

**A REPORT BY
THE 2012-2013 CONTRA COSTA COUNTY GRAND JURY**
725 Court Street
Martinez, California 94553

REPORT 1309

Solar Energy Projects in School Districts

"Here Comes the Sun"

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JOHN T. LAETTNER
JUDGE OF THE SUPERIOR COURT

Contra Costa County Grand Jury Report 1309

Solar Energy Projects in School Districts

“Here Comes the Sun”

TO: Governing Boards of the Contra Costa Community College District, Martinez Unified School District, Mt. Diablo Unified School District, Pittsburg Unified School District, San Ramon Valley Unified School District, Governing Boards of all 14 other School Districts, Contra Costa County Office of Education.

SUMMARY

Alternative and renewable energy is being promoted as a way to conserve resources and protect the environment. The State of California and the federal government are promoting the use of solar energy by providing rebates and incentives for those who install solar energy systems. Certain school districts in Contra Costa County have been installing solar energy systems as a way to produce clean energy for their power needs, save money for the district and provide educational opportunities about renewable energy for their students. The Grand Jury evaluated solar energy systems in Martinez Unified School District, Mt. Diablo Unified School District, Pittsburg Unified School District, San Ramon Valley Unified School District and Contra Costa Community College District.

Those five school districts have incurred millions of dollars of costs on solar energy installations with the hope of repaying the cost through grants, rebates and future savings on energy bills. Those five districts have employed various strategies for evaluating options, funding their initial investments, estimating projected costs and savings, selecting vendors, overseeing the installation process, planning for future expenses, monitoring energy production and cost savings, and communicating with citizens. All projects rely on the vendors’ ability to fully meet obligations under long-term performance guaranties and warranties. These issues create potentially significant financial risks for the districts. Certain districts have been more successful than others in protecting the district’s investment and ensuring that their programs are cost effective.

The Grand Jury analyzed the approaches used by the five school districts and identified beneficial actions that can be used by all 19 school districts to help ensure that existing and future solar energy projects achieve their goals.

36 **METHODOLOGY**

37 The following documents were obtained and reviewed by the Grand Jury:

- 38 • Minutes of some of the Governing Board Meetings
- 39 • Requests for Proposal (“RFP”)/Requests for Qualifications (“RFQ”)
- 40 • Vendor comparisons
- 41 • School district solar advisory committee recommendations
- 42 • Proposal summaries from vendors selected
- 43 • Financial analyses of projected costs avoided and incentives received (referred to
- 44 collectively as “Gross Savings”)
- 45 • Financial analyses of Gross Savings and future Operation and Maintenance (“O&M”)
- 46 costs to arrive at “Net Savings”
- 47 • Analyses tracking actual Net Savings
- 48 • School district websites
- 49 • California Solar Initiative (“CSI”) websites
- 50 • Pacific Gas and Electric Company (“PG&E”) website
- 51 • U.S. Energy Information Administration website
- 52 • Financial analyst reports on the state of the solar industry

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54 In addition, the Grand Jury conducted interviews with selected school district personnel involved
55 with solar energy programs.

56 **BACKGROUND**

57 The California Solar Initiative (“CSI”) Program pays incentives to consumers who install solar
58 energy systems. These incentives are based on system performance. The incentives are either
59 upfront lump-sum payments based on expected performance, referred to as Expected
60 Performance-Based Buydown available for smaller systems, or monthly payments based on
61 actual performance over five years, referred to as Performance Based Incentive (“PBI”). All five
62 school districts qualified for the PBI incentive. In addition, the initial phase of the Contra Costa
63 Community College District (“CCCCD”) solar energy program also qualified for the Solar
64 Generation Incentive Program upfront rebates which were in place at that time.

65 School districts had the option to purchase and own the solar energy systems or enter into a
66 Power Purchase Agreement (“PPA”) with third-party installers or resellers. When the system is
67 purchased and owned, the district realizes the full Gross Savings including any rebates under
68 CSI’s Performance Based Incentive program. Alternatively, under the PPA approach, the system
69 is owned by a third-party installer/reseller who receives CSI’s PBI benefits and is responsible for
70 the financing and other risks associated with ownership. The district enters into a contract to
71 receive the power generated and expects to realize energy cost savings but at a lesser amount. All
72 of the districts purchased and owned their systems. CCCC, Pittsburg Unified School District
73 (“PUSD”), Mt. Diablo Unified School District (“MDUSD”) and San Ramon Valley Unified
74 School District (“SRVUSD”) gave some consideration to the PPA approach.

