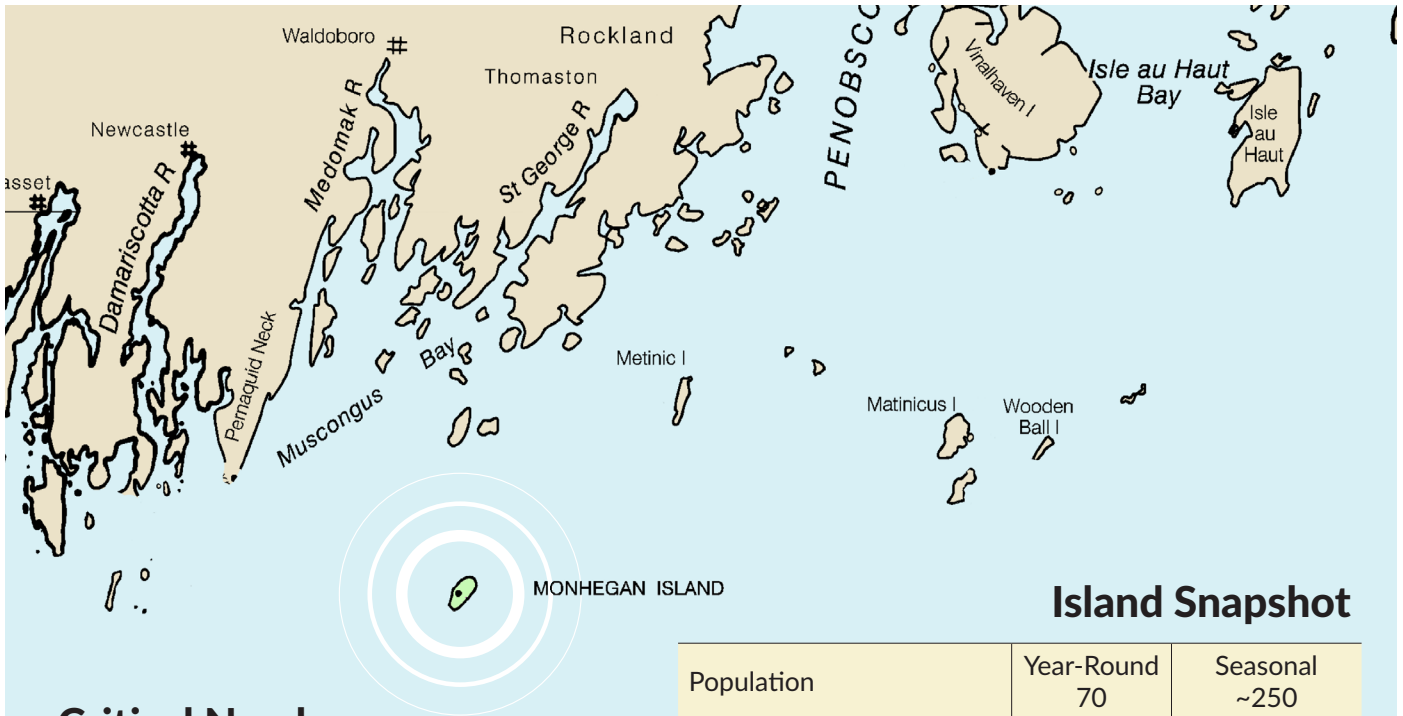


NEW ENGLAND ISLAND ENERGY PROFILES

Monhegan, ME

A small island with many energy challenges



Island Snapshot

Population	Year-Round 70	Seasonal ~250
Size	513 Acres	
Distance from Mainland	12 Miles	
Median Household Income (2010)	\$43,393	
Electrical Systems	Three diesel generators (80 kW and 2 x 120 kW)	
Electric Rate (2015)	\$0.70/kWh	% Of U.S. Avg. 617%
Minimum Monthly Charge	\$10/month	
Total Annual Electrical Usage	310,000 kWh	
Average Heating Fuel Price (2013)	\$5.53/gallon (propane)	

Critical Needs

With one of the highest electric rates in the country (\$0.70/kWh) and multiple energy projects under consideration, Monhegan is at a critical juncture which may allow for the incorporation of more sustainable energy systems. The island's power generation system is very quickly approaching the end of its useful life and will be replaced with microturbines, solar PV, updated controls, and a cogeneration system. An energy planning committee is investigating possible ways for the community to move forward beyond these investments.

