DEFINITIONS

1 KILOWATT	**=**	**1,000 WATTS**
1 MEGAWATT	**=**	**1,000 KILOWATTS**
1 KILOWATT HOUR (kWh)	**=**	**1,000 WATTS consumed for one hour**

EXAMPLE OF kWh

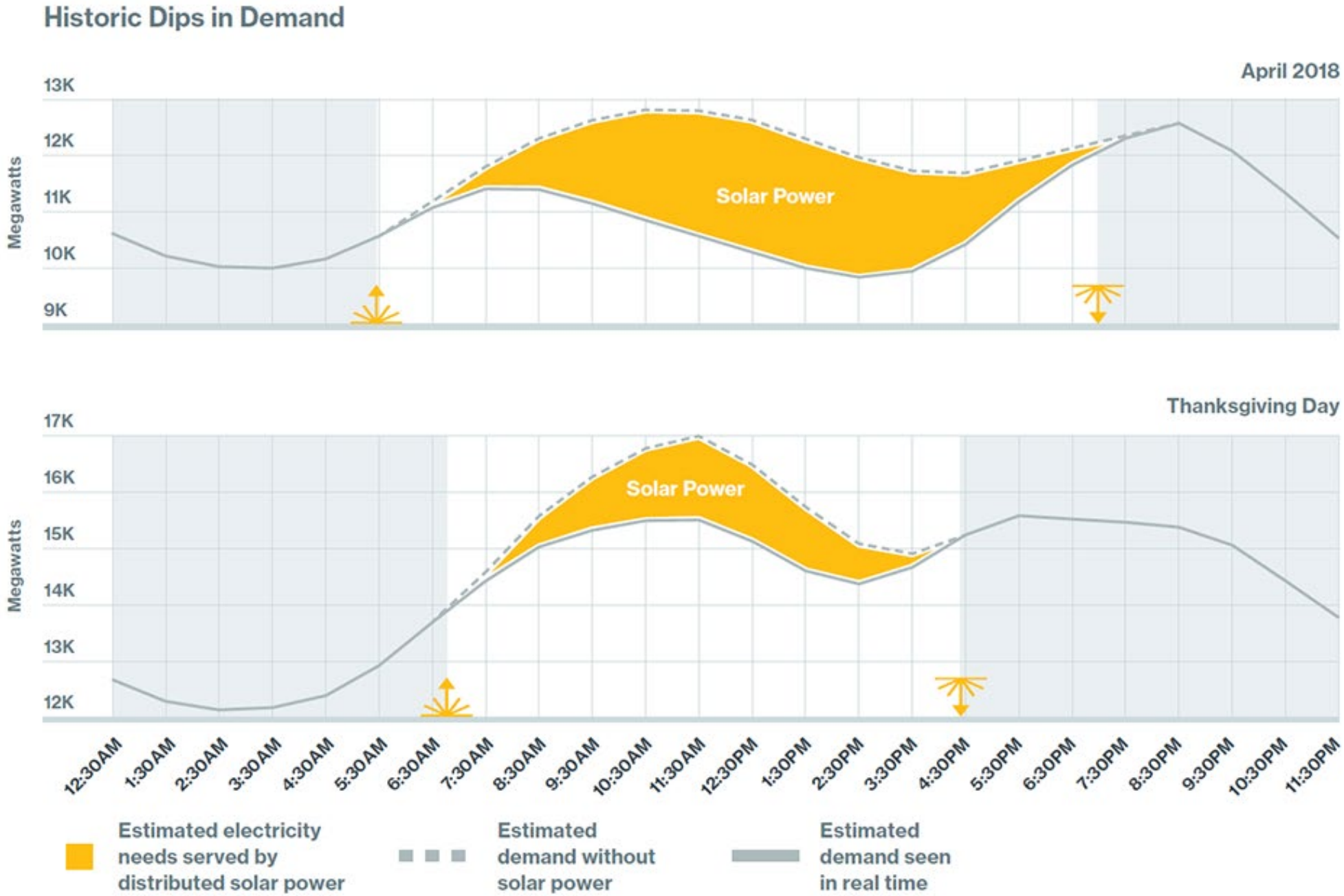
1 kWh costs roughly $0.15 and will power a 60-watt incandescent bulb for 16.5 hours or a 13-watt LED bulb for 77 hours.

