



SOLAR FEASIBILITY STUDY

Project Overview:

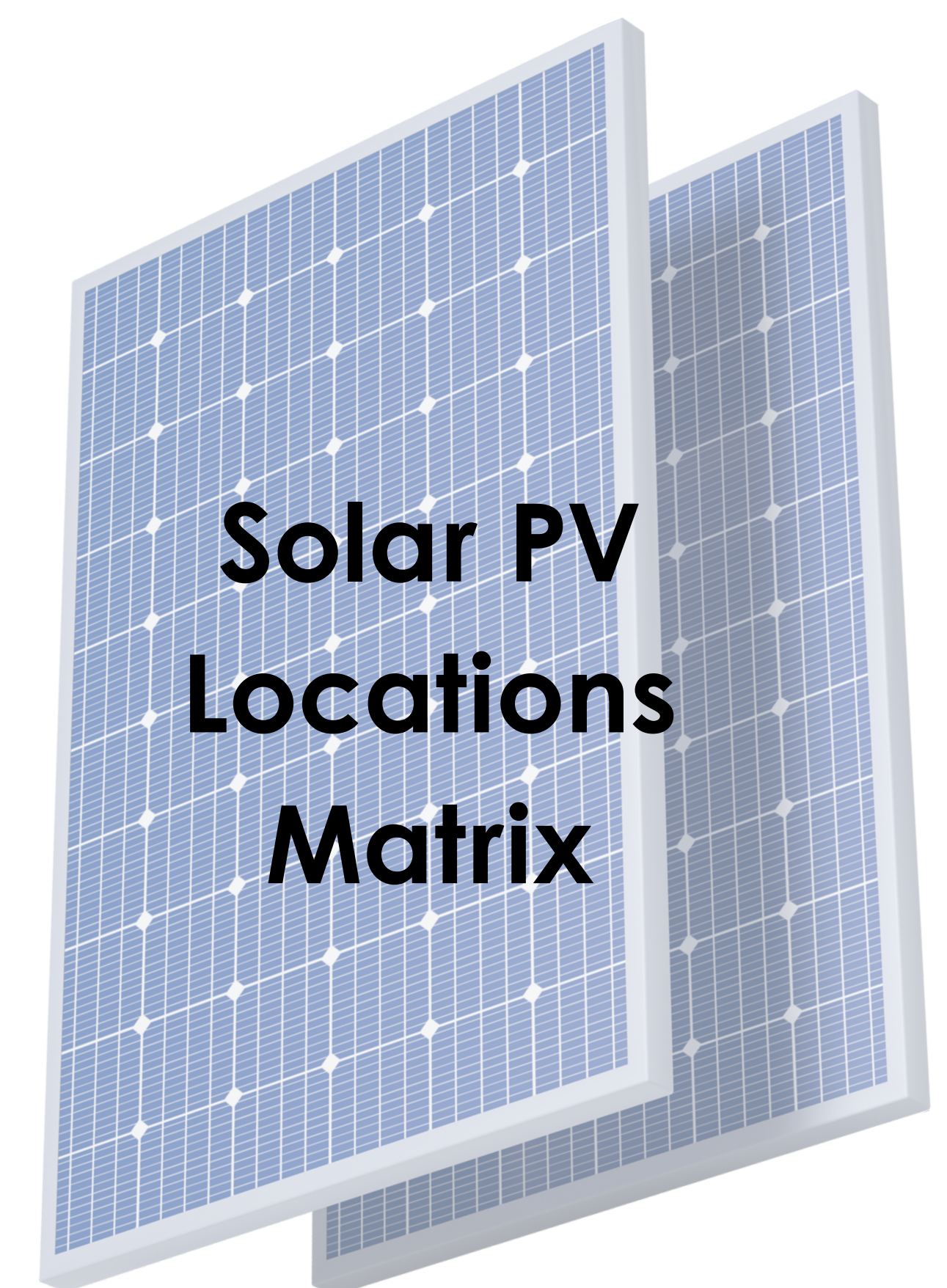
The engineering firm B2Q was engaged by the Town to complete a feasibility study reviewing the potential to implement solar photovoltaic (PV) systems at up to seven West Newbury locations, which were selected by the Town's Energy and Sustainability Committee prior to commencing the study. We are interested in exploring the opportunity to expand renewable energy production in support of our goals to reduce contributions to greenhouse gases and to provide affordable energy for the Town and its residents. As such, the primary goals of this screening assessment were to perform an initial, high-level engineering review of the technical and economic feasibility of installing solar PV system(s) at these locations. The Town has two existing solar PV systems: the Main Street Solar Project (owned by a third party) and a ground-mount array at the DPW (owned by the Town). The Town has also been exploring the feasibility of a microgrid at the Municipal Campus, though this is outside the scope of this study.

