

# SunPower Annual Performance Review

San Ramon Valley USD - 3,689 kWp

- Dougherty HS
- California HS
- Diablo Vista MS
- Monte Vista HS
- San Ramon Valley HS
- Gale Ranch MS

Will Stockton – Account Manager, O&M  
May 25<sup>th</sup>, 2016



# Agenda

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TIME	SUBJECT
15 MINUTES	<ul style="list-style-type: none"><li>• Operations &amp; Maintenance (O&amp;M) Services Overview</li><li>• O&amp;M Service Records</li></ul>
15 MINUTES	<ul style="list-style-type: none"><li>• Expected vs Actual System Production (kWh)</li><li>• Performance Index</li></ul>
10 MINUTES	<ul style="list-style-type: none"><li>• Proposal of Recommended Actions</li></ul>
10 MINUTES	<ul style="list-style-type: none"><li>• Q&amp;A</li></ul>
10 MINUTES	<ul style="list-style-type: none"><li>• SunPower Survey</li></ul>

# O&M Service Agreement Overview - Service Expectations

**Warranties:** Modules 25 Years, Inverters 10 Years, System 10 Years

**Service Level:** Performance Plus

**O&M Term:** 10 Years commencing on Substantial Completion Date

*Add'l Services: Annual Module Cleaning*

**Preventative Maintenance, Inspections & Testing:**

- Array
- Trackers
- Inverter
- Electrical BOS
- Meteorological Station
- Site Conditions
- Maintenance Reporting

**Corrective Maintenance :**

- On-site troubleshooting & diagnostics
- Inverter and Data Acquisition System resets
- Processing of warranty claims
- Management of repair and replacement
- Ongoing warranty support with manufacturers

System Service	Performance Monitoring	Performance Basic	Performance Plus
Customer Technical Support Hotline	✓	✓	✓
SunPower Performance Monitoring Website	✓	✓	✓
Performance Reports	Annual	Annual	Monthly
Daily Performance Monitoring and Notification	✓	✓	✓
Preventative Maintenance, Inspections & Testing		Annual	Annual
Performance Review			Annual
Corrective Maintenance			✓

# Recent O&M Services – Dougherty HS

Description	Status	Classification	Reported Date	Actual Finish
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	12/14/15 11:31 PM	12/26/15 11:06 PM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	12/14/15 11:32 PM	12/26/15 11:09 PM
Communications outage	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	2/4/16 7:00 AM	2/19/16 8:19 AM
Motor not controlled	QUEUED	OUTAGE \ PERFORMANCE \ FORCED	2/7/16 8:01 AM	
Possible faulty reference cell	INPROG	OUTAGE \ MONITORING \ SENSOR	3/7/16 2:54 AM	
MET Data Backfill	INPROG	REQUEST \ BACKFILL	3/20/16 10:08 PM	
Production Data Backfill	INPROG	REQUEST \ BACKFILL	3/20/16 10:09 PM	
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:10 PM	4/29/16 6:17 AM
Inverter 1B outage	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	4/25/16 5:53 PM	4/26/16 8:28 AM
Inverter 1B outage	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	5/18/16 12:50 AM	5/18/16 7:43 AM
Inverter 1B outage	CLOSED	OUTAGE \ PERFORMANCE \ FORCED	5/24/16 12:38 AM	5/24/16 8:15 AM

# Recent O&M Services – California HS

Description	Status	Classification	Reported Date	Actual Finish
DAS Outage	RESOLVED	OUTAGE \ MONITORING \ FORCED	2/3/16 11:59 AM	2/19/16 8:10 AM
Multiple Tracker Alert (Comms Issue)	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	2/5/16 8:17 AM	2/19/16 8:04 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	2/16/16 8:19 AM	2/17/16 6:03 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	2/16/16 8:19 AM	2/17/16 6:03 AM
Tracker issue	RESOLVED	OUTAGE \ MONITORING \ FORCED	4/20/16 10:00 AM	4/22/16 3:00 PM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:19 PM	4/28/16 3:28 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:20 PM	4/28/16 3:29 AM