1 SOLAR PANEL	**=**	**~300 WATTS**
21 PANELS	**=**	**6.3 KILOWATTS (AVERAGE RESIDENTIAL SIZED SYSTEM)**

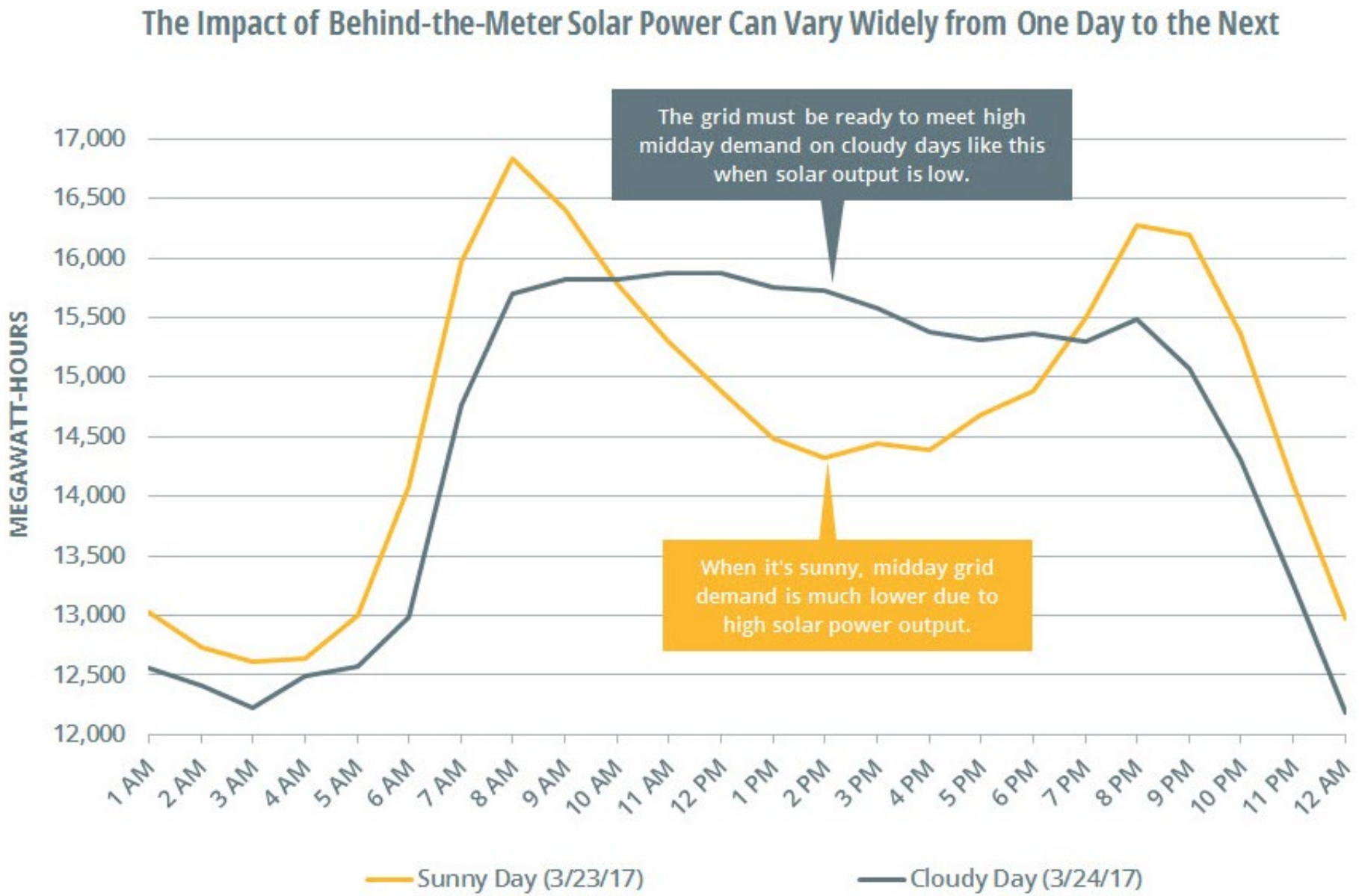
PURCHASED POWER AGREEMENT (PPA)

A PPA is a contract between a party that generates electricity (such as from a large solar array) and a party that agrees to purchase the electricity. Both Solar Choice projects are PPAs where RMLD purchases the solar electricity that is produced from a third-party.

