

PERALTA COMMUNITY COLLEGE DISTRICT
Board of Trustees Agenda Report
For the Trustee Meeting Date of October 13, 2009

ITEM # 20

ITEM TITLE:

Consider Approval to Enter into a Design-Build Contract with Chevron Energy Solutions Company for a Photovoltaic (PV) System at Merritt College or Conduct a Competitive RFP (Request for Proposals) for Design-Build Services for a Photovoltaic (PV) System at Merritt College

SPECIFIC BOARD ACTION REQUESTED:

Approval is requested to proceed with either Option A or Option B:

Option A: Enter into an energy services contract with Chevron Energy Solutions Company (Chevron ES) to provide design-build services for a Photovoltaic (PV) System at Merritt College, in the amount of \$8,401,520.

Option B: Conduct a Competitive RFP (Request for Proposals) for Design-Build Services for a Photovoltaic (PV) System at Merritt College.

ITEM SUMMARY:

Chevron ES recommends installing a ground mounted PV array located on the hillside by the athletic field at the Merritt campus and a parking shade structure at a subsection of Merritt College Parking Lot C. This subsection of Parking Lot C where the PV system is located will not obstruct the "million dollar" view of the Bay Area, as extensive drawings have been made to this effect. The total size of the PV systems will be approximately 1.2 MW in size and will provide approximately 45% of the total energy usage by the college from clean, renewable onsite generation. Peralta Community College District requires approximately 8 MW to provide all of its energy needs District-wide.

PV systems produce the most electricity during peak hours of the day when electric rates are the highest. By installing a PV system at the Merritt campus, the District will reduce its energy bills by displacing power purchased at peak rates. The solar power systems will also enable the District to hedge against increasing electricity rates. The estimated total project cost is \$8,401,520. The simple payback for the project cost is about 19 years, and the total net savings over 25 years is estimated at \$13,847,834. The District will also be able to take advantage of utility incentives, estimated at \$1,947,015 paid over a five-year period. A complete report on the Merritt PV System is included with Board member's materials.

BACKGROUND/ANALYSIS:

The proposal from Chevron ES for the PV system has gone through the shared governance process with Merritt College, which began with one meeting in July 2009. No decision was made at that time, as faculty and students were not available during the summer. It was decided to hold a town hall meeting when classes resumed for the fall semester. The consultation process included presentations by Chevron and discussion at the following meetings:

- College-Wide Town Hall Meeting on Wednesday, August 26, 2009, with students, faculty, staff and administration.
- Merritt's Facilities Committee Meeting on Monday, September 14, 2009.
- Merritt's College Council Meeting on Wednesday, September 16, 2009.

Both the Merritt Facilities Committee and the College Council reached consensus to recommend that the item be forwarded to the Board of Trustees for action at the October 13, 2009 Board meeting.

Additionally, the Chevron ES proposal was discussed at two meetings of the Board Facilities & Land Use Planning Committee. At the meeting of August 20, 2009, it was recommended by a majority vote to move forward with the project, continue with the shared governance process and community input, and request approval of the entire Board, provided that there was no significant opposition among stakeholder groups.

The item was again discussed at the Board Facilities & Land Use Planning Committee meeting of September 22, 2009. An evaluation of Chevron ES's proposal prepared by the Community College League Consultant Clyde S. Murley was presented. The evaluation identified additional information that this consultant felt was necessary for the District to properly evaluate the proposal. The results of a review conducted by an independent engineering firm, Interface Engineering, were also presented to the committee.

It was recommended by a majority vote of Board committee members that Chevron ES be requested to provide the information identified in the League Consultant's evaluation. Upon receipt, the information would be reviewed by the Chancellor, and with his concurrence, approval for the Chancellor to negotiate a contract with Chevron ES would go before the full Board for action. Chevron ES's response to the request for further information was received and reviewed by the Chancellor, and it is attached.

A Notice of Public hearing was posted giving notice of the intention to enter into a solar services contract in accordance with the terms of the Government Code Sections 4217.10 to 4217.18. Public comment will be heard at tonight's meeting.

Although under Government Code an exception for competitive bidding is granted, Chevron Energy Solutions was selected as part of a competitive Request for Qualifications process. At the meeting of December 11, 2007, the Board approved negotiation and development of a partnership contract for energy master planning and energy infrastructure retrofit services with Chevron Energy Solutions. Chevron was one of six companies responding to a Request for Qualifications (RFQ 07-08/19). Based on review and interviews by a selection committee, Chevron received the highest scores and was the recommended company. Their scope of services included designing and engineering services and procuring and financing of capital goods and services. Chevron has completed the initial phase of services assessing the energy infrastructure of all of the District's buildings and campuses.

At the meeting of May 20, 2008, the Board approved negotiation of a contract with Chevron ES to design, finance and implement an Energy Conservation and Renewable Energy Early Action Program District-Wide, in the amount of \$1,861,127. The scope of work included:

- New boiler for the College of Alameda.
- New electrical submeters for all campus buildings, new btu meters for four central plants, and new main gas meters for all campuses.
- Retro-commissioning of central plants at Laney and Merritt, Art Building HVAC systems, and HVAC systems at Berkeley City College.
- Modification of operating HVAC schedules for all District facilities according to class starting times.
- Development of solar laboratories for Laney and Merritt Colleges.
- Development of water and solid waste audits. Determined District's carbon footprint from energy usage (natural gas and electricity.)

