



GENERAL SERVICES AGENCY

COUNTY OF TULARE AGENDA ITEM

BOARD OF SUPERVISORS

KUYLER CROCKER
District One

PETE VANDER POEL
District Two

AMY SHUKLIAN
District Three

J. STEVEN WORTHLEY
District Four

MIKE ENNIS
District Five

AGENDA DATE: May 1, 2018

Public Hearing Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Scheduled Public Hearing w/Clerk	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Published Notice Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Advertised Published Notice	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Meet & Confer Required	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Electronic file(s) has been sent	Yes	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Budget Transfer (Aud 308) attached	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Personnel Resolution attached	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Agreements are attached and signature line for Chairman is marked with tab(s)/flag(s)	Yes	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
CONTACT PERSON: John Hess		PHONE: 624-7227		

SUBJECT: Proposed Solar Energy Production Project

REQUEST(S):

That the Board of Supervisors:

1. Receive a presentation regarding a proposed Solar Energy Production Project to reduce energy costs at several County-owned facilities.
2. Approve proceeding with sole source consideration in accordance with Government Code Section 4217.10 with Engie Services US, Inc. for this solar production project.
3. Direct staff to proceed with contract negotiations with Engie Services US, Inc. and return with final contract approval as soon as practicable.

SUMMARY:

Introduction

In 2017, the County of Tulare received a proposal from Engie Services US, Inc., outlining a solar energy production project at several County-owned building locations. Engie proposes to install solar photovoltaic panels at seven County buildings and battery storage at two. The objective of the project is to reduce the County's overall electricity costs and distribute those savings to affected County departments. To that end, the details included in this staff report will show that the proposed project conservatively generates \$14.6 million in cumulative benefit savings over a 25 year period.

To ensure a thorough review of the proposal, the County consulted with KNN Public Finance, Inc. and ARC Alternatives, Inc. These consultants provided a valuable independent recommendation regarding the proposed project, and their

SUBJECT: Proposed Solar Energy Production Project

DATE: May 1, 2018

information is included in this staff report. County Counsel and staff have reviewed the materials and have consulted with other jurisdictions regarding similar projects. County staff also provided updates to the Countywide Space Improvement Project Ad Hoc Committee regarding the project details.

Proposed Project Details

Engie's proposed project is summarized on the table below and more fully outlined in their attached revised proposal dated April 5, 2018 (**Attachment A**). Also included in the table below, is the projected cumulative benefit savings as calculated by the County's independent consultant, ARC Alternatives. The consultant's independent analysis is attached to this staff report dated March 2018 (**Attachment B**).

Table 1: Proposed Project Locations

	Location	Solar PV kW	Energy Storage kW	25-Year Cumulative Benefit
1	Civic Center East * (<i>see note</i>)	2,088.0		\$ -904,325
2	Government Plaza	1,159.2		795,958
3	Akers Professional Center	396.0	500.0	1,717,590
4	Bob Wiley Detention Facility	1,123.2		1,081,661
5	Civic Center West	2,072.0		70,795
6	Juvenile Detention Facility	1,256.0	250.0	9,138,512
7	South County Detention Facility	1,308.0		2,706,101
	TOTAL	9,402.4	750.0	\$ 14,606,293

Note: At this time, because our independent consultants have calculated a potential financial loss for Site No. 1, Civic Center East, staff is recommending conducting further analysis regarding that site. Engie has indicated that they are committed to the terms of the project with or without Civic Center East and have excluded that site from their attached revised proposal. Therefore, if approved, staff will continue conducting a cost-benefit analysis on Civic Center East and, if the site proves profitable, will include it in the final project contract.

Engie's proposal includes several terms and assumptions that are used to calculate the anticipated 25-year cumulative benefit of \$14.6 million shown on the table above. Engie's proposed terms and key assumptions are reflected in the table below

SUBJECT: Proposed Solar Energy Production Project

DATE: May 1, 2018

Table 2: Proposed Project Terms & Assumptions

Agreement Type	Power Purchase Agreement
Agreement Price (PPA Rate)	\$0.1058 per kWh
Agreement Term	25 Years
Annual Utility Escalation	3%
Annual Operation & Maintenance Escalation	3%
Annual Solar Panel Degradation	0.50%
Estimated Buyout Price at Year 25	\$910,538

The assumption rates included in the project calculations, particularly the Annual Utility Escalation assumption of 3%, are fiscally conservative in order to mitigate as much potential risk to the County as possible.