# Recent O&M Services – Diablo Vista MS

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Description	Status	Classification	Reported Date	Actual Finish
CB Strings Need Torqueing / Two Fuses Missing	RESOLVED	CORRMANT \ WIRING	1/5/16 10:53 AM	5/18/16 5:01 PM
Module Mount Brackets Need Torqueing	RESOLVED	CORRMANT \ TRACKER	1/5/16 10:59 AM	5/18/16 5:04 PM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:24 PM	4/28/16 3:30 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:25 PM	4/28/16 3:30 AM

# Recent O&M Services – Monte Vista HS

Description	Status	Classification	Reported Date	Actual Finish
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	1/4/16 11:32 PM	1/6/16 12:50 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	1/4/16 11:33 PM	1/6/16 12:52 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	1/10/16 9:15 PM	1/12/16 12:51 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	1/10/16 9:16 PM	1/12/16 12:51 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	1/18/16 7:47 PM	1/21/16 12:11 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	1/18/16 7:48 PM	1/21/16 12:12 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	2/15/16 5:48 PM	2/17/16 6:08 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	2/15/16 5:49 PM	2/17/16 6:08 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	2/17/16 1:22 AM	2/19/16 1:38 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	2/17/16 1:23 AM	2/19/16 1:39 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	2/23/16 5:32 AM	2/25/16 2:53 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	2/23/16 5:33 AM	2/25/16 2:53 AM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	2/28/16 6:08 PM	3/1/16 5:17 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	2/28/16 6:08 PM	3/1/16 6:28 AM
Intermittent communication	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	4/19/16 4:46 AM	4/20/16 4:29 AM
Intermittent communication with MET	RESOLVED	OUTAGE \ MONITORING \ FORCED	4/21/16 6:06 AM	4/22/16 1:33 PM
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:33 PM	4/29/16 6:18 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:35 PM	4/29/16 6:18 AM
Inverter 1C ION meter possible blown fuse	INPROG	OUTAGE \ PERFORMANCE \ FORCED	5/24/16 11:41 AM	

# Recent O&M Services – San Ramon Valley HS

Description	Status	Classification	Reported Date	Actual Finish
Inverter 04 - Inverter Outage	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	11/9/15 11:44 AM	1/20/16 11:08 AM
String A3 Troubleshooting	RESOLVED	CORRMANT \ WIRING	12/15/15 1:07 PM	4/22/16 3:04 PM
Inverter 1 Outage	RESOLVED	OUTAGE \ PERFORMANCE \ FORCED	1/18/16 2:37 PM	1/25/16 2:33 PM
MET Data Backfill	INPROG	REQUEST \ BACKFILL	3/20/16 10:23 PM	
Production Data Backfill	INPROG	REQUEST \ BACKFILL	3/20/16 10:24 PM	
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/25/16 5:42 PM	4/29/16 6:19 AM

