated workforce development office. In some states, these have been established to specifically address training needs in energy transition communities.

   Rhode Island's Department of Labor and Training provides workforce development and employment services. PrepareRI is an interagency initiative to "improve youth career readiness."

The Interstate Renewable Energy Council (IREC) developed a set of Career Maps to demonstrate the various types of careers offered in the clean energy industry. The Green Buildings Career Map, the Solar Career Map, and the HVAC/R Map are helpful tools for anyone from job seekers and employers to policymakers looking to explore the employment opportunities presented by the industry. IREC also created a Registered Apprentices Toolkit for Clean Energy Employers, which provides information about and resources for implementing Registered Apprenticeship Programs (RAPs) to spur the development of a clean energy workforce.

MODERNIZING UTILITIES AND EMPOWERING CONSUMERS

The electric grid is a complex system of generation, transmission, and distribution. Aging infrastructure and emerging technologies are forcing the grid to modernize to keep pace with historic and emerging expectations. Grid modernization encompasses a broad range of actions intended to make the electrical system more resilient, interactive, and capable of meeting current and future demand.

The transition to a digital economy requires affordable, sustainable, and reliable electricity and creates challenges and opportunities for grid management. Emerging physical and cybersecurity threats and increased demand for faster outage response times require, at minimum, real-time incident tracking and response capabilities. Increased grid penetration of distributed energy resources (DERs) such as renewable energy coupled with increasing adoption of energy efficiency, energy storage, microgrids, and other technologies will provide economic benefits, increase security, and ensure more reliable, resilient, and clean energy. Utility-scale renewable energy may require expanded transmission capabilities. As adoption of these innovations increases, so too will the need for modern grid technology to strengthen the grid, the implementation of which will require substantial planning and investment by states and utilities.

By allowing a two-way flow of information between the electric grid and grid operators and between utilities and their customers, new technologies enable utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities and to reduce their electric bills. By enabling better tracking and management of resources, emerging technologies improve system reliability and resiliency. These technologies also allow grid operators to incorporate central and distributed energy resources, energy storage technologies, and electric vehicles (EVs). This all assists in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

On the customer's side of the meter, dynamic pricing, advanced metering infrastructure (AMI), and other technologies allow a more dynamic exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing and storing their own energy or through contracting for innovative clean energy services from different providers.

Grid modernization will require a suite of policy changes to support advancements in grid technologies, grid management, and utility regulation.

Rhode Island Energy announced plans in 2023 to invest $529 million over the next 20 years "to lay the foundation for a modern grid." The utility notes that the investment is needed to meet the state's climate and clean energy policy.

The Infrastructure Investment and Jobs Act of 2021 (IIJA) is a landmark federal spending bill that includes funding earmarked for grid modernization projects. This includes $11 billion for Department of Energy (DOE) grants directed specifically towards electric infrastructure resiliency projects (including grid hardening against severe

weather and cybersecurity improvements), $2.5 billion for transmission development, and $3 billion for the Smart Grid Investment Matching Grant Program.[2] Enacted August 2022, the Inflation Reduction Act (IRA) set aside $2 billion for loans for constructing new high-capacity transmission lines and upgrading interties. The bill includes funding for technical assistance and grants for states and tribal governments, which includes assistance for siting transmission projects. The bill also directs DOE to undertake interregional transmission planning, modeling, and analysis, including analysis of transmission for offshore wind and the use of grid-enhancing technologies (GETs).[3]

There are policies that Rhode Island's policymakers could adopt to support in-state grid modernization efforts:

1. Develop a grid modernization strategy through a collaborative process. Alternatively, states might decide to require that utilities develop and propose a ten-year grid modernization plan to the PUC within a specified timeframe. Utilities would then be required to implement that plan within another specified timeframe. Strategies and/or plans should outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals.

2. States might also provide incentives or cost recovery mechanisms for utilities that meet grid modernization goals. Policymakers could consider directing the PUC to evaluate alternative ratemaking mechanisms, performance-based regulation, and/or new utility business models that support grid modernization.

3. State policy should include measures to protect data regarding customer behavior but can also encourage the use of this information to facilitate additional improvements in grid management and customer service. To address this, policymakers can develop legislation or direct commissions to promulgate rules that clarify that the customer owns the energy data associated with their energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible. States could establish customer access to energy data through the Green Button Connect program, for example.

The adoption of incentives for or a requirement to integrate a certain amount of renewable energy and energy storage on the grid alongside enhanced building energy standards and electric vehicle policies can support grid modernization efforts.

MAINSTREAMING RENEWABLES

Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices for integrating distributed renewable energy resources. In the U.S., the expansion of renewable energy has been one of the most consequential shifts in electricity generation over the last decade. According to the EIA, renewable energy generation surpassed coal and nuclear generation in 2022, and more than half of all new generation capacity in 2023 is expected to be solar. As of 2022, there were more than 470,000 jobs in the wind and solar industry. Accordingly, it is in the interest of policymakers to ensure that their states are well positioned to benefit from this shift.