The following preliminary work for the Merritt PV system was done under this contract:

- Chevron ES completed all the detailed engineering to install a 1.2 MW solar system at the Merritt College Parking Lot "C" and the hillside by the football field.
- As part of the PV system, Chevron ES developed renderings to illustrate the PV systems, Parking Lot C and the hillside.

Option A

Proceed pursuant to Government Code 4217.10 to 4217.18 to enter into a contract with Chevron ES to utilize the design-build method for construction delivery of a photovoltaic (PV) system at Merritt College, in the amount of \$8,401,520.

Under Government Code Sections 4217.10 to 4217.18, state law allows a public agency to enter into an energy service contract without public bidding.

4217.12. (a) Notwithstanding any other provision of law, a public agency may enter into an energy service contract and any necessarily related facility ground lease on terms that its governing body determines are in the best interests of the public agency if the determination is made at a regularly scheduled public hearing, public notice of which is given at least two weeks in advance, and if the governing body finds:

(1) That the anticipated cost to the public agency for thermal or electrical energy or conservation services provided by the energy conservation facility under the contract will be less than the anticipated marginal cost to the public agency of thermal, electrical, or other energy that would have been consumed by the public agency in the absence of those purchases.

The following reasons support entering into a contract with Chevron ES:

- If the District were to solicit proposals for design-build services, the process would include a formal Request for Proposals (RFP), evaluation of architects' proposals, interviews, and Board approval. The process would be time consuming, and probably would take at least four months.
- Utilizing another vendor will require that the newly selected vendor will undergo the shared governance process, which will require additional time added to the project.
- At the Town Hall Meeting that was held at Merritt College with the stakeholders, Chevron ES specifically outlined the benefits of the project, including the benefits to students, the educational curriculum, and workforce development. A new vendor will need to work with the stakeholders as well, also requiring additional time for the project.
- Further delays would be experienced during the required DSA design review process. For any project over \$100,000, the minimum DSA review time is now six months. Chevron ES has solar canopy designs that have been preapproved by DSA, thus saving at least six months of time.
- Thus, it could take up to a year if the process was re-started. The estimated first year energy savings of \$214,134 in utility payments would be lost. This would be general fund money that would have to be spent for utilities rather than going to the classrooms.
- Currently, the State is offering incentives through the California Solar Initiative (CSI) to encourage schools and businesses to use solar power. The Merritt project qualifies for a Step 6 incentive or approximately 16% of the total PV system cost, or \$1,344,243. If the project is delayed up to a year, less incentive money will be available. The District would be taking the risk of qualifying for a Step 7 incentive, which is expected to be approximately 12%, or \$1,008,182 (a reduction of 4%, or \$336,061).
- As verified in the independent engineer's analysis, the average budget is approximately \$8.00 per installed Watt of PV system without the metering equipment. Chevron's price is \$7.00 per Watt including the metering equipment, which appears within industry norm. Per PG&E, in 2009 the average cost for installed Watt of PV for completed projects is \$7.90.
- Chevron ES would guaranty maintenance for 25 years and no change orders during construction to deliver this project.

ALTERNATIVES/OPTIONS:

Option B

Conduct a Competitive RFP (Request for Proposals) for Design-Build Services for a Photovoltaic (PV) System at Merritt College.

This process would include hiring an engineering consultant to prepare a scope of work for a Request for Proposals (RFP) that is non-biased and independent for a competitive bid process whereby a vendor could be selected to do a design-build project for the PV System at Merritt College. The price would have to be negotiated with the winning vendor.

Although the project would be delayed, the advantages are:

- The process would be transparent in the minds of the stakeholders.
- It would give the District the opportunity to have a competitive price comparison.
- It would give the District the opportunity to choose specifically what we want in the RFP. (Any existing RFP that other college districts have used may be proprietary, so it is incumbent on the District to develop its own customized proposal.)
- Prices for solar panels may be reduced in 2010 due to supply greater than demand in the world market and due to the continued economic downturn.

Given the amount of resources required to do another competitive process and the additional time involved, the benefits of this option may not be realized.

EVALUATION AND RECOMMENDED ACTION:

It is recommended that the District proceed with one of the following options:

Option A: Enter into an energy services contract with Chevron Energy Solutions Company (Chevron ES) to provide design-build services for a Photovoltaic (PV) System at Merritt College, in the amount of \$8,401,520.

Option B: Conduct a Competitive RFP (Request for Proposals) for Design-Build Services for a Photovoltaic (PV) System at Merritt College.

SOURCE OF FUNDS (AND FISCAL/BUDGETARY IMPACT):

Measure A, as approved by the voters in Peralta's constituency and authorized under Resolution 05/06-45, Exhibit A-1, District-Wide Projects, "Solar energy system installation and the retrofitting of existing energy systems."

OTHER DEPARTMENTS IMPACTED BY THIS ACTION (E.G. INFORMATION TECHNOLOGY):

YES _____ No X

COMMENTS:

All Board recommended contracts are subject to negotiation and execution by the Chancellor.