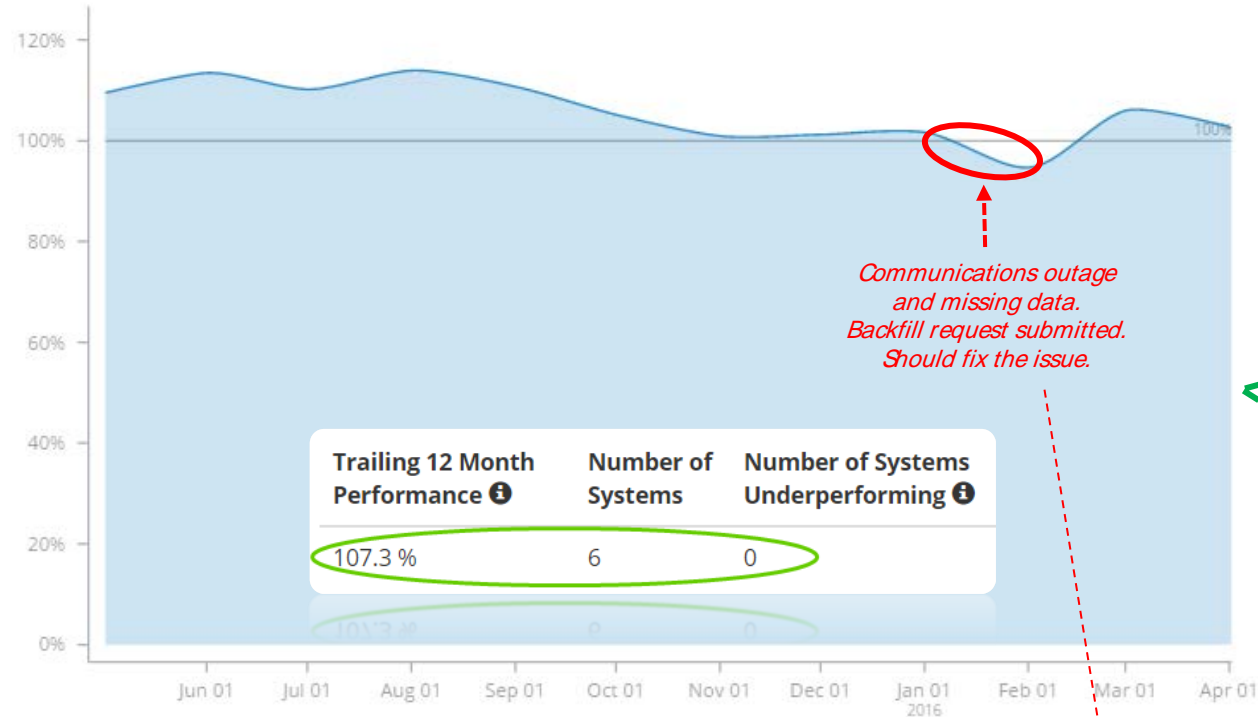


# Recent O&M Services – Gale Ranch MS

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Description	Status	Classification	Reported Date	Actual Finish
MET Data Backfill	CLOSED	REQUEST \ BACKFILL	4/28/16 3:37 PM	5/3/16 9:10 AM
Production Data Backfill	CLOSED	REQUEST \ BACKFILL	4/28/16 3:38 PM	5/3/16 9:11 AM

# TTM Portfolio Performance Review



Portfolio Average = **107.3%**

Site	2015/05	2015/06	2015/07	2015/08	2015/09	2015/10	2015/11	2015/12	2016/01	2016/02	2016/03	2016/04	Total [%]	Last 7 Days [%]
San Ramon Valley USD - Dougherty HS	113.4	118.7	114.1	117.4	111.3	103.1	95.3	99.9	103.9	103.6	108.6	107.4	110.0	113.1
San Ramon Valley USD -- California HS	105.7	107.9	106.4	109.5	109.4	103.6	99.4	98.8	97.7	59.2	101.5	99.3	101.6	105.3
San Ramon Valley USD - Diablo Vista MS	108.1	113.5	111.3	111.4	107.5	115.1	111.0	103.1	104.3	108.9	107.7	102.8	109.3	110.2
San Ramon Valley USD - Monte Vista HS	111.4	117.3	110.8	120.6	114.1	110.9	112.3	109.4	106.5	107.2	109.1	108.2	112.3	106.3
San Ramon Valley USD - San Ramon Valley HS	104.1	105.1	105.2	103.0	106.3	100.2	88.7	89.3	88.7	96.8	100.8	98.4	100.8	103.1
San Ramon Valley USD - Gale Ranch MS	111.4	112.8	112.7	113.9	110.8	97.1	105.3	108.3	109.5	108.0	107.8	80.8	106.7	108.1