For example, the County has experienced utility escalation rates greater than 5% over the past 10-15 years, but has utilized an escalation assumption rate of 3% in these calculations. Accordingly, it is feasible that the County may receive a greater benefit than the \$14.6 million reflected in the table above; indeed, Engie has calculated a potential savings range of \$32.0 – \$57.0 million during the PPA term using other assumption rates. In their revised proposal, Engie included an analysis showing the financial benefits if utility rates were to increase at a rate of 5% during the project term; this was also reviewed by our independent consultants.

Power Purchase Agreement Details

There are several types of delivery models and financing methods for solar projects. Two of the most common are direct purchase and power purchase agreement. Direct Purchase requires the owner to cover the entire project costs directly. Typically, the owner finances the direct purchase and utilizes the projected annual utility savings for debt service. This method potentially requires encumbering the property and requires the County to assume more debt for the project.

Engie's proposed agreement type, a Power Purchase Agreement (PPA), requires the third-party developer, Engie in this case, to own, operate, and maintain the solar system over the PPA term. Under a PPA, the County acts as a host customer, agreeing to lease the site to the developer for construction of the solar panels on our property.

In turn, the County purchases a contractually-identified amount of electricity from the solar developer at an identified rate. That payment rate, also known as the PPA Rate, is fixed for the entire term of the contract. The benefits of the PPA are that the County does not obtain new debt financing and does not encumber real property, other than through the lease agreement with Engie. Yet, the County still

SUBJECT: Proposed Solar Energy Production Project

DATE: May 1, 2018

receives the financial benefit of a fixed energy rate for 25 years.

The proposed PPA has a term of 25 years and a price of \$0.1058 per kWh for the entire term of the agreement. At the end of the agreement, the County purchases the system from Engie at a predetermined price. That system-wide purchase price is \$910,538 and would be due in 2043. After that buyout, the County would receive 100% of the total project savings.

Engie predicts a 0.50% annual degradation of solar panel production effectiveness and has assumed a 3% annual escalation for operation and maintenance costs. Upon purchase after 25 years, the County will be responsible for replacement of the panels or their continued operation and maintenance. Engie has indicated they expect the useful life of the solar panels to be 30 years; therefore, the County may receive an additional 5 years of financial benefit directly at the end of the PPA term.

The PPA obligates the County to purchase all of the solar-generated power from Engie at the agreed upon rate, irrespective of the subject building's consumption needs. Therefore, Engie engineers the solar-generation capacity of each system at an amount less than the projected building's consumption needs.

Any amount of energy needed for a building above the solar production amount is purchased from the utility companies at the then current utility rate. Regardless of increases in utility costs, the County will pay the PPA Rate for the entire term of the agreement for all energy purchased from Engie.

Because energy purchased from the utility companies will be more expensive than the Engie PPA Rate, it is in the County's financial interest to appropriately size the solar panels at the beginning of the project and to strategically reduce energy consumption in subject buildings.

To achieve this goal, staff will be evaluating a comprehensive energy efficiency project at the proposed solar project sites which will be considered at a later date. As part of a potential energy efficiency project, the County will be reducing its energy consumption needs, which reduces the amount of energy potentially purchased directly from the utility companies at a higher rate.

Importantly, Engie Services provides a contractual guarantee for 90% of the energy savings. This guarantee ensures that, if the system were to fail to produce a minimum of 90% of the expected energy output as identified in the contract, Engie would be required to issue a credit to the County in the amount of energy produced minus 90% for that period (balancing any other credits for that same period). This provides reasonable assurance to the County that it will not realize financial losses as a result of this project. This again provides a financial incentive to size and engineer the system as appropriately and accurately as possible.

