SUNPOWER®

Monthly Performance Report

Marin CCD Indian Valley - M1724

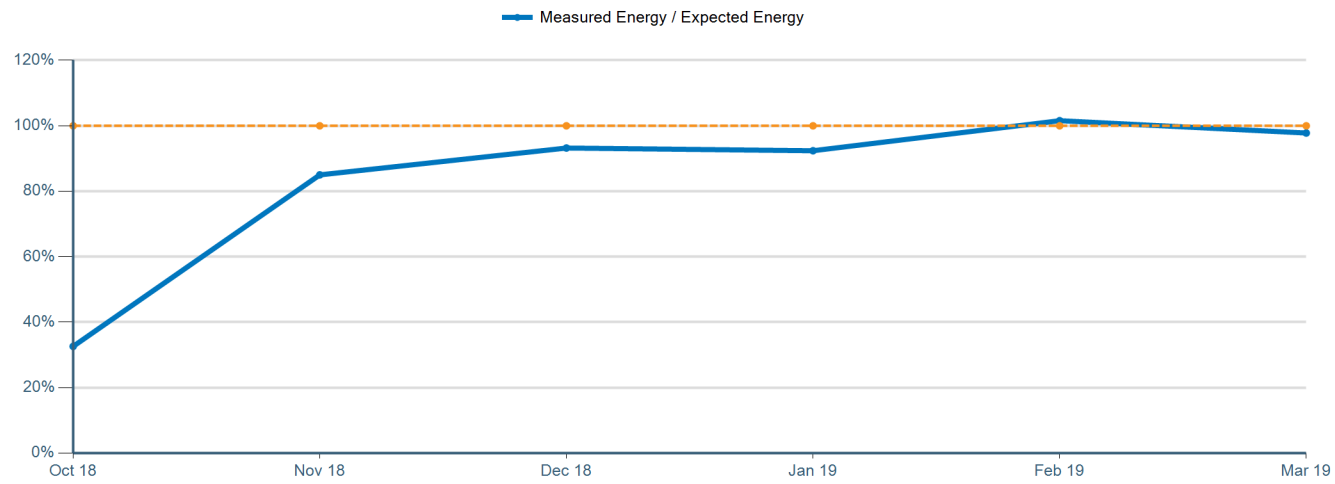
March 2019

System Performance

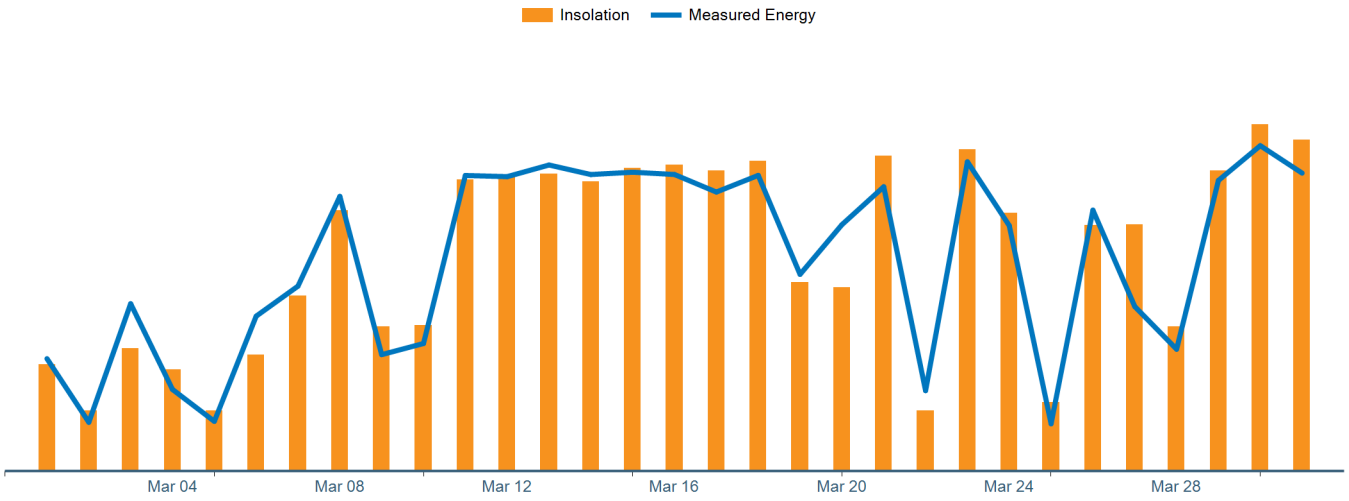
	Measured Energy	Availability	(Typical Year Energy	X	Weather Adjustment)	= Expected Energy	Measured Energy / Expected Energy
Current Month	123,521	100.0%	141,511		89%	126,306	**98%**
Trailing Year	433,840	98.6%	546,798		98%	534,818	**81%**