75 PG&E was the power source provider for four of the school districts. In the case of CCCC, the
76 power source provider was Constellation Energy for power generation and PG&E for power
77 transportation costs. Because of the nature of PG&E’s power mix, which includes natural gas
78 and non-fossil sources, all the school districts expect only moderate future annual rate increases.

79 The majority of solar installations in the five school districts consisted of adding tracking-shade
80 structures with photo voltaic solar panel arrays over existing parking spaces. The parking lot
81 structures provide shade for cars in addition to supporting the solar panel arrays. Several of the
82 projects also included new security systems for the parking lots and appropriate lighting.
83 MDUSD installed some roof-mounted solar panel arrays in addition to the ground-mounted
84 units. The size of the solar energy projects across the districts ranged from capital cost of
85 approximately \$7 million covering five sites in the smallest case to approximately \$76 million
86 covering 51 sites in the largest case. Projected Gross Savings ranged from approximately \$21
87 million over 25 years to approximately \$131 million over 30 years.

88 Each of the school districts used different sources of funding for their solar energy program.
89 SRVUSD applied for and received \$25 million from federal stimulus funds available under the
90 American Recovery and Reinvestment Act of 2009. MDUSD, Martinez Unified School District
91 (“MUSD”) and CCCC CD used funds from larger General Obligation Bonds approved for various
92 uses by the districts’ voters. PUSD obtained bank financing using Certificates of Participation,
93 collateralized by district property, and approved by its Governing Board.

94 SRVUSD created a solar advisory committee comprised of district personnel and private citizens
95 with accounting, solar and/or construction expertise. MUSD used an architect, construction
96 management firm and an energy consultant as its advisory committee. CCCC CD similarly used an
97 energy consultant as its advisor. PUSD had no advisory committee. PUSD relied on the financial
98 analysis performed by its vendor and assumed that the lending bank had performed its own
99 financial analysis to justify the economics of the solar energy project as part of its lending due
100 diligence. MDUSD formed a solar advisory committee of three people -- a representative of the
101 school district, an environmental attorney and a solar energy consultant.

102 The Net Savings generated by the solar energy programs are being used in various ways by each
103 district. SRVUSD is setting aside all Net Savings into a reserve account. The purpose of the
104 dedicated reserve account is to cover any reduction of Gross Savings in the future due to
105 changing assumptions, to cover unforeseen future expenditures, and to fund equipment
106 replacement and debt service. The other districts use all of the Net Savings to cover other general
107 fund expenditures and do not set aside any portion of such Net Savings towards future solar
108 energy program needs.

109 There was little or no sharing between the five districts of information, analyses and experiences
110 with respect to their programs which may have been beneficial in, among other things, vendor
111 selection, system type, system cost, etc.

112 Research into various financial documents and articles pertaining to the financial health of the
113 solar energy industry indicates there is uncertainty concerning its long-term viability.
114 Manufacturing costs, intense competition amongst a crowded field of providers, continuously
115 changing technology and the dynamic political climate are major contributing factors for this
116 uncertainty. All five solar energy projects include long-term performance guaranties and
117 warranties ranging from 16 to 25 years. These districts rely on the ability of the providers of such
118 contracts to meet future obligations.

119 Appendix 1 provides details of additional background information and facts obtained by the

120 Grand Jury. Appendix 2 is an aggregated list of beneficial actions undertaken by some of the
121 districts that have implemented solar energy projects.

122 **FINDINGS**

- 123 1. SRVUSD and PUSD fund their debt service from Net Savings. MDUSD, CCCC and
124 MUSD fund their solar energy programs with General Obligation Bonds, which are
125 retired through the payment of monies arising from tax revenues.
- 126 2. PUSD, MDUSD, CCCC and MUSD are not reserving funds for future anticipated
127 Operational and Maintenance (“O&M”) costs and unanticipated costs such as inverters
128 and other “big-ticket” items.
- 129 3. All districts but MUSD gave some consideration to the PPA approach in lieu of
130 ownership of solar panels. Those that considered such an approach did not employ
131 detailed lease versus buy financial analyses as part of their evaluations.
- 132 4. Future increases in insurance costs were only considered by the MUSD in projecting Net
133 Savings.
- 134 5. Reports of solar energy produced, and the related Net Savings, do not include
135 comparisons to the original projections for those categories (see No. 7 in Appendix 1).
- 136 6. The reports of information in Finding No. 5 were not always available on the districts’
137 websites.
- 138 7. The districts did not insulate themselves from financial risk by securing performance
139 bonds from solar energy vendors to ensure fulfillment of long-term warranties,
140 performance guaranties and O&M obligations.
- 141 8. The five districts did not share substantive information, analyses and experiences with
142 each other concerning the selection and installation of a solar energy program, and the
143 Contra Costa County Office of Education did not facilitate this process.
- 144 9. All districts have learned some lessons in the implementation of the five solar energy
145 projects that could be beneficial to other school districts considering solar energy projects
146 (see Appendix 2).

