

# City of Newton Solar 2013-2023

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Sustainability

# Solar Installations at Municipal Facilities

The City of Newton currently has solar arrays operating at 18 City owned locations. The projects reduce carbon emissions and produce revenue for the City. The projects are being installed in three phases. Phases 1 and 2 were completed in 2013/2014 and 2017. They included ten rooftop projects, two parking canopy projects and the solar farm at the Rumford landfill. Phase 3 electricity generation began in 2020 when three rooftop projects came on-line. In August and September of 2021 (FY 2022) three more parking canopy projects came on-line at the Newton Free Library and North High School. Seven additional projects are planned under Phase 3 and are under development. The projects that were on-line in FY 2023 generated over 6 million kWh which was equivalent to 30% of the total municipal electrical use in that year. The projects also saved the City over \$1,000,000 in FY 2023. When all planned projects are completed, they will generate the equivalent of 40% of total municipal electricity use.

# Greenhouse gas reductions due to Newton Solar Projects on-line in FY 2023

- 6 million kWh of solar electricity generation offsets over 3,000 tons of CO2 emissions per year.
- This is equivalent to the carbon sequestration of over 3,100 acres of forest.
- This is also equivalent to carbon emissions of 6.6 million miles driven by an average passenger vehicle.

Solar Project Savings Phases 1 and 2 and 3				rev.1.9.2024
FY 2018	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 128,403	\$ 68,892	\$ 59,511	622,475
Phase 2	\$ 291,413	\$ 168,455	\$ 122,958	1,097,129
Rumford	\$ 621,819	\$ 249,986	\$ 371,833	2,396,870
			\$ 554,302	4,116,474
FY 2019	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 160,297	\$ 78,295	\$ 82,002	734,813
Phase 2	\$ 353,129	\$ 185,365	\$ 167,764	1,169,869
Rumford	\$ 713,204	\$ 255,209	\$ 457,995	2,518,530
			\$ 707,761	4,423,212
FY 2020	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 158,293	\$ 89,316	\$ 68,977	761,117
Phase 2	\$ 343,346	\$ 217,035	\$ 126,311	1,330,357
Rumford	\$ 727,677	\$ 343,725	\$ 383,952	2,843,120
			\$ 579,240	4,934,594
FY 2021	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 141,917	\$ 75,985	\$ 65,932	729,053
Phase 2	\$ 337,595	\$ 210,356	\$ 127,239	1,285,919
Rumford	\$ 681,699	\$ 336,374	\$ 345,325	2,650,900
Phase 3		\$ 31,614	\$ 51,800	395,150
	\$ 1,161,211	\$ 654,329	\$ 538,496	5,061,022
FY 2022-actual	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 135,910	\$ 86,775	\$ 49,135	731,066
Phase 2	\$ 375,597	\$ 213,945	\$ 161,652	1,273,322
Rumford	\$ 787,758	\$ 341,632	\$ 446,126	2,667,579
Phase 3			\$ 115,493	1,062,742
Total	\$ 1,299,265	\$ 642,352	\$ 772,406	5,734,709
FY 2023-actual	Total NMC	Cost	Net Savings	kWh
Phase 1	\$ 216,648	\$ 85,835	\$ 130,813	670,195
Phase 2	\$ 449,003	\$ 222,512	\$ 226,491	1,318,436
Rumford	\$ 1,025,947	\$ 365,797	\$ 660,150	2,827,370
Phase 3	\$ 232,720	\$ 192,572	\$ 40,148	1,628,143
Total	\$ 1,924,318	\$ 866,716	\$ 1,057,602	6,444,144

NMC is net metering credits. These appear on city electriciy accounts as bill credits or, for the Rumford landfill, the City gets a monthly check from Eversource.

Total City kWh solar 21,181,000 30%

Phase 3 Solar - Update March 15, 2024

	Completed			In progress				
	Roof Sites	Total First Year Output	KW (AC)	KW (DC)	Location	Type	Solar Company	Construction Timeline
1	Ed Center roof, 100 Walnut St.	95,779	67	81	Roof	BTM	Ameresco	completed
2	Fire Station #3 and Headquarters, 31 Willow Street	77,395	67	63	Roof	BTM	Ameresco	completed
3	Zervas Elementary School, 30 Beethoven Ave	216,094	133	182	Roof	BTM	Ameresco	completed
4	Angier Elementary School Gym roof, 1697 Beacon St	98,208	73	88	Roof	BTM	Ameresco	FY2025
5	Cabot, 229 Cabot School	142,409	109	122	Roof	BTM	Ameresco	FY2025
5	Carr School, 225, Nevada Street	66,161	50	57	Roof	BTM	Solect	redesign
7	Williams Elementary School, 141 Grove Street	87,835	59	68	Roof	BTM	Solect	Summer 2024
	<b>Total Phase 3 Roof sites kWh</b>	<b>783,881</b>	<b>558</b>					
	<b>Parking Lot Canopy Sites</b>							
8	Education Center parking lot, 100 Walnut St. (Crafts St side)	335,119	216	284	Parking lot	FTM	Ameresco	FY2025
9	Oak Hill MS parking lot, 130 Wheeler Road, behind Oak Hill Middle School	197,117	136	169	Parking lot	BTM	Solect	on hold
10	Memorial Spaulding Elementary School parking lot, 250 Brookline Ave	204,698	146	182	Parking lot	FTM	Ameresco	FY2025
11	Pleasant Street lot, Newton Centre	120,656	100	108	Parking lot	FTM	Ameresco	on hold
12	Mason Rice Elementary School Parking lot, 149 Pleasant St	200,824			Parking lot	BTM	Solect	on hold
13	North High School, Lowell Ave	582,786	360	492	Parking lot	FTM	Ameresco	completed
14	North High School, Walnut Street	354,392	220	267	Parking lot	BTM	Ameresco	completed
15	Brown Middle School Lot (behind school) 125 Meadowbrook Rd	321,338	216	277	Parking lot	FTM	Ameresco	FY2025
16	Wheeler Road lot, corner of Meadowbrook Road and Wheeler Road	313,500	220	270	Parking lot	FTM	Ameresco	FY2025
17	Newton Free Library, 330 Homer Street	378,230	240	347	Parking lot	BTM	Ameresco	completed
	<b>Total Phase 3 Canopy sites kWh</b>	<b>3,008,660</b>	<b>1,854</b>					
	<b>Phases</b>	<b>Annual kWh</b>			<b>Municipal Use</b>		<b>BTM</b> Behind the Meter.	
	Phase 3 Total kWh-completed, actual FY 2023 kWh	1,628,143			8%		Electricity is used	
	Phase 3 Total kWh-proposed	2,087,865			10%		by the building.	
	Phase 2 Total kWh-actual FY 2023 kWh	4,145,806			20%	<b>FTM</b>	Front of Meter.	
	Phase 1 Total kWh-actual FY 2021 kWh	670,195			3%		Electricity supplied	
	All Phases kWh	8,532,009			40.3%		to the grid. Not	
	Municipal Total Use kWh FY 2023	21,181,000					used by building.	

# Phase 3-Newton Free Library- Sept. 2021



# Phase 3 North HS, Lowell Ave- Aug. 2021



# Phase 3-North HS, Walnut St.-Sept. 2021





# Phase 3-Zervas ES-July 2020



# Phase 3- Fire Station 3 and HQ-July 2020



# Phase 2-Rumford Landfill-July 2017



# Phase 2- South HS- Jan. 2017



# Phase 1- North HS- Dec. 2013



# Phase 1-Brown MS- Dec. 2013