While the IIJA doesn't provide money for specific renewable energy projects, the funding in the Act will benefit renewable energy development as grid resiliency, increased deployment of energy storage, and modernized transmission are all essential to the successful integration of renewable energy generation. The IRA appropriated $369 billion to fund a variety of energy and climate initiatives – the largest climate investment in U.S. history. The bill also extended the investment tax credit (ITC) and the production tax credit (PTC) through the end of 2024 and revived the PTC for solar projects. For projects placed in service in 2025, the bill "effectively extended" the ITC and PTC by creating new tax credits for zero emission facilities. The bill also extended the residential energy property

[2] For more information on the grid-related earmarks included in the IIJA, see Potomac Law Group's January 2022 analysis: "The Infrastructure, Investment & Jobs Act of 2021: What's in It for You? (Part V: Grid Infrastructure and Resiliency)." Available: https://www.potomaclaw.com/news-Infrastructure-Investment-Jobs-Act-of-2021-Whats-In-It-For-You-Part-V-Grid-Infrastructure-and-Resiliency.

[3] J. Runyon and J. Engel. 2022. "The Inflation Reduction Act is Signed into Law." *PowerGrid International*. 16 August. Available: https://www.power-grid.com/td/the-inflation-reduction-act-is-signed-into-law/#gref.

tax credit through 2034 and created a new advanced manufacturing production credit, to apply to sales of components for constructing wind and solar energy facilities beginning in 2023.[4]

The IRA also includes several provisions related to energy equity, including $3 billion to the Environmental Protection Agency (EPA) for grants for community-led projects in disadvantaged communities and $27 billion for nonprofit, state, and local climate finance institutions supporting the deployment of low- and zero-emission technologies. In support of rural communities, the bill also includes a $1 billion appropriation to the U.S. Department of Agriculture (USDA) for loans to finance renewable energy projects, $1 billion for USDA's Rural Energy for America Programs, and $9.7 billion to USDA to finance rural electric cooperatives' purchases of renewable energy.

CommerceRI's Renewable Energy Fund (REF) provides grants for small- and commercial-scale solar projects and community solar. The REF also offers a clean energy internship program and funds solar installations on brownfields. Rhode Island's Renewable Energy Growth Program (REG Program), administered by Rhode Island Energy, supports the development of distributed generation projects for homeowners and small commercial customers.

To reduce barriers to customer and utility participation in the renewable energy market, and to build upon the federal initiatives, policymakers in Rhode Island might consider several options.

Customer-Oriented Policies

1. **Interconnection, Net Energy Metering (NEM), and Streamlined Permitting** – In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, Rhode Island's policymakers could consider removing the aggregate NEM capacity limit and crediting net excess generation at the customer's retail rate.

   The state might also consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program. In May 2021, NREL launched the SolarAPP+, an online platform designed to automate the solar permitting process. By running compliance checks and processing permit approvals, the service is intended to drastically reduce permit wait times. Currently restricted to rooftop solar, thirty-two communities in five states have adopted the platform, processing over 15,000 permits for more than 100 MW of generation with an estimated 15,000 hours saved in permit review time.

   Enacted in 2022, the Residential Solar Energy Disclosure and Homeowners Bill of Rights Act requires that third-party solar companies provide standard disclosures to residential customers leasing or entering into a PPA for a solar system. The Rhode Island Office of Energy Resources (OER) is currently working to implement the Act. In addition to new protections for solar customers, OER has partnered with Sustainable Energy Advantage (SEA) to evaluate, through a public process, the current state of and potential changes to Rhode Island's distributed generation policies. National Grid offers a system data portal that consists of maps that can be used by customers, contractors, and developers to identify areas for potential distributed energy projects.

2. **Shared Renewables** – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. Rhode Island allows community solar projects, of which there are currently 17 in the state. Rhode Island's Community Solar Marketplace connects customers to available projects. The program's cap was met in 2019. Policy makers might consider increasing this cap.

   Rhode Island allows virtual net metering. Virtual net metering allows a customer to receive credits from a shared system as if the generation were on site. Virtual net metering is different from a PPA, which pays the customer for the proportion of power they produce. Because it is treated as a credit on the customer's bill, the customer

[4] For a detailed discussion of the IRA's tax provisions, see: A.S. Levin-Nussbaum. 2022. "Update: President Biden Signs Historic Legislation Providing Expansive Clean Energy Tax Incentives." *The National Law Review*. 17 August. Available: https://www.natlawreview.com/article/update-president-biden-signs-historic-legislation-providing-expansive-clean-energy.

can avoid the tax implications of a PPA payment – which can adversely affect the economics of the system (and may come as a surprise to the participant).

Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be encouraged either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. States that have a shared renewables program may want to coordinate this program with implementation of the federal Weatherization Assistance Program (WAP) to provide recipients of assistance with access to participation in a shared system.

