

Public Works Department

Solar/Storage Summary and Forecast

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Existing Solar PV Systems

- ❖ Power Purchase Agreement (PPA) with AES Distributed Energy (Main Street Power)
- ❖ Regional Renewable Energy Project (R-REP)

PV PPA with SunPower in Progress

- ❖ PPA for 10 County facilities with SunPower

Solar/Energy Storage Resiliency Opportunities

- ❖ CEC Equity SGIP – 5 County facilities with SunPower
- ❖ MCE Resiliency Program

Existing Solar PV Systems

PPA w/AES (Main Street Power)

Project	Address	Type	Operation Date	System Size kW	Energy Produced (kWh)	Reduced CO2 Metric Tons
Main Street Power	4491 Bixler Rd, Byron	PPA	January-12	197	2,800,000	666
Main Street Power	12000 Marsh Creek Rd, Clay	PPA	February-12	144	2,170,000	516
Main Street Power	1750 Oak Park Blvd, Pleasant Hill	PPA	February-12	99	1,232,000	293
Main Street Power	2467 Waterbird Way, Martinez	PPA	January-12	78	1,050,000	250
Main Street Power	2475 Waterbird Way, Martinez	PPA	March-12	78	970,000	231
Main Street Power	5555 Giant Hwy, Richmond	PPA	January-13	900	9,530,000	2,265
Main Street Power	2530 Arnold Drive, Martinez	PPA	February-12	90	1,400,000	333
Main Street Power	4549 Delta Fair Blvd, Antioch	PPA	January-12	87	1,130,000	269
Main Street Power	4800 Imhoff Place, Martinez	PPA	January-12	323	4,610,000	1,096
Main Street Power	1305 MacDonald Ave, Richmond	PPA	December-11	48	609,000	145
Main Street Power	1650 Cavallo Rd, Antioch	PPA	December-11	42	531,000	126
Main Street Power	300 South 27th St, Richmond	PPA	November-12	51	632,000	150
			Totals	2,135	26,664,000	6,338

- ❖ Current price: \$0.21/kWh
- ❖ Annual 4% increase
- ❖ O&M included
- ❖ Pleasant Hill Library Buyout
Termination rate: \$3.44/Watt
- ❖ Excellent Monitoring System
- ❖ 9 years into 20 yr. agreement
- ❖ Micro-grid or battery storage opportunities?

Existing Solar PV Systems

Regional Renewable Energy Program (RREP)

Project	Address	Type	Operation Date	System Size kW	Energy Produced (kWh)	Reduced CO2 Metric Tons
R-REP	50 Glacier Dr, Martinez	County owned	August-15	214.2	857,305	204
R-REP	255 Glacier Dr, Martinez	County Owned	October-15	87.1	457,367	109
R-REP	1960 Muir Rd, Martinez	County Owned	August-15	388.7	1,879,250	447
R-REP	1980 Muir Rd, Martinez	County Owned	August-15	255.1	1,139,000	271
R-REP	202 Glacier Dr, Martinez	County Owned	October-15	457.7	1,990,010	473
R-REP	13601 San Pablo Ave, San Pablo	County Owned	December-15	363.7	1,836,000	436
			Totals	2,219	8,158,932	1,939

- ❖ Bankrupt Contractor SunEdison
- ❖ O&M Contract in place
- ❖ Inadequate monitoring
- ❖ 50 Glacier EOC system transferred to 1850 Muir requires new Interconnection Application w/PG&E
- ❖ PG&E requirement for Grid Interactive Inverters
- ❖ High penetration of solar, EV chargers – potential for a micro-grid (Grants)



PV PPA with SunPower in Progress

Project	Address	Type	Operation Date	System Size kW	EES Size kW/kWh
SunPower	1000 Ward St, Martinez	PPA	End 2020	342	500/950
SunPower	30 Muir Rd, Martinez	PPA	End 2020	166	
SunPower	50 Douglas Dr, Martinez	PPA	End 2020	566	
SunPower	597 Center Ave, Martinez	PPA	End 2020	121	
SunPower	595 Center Ave, Martinez	PPA	End 2020	352	
SunPower	2530 Arnold Dr, Martinez	PPA	End 2020	526	
SunPower	30 Douglas Dr, Martinez	PPA	End 2020	776	
SunPower	4549 Delta Fair BLVD, Antioch	PPA	End 2020	278	
SunPower	4545 Delta Fair BLVD, Antioch	PPA	End 2020	437	
SunPower	1305 MacDonald, Richmond	PPA	End 2020	282	
			TOTALS	3,846	

154 million kWh produced and 36,600 Metric Tons of CO2 reduced, \$16.5 million saved

- ❖ Advantageous rate: \$.134/kwh
- ❖ Rate fixed for duration of contract
- ❖ Rooftop and Carport
- ❖ Battery Storage at 3 locations
- ❖ Construction to begin in June
- ❖ Construction anticipated to be complete by end of 2020

Solar/Energy Storage Resiliency Opportunities

CEC Equity SGIP Storage Battery Grant with SunPower

Site	Storage Size (kW / kWh)	Year 1 Expected Savings (\$)	Guaranteed Savings (\$/Year)	15 Year Nominal Savings (\$)
1000 Ward	964 kWh increase	+\$7,700	+\$7,000	+\$132,800
1305 MacDonald Ave	182 kW / 928 kWh	\$7,100	\$7,000	\$123,000
4549 Delta Fair Blvd	184 kW / 928 kWh	\$8,800	\$8,500	\$152,000
4545 Delta Fair Blvd	163 kW / 928 kWh	\$13,700	\$7,574	\$238,000

– Amend existing PPA agreements to add storage if sites are allocated Equity SGIP incentive

*15 year nominal savings are base on a 2% degradation rate and 4% utility escalation rate

Site	Storage Size (kW / kWh)	Year 1 Expected Savings (\$)	Guaranteed Savings (\$/Year)	10 Year Nominal Savings (\$)
5555 Atlas	464kW / 1856kWh	\$74,000	\$43,600	\$805,200

- ❖ No cost to the County
- ❖ To be paired with solar
- ❖ Guaranteed Savings
- ❖ 4-hour battery discharge versus 2-hour
- ❖ SunPower has submitted applications

Solar/Energy Storage Resiliency Opportunities

MCE's Evolving Resiliency Program

- ❖ **County Library Solar/Storage Grant**
 - ❖ El Sobrante, Pinole, and Ygnacio Valley Libraries identified as potential sites
 - ❖ Focus on increasing resiliency and increased usefulness of selected public facilities
 - ❖ Significant benefit year-round optimizing use of renewable energy, reducing emissions, and reducing electricity demand and bills
- ❖ **New Larger Initiative under development**
 - ❖ MCE has indicated a desire to pursue a solar/storage project at a County library under a direct grant
 - ❖ Larger initiative to focus on MCE-owned storage assets that provide resiliency benefits for both customers and the grid
 - ❖ Assets controlled by comprehensive software platform

THANK YOU