Notes:

Monthly Performance



Daily Performance



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Weather	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Trailing Year
Insolation	4.24	2.79	1.91	1.97	2.57	4.07	2.91
Temperature	15.4	12.4	9.2	9.8	7.8	9.9	10.7
Wind Speed	4.5	4.2	4.8	4.9	6.6	4.8	4.9

Performance	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Trailing Year
Measured Energy	37,093	76,341	59,832	60,029	77,025	123,521	433,840
Typical Year Energy	101,444	84,806	63,714	67,887	87,436	141,511	546,798
Weather Adjustment	112%	106%	101%	96%	87%	89%	98%
Expected Energy	113,701	89,801	64,191	64,977	75,843	126,306	534,818
Measured Energy / Expected Energy	33%	85%	93%	92%	102%	98%	81%

Inverter Energy	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Trailing Year
A01 C01 INV01						158	927	1,705	1,379	1,318	1,692	2,688	9,869
A01 C01 INV02						146	939	1,715	1,356	1,317	1,697	2,684	9,855
A01 C01 INV03						149	950	1,695	1,236	1,276	1,714	2,677	9,698
A01 C01 INV04						150	944	1,655	1,153	1,226	1,708	2,689	9,526
A01 C01 INV05						160	930	1,594	1,118	1,186	1,684	2,688	9,359
A01 C02 INV01						157	894	1,585	1,193	1,206	1,643	2,660	9,338
A01 C02 INV02						156	816	1,642	1,319	1,267	1,646	2,674	9,521
A01 C02 INV03						149	902	1,688	1,396	1,318	1,669	2,667	9,789
A01 C02 INV04						159	924	1,724	1,446	1,351	1,697	2,682	9,984
A01 C02 INV05						151	835	1,719	1,436	1,344	1,682	2,644	9,811
A01 C03 INV01						74	477	899	758	710	883	1,369	5,169
A01 C03 INV02						146	944	1,770	1,495	1,403	1,738	2,678	10,174
A01 C03 INV03						149	946	1,781	1,495	1,407	1,740	2,702	10,220
A01 C03 INV04						148	944	1,780	1,493	1,405	1,742	2,709	10,220
A01 C03 INV05						148	947	1,776	1,497	1,406	1,738	2,700	10,213
A01 C04 INV01						71	454	819	635	630	844	1,331	4,783
A01 C04 INV02						139	912	1,658	1,330	1,286	1,680	2,671	9,676
A01 C04 INV03						152	919	1,682	1,390	1,318	1,687	2,682	9,829

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A01 C04 INV04						153	923	1,697	1,413	1,331	1,696	2,702	9,915
A01 C04 INV05						154	916	1,673	1,354	1,309	1,688	2,682	9,775
A01 C05 INV01						78	478	892	736	701	888	1,368	5,140
A01 C05 INV02						145	950	1,767	1,459	1,387	1,739	2,688	10,135
A01 C05 INV03						103	939	1,759	1,461	1,384	1,733	2,683	10,063
A01 C05 INV04						120	784	1,472	1,447	1,390	1,729	2,673	9,613
A01 C06 INV01						155	897	1,683	1,395	1,324	1,676	2,635	9,765
A01 C06 INV02						154	917	1,717	1,414	1,349	1,712	2,666	9,928
A01 C06 INV03						147	937	1,745	1,420	1,370	1,736	2,699	10,054
A01 C07 INV01						73	481	904	762	714	887	1,364	5,185
A01 C07 INV02						121	797	1,498	1,483	1,426	1,758	2,701	9,785
A01 C07 INV03						157	947	1,781	1,498	1,414	1,751	2,697	10,244
A01 C07 INV04						128	944	1,748	1,474	1,391	1,729	2,660	10,074
A01 C07 INV05						127	943	1,754	1,468	1,391	1,728	2,676	10,087
A01 C07 INV06						126	923	1,718	1,428	1,359	1,701	2,641	9,896
A01 C08 INV01						71	472	875	715	682	876	1,362	5,053
A01 C08 INV02						137	931	1,727	1,411	1,346	1,721	2,673	9,945
A01 C08 INV03						159	933	1,738	1,404	1,359	1,728	2,683	10,003
A01 C08 INV04						148	823	1,674	1,325	1,319	1,678	2,629	9,596
A01 C08 INV05						146	767	1,561	1,231	1,239	1,583	2,515	9,043
A01 C09 INV01						59	475	892	752	707	878	1,364	5,127
A01 C09 INV02						120	779	1,477	1,457	1,393	1,729	2,673	9,628
A01 C09 INV03						153	938	1,771	1,495	1,397	1,725	2,663	10,142
Total						**5,498**	**34,496**	**64,410**	**53,126**	**51,057**	**64,951**	**101,690**	**375,228**