3. **Adapt Energy Assistance Programs** – Programs such as the Low-Income Home Energy Assistance Program (LIHEAP) and WAP provide assistance for paying utility bills and reducing household energy costs. Including distributed energy resources as eligible for funding under these programs can reduce energy costs and increase energy security for those LMI families who are able to benefit from WAP and LIHEAP. Colorado, for example, includes rooftop solar in their WAP program. For approval to add solar to a state's implementation of WAP, a state must show that the investment would be cost-effective – achieving a Savings to Investment Ratio (SIR) of 1.0 or more.[5] Since 2015, Rhode Island has received $10.4 million from WAP and $4 million from the State Energy Program (SEP) which has helped to fund a number of energy initiatives in the state.

4. **Fund Distributed Generation (DG) for Community Organizations** – Organizations or groups that provide support services for LMI communities can be provided funding to install solar or other distributed energy resources. Sites such as homeless shelters, food banks, clinics, and community centers often have enough rooftop area for solar installations. After installation, these resources can reduce an organization's utility bills, freeing up funds for other activities that support the community.

5. **On-Bill Financing/Pay As You Save (PAYS)** – On-bill Financing and Repayment programs enable consumers to invest in energy upgrades with no upfront payment. The utility or a third party will pay the initial costs to install the upgrade with the cost of that upgrade recovered through the utility bill. Because repayment includes consideration of the cost savings resulting from the energy upgrade, customers can see monetary benefits almost immediately. Once equipment costs are recovered, the equipment belongs to the customer. State policies that reduce lending risk by creating a loan loss reserve and/or a credit enhancement fund can encourage lending to customers that might otherwise not qualify for a loan and can keep interest rates low.

6. **Corporate Procurement –** Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2014, over 70 gigawatts (GW) of renewable energy has been procured by corporate entities. In the first half of 2022, corporations entered contracts for 21 GW. This is leading policymakers to provide additional avenues for businesses to procure renewable energy. Retail competition and generation disclosure requirements in Rhode Island enable corporate procurement of renewable energy. In addition, the state's policy provides access to renewable energy by allowing green tariffs and onsite ownership and leasing of renewable energy projects. To expand corporate access to renewable energy, policy makers might consider authorizing corporate participation in community energy projects. State policy goals to maintain access to these projects for low-income, residential, and nonprofit customers should be considered in any revision of this program.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas (GHG) emissions and increase investments in clean energy resources. In 2004, Rhode Island established a Renewable Energy Standard (RES) with a target of 16% renewable energy by 2019. This was amended in 2016 to set a target of 38.5% by 2035. The RES was updated again in June 2022 to mandate that all of Rhode Island's electricity be 100% offset by renewable energy by 2033.

[5] For guidance on the state approval process, see WAP Memorandum 024 (2017), the Solar Template for Incorporating Solar Photovoltaics into WAP, and the Preliminary Assessment Guide for Integrating Renewable Energy into Weatherization (2019).

This timeline is currently the most aggressive standard in the U.S. Utilities in the state are also setting their own GHG reduction goals and are increasingly investing in clean energy resources. For instance, National Grid has a goal to be net zero by 2050.

Rhode Island has a statewide mandatory emissions target that was established in 2021 and is a member of RGGI, a cooperative, market-based regional effort to reduce emissions from the energy sector through the nation's first cap-and-invest program.

To increase utility adoption of clean energy technologies, Rhode Island's policymakers might consider the following:

1. **Transmission Development Policies –** Renewable energy resources rely heavily on robust transmission networks that connect generation to demand. For states within regional transmission organizations (RTOs), state governments can fund utility commission and energy office engagement in RTO processes, and generally support transmission build-out through these channels. In non-RTO states or single-state RTOs like New York and California, one successful model has been the creation of a state transmission authority, which handles state transmission planning in cooperation with incumbent utilities. New Mexico's Renewable Energy Transmission Authority provides an instructive example – it informs transmission investments to push forward key transmission projects that achieve the state's clean energy goals cost-effectively.

   Rhode Island's Energy Facility Siting Board is the permitting authority for major energy facilities in the state, including transmission lines 69 kilovolts or larger. In January 2023, five New England States (Connecticut, Massachusetts, Maine, New Hampshire, and Rhode Island) announced a joint initiative to pursue federal funds for investments in electric transmission infrastructure to support clean energy integration, reliability, resilience, and affordability. This work is being done under the New England States Regional Transmission Initiative, which was established in the Fall of 2022.

2. **Competitive Procurement Requirements –** In most states, consumers have little choice about where their electricity comes from. As utilities find that renewable energy is increasingly the lowest-cost electricity source, they have to decide how much they should buy and when. Unfortunately for customers, utilities may have either a vested interest in continuing to operate fossil plants, or they doubt the efficacy of new renewable resources. States can overcome reluctance to renewable energy by requiring utility procurement decisions to undergo a competitive process, revealing the lowest cost alternatives to the utility's existing contracts and fleet of power plants. A best practice is "all-source procurement," a process that allows all resources to compete to fill a system need identified by the utility.