1


Historic Dips in Demand
April 2018
13K
12K
11K
10K
9K
Megawatts
Solar Power
Thanksgiving Day
17K
16K
15K
14K
13K
12K
Megawatts
Solar Power
12:30AM
1:30AM
2:30AM
3:30AM
4:30AM
5:30AM
6:30AM
7:30AM
8:30AM
9:30AM
10:30AM
11:30AM
12:30PM
1:30PM
2:30PM
3:30PM
4:30PM
5:30PM
6:30PM
7:30PM
8:30PM
9:30PM
10:30PM
11:30PM
Estimated electricity needs served by distributed solar power
Estimated demand without solar power
Estimated demand seen in real time

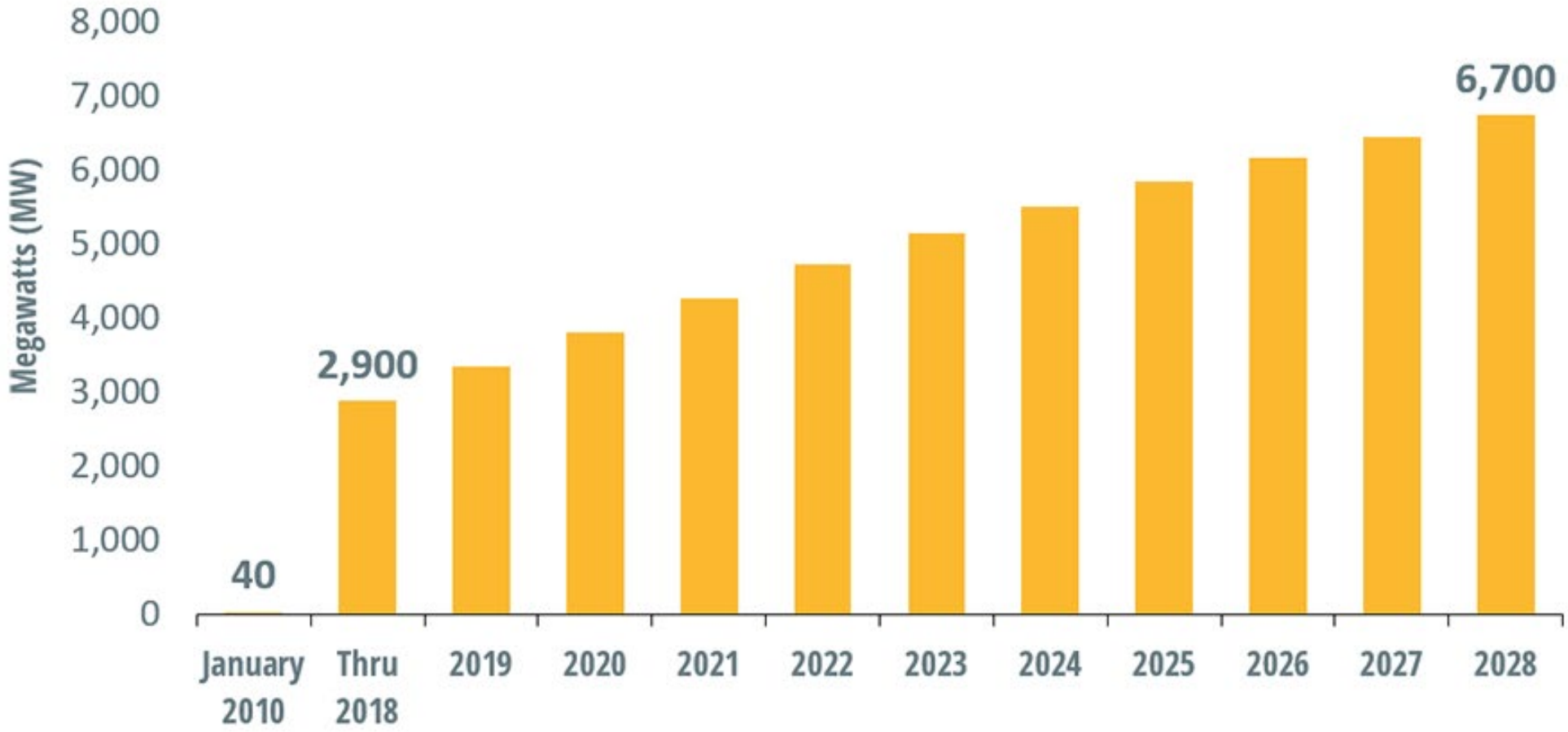
2



Source: ISO New England

3

Projected Cumulative Growth in Solar PV through 2028

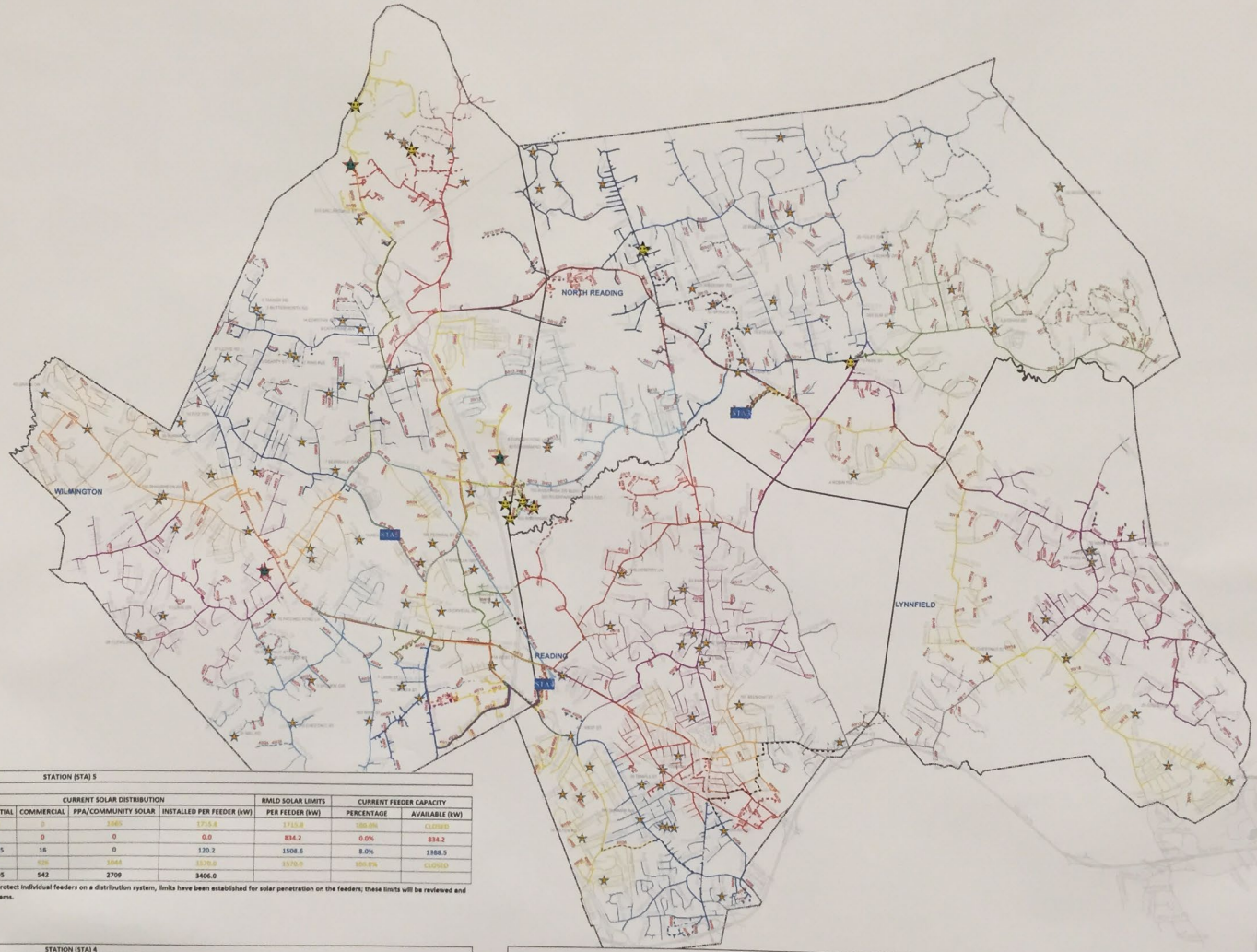


Note: The bar chart reflects the ISO's projections for nameplate capacity from PV resources participating in the region's wholesale electricity markets, as well as those connected "behind the meter." The forecast does not include forward-looking PV projects > 5 MW in nameplate capacity.

Source: Final 2019 PV Forecast (March 2019); MW values are AC nameplate.

4

RMLD SOLAR DISTRIBUTION MAP



MAP LEGEND

- SOLAR CHOICE / PPA
- RESIDENTIAL
- COMMERCIAL

STATION (STA) 5

FEEDER	NUMBER OF SOLAR INSTALLATION				CURRENT SOLAR DISTRIBUTION				RMLD SOLAR LIMITS	CURRENT FEEDER CAPACITY	
	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	FEEDER TOTAL	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	INSTALLED PER FEEDER (kW)	PER FEEDER (kW)	PERCENTAGE	AVAILABLE (kW)
5W4*	6	1	0	7	80.4	0	1665	1715.8	1722.0	100.0%	CLOSED
5W5	0	0	0	0	0	0	0	0.0	834.2	0.0%	834.2
5W8	15	1	0	16	104.15	18	0	120.2	1508.6	8.0%	1388.5
5W9*	3	1	0	4	0	526	1044	1570.0	1570.0	100.0%	CLOSED
STATION 5 TOTALS	21	4	2	27	154.95	542	2709	3406.0			

* Solar systems adversely impact voltage, current, and power factor on a distribution system. In order to protect individual feeders on a distribution system, limits have been established for solar penetration on the feeders; these limits will be reviewed and adjusted through a formal study of the capacity of each feeder to absorb the adverse impacts of solar systems.