WHO WILL BE PRESENTING THIS ITEM AT THE BOARD MEETING?

Vice Chancellor Ikhara

DID A BOARD STANDING COMMITTEE RECOMMEND THE ITEM? Yes X No _____

IF "YES", PLEASE INCLUDE THAT INFORMATION IN YOUR SUMMARY.

PLEASE ACQUIRE SIGNATURES IN THIS ORDER:

DOCUMENT PREPARED BY:
Prepared by: Sadiq B. Ikharo Date: 10-9-09
Dr. Sadiq B. Ikharo
Vice Chancellor of General Services

DOCUMENT PRESENTED BY:
Sadiq B. Ikharo Date: 10-9-09
Dr. Sadiq B. Ikharo
Vice Chancellor of General Services

FINANCE DEPARTMENT REVIEW
 Finance review required Finance review *not* required
If Finance review is required, determination is: Approved Not Approved
If not approved, please give reason: _____
Signature: Thomas Smith Date: 10/6/09
Thomas Smith
Vice Chancellor for Finance and Administration

GENERAL COUNSEL (Legality and Format/adherence to Education Codes):
 Legal review required Legal review *not* required
If Legal review is required, determination is: Approved Not Approved
Signature: _____ Date: _____
Thuy T. Nguyen, General Counsel

CHANCELLOR'S OFFICE APPROVAL
 Approved, and Place on Agenda Not Approved, but Place on Agenda
Signature: Elihu Harris Date: 10/6/09
Elihu Harris, Chancellor



A partial list of the kinds of information that we believe a district should have in hand to be able to properly evaluate a solar PV proposal, and that Chevron's proposal does not appear to provide, is as follows:

- a) Identifying information (e.g., manufacturer, model) for the PV system components (e.g., inverters, PV panels);
- b) Performance-related information (e.g., for PV modules, their efficiencies, PTC ratings, industry track record, independent verification of performance claims) on all significant system components;
- c) Size of area covered by each PV system and greater detail regarding system placement;
- d) Description of utility interconnection issues posed by the proposed placement of the PV systems;
- e) Analytical and empirical support for all electricity output performance claims, including working versions of the models used to calculate these claims;
- f) Analytical and empirical support for cost-effectiveness claims;
- g) Explicit assumptions regarding net energy metered quantities of electricity produced by the solar PV system;
- h) Detailed description and demonstration of proven track record of ongoing performance-monitoring system and services;
- i) Empirical verification of performance claims for systems previously installed by Chevron ES;
- j) Copies of all documents Chevron would be requiring the district to sign;
- k) List of customer references with similar solar PV installations.
- l) Complete descriptions of the education and green jobs components mentioned in the proposal.

The many information gaps would not necessarily be a serious issue if the preliminary proposal submitted by Chevron ES were to be followed up by a suitably comprehensive district data request and Chevron ES response that resulted in a more proper, full-fledged proposal. However, given that Chevron ES's preliminary proposal appears to be the sole basis for the Board to make its decision, the League has serious doubts about the advisability of moving forward with Chevron ES based on the information provided in its preliminary proposal, even apart from price and other considerations addressed below.

2. Is the analysis realistic and is the scope of work realistic?

a) Economic Analysis

Chevron ES provided some cost-effectiveness analysis in its proposal, based in part on simulations of the electricity production of the PV system. A key aspect of cost effectiveness is system output. As already noted, the proposal lacks manufacturer or model type information and no underlying performance characteristics of the system are provided. So while it is quite possible for a 1.2 MWdc PV system to produce on the order of 1.5 million kWh per year, as represented in the proposal, without these system specifics



Community College League of California – Chevron ES Response



Merritt PV System

- Chevron ES is a DESIGN/BUILT general contractor that specializes in delivering energy efficiency and renewable energy projects to the public sector including community colleges, k-12 schools, local and state governments, and the deferral government. Our business model does not follow the typical ESCO business rather, we focus in delivering projects based on the design/built approach with the additional benefits of guaranteeing performance and energy production or savings to our clients. Chevron ES can be described as a "Performance Contractor"
- Costs associated with not installing the PV system at Merritt College in 2008
 - System size: 1.2 MH
 - Lost Annual production: 1,549,000 kWh/yr
 - Lost CSI Incentives: \$464,700 (difference between step 5 and step 6 = \$0.06/kWh* 5 years) Please refer to <http://www.csi-trigger.com>
 - Lost revenues: \$216,860
- DSA Permitting: Chevron ES is the only solar integrator in the State of California with three (3) DSA pre-approved solar canopies design. This allow Chevron ES and our clients to speed up the permitting process up to six (6) months, which in turn reduces the construction time by up to 12 months. Additional benefits include the reduction in labor by the district personnel involve in the contraction of this system, since they do not have to manage the project for that period; another benefit worth mentioning is the increase in standardization and quality of the installation.
- Cost of PV system installed in government agencies: The California Solar Initiative offers free of charge a complete detailed description of the solar PV system that apply for incentives in the Investor-Owned Utilities territories. You may obtain the statistics from the website indicated below:

<http://californiasolarstatistics.ca.gov>

Exhibit A illustrates a summary of the data available at this location. Based on the installed systems reported, the average cost of a PV system installed in 2009 is \$7.9/watt; Chevron ES cost indicated to the district is \$7.00/watt.