   States can start by requiring PUCs to begin a participative planning process that links planning outcomes to procurement decisions and ensures that state policy objectives are included in system planning. For some states, this might mean setting up a planning process. For others, it might involve revisiting planning and procurement rules and asking whether the current process results in policy-aligned procurement. States might amend existing rules to require utility commission approval of utility plans or require consideration of public comments. Regulators may need explicit direction to consider objectives beyond reliability, affordability, and safety.

ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which improve system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources, like wind and solar, to the grid.

The flexibility of battery storage combined with advanced metering infrastructure can allow customers to control how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services.

Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can also lead to a number of economic and environmental gains.

Energy storage can also help the commercial sector avoid demand charges, which establish an incremental cost above energy usage based on the highest period (highest 15 minutes, for example) of demand during the month. Eliminating spikes in demand with storage can reduce these costly charges for businesses. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as both a customer cost-saving investment and a system efficiency measure.

Declining costs and technological advancements in battery storage have contributed to increased deployment. The EIA expects total battery storage deployment to nearly triple from 7.8 GW in 2022 to 30 GW in 2025. State policies can further encourage this by establishing both a framework for easy integration of energy storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

Rhode Island's first battery storage facility was built alongside an electric substation expansion in the Pascoag Utility District. The project is expected to save $3.5 million over the life of the project and expand the utility's ability to meet peak demand.

The IIJA provides a unique opportunity for funding energy storage projects. The IIJA provides $505 million for grants to support energy storage demonstration projects, more than $7 billion for building out the U.S. battery supply chain, and $14 billion for grid resilience programs that include energy storage as a qualified technology. The IRA extended the ITC to include standalone energy storage systems. When the ITC is replaced by the technology neutral Clean Electricity Investment Tax Credit (CEITC) in 2025, qualified storage facilities placed in service after 2024 will remain eligible. The advanced manufacturing production credit will apply to battery cells and modules and the critical minerals used in their production. The $27 billion GHG Reduction Fund, also established by the bill, will provide funding enabling low-income or disadvantaged communities to adopt zero-emission technologies including energy storage.

There are several policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage and build upon recent federal initiatives. The recommendations here draw heavily from IREC's 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in Rhode Island could consider the following:

1. Amend existing interconnection policies to ensure that storage can connect to the grid through a transparent and simple process. IREC has produced a series of interconnection protocols that states can easily adopt. The state could establish best practices for interconnection in statute, or legislation could provide an instruction to utilities to implement these best practices.

2. Clarify the classification of energy storage as an energy management technology and not as "generation" to encourage utility investment in restructured markets. Most states that have restructured utility markets exclude utility ownership of generation.

3. Instruct the utilities commission to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it is cost-effective or identify the price point at which it will be cost-effective. Ensure that cost-effectiveness calculations include all of the benefits storage can deliver to the system, including frequency regulation and avoided investments in new infrastructure.

4. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives to large transmission and generation investments. Alternatively, states might want to require that utilities develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

5. Consider creating a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can limit the amount of utility-owned storage; require that a certain amount of storage be targeted to low-income customers; and

create carve-outs for storage at the transmission, distribution, and customer levels. Procurement targets can jump-start market creation, spur fast learning, and guide the development of a regulatory framework.

6. Finance and incentivize energy storage for customers and utilities. Incentives can enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment of storage. Incentives can be designed to decline as storage values become more readily monetized and/or as the cost of storage decreases. Policymakers could allow utilities that provide incentives to customers to recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This could also signal to customers the value of leveraging storage and better align customer costs with system costs. Financing energy storage installations for commercial customers could help reduce their demand charges. Policymakers might want to start first with a policy that provides grants to pilot projects. Incentive programs might also target solar system owners. Financial incentives should be designed to ensure that the state will meet other goals including emissions and peak demand reductions, and equitable access to clean energy.

   Rhode Island's Renewable Energy Fund provides a $2,000 energy storage adder through its small-scale solar program. National Grid offers storage incentives for both residential and commercial customers.

7. Clear data access policies that allow third parties to provide energy management services based on signals from the utility can greatly increase the value of efforts to monetize the value stream offered by energy storage. State policy should include measures to protect customer data, while also encouraging the use of this information to facilitate additional improvements to grid management and customer services. To address this, policymakers can develop legislation or rules that clarify who owns the energy data associated with customer energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible.

8. Consider taking advantage of the "direct pay" option available to state and local governments for energy storage investment tax credits (ITC) available in the IRA. The direct pay option allows states (or other qualified entities without tax obligations) to be directly refunded a 30% ITC from the federal government after the project is online. The IRA also allows for up to a 70% credit for projects that incorporate domestic components, serve low-moderate income communities, and/or are located in energy communities.

THE BUILT ENVIRONMENT

In the U.S., buildings consume nearly 40% of total energy used.[6] Because it reduces energy demand and emissions and creates savings for utility customers, energy efficiency[7] often plays a prominent role in state energy and climate policies. Coupled with beneficial electrification, which involves replacing direct fossil fuel use with electricity, there is even greater potential to reduce energy costs and pollution, and provide more resilient, comfortable, and healthy buildings. This is especially the case in states where increasing levels of low carbon resources are supplying the electric grid. When policies are adopted to shift energy sources for such things as space and water heating, to highly efficient electric alternatives, states can maximize achieving the dual objectives of increased energy efficiency and reduced emissions. In some cases, this can also result in lower energy costs.

