Control Number: 39175

Item Number: 1

Addendum StartPage: 0

39175

Certification Form for Renewable Energy Credit Generators

Information about Generating Unit(s)

1.	Facility Name or Description	Newman Solar PV #1
2.	Street Address or Legal Geographical Location	4900 Stan Roberts, El Paso, Texas 79934
3.	Name of Owner	El Paso Electric Company
4.	Owner PUC Registration (*for Subst. Rule §25.109*)	N/A
5.	On-site Contact Person (if applicable)	Newman Plant Manager - William Byrd
6.	On-site Telephone Number (if applicable)	915-543-2922
7.	Type of Renewable Generating Technology	☐ Biomass ☐ Hydroelectric ☑ Solar ☐ Wind ☐ Other (specify):
8.	Fossil Fuels Used (*if any*)	
9.	TNRCC Air Permit Number (*if any*)	
10.	Meters (*ISO Numbers or Other Identifiers*)	1104904443
11.	Percentage to be Subtracted from Annual Metered Generation	-
12.	Metered Generation Eligible for Renewable Energy Credits (in MW)	.0756MW (75.6KW)

1

13.	Please complete the following for each generating unit operating at this facility. Include additional pages as necessary. For sites with large numbers of individual units, complete the attachment entitled "List of Generating Units at Facility" and enter "See attached list" in the first three blanks of this section. For older units upgraded and repowered after Sept. 1999, include one page describing the unit before the upgrade, and another page describing the incremental addition to capacity resulting from the upgrade.		
	Manufacturer	Schuco	
	Serial Number(s)	Various	
	Date Commercial Operation Began / Will Begin	December 11, 2009	
	Total Rated Nameplate Capacity	75.6KW (DC)	
	Is this a fossil fuel unit that has been or will be repowered to use a renewable fuel?		**Yes** ☐ **No** ☑
	Is this unit developed as part of an emissions reduction project described in Health and Safety Code §382.05193, that is being used to satisfy the permit requirements in Health and Safety Code §382.0519?		**Yes** ☐ **No** ☑
	If the generating unit is owned by or under contract to a utility, an electric cooperative, municipally-owned utility, competitive retailer, or river authority, is any portion of this unit's above-market costs included in the rates of any utility, municipally owned utility or distribution cooperative through base rates, a power cost recovery factor, stranded cost recovery mechanism or any other fixed or variable rate element charged to end users? If the answer is "yes" at the date this application is filed, state the date when the answer would become "no." Provide documentation to support this change of status.		**Yes** ☐ **No** ☑ **Date**____ _____
	Does this unit qualify for Renewable Energy Credit Offsets?		**Yes** ☐ **No** ☑

Name, Mailing Address and Telephone of Generating Facility Owner

El Paso Electric Co, P O Box 982 El Paso, Tx 79960,Tel# 915-543-2040

Name, Mailing Address and Telephone of Owner's Designated Representative

Ricardo Acosta, El Paso Electric Co., P O Box 982 El Paso, Tx 79960,Tel # 915-543-2040

Name, Mailing Address and Telephone of Alternate Representative

Yasser Murga, El Paso Electric Co, P O Box 982, El Paso, Tx 79960, Tel# 915-543-4172