Location	Mounting	Preliminary Solar PV System Size	Estimated Annual Solar PV Production	Estimated SMART Incentive Rate	Estimated Direct Ownership Economics				Estimated PPA		
					Order of Magnitude Construction Cost Estimate	Estimated Year 1 Net Cash Flow	Estimated 20-Year Net Present Value	Estimated Discounted Payback Period	Estimated Year 1 Net Cash Flow	Estimated 20-Year Net Present Value	
-	-	kW AC	kWh	\$/kWh	\$	\$	\$	year	\$	\$	
1.1	Housing Authority	Rooftop	133	170,400	-	\$514,500	\$70,518	\$475,892	5	\$53,089	\$628,394
1.1	Housing Authority	Ground	33	49,837	-	\$111,000	\$21,366	\$176,081	3	\$16,999	\$201,768
1.2	1910 Building	Parking Canopy	240	339,605	\$0.017	\$1,890,000	\$144,706	\$388,187	12	\$63,821	\$733,216
1.3	Public Safety Complex	Parking Canopy	30	49,617	\$0.057	\$266,000	\$23,047	\$84,549	10	\$9,253	\$106,263
1.4	Burnham Field	Parking Canopy	120	177,014	\$0.017	\$945,000	\$75,208	\$228,183	12	\$32,945	\$378,333
1.5	DPW & Pipestave Recreation	Rooftop	33	44,149	-	\$129,500	\$18,119	\$124,219	5	\$13,584	\$160,767
1.5	DPW & Pipestave Recreation	Ground	24	39,688	\$0.013	\$86,400	\$16,905	\$139,765	3	\$12,897	\$153,005
1.5	DPW & Pipestave Recreation	Parking Canopy	480	774,705	-	\$4,165,000	\$315,880	\$833,494	13	\$144,054	\$1,654,214
1.6	Page School	Ground	450	772,453	-	\$1,620,000	\$203,578	\$1,272,290	6	\$135,295	\$1,590,771
1.7	North Dunn Field	Ground	300	480,886	-	\$993,000	\$196,768	\$1,642,714	3	\$154,166	\$1,828,675
1.7	South Dunn Field	Ground	938	1,505,731	-	\$3,300,000	\$614,967	\$4,992,348	3	\$482,718	\$5,725,875

Location	Favorable	Unfavorable
1.1 Housing Authority	<ul style="list-style-type: none"> Physical space availability on roof and ground Building interconnection phase = 3 phase Solar PV could potentially be asset in future Municipal Campus microgrid 	<ul style="list-style-type: none"> Building interconnection voltage = 120/208V Building electric infrastructure upgrades may be necessary to interconnect solar SMART incentives unlikely
1.2 1910 Building	<ul style="list-style-type: none"> Physical space availability over parking lot Building interconnection phase = 3 phase Solar PV could potentially be asset in future Municipal Campus microgrid SMART incentives may be available due to canopy adder 	<ul style="list-style-type: none"> Building interconnection voltage = 120/208V
1.3 Public Safety Complex	<ul style="list-style-type: none"> Building interconnection phase = 3 phase Solar PV could potentially be asset in future Municipal Campus microgrid SMART incentives may be available due to canopy adder 	<ul style="list-style-type: none"> Building interconnection voltage = 120/208V Limited parking area space High construction cost due to canopy steel and structures for small system size
1.4 Burnham Field	<ul style="list-style-type: none"> Physical space availability over parking lot Solar PV could be asset in potential future Municipal Campus microgrid SMART incentives may be available due to canopy adder 	<ul style="list-style-type: none"> Building interconnection voltage and phase unknown Small amount of local load
1.5 DPW & Pipestave Recreation	<ul style="list-style-type: none"> Some amount of physical space availability on salt shed roof and ground 	<ul style="list-style-type: none"> Building interconnection voltage = 120/240V at DPW Building interconnection phase = 1 phase at DPW Small amount of local load at DPW
	<ul style="list-style-type: none"> SMART incentives may be available for ground solar at DPW, if system is < 25 kW AC 	<ul style="list-style-type: none"> No existing local load at Pipestave Recreation SMART incentives unlikely for rooftop solar at DPW SMART incentives may not be available for canopy PV, due to lack of local loads Salt shed structure may not be rated to support additional roof loads
1.6 Page School	<ul style="list-style-type: none"> Physical space availability in unused field behind the school Building interconnection phase = 3 phase Large existing local load 	<ul style="list-style-type: none"> Building interconnection voltage = 120/208V SMART incentives unlikely
1.7 Dunn Property	<ul style="list-style-type: none"> Large amount of unused space 	<ul style="list-style-type: none"> No existing local load No 3-phase utility power on Chase St. SMART incentives may not be available, due to lack of local loads

Recent Developments:

Work was recently wrapped up on the study, providing the Town with a clearer look at potential sites for the mounting of solar panels and potential expenses, output, and revenues. So far, local renewable energy has been very successful.



Upcoming Steps:

Stay tuned to the activities of the Energy and Sustainability Committee. We value your feedback as we look to expand our solar options in West Newbury!

Food For Thought:

Which sites interest you? Where do you think the Town should pursue further renewable expansion?