The American Council for an Energy Efficient Economy (ACEEE) publishes a State Energy Efficiency Scorecard that evaluates states' energy efficiency programs and policies in six policy areas, focusing on equity and policies that assist low-income and disadvantaged households. Rhode Island ranked seventh in the 2022 report. In addition to its Energy Efficiency Scorecard, ACEEE tracks how states are incorporating equity into their energy efficiency and clean energy programs and policies.

Rhode Island's building codes are implemented by the Building Code Commission, which establishes minimum building codes for the state. In February 2018, the state's first voluntary stretch codes were established to encourage efficiency and advanced building practices in public and private construction.

[6] For additional information, see ACEEE Building Policies and Codes.

[7] Energy efficiency includes a multitude of measures to reduce energy consumption. These measures range from behavioral changes to installing energy efficient appliances to full building renovations, including updating a building's envelope.

In May 2023, Executive Order 23-06 directed every state agency with 15 or more employees to appoint a Lead by Example coordinator to work with the Office of Energy Resources to reduce state energy consumption. In 2022, the Green Buildings Act Expansion (House Bill 7278) was enacted. The Act created a Green Buildings Advisory Committee, amended green building requirements for public projects, and identifies the Green Buildings Act as a strategic tool for achieving the state's climate goals.

Rhode Island's energy efficiency resource standard (EERS) was adopted in 2006, setting energy conservation targets for electric and gas utilities, requiring least-cost procurement, and mandating that utilities procure all cost-effective energy efficiency. All electric and gas companies are required to submit triennial plans for system reliability, energy efficiency, and conservation procurement. The standards for these plans were last updated in August 2020 by the PUC (Docket No. 5015). The Energy Efficiency and Resource Management Council (EERMC) evaluates and recommends energy savings targets and monitors the success of energy efficiency programs. The Council proposed energy efficiency savings targets for the 2021-2023 planning period in 2020.

The state allows energy savings performance contracting and several master price agreements have been developed to expedite state procurement of energy efficiency, EV charging infrastructure, and solar installations. Revenue decoupling for gas and electric utilities was authorized in 2010, allowing utilities to submit proposals to be approved by the PUC. Rhode Island also offers a shareholder energy efficiency performance incentive for gas and electric utilities. A national leader in energy efficiency policy, the state provides several programs and financing mechanisms to promote energy efficiency across customer-classes. Rhode Island Energy also offers energy upgrade programs, including an income eligible energy savings program.

The IIJA provides $500 million for grants to fund energy efficiency and renewable energy upgrades in public schools, $3.5 billion for the Weatherization Assistance Program, and increases funding for the Energy Efficiency and Conservation Block Grant program by $550 million and the State Energy Program by $500 million. The IRA appropriates $4.3 billion to DOE for an energy efficiency rebate program that will be administered through state energy offices. Another $4.3 billion appropriation will fund electrification rebates for single- and multi-family homes. The bill also extends the tax credits for residential energy efficiency improvements and new efficient home construction and increases the maximum deduction for energy efficient commercial buildings. A $837.5 million appropriation will be used by the Department of Housing and Urban Development (HUD) for resiliency, energy efficiency, renewable energy, and grid integration projects at public housing units.

Policymakers in Rhode Island can consider a variety of policies to encourage energy efficiency and beneficial electrification:

Energy Efficiency Policies

1. **Building Codes –** The DOE projects that, over time, improvements in building codes can have the greatest single impact on energy efficiency within the built environment. On average, commercial buildings waste 30% of energy used.[8] Because buildings will be around for generations, energy efficiency within the built environment is a matter of statewide and long-term importance. States can set requirements for energy systems, require statements of energy use, and set performance standards for energy use or emissions. Building codes can be required by state legislation or implemented through 'home rule', where local governments set their own standards or adopt more strict building codes than those mandated by the state. Although Rhode Island is considered to be a home rule state, towns are not permitted to adopt codes that differ from the those of the state.

   The IIJA includes a $225 million appropriation for a competitive grant program to support the "sustained cost-effective implementation of updated building energy codes." The grant program will run for five years, through fiscal years 2022 – 2026. In December 2022, DOE issued the Resilient and Efficient Codes Implementation Funding Opportunity Announcement to support the adoption of updated building energy codes. Approximately $45 million is available for this competitive grant program. The program requires the participation of a "relevant state agency" and projects must be tied to "an updated building energy code."

[8] For more information, see the Office of Energy Efficiency & Renewable Energy's Commercial Buildings Integration (CBI) Program.

Rhode Island's building code adopts the 2018 International Energy Conservation Code (IECC) with state-specific amendments that reduce the savings potential of the 2018 standard. The state's flex code allows buildings to meet advanced building codes.