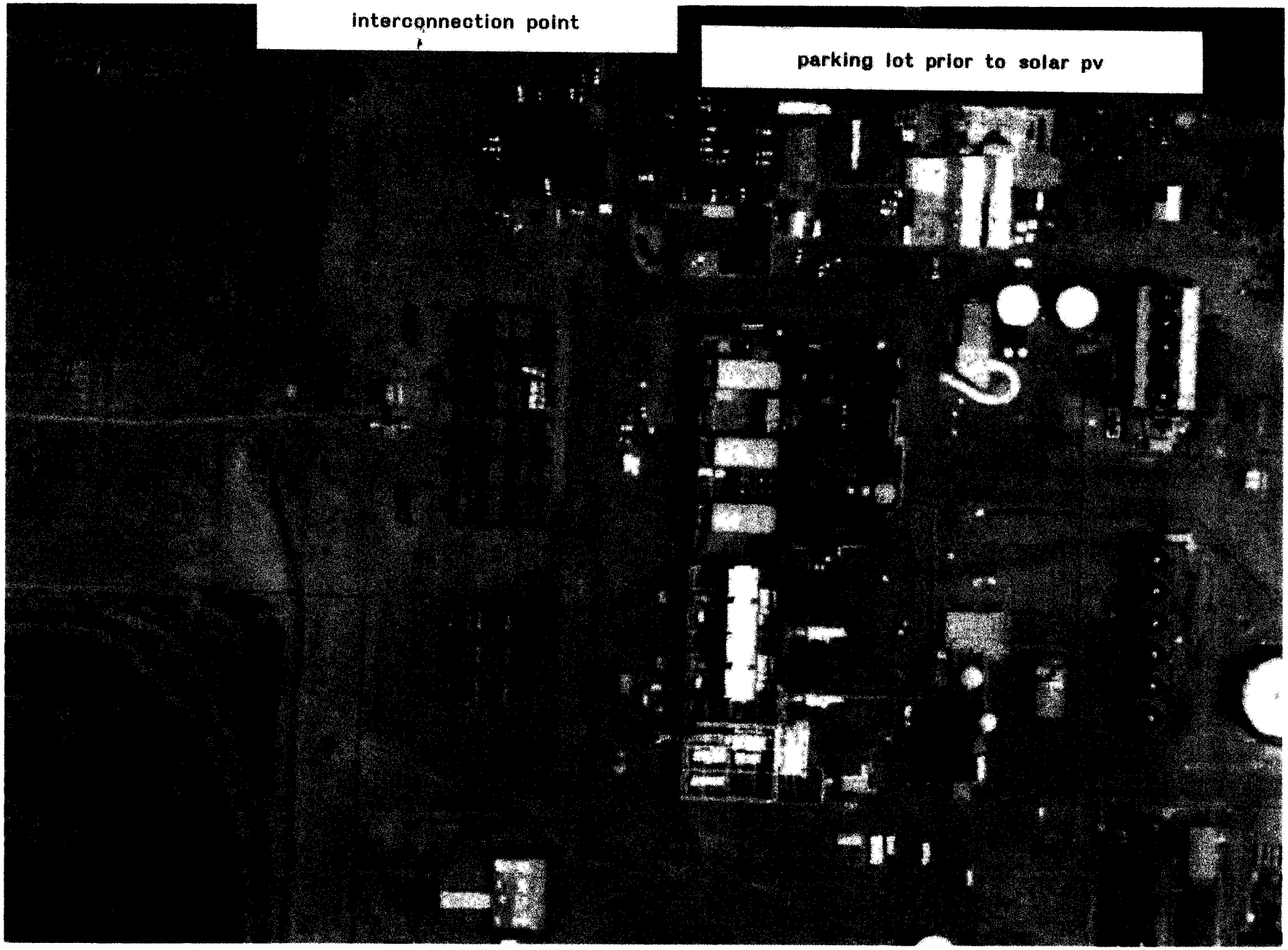
I certify that I have reviewed and will comply with the provisions in Section 14, "Renewable Energy Credit Trading Program" of the ERCOT Protocols. I certify that the information presented in this Certification Form is correct. I further certify that the generating facility owner (or designated representative) shall inform the Project Administrator of any change that renders the information contained in this certification obsolete, and that such notification will be provided in writing no later than 30 days after the change is discovered by the owner.

Ricardo Acosta 2/18/11

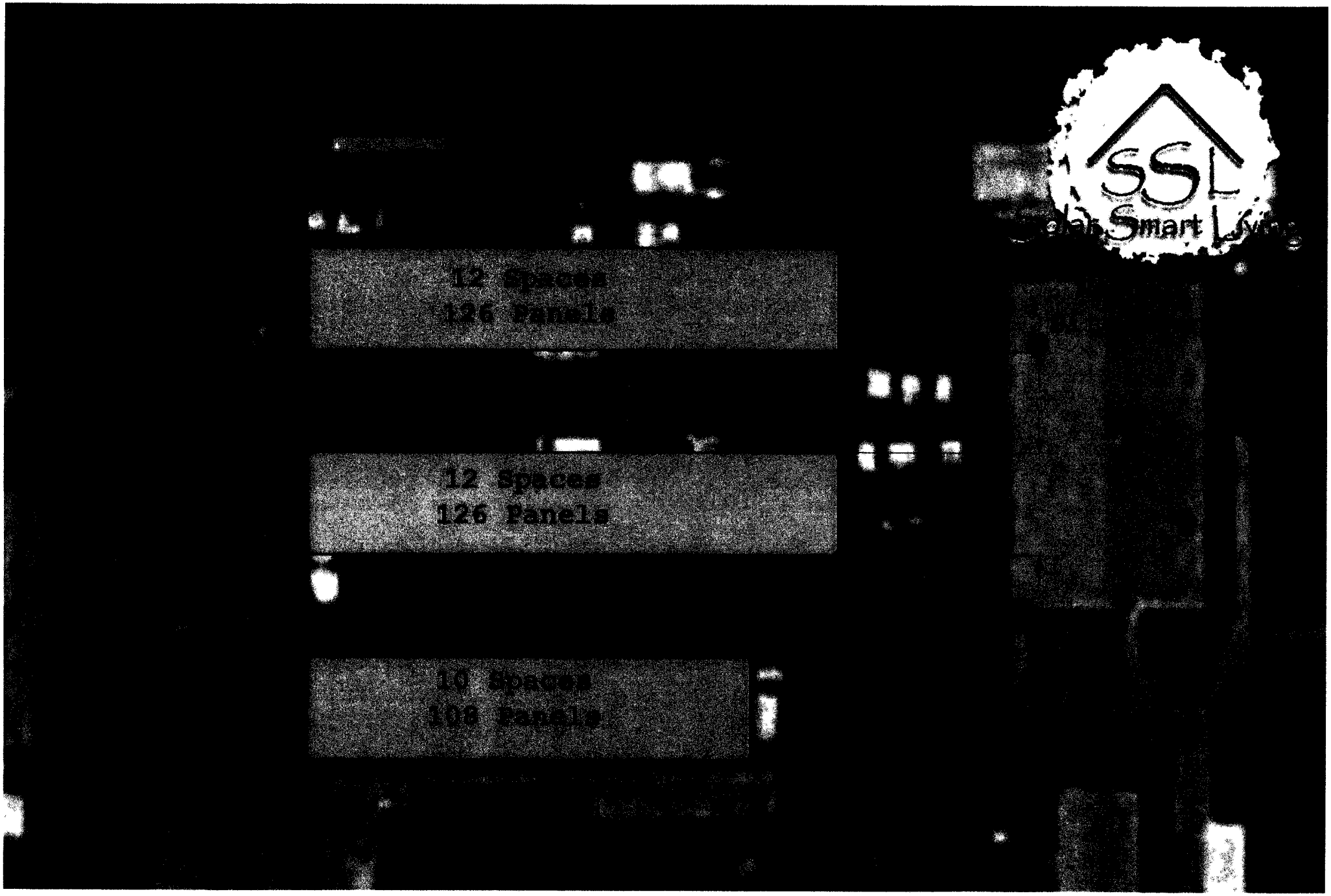
Owner of Generating Facility or Designated Representative **Date**