STATION (STA) 4

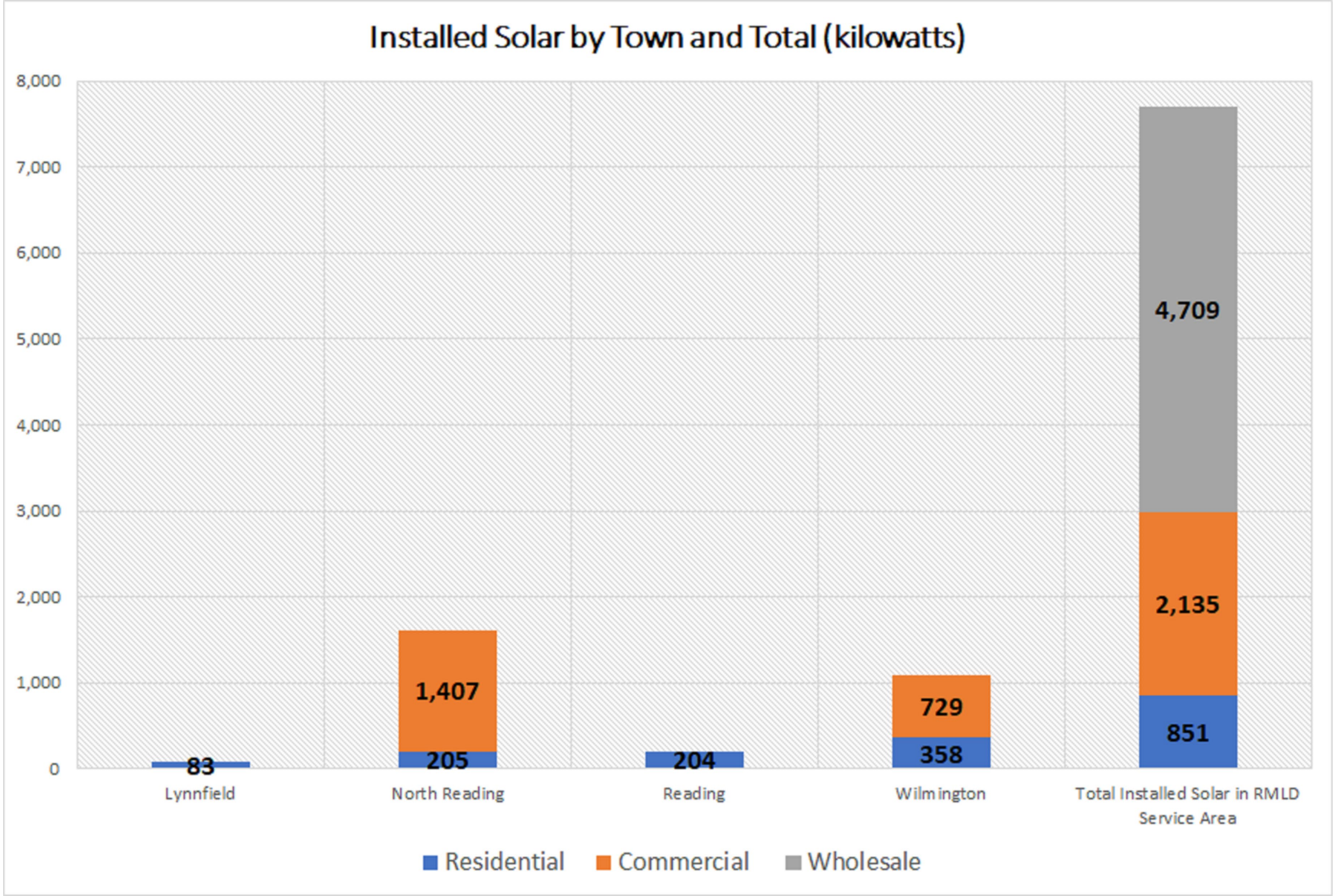
FEEDER	NUMBER OF SOLAR INSTALLATION				CURRENT SOLAR DISTRIBUTION				RMLD SOLAR LIMITS	CURRENT FEEDER CAPACITY	
	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	FEEDER TOTAL	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	INSTALLED PER FEEDER (kW)	PER FEEDER (kW)	PERCENTAGE	AVAILABLE (kW)
4W4	2	0	0	2	12.025	0	0	12.0	1122.2	1.1%	1110.2
4W5	5	0	0	5	26.548	0	0	26.5	704.7	3.8%	678.2
4W6	7	0	0	7	41.219	0	0	41.2	1275.0	3.2%	1233.8
4W7	10	1	0	11	59.125	100.44	0	159.7	894.1	17.9%	734.4
4W9	9	0	0	9	63.994	0	0	64.0	839.2	7.6%	775.2
4W10	2	4	0	6	15	750	0	765.0	982.3	77.9%	217.3
4W11	0	0	0	0	0	0	0	0.0	1273.8	0.0%	1273.8
4W16	1	0	0	1	10	0	0	10.0	1202.8	0.8%	1192.8
4W17	1	0	0	1	4.43	0	0	4.4	802.7	0.6%	798.2
4W18	3	0	0	3	16.68	0	0	16.6	578.9	2.9%	562.2
4W28	0	0	0	0	0	0	0	0.0	915.8	0.0%	915.8
4W30	5	0	0	5	24.18	0	0	24.2	834.5	2.9%	810.3
4W2X*	4	0	1	5	29.6	0	2000	2029.6	2029.6	100.0%	CLOSED
4W3X	5	0	0	6	45.625	0	0	45.4	906.2	5.0%	860.8
STATION 4 TOTALS	55	5	1	61	348.269	850.44	2000	3198.7			

* Solar systems adversely impact voltage, current, and power factor on a distribution system. In order to protect individual feeders on a distribution system, limits have been established for solar penetration on the feeders; these limits will be reviewed and adjusted through a formal study of the capacity of each feeder to absorb the adverse impacts of solar systems.