Rhode Island Energy is working with the U.S. Environmental Protection Agency to use the Energy Star Portfolio Manager benchmarking tool, which allows building managers to track and assess energy use and identify areas for savings. Rhode Island Electric provides access to the Energy Profiler Online, which allows building owners with interval data meters to review energy use to enable changes in that usage to reduce costs.

2. **Appliance Efficiency Standards –** Appliance efficiency standards set minimum requirements for efficiency in everything from washing machines to water heaters. Efficiency standards save consumers money on utility bills and reduce energy demand on the grid, most importantly reducing peak energy demand. Some states have elected to adopt the federal appliance standards that were in effect on January 1, 2017.[9] These include, among other things, standards on metal halide lamp fixtures, residential furnaces and boilers, and external AC to DC power supplies.

   In 2021, Rhode Island passed the Appliance and Equipment Energy and Water Efficiency and Standards Act of 2021, which updated appliance efficiency standards. The new efficiency standards apply to 14 product categories. Policymakers could consider implementing additional efficiency standards for other types of appliances.

3. **Low-Income Energy Efficiency Programs –** While equity should be incorporated into all policy development, it is often necessary to ensure that specific programs are targeted towards historically underserved populations. Recent research suggests that weatherization improvements can reduce energy use by 25-35%, allowing households to reduce their financial energy burden. The federal WAP program provides energy efficiency upgrades for income qualified homeowners. However, there might be difficulty in reaching individuals who are eligible. Policymakers might require outreach and education programs targeted at eligible groups.

   Rhode Island's LIHEAP program offers assistance with energy bill payment and energy crises. This could be expanded to include long-term residential weatherization and repair or replacement of heaters.

Electrification Policies

1. **Strategically Target Beneficial Electrification –** Target areas of beneficial electrification in buildings include space and water heating systems and other systems and appliances that typically use natural gas or another fossil fuel as an energy source. According to the Environment and Energy Study Institute, new electric heat pump technology can heat space and water at efficiencies of 200 to 300 percent, compared to 67 percent efficiency in typical Energy Star gas water heaters.[10] This not only allows savings on energy bills, but it also results in reduced GHG emissions and improved indoor air quality. Published in 2020, a Cadmus Group study for National Grid (the Rhode Island Strategic Electrification Study) found "there are significant opportunities for heat pump implementation in the Rhode Island market." The study notes that a lack of consumer awareness of heat pumps and high up-front costs are barriers to market growth in the state. Rhode Island Energy offers several incentives to encourage residential and commercial customers to install efficient appliances, including heat pumps and heat pump water heaters.

2. **Adopt Tools for Advancing Electrification –** Building codes and financial incentive programs can be used to advance beneficial electrification. While in some states, local governments are primarily responsible for adopting and implementing building energy codes, in other states, a state legislature, or a code commission tasked by the legislature, adopts and implements statewide standards. Incentive programs established and implemented by states, local governments, or utilities can target replacing systems and appliances that traditionally rely on fossil fuel resources with high efficiency electric systems and appliances including water heaters, furnaces, ovens, and ranges. As an example, heat pump water heaters and space heating systems can serve as high efficiency replacements for traditionally fossil-based equipment. In conjunction with utility regulatory policy, these technologies can also serve as demand response tools.

[9] Based upon research conducted by the Center for the New Energy Economy.
[10] For more information, see EESI's Beneficial Electrification.

As a note, cities across the country are implementing new building codes promoting beneficial electrification by limiting or banning the installation of natural gas in new construction. State legislatures can pass enabling legislation, allowing municipalities to make independent decisions on beneficial electrification. On the other hand, some states have adopted pre-emptive legislation, banning local governments from adopting policies that limit utility service.[11]

Programmatically, there will always be greatest benefit by combining measures – incentives that bundle improvements will generate greater gains than individual measures. For example, a high efficiency heat pump will be much more effective and efficient when coupled with improved building insulation. Rather than only realizing the gains of the new mechanical component, this combination of measures will increase the efficiency of the entire system.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance estimates that nearly 80% of new car sales in the U.S. will be electric by 2040. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased this "range anxiety."

ACEEE publishes a State Transportation Electrification Scorecard that evaluates states' progress in electrifying transportation in six key policy areas and offers nationally applicable policy recommendations. Rhode Island ranked 19th in 2023.

Enacted in 2021, House Bill 5031 required the state's Department of Transportation (DOT) and other offices to develop a statewide electric charging infrastructure plan, which was released in December 2021. Also in 2021, the Mobility Innovation Working Group released its Clean Transportation and Mobility Innovation Report, which includes recommendations for reducing transportation related emissions and increasing access to clean transportation.

In 2023, Rhode Island announced its adoption of California's advanced clean car and truck emissions standards. The rules will require all vehicles sold in 2035 and after to be zero emissions vehicles (ZEVs). In 2018, the Rhode Island Public Transit Authority announced that it would use $10 million from the Volkswagen settlement for replacing older diesel buses with new ZEV buses.