List of Generating Units at Facility

Manufacturer and Make	Serial Number(s)	Date Commercial Operation Began/Begins	Capacity per Unit (in MW)	Number of Units	Capacity (in MW)
Schuco SMAU-1 Series	Various	Dec 11, 2009	.0756 (75.6 KW)	1	.0756 (75.6KW)



From pdnmapa.org


12 Spaces
126 Panels
12 Spaces
126 Panels
10 Spaces
108 Panels
SSL
Smart

	MAXIMUM OUTPUT
AC Capacity Rating:	45,648
DC Capacity Rating:	54,432

Address 4900 Stan Roberts (Newman)

Reading Date	Generation (kWh)	Net (kWh)	Capacity Factor Based on AC Max Output	Capacity Factor Based on DC Max Output
12/10/2010	**0**		**ON-LINE DATE**	
12/31/209	5,322	5,322	**(21-days of generation)**	
1/31/2010	13,338	8,016		
2/25/2010	20,670	7,332	16.06%	13.47%
3/25/2010	31,130	10,460	22.91%	19.22%
4/30/2010	47,063	15,933	34.90%	29.27%
5/28/2010	61,334	14,271	31.26%	26.22%
6/29/2010	75,936	14,602	31.99%	26.83%
7/29/2010	87,460	11,524	25.25%	21.17%
8/30/2010	442	12,981	28.44%	23.85%
9/30/2010	12,384	11,942	26.16%	21.94%
Oct 2009 – Sept 2010		112,383 KWh		
Average Capacity Factor:			**28.62%**	**24.00%**

8549 N Desert Blvd Suite B
El Paso, TX 79912
915-581-8209
info@solarsmartliving.com

Solar Electric system inspection

Solar Smart Living

Invest in Your Energy Future

DATE: JUNE 14TH, 2010

Attention:
El Paso Electric
Monica Garcia
100 N. Stanton, El Paso, Texas 79901.

Purpose:

Solar Smart Living, LLC has performed a 6 month physical inspection and production calculation of the Solar carport systems installed at the Rio Grande and the Newman power plant and commissioned on 12/11/2009. The purpose of the physical inspection is to initiate the preventive maintenance program in order to identify possible areas of concern regarding functionality, performance and safety, then correct them or write maintenance recommendations to EPE as appropriate.

Solar carports at Rio Grande power plant

Site address: 3501 Doniphan Dr, Sunland Park, NM
Date of inspection: June 9th, 2010
Time: 9:50 AM
Weather: Sunny, 82 F
SSL Engineer: Roger Aranda

Solar system size: 75.6 KW STC

Subsystems:

Inverter #1 – 60 panels, 12.6 KW

Inverter #2 – 60 panels, 12.6 KW

Inverter #3 – 60 panels, 12.6 KW

Inverter #4 – 60 panels, 12.6 KW

Inverter #5 – 60 panels, 12.6 KW

Inverter #6 – 60 panels, 12.6 KW

Inverter ID	# of Modules	Rated power [KW] at STC conditions	Expected yearly Output [Kwh]	Expected production to date [kwh]	Actual cumulative production to date [kwh]
Inverter #1 –	60 modules	12.6 KW	21,487	10,548	10,700
Inverter #2	60 modules	12.6 KW	21,487	10,548	10,600
Inverter #3	60 modules	12.6 KW	21,487	10,548	10,400
Inverter #4	60 modules	12.6 KW	21,487	10,548	10,600
Inverter #5	60 modules	12.6 KW	21,487	10,548	10,600
Inverter #6	60 modules	12.6 KW	21,487	10,548	10,600
Total	**360 modules**	**75.6 KW**	**128,920**	**63,288**	**63,500**