# Performance Review

	Dougherty HS	California HS	Diablo Vista MS	Monte Vista HS	San Ramon Valley HS	Gale Ranch MS
Actual vs Expected Production (kWh)	1,762,221 vs 1,603,173	1,263,585 vs 1,245,485	442,870 vs 404,857	1,548,268 vs 1,380,012	736,281 vs 732,008	411,274 vs 386,456
System Availability	93.3%*	99.9%	99.9%	99.8%	99.5%	99.9%
Performance Index	110%	101.6%	109.3%	112.3%	100.8%	106.7%
Last 7 Days	113.1%	105.3%	110.2%	106.3%	103.1%	108.1%
Proposed Recommended Actions	<ol style="list-style-type: none"> <li>1. Closely monitor inverter availability</li> <li>2. Timing of module cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. Expedite and track backfill request</li> <li>2. Timing of module cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. Timing of module cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. Timing of module cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. Closely monitor inverter availability</li> <li>2. Timing of module cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. Track backfill request for April</li> <li>2. Timing of module cleaning</li> </ol>

Average = **107.3%**

\*99.9% - YTD

# SunPower O&M Service Escalation Process

Order	Who	Service Need
1	SunPower Command Center <b>800-251-9728</b> <a href="mailto:customer.service@sunpower.com">customer.service@sunpower.com</a>	Our command center is the first point of contact for any and all SunPower related matters; they are available 24x7.  Please report all scheduled outages to the Command Center
2	Cesar Cabrera – Sr. Area Supervisor, NorCal 510-778-4049 <a href="mailto:Joe.diette@sunpower.com">Joe.diette@sunpower.com</a>	Cesar Cabrera is the NorCal Area Supervisor. You can contact Cesar to address any and all service matters for your array.
3	Neil Bautista – Sr. Manager, Operations & Maintenance, West Region 510-439-4663 <a href="mailto:Wayne.webb@sunpower.com">Wayne.webb@sunpower.com</a>	Neil Bautista oversees all service delivery in the West Region for Distributed Generation/Commercial solar systems. You may escalate any and all service related concerns to Neil.
4	Will Stockton – Account Manager, Customer Operations 510-439-4746 <a href="mailto:William.stockton@sunpower.com">William.stockton@sunpower.com</a>	Please contact Will Stockton for any concerns that need to be escalated beyond the service team.
*	Ruth Toribio – O&M Billing Analyst <a href="mailto:Ruth.toribio@sunpower.com">Ruth.toribio@sunpower.com</a>	Please contact Ruth Toribio for all billing inquiries.

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# Q&A

# Annual Business Review Survey

## SunPower Survey Questions

## Measurement

How satisfied have you been with the following aspects of support under a SunPower O&M contract?

Timeliness of scheduled maintenance and planned downtime

0-10 scale

Coordination of onsite maintenance

0-10 scale

Professionalism of SunPower or subcontracted maintenance personnel

0-10 scale

Clarity of reports or notifications of completed work

0-10 scale

Proactive notification of unplanned downtime

0-10 scale

Timely resolution to unplanned downtime

0-10 scale

Frequency of Energy Production Performance reports

0-10 scale

Quality and clarity of Energy Production Performance reports

0-10 scale

Ease of checking individual system performance in real time

0-10 scale

Does your company regularly evaluate return on investment of your SunPower system?

Yes/No

If yes, do you have all relevant information needed from SunPower to easily perform this analysis?

Yes/No

How well has your SunPower system performed compared to your expectations?

0-10 scale

How satisfied are you with the overall return on investment of your SunPower system?

0-10 scale

How satisfied are you with the SMS Customer Website, sunpowermonitor.com?

0-10 scale

What is working well in the relationship with SunPower?

2-3 examples

How can SunPower improve?

2-3 examples

How likely are you to recommend SunPower to others?

0-10 scale

How likely would you be to renew your service agreement at the end of the current term?

0-10 scale

Is there anything else that you'd like to share with us?

Comments

# Thank You

Let's change the way our world is powered.