The IIJA provides nearly $5 billion over the next five years to support the electrification of the transportation sector. In 2022, $615 million was made available for the installation of charging stations along designated alternative fuel corridors, through a new National Electric Vehicle Infrastructure (NEVI) formula grant program. To be eligible to receive this funding, states must have submitted a NEVI plan to the Federal Highway Administration (FHWA) by August 2022. All 50 states plus D.C. and Puerto Rico submitted a NEVI plan. Rhode Island will receive an estimated $4,869,376 in Fiscal Year 2023.

The Act also provides approximately $1.1 billion for grants to state and local governments to assist with the purchase or lease of low- or no-emission vehicles for transportation fleets. To be eligible, a state must have a Zero-Emission Fleet Transition Plan in place.

The IRA extended the $7,500 EV tax credit for purchases of new plug-in EVs through 2032 and removed the eligibility cap based on number of vehicles sold by manufacturers. The Act includes requirements for material sourcing that must be met by manufacturers starting in 2027. The IRA also created a new $4,000 refundable tax credit for the purchase of used EVs and a new credit for commercial EVs. Appropriations in the Act include $1 billion for replacing

[11] See: "States That Outlaw Gas Bans Account for 31% of U.S. Residential/Commercial Gas Use." S&P Global, 9 June 2022. Available: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/states-that-outlaw-gas-bans-account-for-31-of-us-residential-commercial-gas-use-70749584.

medium- and heavy-duty vehicles with EVs, $3 billion to fund projects to reduce transportation sector emissions, and $3 billion to procure alternatively fueled vehicles for the federal fleet.

There are several policy opportunities to further encourage and prepare for increased market penetration of EVs in the state, including:

1. **Utility Investment in "Make-Ready" Infrastructure and Utility-Run Programs –** "Make-ready" means building and upgrading the infrastructure necessary for the installation of a charging station. RMI recommends that policies providing incentives for utilities to invest in make-ready infrastructure or charging infrastructure itself should be performance-based and encourage investments in locations that are unlikely to be targeted by the private sector, such as low-income and multi-unit dwellings. Additionally, utilities can incentivize EVs by incorporating charging rate incentives and time of use rates to reduce the cost of electricity used for charging. Eligibility for a charging rate incentive may be limited to users with separate or advanced metering systems. Some utilities also offer financial incentives for the purchase of EVs or EV charging equipment. In some states, enabling legislation might be required to direct or authorize a public utilities commission to allow regulated utilities to recover the costs of providing these incentives.

   The Rhode Island State Plan for Electric Vehicle Infrastructure Deployment includes recommendations regarding make-ready EV charging infrastructure.

2. **Parking Infrastructure Requirements –** In tandem with the implementation of Rhode Island's NEVI plan, legislation could set requirements for parking lots and other infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations. Rhode Island's Statewide Building Energy Codes could also be updated to include requirements for EV charging infrastructure.

   In 2021, the Rhode Island Senate passed a bill which would have required that new parking lots and existing lots that are expanding by 50% or more create designated EV charging parking spaces. The bill ultimately failed in the House.

3. **Rental Properties and HOAs –** Legislation can also make it easier for lessees, renters, and members of a homeowners' association (HOA) to install charging equipment. Typically, lessors are directed to allow lessees, at their own cost, to install charging systems. In some cases, lessees are required to maintain additional insurance for the system. Legislation related to HOAs typically directs these organizations to avoid restrictions that would inhibit the installation of charging equipment.

4. **EV and Charging Equipment Financing and Financial Incentives –** Providing financial incentives and innovative financing options can help spur greater market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing the high up-front costs of EVs and EV charging equipment. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers, as the credit is not applied at the time of purchase.[12] States have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EV charging equipment under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations.

   States might consider adopting programs to incentivize the purchase of used EVs. With increasing battery capacities and falling prices, there are an increasing number of EVs with relatively low mileage that are being traded in. States might also consider programs that target LMI customers that may not qualify for a loan directly. Such a program could facilitate sales through such things as loan loss reserve and interest buy down programs.

   Rhode Island offers a few EV and EV charging incentives. The Driving Rhode Island to Vehicle Electrification (DRIVE EV) program is administered by the Office of Energy Resources and offers rebates to support EV adoption. Rhode Island residents are eligible for up to $2,500 for a battery or fuel cell EV with other rebates available for hybrid or used EVs. An additional $2,000 is available based on income-eligibility.

[12] A study by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

5. **HOV and HOT Incentives** – Allowing EVs to use high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes, regardless of number of passengers and without paying the toll, may make EV ownership more attractive. Most states require that EVs using these lanes display a decal or a particular license plate; others also limit eligibility to certain types of vehicles or to a certain number of vehicles.

6. **Fleet Mandates** – Some states require state agencies to acquire a fixed or growing percentage of electric, hybrid, and/or alternative fuel vehicles. For instance, Massachusetts required that its state fleet be no less than 50% hybrid or alternative fuel vehicles by 2018 and set the following state fleet targets for zero emission vehicles (ZEVs): 5% by 2025; 20% by 2030; 75% by 2040; and 100% by 2050. A City of Seattle study found that the city could save millions by switching to EVs.