Readings of cumulative production are based on Inverter stored data rounded to the closest hundred kWhr. A more accurate total production is as reported by the meter having the total production from all inverters shown as 63,806 (from screen #2)

Instantaneous power generated by each inverter was recorded and analyzed to compare with the expected theoretical value under the specific current conditions of the system. The data collected can be summarized as follows:

Inverter ID	Irradiance value at test	Module temp at test, F	Soiling factor assumed	Total instantanous derrating factor calculated	Theoretical Watts generated under test conditions	Actual Watts generated under test conditions	Ratio Actual vs. expected
Inverter # 1	695	128	0.9	0.54	6,795	7,122	105 %
Inverter # 2	676	131	0.9	0.52	6,603	7,107	108 %
Inverter #3	709	128	0.9	0.55	6,925	6,996	101 %
Inverter # 4	727	130	0.9	0.56	7,106	7,176	101%
Inverter #5	756	125	0.9	0.60	7,536	7,529	99.9 %
Inverter #6	743	133	0.9	0.59	7,407	7,476	101 %

Conclusions

The photovoltaic system is performing as expected. The cumulative production from the different inverters is shown similar among them, and the slight difference in accumulated production between the inverters is due to the variation of the actual rating on the panels, all of the panels are above the 210 Watts nominal rating per panel specified. In addition, the site conditions could result in differences between inverters due to the light exposure throughout the day on the various elevated structures, especially during the winter months when the sun is low in the horizon.

The physical integrity of the installation was inspected as well, including clamps, wires, grounding system, modules, inverters and balance of system equipment. Everything was found to be in good conditions and no issues were found. However, soiling of the modules is significant that appears to be the result of the operations of the generating facility. This effect of soiling seems to be correlating with the 10% loss assumed for the theoretical calculations. Cleaning of the panels is strongly recommended to increase production and to avoid further efficiency losses in electrical production. Some pictures of the current conditions of the system have been attached as a reference. Due to the abnormal contamination to the PV modules caused by the building operation activities a more frequent clean-up is strongly recommended for the panels' glass surface. A 6 week clean-up schedule is recommended under these conditions, in order to increase the production performance from the current 90% de-rating observed.

Solar carports at Newman power plant

Site address: 4900 Stan Roberts, El Paso, TX 79934
Date of inspection: June 10th, 2010
Time: 10:20 AM
Weather: Partly cloudy, 84 F
SSL Engineer: Roger Aranda

Solar system size: 75.6 KW STC

Subsystems:

Inverter #1 – 56 panels, 11.76 KW

Inverter #2 – 56 panels, 11.76 KW

Inverter #3 – 56 panels, 11.76 KW

Inverter #4 – 56 panels, 11.76 KW

Inverter #5 – 60 panels, 12.6 KW

Inverter #6 – 48 panels, 10.08 KW

Inverter #7 – 28 panels, 5.88 KW

Inverter ID	*# of Modules*	*Rated power [KW] at STC conditions*	*Expected yearly Output [Kwh]*	*Expected production to date [kwh]*	*Actual cumulative production to date [kwh]*	*Ratio Actual vs Excpected*
Inverter #1 –	56 modules	11.76 KW	20,350	10,036	10,700	107%
Inverter #2	56 modules	11.76 KW	20,350	10,036	10,700	107%
Inverter #3	56 modules	11.76 KW	20,350	10,036	10,700	107 %
Inverter #4	56 modules	11.76 KW	20,350	10,036	10,400	104 %
Inverter #5	60 modules	12.6 KW	21,804	10,754	10,300	96 %
Inverter #6	48 modules	10.88 KW	17,443	8,603	8,860	103 %
Inverter #7	28 modules	5.88 KW	10,175	5,017	5,480	109 %
Total	**360 modules**	**75.6 KW**	**130,822**	**64,518**	**67,140**	**105 %**

Readings of cumulative production is based on Inverter stored data rounded to the closest hundred kWhr. A more accurate total production is as reported by the meter having the total production from all inverters shown as 67,135 (from screen #2)

Instantaneous power generated by each inverter was recorded and analyzed to compare with the expected theoretical value under the specific current conditions of the system. The data collected can be summarized as follows:

Inverter ID	*Irradiance value at test*	*Module temp at test*	*Soiling factor assumed*	*Total instantaneous de-rating factor calculated*	*Theoretical watts generated under test conditions*	*Actual watts generated under test conditions*	*Ratio Actual vs. expected*
Inverter # 1	467	132	0.9	0.38	4,484	4,720	105 %
Inverter # 2	724	125	0.9	0.59	6,957	7,416	106 %
Inverter #3	1049	131	0.9	0.86	10,083	9,938	99 %
Inverter # 4	931	132	0.9	0.76	8,950	9,040	101 %
Inverter #5	1003	125	0.9	0.84	10,534	10,089	96 %

Inverter #6	987	135	0.9	0.82	8,094	7,240	89 %
Inverter # 7	643	137	0.9	0.54	3,150	3,411	108 %

Conclusions

The photovoltaic system is performing as expected. The cumulative production from the different inverters is shown similar among them, and the slight difference in accumulated production between the inverters is due to the variation of the actual rating on the panels, all of the panels are above the 210 Watts nominal rating per panel specified. In addition, the site conditions could result in differences between inverters due to the light exposure throughout the day on the various elevated structures, especially during the winter months when the sun is low in the horizon.

This could be observed in the total cumulative production on inverter #5 which is located near a light pole and a flag pole that would partially shade it during the winter morning hours. This loss was previously estimated and reported on a shading analysis as 4.5% production loss. When accounting for this shading, the cumulative production would be at 105% of the expected 10,270 Kwh with shading vs the 10,754 Kwh originally predicted.

The physical integrity of the installation was inspected as well, including clamps, wires, grounding system, modules, inverters and balance of system equipment. Everything was found to be in good conditions and no issues were found. However soiling in the modules is significant, which seems to be correlating with the 5% loss assumed for the theoretical calculations. When looking at the instantaneous power on inverter #6 versus the expected theoretical performance we found a 89% ratio when assuming the same 5% loss. Also we observed a more soiled condition on the area where these inverter modules are located. This could explain the difference, suggesting that the actual soiling de-rating is more than the assumed 5%. An assumed soiling factor of 15% loss would justify this difference.

Cleaning of the panels is strongly recommended to increase production or avoid further detrimental. Some pictures of the current conditions of the system have been attached as a reference. Soiling conditions in general look much better than the system in Rio Grande power plant since power plant is father away from the elevated structures. A clean-up is recommended to the glass surface at least every 8 weeks during no rain seasons to bring-up the production performance from the current 95% de-rating observed.

PVWatts

AC Energy & Cost Savings

Cautions for Interpreting the Results

Solar Carport system at Rio Grande power plant

Station Identification	
City:	El_Paso
State:	Texas
Latitude:	31.80° N
Longitude:	106.40° W
Elevation:	1194 m
PV System Specifications	
DC Rating:	75.6 kW
DC to AC Derate Factor:	0.850
AC Rating:	64.3 kW
Array Type:	Fixed Tilt
Array Tilt:	10.0°
Array Azimuth:	210.0°
Energy Specifications	
Cost of Electricity:	9.7 ¢/kWh

Results			
Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	4.10	7838	760.29
2	5.02	8423	817.03
3	6.27	11798	1144.41
4	7.30	12809	1242.47
5	7.79	13738	1332.59
6	8.08	13390	1298.83
7	7.42	12648	1226.86
8	6.82	11786	1143.24
9	6.36	10703	1038.19
10	5.67	10253	994.54
11	4.39	7863	762.71
12	4.01	7671	744.09
Year	6.11	128920	12505.24

PVWatts

AC Energy & Cost Savings

Cautions for Interpreting the Results

Solar carport system at Newman power plant

Station Identification	
City:	El_Paso
State:	Texas
Latitude:	31.80° N
Longitude:	106.40° W
Elevation:	1194 m
PV System Specifications	
DC Rating:	75.6 kW
DC to AC Derate Factor:	0.850
AC Rating:	64.3 kW
Array Type:	Fixed Tilt
Array Tilt:	10.0°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	9.7 ¢/kWh

Results			
Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	4.20	8016	777.55
2	5.13	8628	836.92
3	6.37	11966	1160.70
4	7.36	12927	1253.92
5	7.81	13866	1345.00
6	8.09	13509	1310.37
7	7.45	12786	1240.24
8	6.85	11840	1148.48
9	6.47	10870	1054.39
10	5.79	10444	1013.07
11	4.51	8112	786.86
12	4.11	7857	762.13
Year	6.18	130822	12689.73