- Chevron ES responses to the district's consultant are included below.
 - a) Identifying information (e.g., manufacturer, model) for the PV system components (e.g., inverters, PV panels);

Panel:

Manufacturer: Suntech

Model: STP210-18/Ub-1

Inverter:

Manufacturer: SatCon Technology

Models: PVS-375

- b) Performance-related information (e.g., for PV modules, their efficiencies, PTC ratings, industry track record, independent verification of performance claims) on all significant system components;

Panel:

Efficiency: 13.6%

PTC Ratings: 171.4 watts

Inverter:

Weighted Efficiency: 96%

Electrical energy generated by the proposed Merritt PS Solar systems was determined using the PVSYST software (verified by PVWatts). The panel and inverter performance used by PVSYST in the calculations were independently verified by the Photon Magazine lab..

- c) Size of area covered by each PV system and greater detail regarding system placement;
Parking Canopy Structure System (361.6kW) ~ 29,500 sqft
The panels will be mounted on a T structure which will be placed between parking lot stalls and the height of the lowest end will be 9 ft tall. The system will be tilted 5 degrees.

Hillside Ground Mount PV System (838.4kW) ~ 84,500 sqft

The panels will be mounted on a rack raised by a pole and the height of the lowest end will be 2 ft - 11 in tall. The system will be tilted 5 degrees.

See exhibit B.

- d) Description of utility interconnection issues posed by the proposed placement of the PV systems;
Chevron ES do not expect any issues with the utility interconnection. Underground conduit was installed a year ago at the Parking Lot C to accommodate the new PV systems and before the parking was resurfaced. The hillside PV system will be connected to the substation by Bldg "A", no issues were discovered by the Chevron ES team during the site walk.
- e) Analytical and empirical support of all electricity output performance claims, including working versions of the models used to calculate these claims;
Chevron ES uses PVSYST analytical and empirical software to calculate the electricity output performance claims, including working versions of the models used to calculate these claims. Example of calculation result attached below.

A working model of the PVSYST is available to the district; PCCD may need to buy a license from the University of Geneva in order to run the model.

PVSYST V4.37		30/09/09	Page 1/3
Grid-Connected System: Simulation parameters			
Project :	Merritt College		
Geographical Site	Oakland	Country	USA
Situation	Latitude 37.7°N	Longitude	122.2°W
Time defined as	Legal Time Time zone UT+8	Altitude	1 m
	Albedo 0.20		
Meteo data :	Oakland , synthetic hourly data		
Simulation variant :	Hillside Inverter 1		
	Simulation date	30/09/09 18h07	
Simulation parameters			
Heterogeneous field, double orientation		Proportion of array #1	27 %
	Array#1 tilt 5°	Array#1 azimuth	-25°
	Array#2 tilt 5°	Array#2 azimuth	15°
Horizon	Free Horizon		
Near Shadings	No Shadings		
PV Array Characteristics			
PV module	Si-poly	Model	STP 200-18/Up
		Manufacturer	Suntech
Number of PV modules		In series	16 modules
Total number of PV modules		Nb. modules	2096
Array global power		Nominal (STC)	419 kWp
Array operating characteristics (50°C)		U mpp	385 V
Total area		Module area	3681 m²
		In parallel	131 strings
		Unit Nom. Power	200 Wp
		At operating cond.	377 kWp (50°C)
		I mpp	979 A
PV Array loss factors			
Heat Loss Factor	ko (const)	29.0 W/m²K	kv (wind) 0.0 W/m²K / m/s
	=> Nominal Oper. Coll. Temp. (800 W/m², Tamb=20°C, wind 1 m/s)		NOCT 45 °C
Wiring Ohmic Loss	Global array res.	12.9 mOhm	Loss Fraction 3.0 % at STC
Series Diode Loss	Voltage Drop	0.7 V	Loss Fraction 0.2 % at STC
Array Soiling Losses			Loss Fraction 5.0 %
Module Quality Loss			Loss Fraction 3.0 %
Module Mismatch Losses			Loss Fraction 2.0 % at MPP
Incidence effect, ASHRAE parametrization	IAM =	1-bo (1/cos i - 1)	bo Parameter 0.05
System Parameter			
	System type	Grid-Connected System	
Inverter	Model	PowerGate Plus PVS-375	
	Manufacturer	Satecon	
Inverter Characteristics	Operating Voltage	305-600 V	Unit Nom. Power 375 kW AC
Repartition on fields	Field #1	35 strings on the mixed inverter	
	Field #2	96 strings on the mixed inverter	
User's needs :	Unlimited load (grid)		