STATION (STA) 3

FEEDER	NUMBER OF SOLAR INSTALLATION				CURRENT SOLAR DISTRIBUTION				RMLD SOLAR LIMITS	CURRENT FEEDER CAPACITY	
	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	FEEDER TOTAL	RESIDENTIAL	COMMERCIAL	PPA/COMMUNITY SOLAR	INSTALLED PER FEEDER (kW)	PER FEEDER (kW)	PERCENTAGE	AVAILABLE (kW)
3W5	0	2	0	2	0	86.06	0	86.1	708.9	12.1%	622.9
3W7	10	1	0	11	74.97	17	0	92.0	1245.7	7.4%	1153.7
3W8	6	0	0	6	46.2	0	0	46.2	1162.0	4.0%	1115.8
3W13	1	3	0	4	8.4	607.5	0	615.4	1233.8	49.9%	617.9
3W14	6	0	0	6	52.6	0	0	52.6	772.3	6.8%	719.7
3W15	8	2	0	8	43.405	32.4	0	75.8	1087.9	7.0%	1012.1
3W16	5	0	0	5	44.63%	0	0	44.6	1195.9	3.7%	1151.3
STATION 3 TOTALS	35	8	0	43	270.401	742.96	0	1013.4			

5


Installed Solar by Town and Total (kilowatts)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
83
205
1,407
204
358
729
851
2,135
4,709
Lynnfield
North Reading
Reading
Wilmington
Total Installed Solar in RMLD Service Area
Residential
Commercial
Wholesale

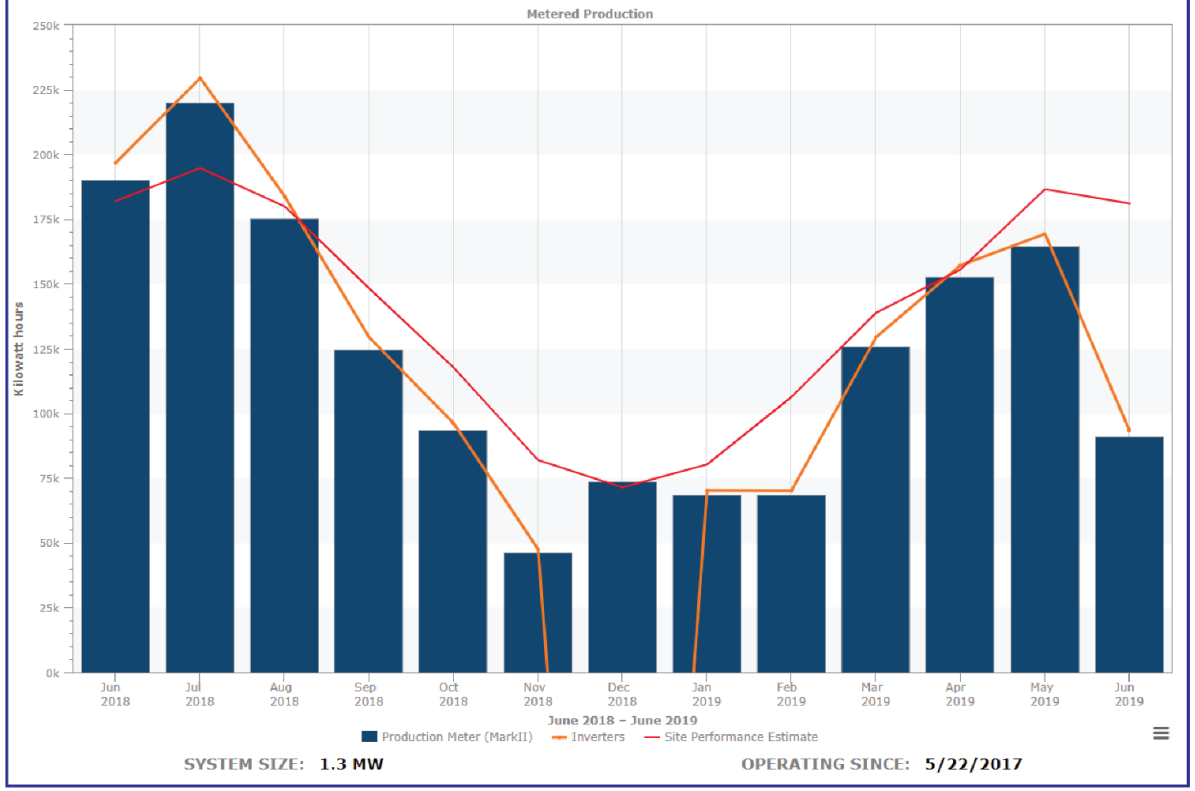
RMLD's Community Shared Solar Program, Solar Choice