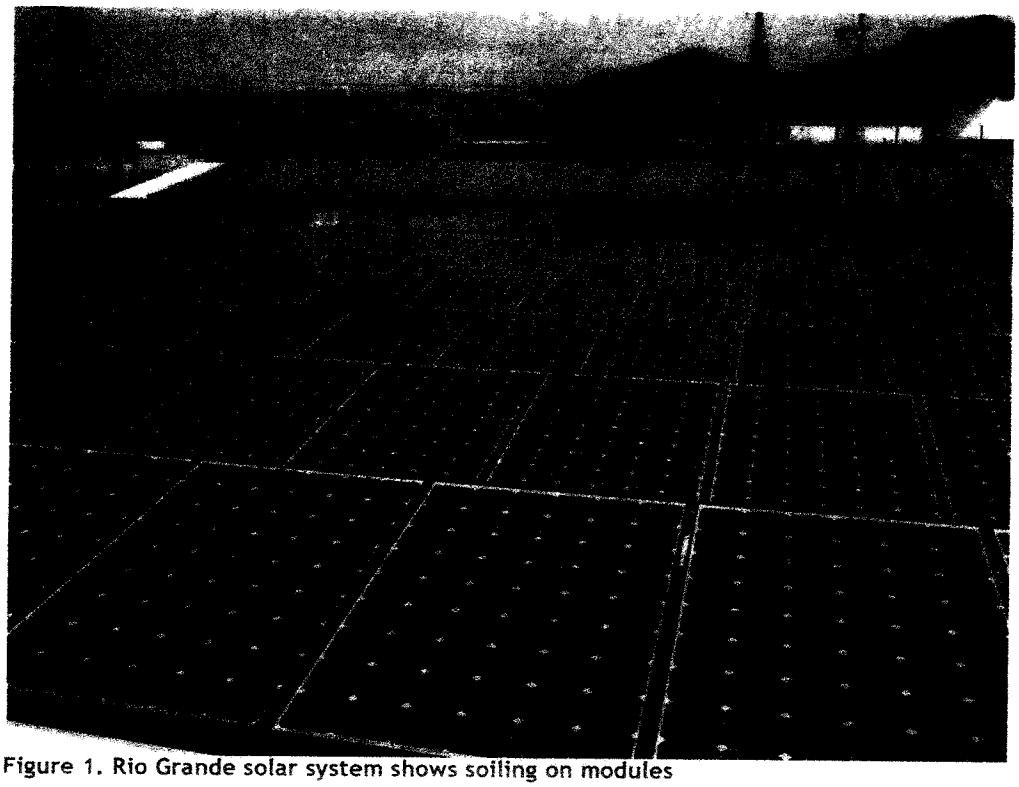


Figure 1. Rio Grande solar system shows soiling on modules

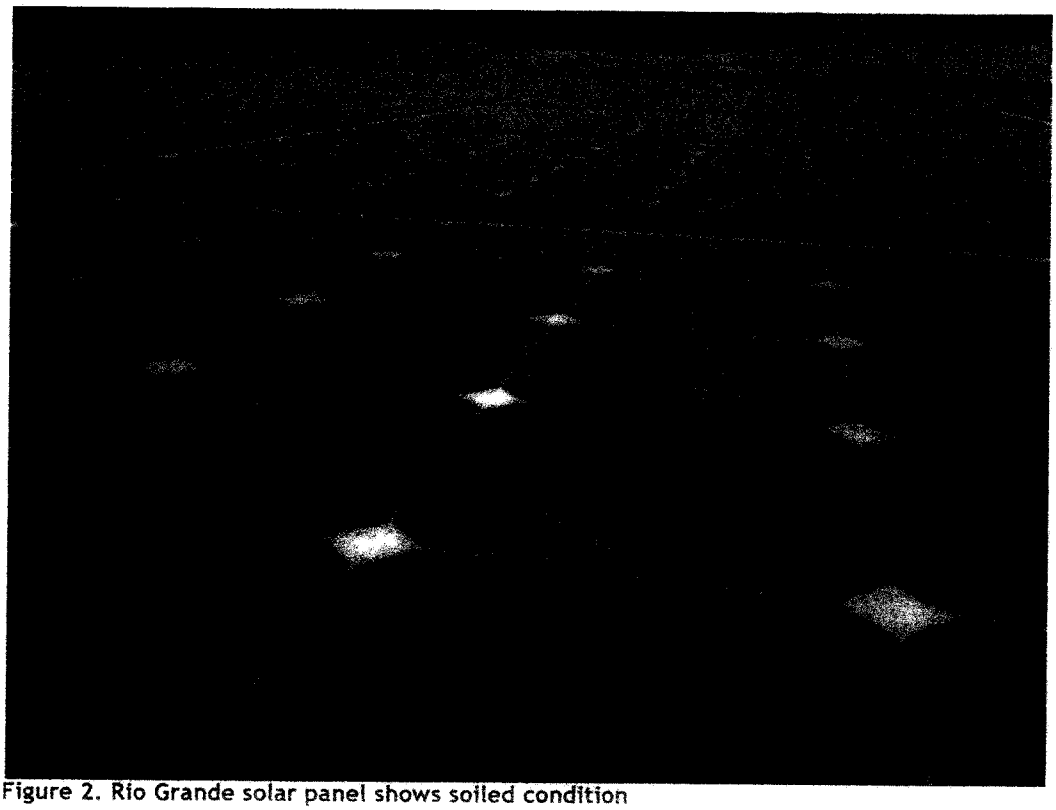


Figure 2. Rio Grande solar panel shows soiled condition