Availability	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Trailing Year
A01 C01 INV01	-	-	-	-	-	4.6%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C01 INV02	-	-	-	-	-	4.2%	66.7%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C01 INV03	-	-	-	-	-	4.3%	66.9%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C01 INV04	-	-	-	-	-	4.3%	66.9%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C01 INV05	-	-	-	-	-	4.6%	66.7%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%

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A01 C02 INV01	-	-	-	-	-	4.6%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C02 INV02	-	-	-	-	-	4.5%	61.2%	100.0%	100.0%	99.9%	100.0%	100.0%	77.7%
A01 C02 INV03	-	-	-	-	-	4.4%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C02 INV04	-	-	-	-	-	4.6%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C02 INV05	-	-	-	-	-	4.5%	61.2%	100.0%	100.0%	99.9%	100.0%	100.0%	77.7%
A01 C03 INV01	-	-	-	-	-	4.4%	66.8%	100.0%	99.9%	100.0%	100.0%	100.0%	78.2%
A01 C03 INV02	-	-	-	-	-	4.3%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C03 INV03	-	-	-	-	-	4.4%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C03 INV04	-	-	-	-	-	4.4%	66.7%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C03 INV05	-	-	-	-	-	4.3%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C04 INV01	-	-	-	-	-	4.2%	66.8%	100.0%	99.9%	99.9%	100.0%	100.0%	78.2%
A01 C04 INV02	-	-	-	-	-	4.2%	66.9%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C04 INV03	-	-	-	-	-	4.5%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C04 INV04	-	-	-	-	-	4.5%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C04 INV05	-	-	-	-	-	4.5%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C05 INV01	-	-	-	-	-	4.6%	66.7%	100.0%	99.9%	100.0%	100.0%	100.0%	78.2%
A01 C05 INV02	-	-	-	-	-	4.3%	67.1%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C05 INV03	-	-	-	-	-	3.2%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C05 INV04	-	-	-	-	-	4.2%	66.7%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C06 INV01	-	-	-	-	-	4.6%	67.0%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C06 INV02	-	-	-	-	-	4.5%	66.7%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C06 INV03	-	-	-	-	-	4.2%	66.8%	100.0%	100.0%	100.0%	100.0%	100.0%	78.2%
A01 C07 INV01	-	-	-	-	-	4.2%	66.8%	100.0%	99.9%	99.9%	100.0%	100.0%	78.2%
A01 C07 INV02	-	-	-	-	-	4.2%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C07 INV03	-	-	-	-	-	4.5%	66.6%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C07 INV04	-	-	-	-	-	4.0%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C07 INV05	-	-	-	-	-	4.0%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C07 INV06	-	-	-	-	-	4.0%	66.7%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C08 INV01	-	-	-	-	-	4.1%	66.8%	100.0%	99.9%	99.9%	100.0%	100.0%	78.2%
A01 C08 INV02	-	-	-	-	-	4.0%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C08 INV03	-	-	-	-	-	4.6%	66.9%	100.0%	100.0%	99.9%	100.0%	100.0%	78.3%

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A01 C08 INV04	-	-	-	-	-	4.4%	61.3%	100.0%	100.0%	99.9%	100.0%	100.0%	77.7%
A01 C08 INV05	-	-	-	-	-	4.6%	60.3%	100.0%	99.9%	100.0%	100.0%	100.0%	77.6%
A01 C09 INV01	-	-	-	-	-	3.6%	66.8%	100.0%	99.9%	100.0%	100.0%	100.0%	78.2%
A01 C09 INV02	-	-	-	-	-	4.3%	66.4%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
A01 C09 INV03	-	-	-	-	-	4.5%	66.8%	100.0%	100.0%	99.9%	100.0%	100.0%	78.2%
Total	**-**	**-**	**-**	**-**	**-**	**4.3%**	**66.2%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**78.2%**