147 **RECOMMENDATIONS**

148 The Grand Jury recommends that:

- 149 1. School districts with existing solar energy projects set aside all or a portion of their Net
150 Savings for future anticipated and unanticipated costs arising from the projects so these
151 expenditures will not be charged in future to the general fund.
- 152 2. School districts include projected increases in insurance costs in calculating the projected
153 Net Savings to be achieved by a solar energy project.

- 154 3. School districts include the original projections in tracking reports of energy produced
155 and related Net Savings generated for purposes of comparison.
- 156 4. The reports in Recommendation No. 3 be available for public viewing on the districts’
157 web sites in addition to any other method used by the districts for their dissemination.
- 158 5. Districts mitigate risks regarding the long-term viability of the solar energy programs and
159 identify funds to implement this.
- 160 6. Districts considering solar energy programs seek information from other school districts
161 in the county that have a solar energy program in place regarding their experiences,
162 acquired knowledge, and outcomes resulting from their programs.
- 163 7. The County Office of Education facilitate the exchange of information on solar energy
164 programs among the county’s school districts and identify funds to implement this.
- 165 8. School districts employ the beneficial actions identified in Appendix 2 when considering
166 any future solar energy projects.

167 **REQUIRED RESPONSES**

168 Each Governing Board needs to respond only for its own practices.

	<u>Findings</u>	<u>Recommendations</u>
Governing Board of Contra Costa Community College District	1-9	1-6, 8
Governing Board of Martinez Unified School District	1-9	1-6, 8
Governing Board of Mt. Diablo Unified School District	1-9	1-6, 8
Governing Board of Pittsburg Unified School District	2-9	1-6, 8
Governing Board of San Ramon Valley Unified School District	3-9	2-6, 8
Governing Board of Acalanes Union High School District		6, 8
Governing Board of Antioch Unified School District		6, 8
Governing Board of Brentwood Union School District		6, 8
Governing Board of Byron Union School District		6, 8
Governing Board of Canyon School District		6, 8
Governing Board of John Swett Unified School District		6, 8
Governing Board of Knightsen Elementary School District		6, 8

	<u>Findings</u>	<u>Recommendations</u>
Governing Board of Lafayette School District		6, 8
Governing Board of Liberty Union High School District		6, 8
Governing Board of Moraga School District		6, 8
Governing Board of Oakley Union Elementary School District		6, 8
Governing Board of Orinda Union School District		6, 8
Governing Board of Walnut Creek School District		6, 8
Governing Board of West Contra Costa Unified School District		6, 8
Contra Costa County Office of Education	8	7

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Appendix 1
Additional Background Information

	Fact	SRVUSD	PUSD	MDUSD	CCCCD	MUSD
1.	Name of solar installer	SunPower	Stellar Energy	SunPower	Chevron Energy Solutions	SolarCity
2.	The financial projections include an annual rate of photo voltaic degradation	Yes – 0.5%	Yes – 0.5%	Yes – 0.5%	Yes – 0.5%	Yes – 0.75%
3.	The projections include annual increases in electricity rates	3%	5%	4.47%	4%	5.34%
4.	The projections exclude the sale of Renewable Energy Credits (“REC”)	Yes	Yes	Yes	No	Yes
5.	An analysis of plausible best- and worst-case scenarios to the base model was performed	Yes	No	No	No	No
6.	The RFP/RFQ (see Note No. 1) was requested from several vendors	Yes – RFP	No. Since it was a renegotiation of a previous PPA contract, competitive bids could not be solicited.	Yes - RFP	Yes – RFQ	Yes – RFP
7.	The districts established methods to track actual solar energy generated and Gross/Net Savings realized vs. projections	Yes, detailed tracking being done in same manner as the projections and is posted on the district’s web site	Monthly tracking done by district finance and presented quarterly to district Board is for solar kWh only. Tracking of cash flow Gross/Net Savings in the same manner as the projections is not being done.	Actual data being tracked but not compared to projections.	Yes for tracking power. No regular tracking of Gross/Net Savings is done.	Not applicable, since the system has just been completed.
8.	O & M costs included additional insurance costs resulting from the solar energy installations	No	No	No	No	Yes