SUBJECT: Proposed Solar Energy Production Project

DATE: May 1, 2018

Recommendation & Next Steps

Based upon the extensive review process outlined above, staff recommends proceeding with the solar energy production project at six of the proposed seven locations and with both battery storage sites. Regarding the seventh site, Civic Center East, staff recommends conducting further analysis to determine the financial feasibility of that site.

In accordance with Government Code Section 4217.10, staff also recommends proceeding with a public hearing to select Engie Services US, Inc. as the sole source recipient for this solar energy production project. This is a common practice within the solar energy production project due to the extensive investment needed to produce a proposal and provide financial commitments for the project.

In addition, preparing, issuing, and awarding a Request for Proposals would require approximately 12 months. For a project of this size, an RFP would require detailed engineering drawings and specifications, and legal review. In summary, preparing an RFP with the appropriate design-build consultants could potentially cost hundreds of thousands of dollars and delay the project by one year.

Finally, if sole source is approved, staff will conclude negotiations with Engie and return to the Board with a final contract for approval as soon as practicable. It is anticipated that the final contract will be brought to the Board in late May or early June.

FISCAL IMPACT/FINANCING:

As mentioned above, using conservative assumptions, the project is forecasted to generate a savings over \$10 million and could be as much as \$30 – \$50 million over the 25 year term. These savings would be passed on to the affected County departments at each site in the form of reduced utility internal service fund billings.

LINKAGE TO THE COUNTY OF TULARE STRATEGIC BUSINESS PLAN:

The County's Strategic Business Plan includes the Organizational Performance and Quality of Life initiatives to promote fiscal responsibility and improve the quality of life for County residents. This project will generate extensive savings, will maximize the utilization of County properties, and will provide a sustainable source of energy for identified County buildings.

SUBJECT: Proposed Solar Energy Production Project

DATE: May 1, 2018

ADMINISTRATIVE SIGN-OFF:

John Hess
General Services Agency Director

cc: Auditor-Controller
County Counsel
County Administrative Office (2)

Attachment(s)

A – Engie Services US. Inc. revised proposal dated April 5, 2018

B – ARC Alternatives, Inc. revised review dated March 2018

**BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA**

**IN THE MATTER
OF A PROPOSED SOLAR
ENERGY PRODUCTION PROJECT**

)
) **Resolution No.** _____
) **Agreement No.** _____
)

UPON MOTION OF SUPERVISOR _____, SECONDED BY
SUPERVISOR _____, THE FOLLOWING WAS ADOPTED BY THE
BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD _____
_____, BY THE FOLLOWING VOTE:

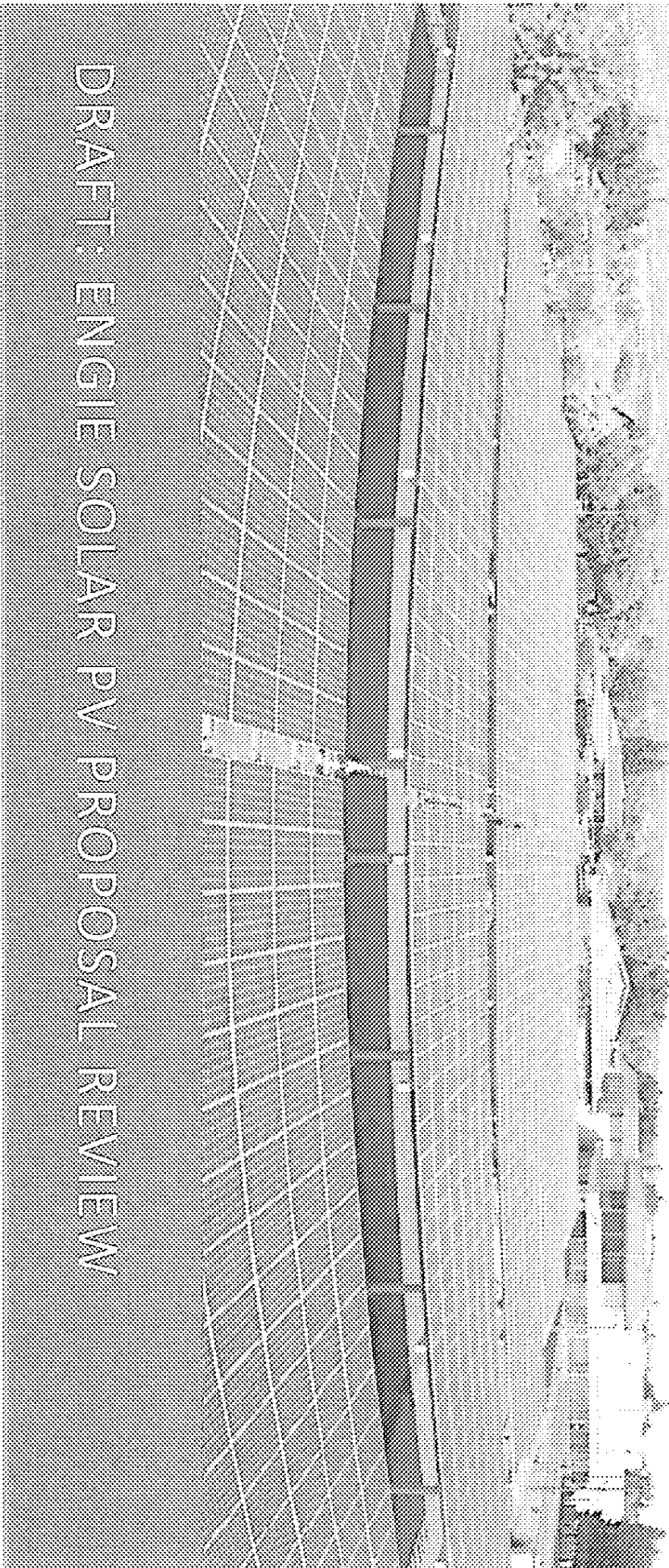
AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST: MICHAEL C. SPATA
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: _____
Deputy Clerk

* * * * *

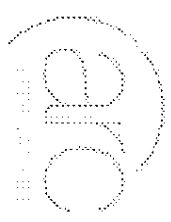
1. Received a presentation regarding a proposed Solar Energy Production Project to reduce energy costs at several County-owned facilities.
2. Approved proceeding with sole source consideration in accordance with Government Code Section 4217.10 with Engie Services US, Inc. for this solar production project.
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DRAFT: ENGIE SOLAR PV PROPOSAL REVIEW

Prepared for:
County of Tulare

Prepared by:
ARC Alternatives
March 2018
San Francisco, CA



Purpose of this Report

ARC Alternatives was hired by the County to review the solar PV and battery storage proposal submitted by ENGIE. The review includes the analysis of the load at each facility, the solar system proposed by ENGIE at each facility, and a portfolio level analysis of the project economics submitted by ENGIE.

Summary of ENGIE Proposal

- ENGIE initially proposed combination of solar and storage at six existing facilities plus one future facility that is under construction, assuming the County would purchase the solar and storage assets using CREBs. Based on changes in CREB availability, ENGIE revised its proposal to offer a PPA.
- The revised ENGIE proposal includes 9,402 kW of solar across the seven sites and a total of 1,000 kW of Battery storage distributed across three of the seven sites.
- The ENGIE proposal includes only portfolio level financial analysis and combines the benefit from the proposed solar systems and the proposed storage systems. The combination of the two makes it difficult to isolate the individual systems or separate the solar benefit from the storage benefit.

Summary of Updates to Report -- 2/19/18

- ARC and ENGIE had two conference calls to review the solar proposal details.
- ENGIE provided supporting documentation for the solar systems including hourly solar production modeling, detailed layouts, product specifications, and benefit modeling assumptions.
- Financial modeling differences were identified and ARC revised its modeling to include additional detail provided by ENGIE. The remaining differences between the modeling can be attributed to differences between the modeling assumptions used.

Summary of Updates to Report - 3/28/18

- ENGIE provided site-by-site level PPA pricing and included an additional pricing proposal for 30 year PPA term.
- The financial analysis has been updated to reflect the updated pricing and extend the project lifecycle to 30 years.
- The capital purchase options have been removed from this report and focuses on the PPA financing mechanism. The system purchase options can be added back if the County would like to revisit that project pathway.