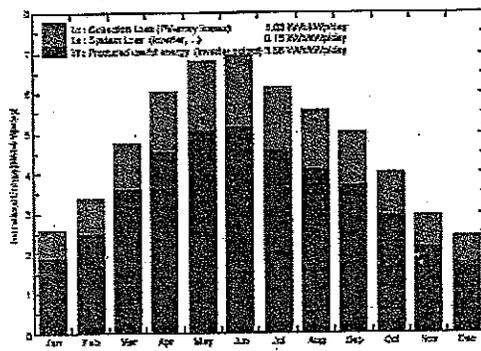
Grid-Connected System: Main results

Project : Merritt College
 Simulation variant : Hillside Inverter 1

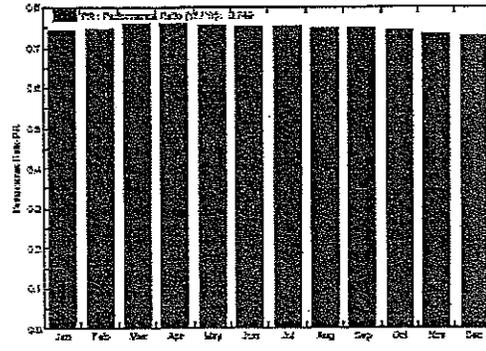
Main system parameters System type Grid-Connected
 PV Field Orientation Double orientation/ field #1 (27 % tilt5°, azimuth-25° field #2 tilt5°, azimuth15°
 PV modules Model STP 200-18/Ub Pnom 200 Wp
 PV Array Nb. of modules 2095 Pnom total 419 kWp
 Inverter Model PowerGate Plus PVS-375 Pnom 375 kW ac
 User's needs Unlimited load (grid)

Main simulation results System Production Produced Energy 542 MWh/year Specific 1294 kWh/kWp/year
 Performance Ratio PR 74.9 %

Normalized production (per installed kWp): Nominal power 419 kWp



Performance Ratio PR



Hillside Inverter 1
 Balances and main results

	GlobHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	EOutInv kWh	EMArrR %	ENSysR %
January	73.5	9.80	79.5	73.5	26339	24521	10.65	10.13
February	99.0	11.55	95.2	90.5	31218	29791	10.64	10.15
March	141.7	12.80	142.1	142.3	49178	47235	10.77	10.35
April	177.3	14.50	181.3	175.5	60116	57810	10.73	10.32
May	209.9	16.20	211.2	204.4	69483	66776	10.68	10.25
June	205.5	16.30	203.5	202.0	68333	65887	10.63	10.22
July	190.0	16.50	190.5	184.1	62455	59968	10.63	10.21
August	170.2	17.30	172.5	165.5	55324	54075	10.59	10.17
September	145.5	17.40	150.5	144.8	49037	47135	10.56	10.13
October	116.9	15.20	124.5	119.9	40531	38535	10.57	10.12
November	61.3	12.75	63.7	63.2	23713	22713	10.50	9.99
December	67.5	9.90	73.2	70.5	24519	23029	10.50	9.94
Year	1571.4	14.19	1727.1	1689.3	565247	542472	10.63	10.19

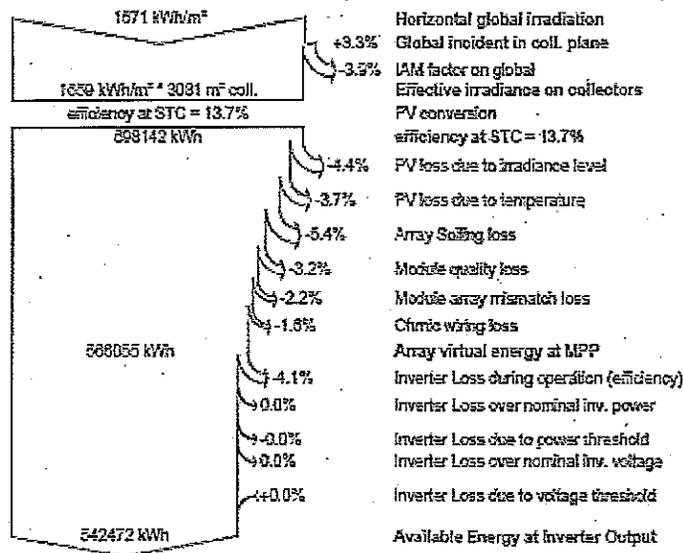
Legends: GlobHor Horizontal global irradiation EArray Effective energy at the output of the array
 T Amb Ambient Temperature EOutInv Available Energy at inverter Output
 GlobInc Global incident in col. plane EMArrR Effc. Out array / rough area
 GlobEff Effective Global con. for IAM and shading ENSysR Effc. Out system / rough area

Grid-Connected System: Loss diagram

Project : Merritt College
Simulation variant : Hillside Inverter 1

Main system parameters	System type	Grid-Connected	
PV Field Orientation	Double orientation/ field #1(27 %	tilt5°, azimuth-25°	field #2 tilt5°, azimuth15°
PV modules	Model	STP 200-18/Ub	Pnom 200 Wp
PV Array	Nb. of modules	2096	Pnom total 419 kWp
Inverter	Model	PowerGate Plus PVS-375	Pnom 375 kW ac
User's needs	Unlimited load (grid)		

Loss diagram over the whole year



- f) Analytical and empirical support for cost effectiveness claims;
Chevron ES utilizes hourly electricity data for a minimum of one year to determine the electricity savings for that year, the Chevron ES engineering team also calculates the cost savings based on the actual cost of power for the specific hour. Electricity cost escalation rates are determined from historical data available from PG&E. An annual panel degradation factor of 0.7% will be included in the annual estimated electricity production from the panels.
- g) Explicit assumptions regarding net energy metered quantities of electricity produced by the solar PV system;
Chevron ES obtained hourly electricity usage for Merritt College from PG&E, production from the solar system is subtracted from each hourly usage data, if production > usage, Chevron ES model assumes the overproduction will be net-meter by PG&E, which in turn will reimburse the college for the production at an equivalent rate.
- h) Detailed description and demonstration of proven track record of ongoing performance monitoring system and services;
Chevron ES offers performance monitoring as part of our comprehensive services. The offer includes real-time web based monitoring equipment and ongoing services as long as the district desires. Our team will monitor the Merritt PV system 24/7, if there is a failure of any system component, an alarm is sent to the Chevron ES maintenance team, and the district, the team will troubleshoot the problems and resolve it immediately.