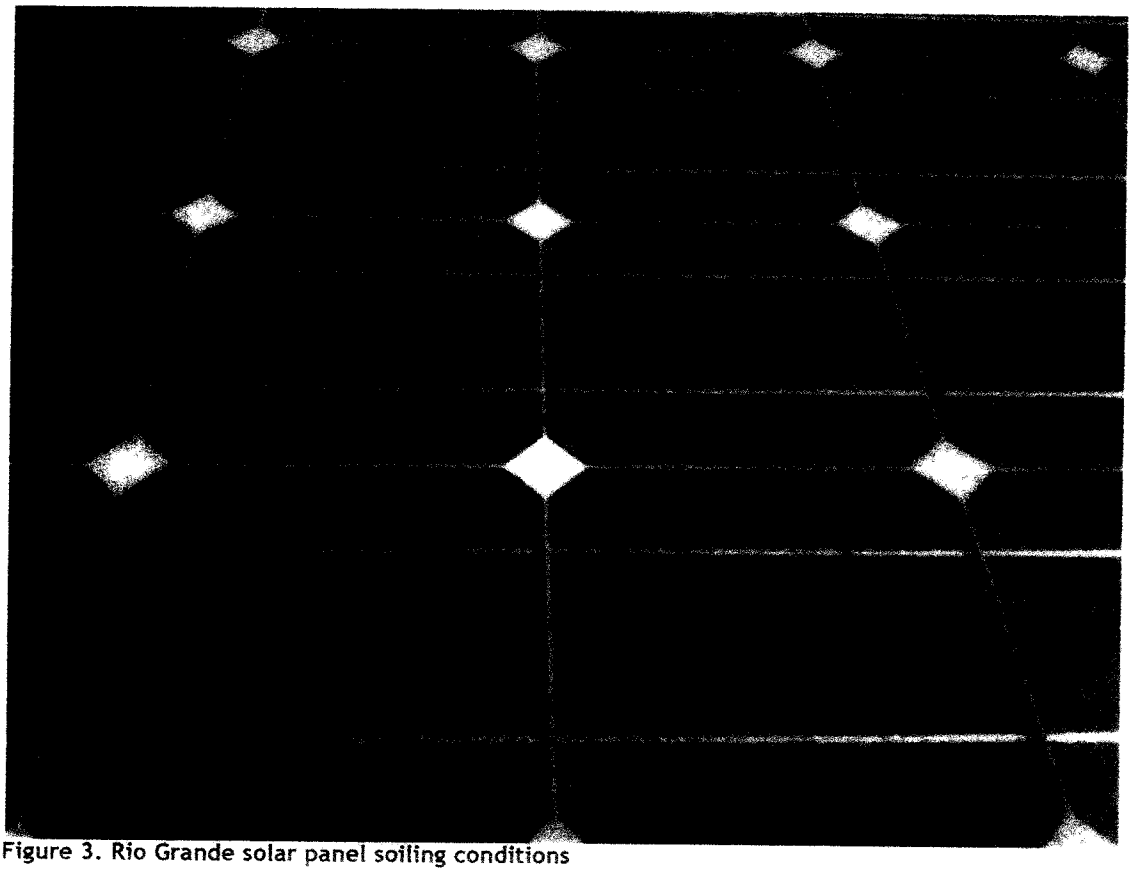


Figure 3. Rio Grande solar panel soiling conditions

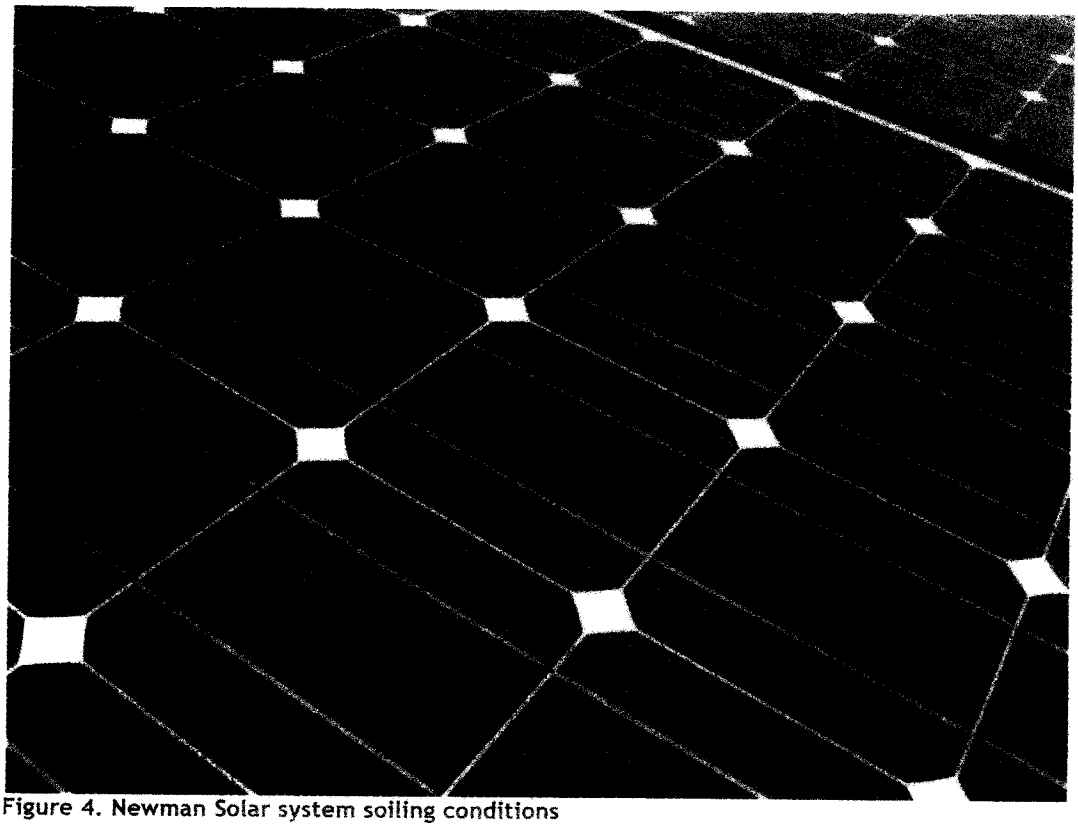


Figure 4. Newman Solar system soiling conditions