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Daily Summary

Date	Measured Energy	Insolation	Temperature	Wind Speed	Availability
03/01/2019*	2,117	2.00	8.8	3.8	100.00%
03/02/2019*	918	1.14	10.4	4.2	100.00%
03/03/2019*	3,155	2.31	10.8	4.4	100.00%
03/04/2019*	1,537	1.91	10.0	3.3	100.00%
03/05/2019*	936	1.14	9.6	6.0	100.00%
03/06/2019*	2,919	2.19	10.3	8.1	100.00%
03/07/2019*	3,487	3.30	7.7	6.1	100.00%
03/08/2019*	5,179	4.91	6.8	7.8	100.00%
03/09/2019*	2,194	2.73	7.2	5.4	100.00%
03/10/2019*	2,404	2.74	7.6	4.0	100.00%
03/11/2019*	5,573	5.49	8.4	4.9	100.00%
03/12/2019*	5,551	5.54	8.2	8.7	100.00%
03/13/2019*	5,771	5.60	8.0	5.1	100.00%
03/14/2019*	5,591	5.46	9.0	3.3	100.00%
03/15/2019*	5,635	5.71	10.1	3.0	100.00%
03/16/2019*	5,592	5.77	11.2	2.9	100.00%
03/17/2019*	5,261	5.67	12.8	3.3	100.00%
03/18/2019*	5,575	5.84	13.5	4.3	100.00%
03/19/2019*	3,708	3.56	12.5	4.3	100.00%
03/20/2019*	4,645	3.46	10.1	5.7	100.00%
03/21/2019*	5,361	5.94	9.3	3.5	100.00%
03/22/2019*	1,515	1.14	9.2	5.1	100.00%
03/23/2019*	5,831	6.06	9.3	5.8	100.00%
03/24/2019*	4,627	4.86	10.1	3.4	100.00%
03/25/2019*	890	1.29	10.6	5.6	100.00%
03/26/2019*	4,920	4.63	10.5	2.3	100.00%
03/27/2019*	3,101	4.64	10.8	6.3	100.00%
03/28/2019*	2,296	2.72	9.8	5.4	100.00%
03/29/2019*	5,480	5.66	10.0	4.7	100.00%
03/30/2019*	6,136	6.53	11.0	4.4	100.00%
03/31/2019*	5,618	6.24	13.1	3.6	100.00%
Total	**123,521**	**4.07**	**9.9**	**4.8**	**100%**

*Uses satellite data for Insolation, Temperature, and Wind Speed

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Maintenance Summary

Reported Date	Ticket ID	Finish Date	Classification	Work Order Summary
03/12/2019	EB982690		PREVMAINT \ CLEANING \ MODULE	SOLAR MAID, Annual Module Cleaning PM for M1724
10/24/2018	EB932326	01/15/2019	TS-ONSITE	SPB08_INV05 (SN 191257169) outage
10/24/2018	EB932325	01/15/2019	TS-ONSITE	SPB09_INV02 (SN 191257824) is low performing
10/24/2018	EB932324	01/15/2019	TS-ONSITE	SPB07_INV02 (SN 191257141) is low performing
10/24/2018	EB932323	01/15/2019	TS-ONSITE	SPB05_INV04 (SN 191257193) is low performing
03/21/2018	EB842579	12/04/2018	COMMISSIONING	Cx - M1724 Marin CCD Indian Valley