	Fact	SRVUSD	PUSD	MDUSD	CCCCD	MUSD
9	A performance bond or other means (e.g., escrowed funds) was used to ensure that the solar company meets all of its future warranty and performance guaranty obligations	No	No	No	No	No
10.	Excess funds from financing specific to solar were not absorbed into the general fund	\$2 million left over along with the higher Savings realized were used to fund the solar installation at an additional school – none of these funds were absorbed into the general fund.	After paying the installer, consultants and other expenses ,the excess bank borrowings are being used for solar installation at a new elementary school.	Not applicable	Not applicable	Not applicable
11.	Discounted Cash Flow (“DCF”) analysis was used to determine the net benefits of the project – see Note No. 2.	Yes, 5% discount rate used.	Yes, 8% discount rate used	No	Yes, 3% discount rate used	No

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174 Notes:

175 1. RFQ is a Request for Qualifications. An RFQ does not request cost data but instead asks
176 for qualitative information such as a vendor’s experience in handling similar projects. In
177 case of CCCCCD, RFQs were sent to several vendors and once the vendor was selected,
178 the cost of the project and contract were negotiated with such vendor. An RFQ process as
179 described above does not result in the cost portion of the contract being competitively
180 bid. On the other hand, an RFP is a more comprehensive bidding process since it will
181 include cost estimates as well as several elements of an RFQ.

182 2. DCF analysis is a method of valuing a project using the concepts of time value of money,
183 i.e., a dollar of cost or savings in the future has a lesser value than a dollar of cost or
184 savings today. Such reduction of the value of the dollar over time is quantitatively
185 measured by applying a discount rate to future cash flows.

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Appendix 2

Beneficial Actions

- 191 1. Create an advisory committee for the program which, in addition to district personnel,
192 will include technical, financial and business experts from the community to assist in
193 independently assessing the program, performing analyses, evaluating RFPs, etc. This
194 approach is preferred, rather than solely relying on solar energy project
195 installers/resellers to perform the analyses and recommendations.
- 196 2. Consider all solar energy project approaches including, but not limited to, the PPA
197 approach.
- 198 3. Include a realistic annual rate of photo voltaic degradation in projections.
- 199 4. Include in program projections, the annual changes in electricity rates based on
200 factors such as recent historical rate behavior, the utility company's power mix and
201 other applicable market factors.
- 202 5. Exclude any sale of Renewable Energy Credits from computation of projected
203 Gross/Net Savings.
- 204 6. After the vendor warranty period expires, include O&M costs as part of the analyses
205 and deduct those costs from the Gross Savings. Include in O&M costs all incremental
206 costs, such as property insurance costs related to the solar energy program.
- 207 7. Include in the upfront capital cost for the program all soft costs (such as engineering,
208 program management, inspections, etc.), contingency amount and bond issuance costs
209 incurred (or allocated in case the amount is used from a larger General Obligation
210 Bond) in addition to the cost of constructing the system.
- 211 8. Reserve the Net Savings to cover program expenditures, including, where applicable,
212 debt service and any anticipated and unanticipated expenses, rather than using them
213 for general fund expenditures.
- 214 9. Where feasible, ensure that the term of the warranty, performance guaranty and the
215 included O&M costs provided by the vendor are not less than the term of the project
216 financing.
- 217 10. For investment analysis, perform a Discounted Cash Flow analysis using an
218 appropriate discount rate to discount Net Savings.
- 219 11. Perform an analysis of plausible best- and worst-case scenarios in addition to its base-
220 case projection.
- 221 12. Send Requests for Proposal to multiple vendors.

- 222 13. Include in tracking reports of actual energy produced and the related Net Savings a
223 comparison with original projections and make such reports available on the district's
224 web site in addition to any other method for their dissemination.
- 225 14. Take steps to mitigate risks regarding the long-term viability of their solar energy
226 programs.
- 227 15. Seek from other school districts in the county information regarding their
228 experiences, acquired knowledge and outcomes resulting from their programs.