Local Governance

Monhegan is a plantation, meaning that it retains some local authority but is still regulated as an unorganized territory. Three elected assessors provide leadership, and an annual town meeting is held to approve budget items and other issues. The Monhegan Plantation Power District (MPPD) is a quasi-municipal electric utility with a three-member board that is elected at town meeting.

Electrical Systems

Without a submarine cable, all of Monhegan's power is generated on-island. MPPD owns and operates three diesel generators; one 80 kW unit, and two 120 kW units. The island's electricity consumption is much higher in the summer. The fuel for the generators is delivered by a small tanker about once a month. Due to high shipping premiums and a small ratepayer base over which to spread fixed costs, the delivered price of electricity on Monhegan is \$0.70/kWh, more than five times the average in the state of Maine and more than six times the national average. Additionally, the power station's switchgear has never functioned properly which has led to regular interruptions to service and presents a safety hazard.

Major Energy Consumers

The island's seasonal hotels and brewery are significant energy users. Much of the year-round housing stock on Monhegan is old, but since 2012 more than 85% of year-round homes have received weatherization services through community-based Weatherization Weeks.

Heating Fuel Accessibility

The primary heating fuel used on Monhegan is propane, though many residents use a mix of fuels including kerosene, oil, coal, wood pellets, and firewood. Propane is delivered in 22-gallon bottles and cost \$5.53/gallon in 2013. Propane supply is often constrained in the winter. Kerosene and oil are delivered via tanker and cost \$4.60/gallon in 2013. The cost of transportation to and on the island contributes to the high cost of heating fuel.



Monhegan and Manana islands as seen from Lighthouse Hill.

Energy Leaders

MPPD staff are spearheading an effort to create goals and a long-term plan for future energy use on the island, as well as co-leading an effort to facilitate conversations between an offshore wind developer and the community. MPPD is also currently co-hosting an Island Fellow with Matinicus.

Energy Initiatives to Date

Energy Efficiency

Weatherization: Since 2012, 87% of all year-round homes have received energy assessments and basic air sealing and insulation. This program has helped leverage \$14,200 in Efficiency Maine incentives and will result in \$240,400 in lifetime savings for homeowners.

Electrical Efficiency: In one round of bulk LED purchases, islanders bought 2,300 bulbs which are estimated to result in \$15,000 in estimated annual savings to ratepayers.

Energy Education & Leadership

Monhegan Energy Task Force (METF): METF was formed to represent Monhegan in communications and negotiations with Maine Aqua Ventus regarding all aspects of the proposed offshore wind project.

Monhegan Energy Planning Committee: This committee was formed to create an energy plan for Monhegan. The group meets regularly, and is planning a series of community meetings and smaller "house parties" to gather input from community members.

Monhegan Community Energy Action Team (MCEAT): This team was formed to engage community members across different age groups in energy literacy and education. MCEAT has helped students in the Monhegan school track and reduce their energy usage, and hosted an intergenerational field trip to learn about renewable generation.

Renewable Energy

Onshore Wind Turbine: MPPD performed a feasibility study for 100 kW onshore wind turbine in 2009. Despite a robust wind resource, and 75% vote in favor of the project, development stalled due to limited local leadership and concerns about noise and birds.

Offshore Wind Test Site: The University of Maine and its partners have received funding from the U.S. Department of Energy to design the Maine Aqua Ventus I project, a 12 MW offshore wind project proposed approximately two miles from Monhegan.

Power Station Rebuild: In 2015, MPPD was awarded \$1.1M from the USDA's High Energy Cost Grant program to overhaul its aging power station. The rebuild, which will take place in spring 2016, will replace all existing diesel generators with better sized and more reliable diesel-fired microturbines, a new switchgear, 13 kW of PV on the power station roof, and combined heat and power system.

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