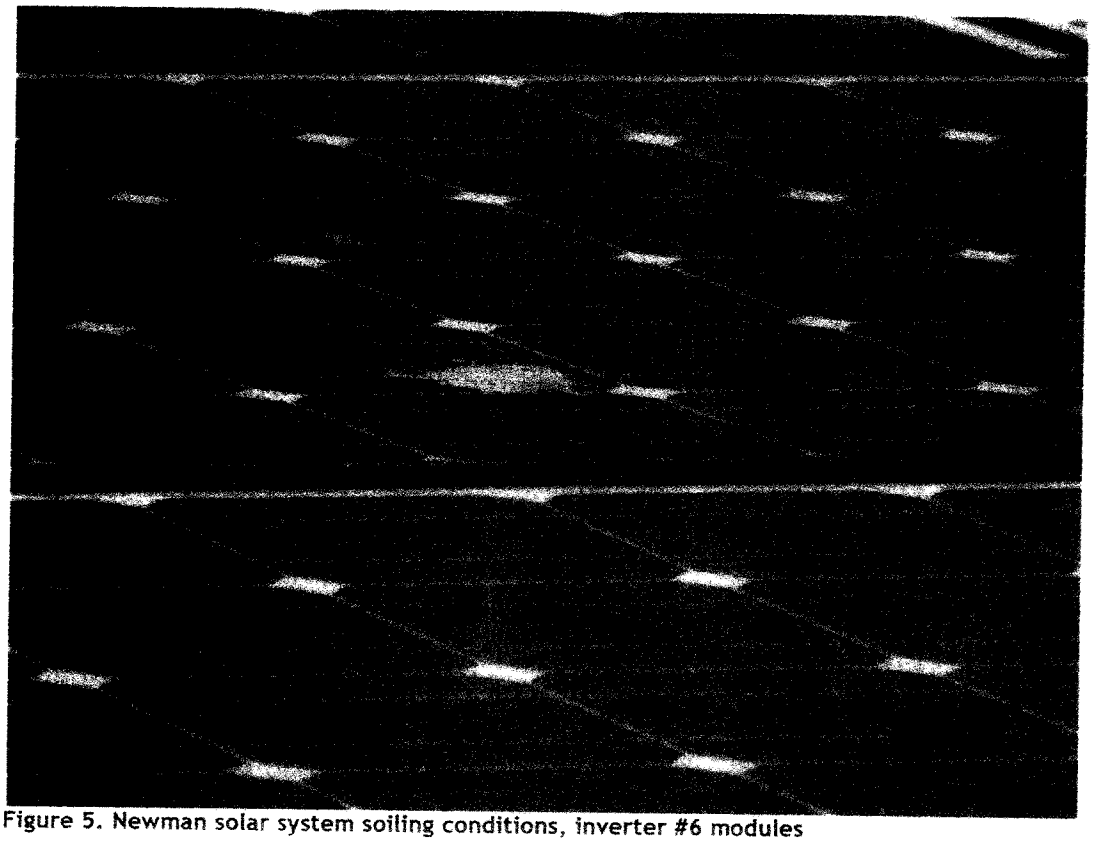


Figure 5. Newman solar system soiling conditions, inverter #6 modules

Figure 6. Newman solar system soiling conditions