You may contact John Cimino from Milpitas Unified School District for additional information on Chevron ES monitoring services.

- i) Empirical verification of performance claims for systems previously installed by Chevron ES;
Our current systems installed and monitored by Chevron ES in the N. CA region have exceeded estimated production by up to 5%.

You may contact John Cimino from Milpitas Unified School District for additional information.

EXHIBIT A

Program Administrator	Incentive Type	Incentive Step	\$/watt nameplate	Current Incentive Application Status	Host Customer Sector	System Owner Sector	Host Customer Physical Address City	Host Customer Physical Address County	Host Customer Physical Address State	Host Customer Physical Address Zip Code	Solar Contractor Company Name	PV Module#1 Manufacturer
PG&E	EPBB	Step 5	5.93	Completed	Commercial	Commercial	Fresno	Fresno	CA	93726	Sol-Tek Industries	BP Solar
PG&E	EPBB	Step 6	6.57	Completed	Commercial	Commercial	Fresno	Santa Clara	CA	95126	K2 Solar, Inc.	Sharp
PG&E	EPBB	Step 6	6.68	Completed	Government	Commercial	Fresno	Kern	CA	93308	REC Solar, Inc.	Evergreen Solar
PG&E	EPBB	Step 5	6.93	Completed	Commercial	Commercial	Fresno	Fresno	CA	93727	SunPower Corporation, Systems	SunPower
PG&E	EPBB	Step 5	7.09	Completed	Commercial	Commercial	Fresno	Alameda	CA	94608	Borrego Solar Systems, Inc.	Sharp
PG&E	EPBB	Step 5	7.10	Completed	Commercial	Commercial	Fresno	Santa Barbara	CA	93454	REC Solar, Inc.	Mitsubishi Electric
PG&E	EPBB	Step 5	7.16	Completed	Non-Profit	Non-Profit	Fresno	Contra Costa	CA	94806	REgrid Power, Inc.	Sharp
PG&E	EPBB	Step 5	7.20	Completed	Commercial	Commercial	Fresno	San Luis Obispo	CA	93448	REC Solar, Inc.	REC ScanModule
PG&E	EPBB	Step 6	7.25	Completed	Government	Government	Fresno	Alameda	CA	94552	Pacific Solar Energy	Sharp
PG&E	EPBB	Step 6	7.52	Completed	Commercial	Commercial	Fresno	Merced	CA	95466	SolarCraft Services, Inc.	SunPower
PG&E	EPBB	Step 6	7.89	Completed	Government	Commercial	Fresno	Glenn	CA	95688	Premier Power Renewable Energy	Suntach Power
PG&E	EPBB	Step 6	8.49	Completed	Government	Government	Fresno	Marin	CA	94930	SPG Solar, Inc.	Suntach Power
PG&E	EPBB	Step 5	8.66	Completed	Commercial	Commercial	Fresno	Glenn	CA	95943	Chico Electric	Mitsubishi Electric
PG&E	EPBB	Step 5	9.06	Completed	Non-Profit	Non-Profit	Fresno	San Francisco	CA	94110	Sun Light and Power	Mitsubishi Electric
PG&E	EPBB	Step 5	9.15	Completed	Commercial	Commercial	Fresno	Contra Costa	CA	94565	Sun Light and Power	Mitsubishi Electric
PG&E	EPBB	Step 5	9.60	Completed	Commercial	Commercial	Fresno	San Luis Obispo	CA	93405	Electricraft, Inc	SolarWorld
PG&E	EPBB	Step 5	12.57	Completed	Government	Commercial	Fresno	San Francisco	CA	94103	Self-Install (Same as Host Customer)	Sharp
PG&E	EPBB	Step 5	12.57	Completed	Government	Government	Fresno	San Rafael	CA	94901	SolarCraft Services, Inc.	Mitsubishi Electric