   The DRIVE EV Fleet program provides rebates of up to $2,500 for new or used EVs for non-profits, small businesses, and public sector entities. Additional rebates are available in certain municipalities that have high rates of asthma due to transportation emissions. In May 2023, Executive Order 23-06 set a target of 25% ZEVs by 2030 for the state's light duty fleet. The order also requires that the number of EV charging stations at state-owned facilities increase to 200 by 2030.

7. **Federal Congestion Mitigation and Air Quality (CMAQ) Funds** – CMAQ funds (almost $2.6 billion in fiscal year 2023) are available to states to assist them in meeting Clean Air Act requirements. State funds can be used to deploy EV charging infrastructure. There may be a unique opportunity to pair a request for CMAQ funds with a commitment from utilities to invest in charging infrastructure as a public/private partnership that would leverage the federal investment.

NEWS

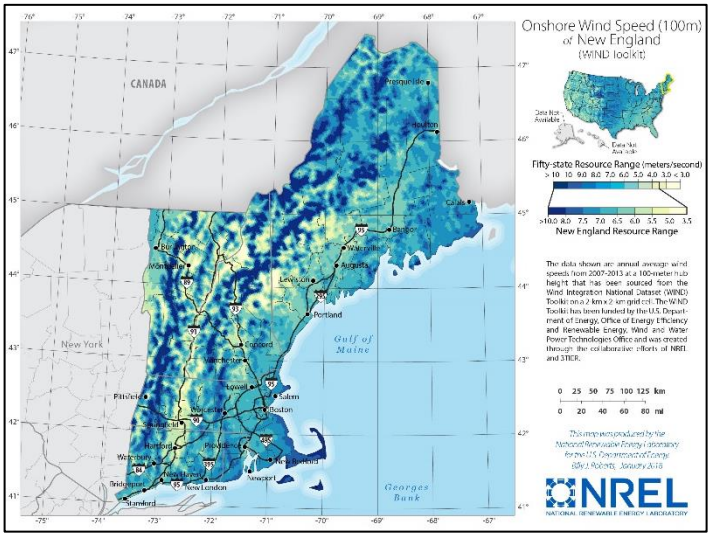
- July 19, 2023: RI Energy Rejects Plan For Nearly 1000MW Offshore Wind Project
- June 14, 2023: Rhode Island Commerce Awards Grants to 3 Solar Projects
- June 13, 2023: Energy Platform Software Company Expands to Rhode Island
- June 2, 2023: Energy Sec. Granholm Praises RI's Clean Energy Leadership
- May 11, 2023: Give Up Your Gas Car? What to Know as RI Moves to Phase Out Sales of Gas-Powered Vehicles
- May 2, 2023: Work Has Started on Major Offshore Wind Farm that would Power Rhode Island. What to Know
- March 15, 2023: Providence One of 7 RI Communities Starting Community Electricity Program
- March 27, 2023: CleanCapital Acquires 26.2 MW, 10-Project Solar Portfolio
- January 16, 2023: How to Get Solar to Low-Income Families? Rhode Island has a New Plan

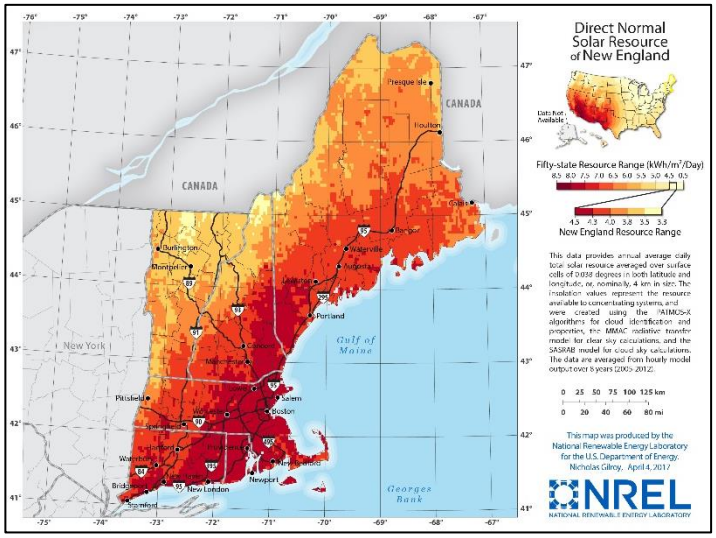
OTHER RESOURCES

- Rhode Island Office of Energy Resources: https://energy.ri.gov
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Rhode Island: https://database.aceee.org/state/rhode-island
- The Database of State Incentives for Renewables and Efficiency, Rhode Island: https://programs.dsireusa.org/system/program?fromSir=0&state=ri
- U.S. Department of Energy's Alternative Fuels Data Center, Rhode Island: https://afdc.energy.gov/states/ri
- American Clean Power Association State Fact Sheets: https://cleanpower.org/facts/state-fact-sheets/
- SPOT for Clen Energy, Rhode Island: https://spotforcleanenergy.org/state/rhode-island/

NEW ENGLAND'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/ri





Our Resources

CNEE Homepage: http://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

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