Solar Choice Project 1 - 326 Ballardvale, Wilmington
Approximately 1 megawatt
500 participants

Solar Choice Arrays - One Year Production

Solar Choice is RMLD's Community Shared Solar Program. Over 1,000 customers are subscribed to participate in one or both Solar Choice Projects.

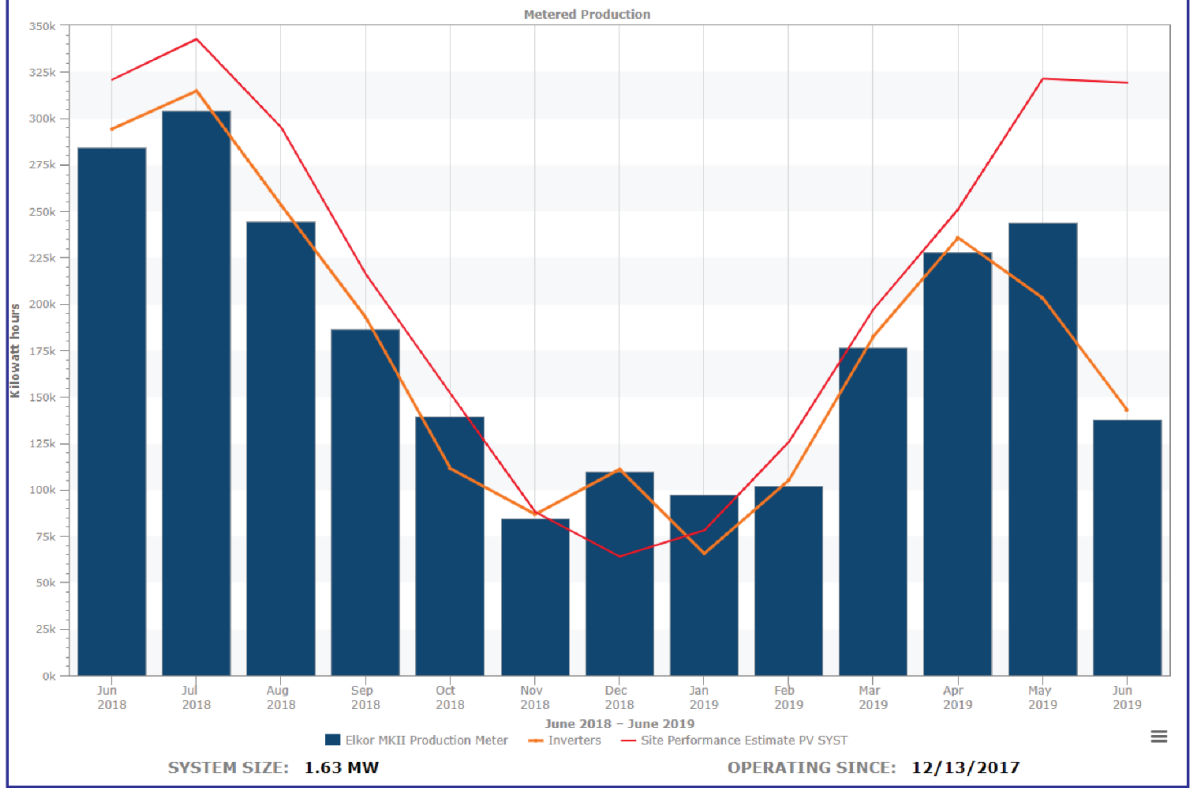
Solar Choice 1: 326 Ballardvale, Wilmington



SYSTEM SIZE: 1.3 MW

OPERATING SINCE: 5/22/2017

Solar Choice 2: 40-50 Fordham Rd, Wilmington



SYSTEM SIZE: 1.63 MW

OPERATING SINCE: 12/13/2017