MIN	5.93	\$/watt
MAX	12.57	\$/watt
AVERAGE	7.91	\$/watt

PROJECTS WITH CONFIRMED CSI RESERVATION
PG and E SERVICE TERRITORY

Program Administrator	Incentive Type	Incentive Step	\$/Watt nameplate	Current Incentive Application Status	Host Customer Sector	System Owner Sector	Host Customer Physical Address City	Host Customer Physical Address County	Host Customer Physical Address State	Host Customer Physical Address ZipCode	Solar Contractor-Company Name	PV Module/Manufacturer
PG&E	FiveYearPBI	Step 6	2.41	Confirmed Reservation	Government	Government	Tombales	Marin	CA	94971	American Solar Corporation	Evergreen Solar
PG&E	FiveYearPBI	Step 6	2.55	Confirmed Reservation	Commercial	Commercial	Fremont	Alameda	CA	94538	Shenrock Renewable Group, Inc.	Evergreen Solar
PG&E	FiveYearPBI	Step 6	3.55	Confirmed Reservation	Government	Government	Suisun City	Solano	CA	94595	Tain-Solar, Inc.	Solar Semiconductor
PG&E	FiveYearPBI	Step 6	4.04	Confirmed Reservation	Commercial	Commercial	Napa	Napa	CA	94559	Self-Install (Same as Host Customer)	Suntech Power
PG&E	EPBB	Step 6	4.09	Confirmed Reservation	Commercial	Commercial	Fresno	Fresno	CA	93710	Valley Unique Electric DBA Solar UB	Suntech Power
PG&E	FiveYearPBI	Step 6	4.48	Confirmed Reservation	Government	Government	Novato	Marin	CA	94947	Petersen-Dean, Inc. DBA Petersen-Sharp	Sharp
PG&E	EPBB	Step 7	4.51	Confirmed Reservation	Commercial	Commercial	South San Francisco	San Mateo	CA	94080	Marin Solar, Inc.	Suntech Power
PG&E	FiveYearPBI	Step 6	4.70	Confirmed Reservation	Government	Government	Novato	Marin	CA	94945	Petersen-Dean, Inc. DBA Petersen-Sharp	Suntech Power
PG&E	FiveYearPBI	Step 6	4.83	Confirmed Reservation	Government	Government	Hayward	Alameda	CA	94544	Teahm-Solar, Inc.	Sanyo Electric
PG&E	FiveYearPBI	Step 6	4.95	Confirmed Reservation	Commercial	Commercial	Crowsville	Madera	CA	93610	BAP Power Corporation	Suntech Power
PG&E	EPBB	Step 6	5.43	Confirmed Reservation	Commercial	Commercial	Chowchilla	Madera	CA	93610	R. T. Maher Construction and Solar E	Suntech Power
PG&E	FiveYearPBI	Step 6	5.65	Confirmed Reservation	Commercial	Commercial	Hazeburg	Sonoma	CA	95448	Warren Brown Construction	Suntech Power
PG&E	EPBB	Step 6	5.79	Confirmed Reservation	Non-Profit	Non-Profit	Livermore	Alameda	CA	94551	Pacific Solar Energy	Schott Solar
PG&E	FiveYearPBI	Step 5	5.82	Confirmed Reservation	Commercial	Commercial	Livermore	Alameda	CA	94551	SunPower Corporation, Systems	SunPower
PG&E	FiveYearPBI	Step 6	5.90	Confirmed Reservation	Commercial	Commercial	Livermore	Alameda	CA	94550	SolarCity	First Solar
PG&E	EPBB	Step 5	5.90	Confirmed Reservation	Commercial	Commercial	Bakersfield	Kern	CA	93307	Econo Air	Suntech Power
PG&E	FiveYearPBI	Step 5	6.91	Confirmed Reservation	Commercial	Commercial	Livermore	Alameda	CA	94551	BASS Electric	Suntech Power
PG&E	FiveYearPBI	Step 6	6.01	Confirmed Reservation	Commercial	Commercial	Chico	Butte	CA	95726	Chico Electric	Suntech Power
PG&E	FiveYearPBI	Step 6	6.24	Confirmed Reservation	Commercial	Commercial	Fresno	Fresno	CA	93710	Lifestyle Solar, Inc.	Sharp
PG&E	FiveYearPBI	Step 6	6.25	Confirmed Reservation	Commercial	Commercial	Fresno	Fresno	CA	93710	Lifestyle Solar, Inc.	Sharp
PG&E	FiveYearPBI	Step 5	6.27	Confirmed Reservation	Commercial	Commercial	Huron	Fresno	CA	93740	Lifestyle Solar, Inc.	Sharp
PG&E	FiveYearPBI	Step 5	6.37	Confirmed Reservation	Commercial	Commercial	Five Points	Fresno	CA	93234	SPG Solar, Inc.	Suntech Power
PG&E	FiveYearPBI	Step 5	6.39	Confirmed Reservation	Commercial	Commercial	Los Banos	Merced	CA	95335	SPG Solar, Inc.	Suntech Power
PG&E	EPBB	Step 6	6.43	Confirmed Reservation	Commercial	Commercial	Campbell	Santa Clara	CA	95036	SolarCity	First Solar
PG&E	EPBB	Step 6	6.45	Confirmed Reservation	Commercial	Commercial	Los Banos	Merced	CA	95308	SolarCity	Sanyo Electric