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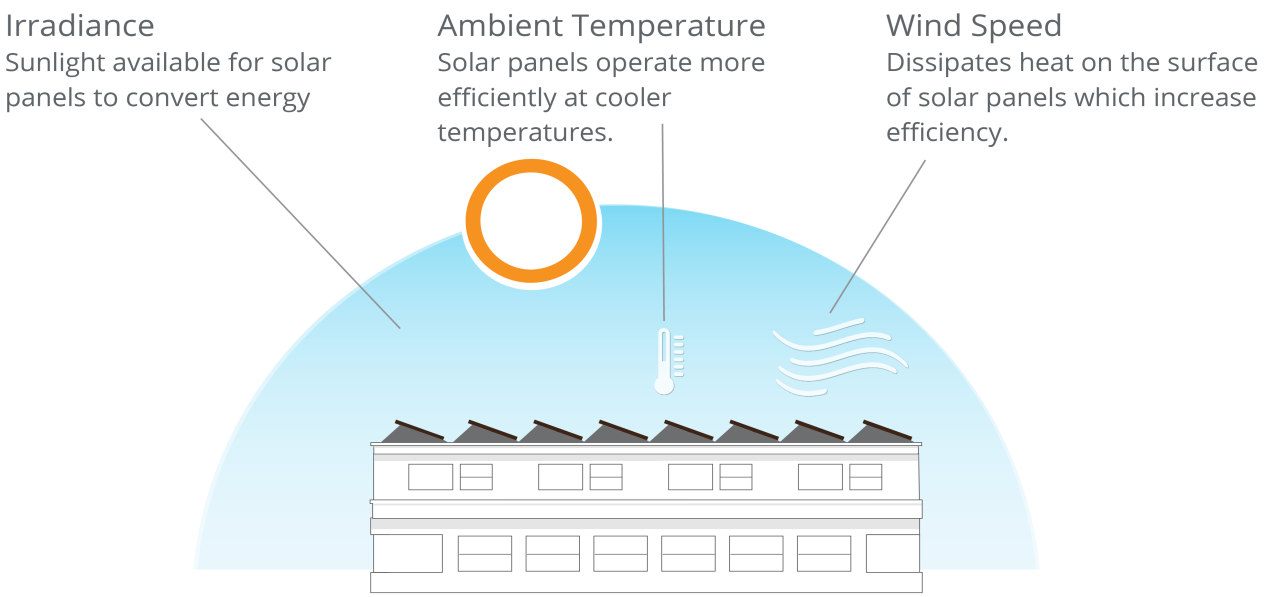
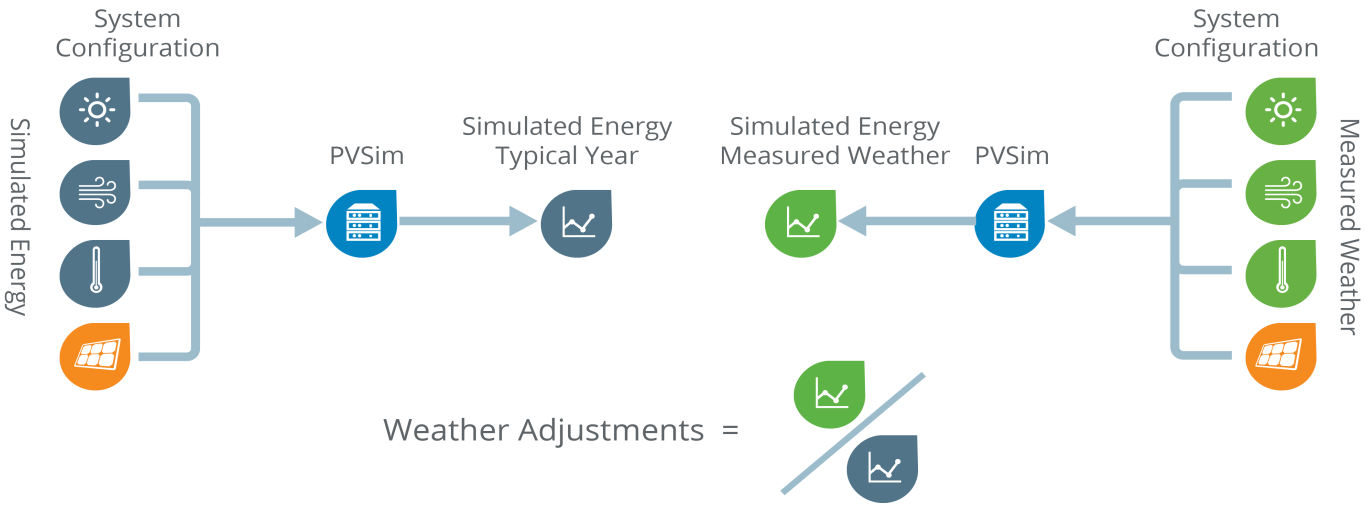
Weather Adjustments Explained



SUNPOWER PVSIM

PVSim is a software package developed by SunPower to simulate the energy produced by a solar system. The module inputs are the system configuration and the above weather parameters.

The Measured Energy produced by a solar system varies from year to year based on weather conditions. Before a project is built Simulated Energy in a Typical Year is determined using historical weather data. Once the system is operational the Expected Energy is determined using a Weather Adjustment, which is the ratio between Simulated Energy in a Typical Year and the Simulated Energy using Measured Weather.



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