PG&E	FiveYearPBI	Step 6	6.50	Confirmed Reservation	Commercial	Commercial	San Francisco	Contra Costa	CA	94563	Teahm-Solar, Inc.	Suntech Power
PG&E	EPBB	Step 6	6.59	Confirmed Reservation	Commercial	Commercial	Santa Rosa	Contra Costa	CA	94506	Sky Power Systems	Suntech Power
PG&E	EPBB	Step 6	6.60	Confirmed Reservation	Commercial	Commercial	San Rafael	Sonoma	CA	94132	SolarCity	First Solar
PG&E	EPBB	Step 6	6.62	Confirmed Reservation	Commercial	Commercial	Ontario	Marin	CA	94903	SPG Solar, Inc.	First Solar
PG&E	EPBB	Step 6	6.64	Confirmed Reservation	Commercial	Commercial	San Jose	Glenn	CA	96033	Almatra Energy Systems, Inc.	SunPower
PG&E	EPBB	Step 6	6.73	Confirmed Reservation	Commercial	Commercial	San Jose	San Luis Obispo	CA	95133	K2 Solar, Inc.	Evergreen Solar
PG&E	FiveYearPBI	Step 6	6.80	Confirmed Reservation	Commercial	Commercial	Burlingame	San Mateo	CA	94010	SolarCity	First Solar
PG&E	EPBB	Step 6	6.82	Confirmed Reservation	Commercial	Commercial	Paso Robles	Santa Clara	CA	95041	PHAT Energy Corporation	Suntech Power
PG&E	FiveYearPBI	Step 6	6.95	Confirmed Reservation	Commercial	Commercial	Santa Rosa	Sonoma	CA	95401	SolarCraft Services, Inc.	SunPower
PG&E	EPBB	Step 5	7.00	Confirmed Reservation	Commercial	Commercial	Bakersfield	Santa Barbara	CA	93434	SolarCity	First Solar
PG&E	EPBB	Step 6	7.07	Confirmed Reservation	Commercial	Commercial	Laytonville	Menardino	CA	95966	BAP Power Corporation	Suntech Power
PG&E	FiveYearPBI	Step 6	7.13	Confirmed Reservation	Commercial	Commercial	Santa Rosa	Buila	CA	94904	SPG Solar, Inc.	Sharp
PG&E	EPBB	Step 6	7.15	Confirmed Reservation	Government	Government	Orcuttville	Fresno	CA	93611	SolarCity	First Solar
PG&E	EPBB	Step 5	7.25	Confirmed Reservation	Government	Government	Greenbree	Marin	CA	93611	SolarCity	First Solar
PG&E	EPBB	Step 6	7.29	Confirmed Reservation	Commercial	Commercial	Clovis	Fresno	CA	93720	Pramer Power Renewable Energy,	Suntech Power
PG&E	FiveYearPBI	Step 6	7.34	Confirmed Reservation	Government	Government	Stockton	San Joaquin	CA	95208	SolarCraft Services, Inc.	SunPower
PG&E	EPBB	Step 6	7.43	Confirmed Reservation	Commercial	Commercial	Saint Helena	Napa	CA	94574	SolarCraft Services, Inc.	SunPower
PG&E	EPBB	Step 6	7.75	Confirmed Reservation	Commercial	Commercial	Merced	Merced	CA	95340	SunWorks Power and Electric	Open Energy
PG&E	EPBB	Step 5	7.77	Confirmed Reservation	Commercial	Commercial	Rose	Marin	CA	94559	SolarCity	SunPower
PG&E	EPBB	Step 5	7.80	Confirmed Reservation	Commercial	Commercial	Napa	Napa	CA	94924	American Solar Corporation	Suntech Power
PG&E	EPBB	Step 5	7.90	Confirmed Reservation	Commercial	Commercial	Napa	Marin	CA	94924	American Solar Corporation	Suntech Power
PG&E	EPBB	Step 5	7.95	Confirmed Reservation	Commercial	Commercial	San Francisco	San Francisco	CA	94115	Marin Solar, Inc.	SunPower
PG&E	EPBB	Step 6	8.02	Confirmed Reservation	Commercial	Commercial	Morgan Hill	Santa Clara	CA	95037	Independent Energy Systems, Inc.	SunPower
PG&E	FiveYearPBI	Step 6	8.14	Confirmed Reservation	Commercial	Commercial	American Canyon	Napa	CA	94503	Excel Solar & Electric, Inc.	SunPower
PG&E	FiveYearPBI	Step 6	8.50	Confirmed Reservation	Commercial	Commercial	Sausalito	Marin	CA	94965	SolarCity	Sanyo Electric
PG&E	FiveYearPBI	Step 6	8.59	Confirmed Reservation	Government	Government	Sebastopol	Sonoma	CA	94972	Selapostol Heat and Cool, Inc.	Evergreen Solar
PG&E	EPBB	Step 5	8.79	Confirmed Reservation	Government	Government	Yountville	Napa	CA	94599	Marin Solar, Inc.	Sharp
PG&E	EPBB	Step 5	8.97	Confirmed Reservation	Commercial	Commercial	Santa Rosa	Sonoma	CA	95403	SolarCraft Services, Inc.	Sanyo Electric
PG&E	EPBB	Step 7	11.43	Confirmed Reservation	Non-Profit	Non-Profit	Aherton	San Mateo	CA	94027	Cupertino Electric, Inc.	Sharp
PG&E	EPBB	Step 5	11.50	Confirmed Reservation	Commercial	Commercial	Kingsburg	Fresno	CA	93631	SolarCity	First Solar

MIN	2.41 \$/watt
MAX	11.50 \$/watt
AVE	6.58 \$/watt