Utility Data and ENGIE's Proposal Specifics

Site	Source Account	Annual Utility Bill (kWh)	Annual Energy Cost (\$/MWh)	Annual Energy Consumption (kWh/M/yr)	ENGIE Solar System Size (kW)	ENGIE Solar Production (kWh/M/yr)	Site Load Offset	Solar System Type	ENGIE Battery Proposal
Civic Center East	11656	SCE	\$562,518	5,258,940	2,088	3,304,094	63%	Shade Structure	250 kW/500 kWh
Government Plaza	11926046 12144199	SCE	\$377,705	2,881,314	1,159	1,918,494	67%	Shade Structure	None
Akers Professional Center	44938727	SCE	\$366,180	2,625,836	1,123	1,797,648	68%	Shade Structure	500 kW/1,000 kWh
Bob Wiley Detention Facility	11657	SCE	Not Available	5,412,056	2,072	4,226,233	68%	Ground Mount Tracker	None
Civic Center West	11680	SCE	Not Available	1,012,483	396	645,890	78%	Shade Structure	None
Juvenile Detention Facility	359972137 5	PGE	\$550,166	3,928,757	1,256	2,645,397	64%	Ground Mount Tracker	250 kW/500 kWh
South County Detention Facility	Future Facility	SCE	Not Available	4,000,000 (Assumed)	1,308	2,706,983	67%	Ground Mount Tracker	None

- * The table above includes a summary of the Utility data provided by the city as well as an overview of the proposed ENGIE solar systems for each site.
- * ENGIE provided the estimated hourly solar production for each system. The estimated annual production for each system is in line with expectations for each site and system type.
- * Within the current regulatory environment, solar production can ideally offset up to 100% of a facility's consumption. ENGIE's proposed systems are only offsetting 60% to 75%, depending on the facility. In most cases, there is additional space available to increase the sizes of the systems to increase capacity. In discussions with ENGIE, their staff noted that systems were left smaller to allow for energy reductions through efficiency projects. ARC recommends that the County review any efficiency projects planned for these facilities to ensure systems are "right sized" for the future anticipated load.



Solar System Layouts

ARC reviewed the solar layouts and discussed several items with ENGIE. Prior to any contract execution, ARC recommends that the county review the proposed layouts and clarify any concerns. The results of the discussion are below:

Question:	ARC comment:	ENGIE Response:
	<p>Many of the systems appear to have generation a fair distance from interconnection. Has ENGIE accounted for any transformers in their price/design?</p>	<p>Yes, step-up and step-down transformers have been included in pricing where necessary</p>
	<p>For the ground-mounted systems, has ENGIE included fencing and ground cover in their pricing?</p>	<p>Have included 6 foot surrounding fence with razor wire and one 20 foot access gate. No new ground cover is included and weed mitigation will be managed through O&M.</p>
	<p>Does the county control Sunset Ave or will ENGIE need to work with the city to get power from the east parking lot back to the interconnection location?</p>	<p>Easements have not been verified but have County electrical lines crossing already. Confirming easements is included in bid.</p>
	<p>Is there a specific reason for staying out of the parking lot closer to the main building?</p>	<p>Did this at County direction to maintain tree coverage in closer parking area.</p>
	<p>Is there any concern over the use of the facility between arrays A5 and A6?</p>	<p>No concern. Building is an emergency generator. All access and requires setbacks will be maintained.</p>
	<p>Does ENGIE anticipate going underground to the point of interconnection from the system?</p>	<p>All home runs are planned on going underground.</p>
	<p>County will need to be made aware of necessary tree trimming for A2.</p>	<p>Includes trimming on A2. County is considering a parking lot re-vamp and the layouts may need to be revised.</p>



Solar Economic Analysis

The table below discusses key assumptions in the solar PV financial analysis.

Assumptions	Discussion
	<p>The financial analysis assumes that the project will be installed in 2019. Rates are escalated from the current rate at the assumed escalation rate to calculate the 2019 starting rate</p> <p>The analysis assumes a 30 year life-cycle. While ARC generally constrains the analysis period to 25 years to match warrantee information, ENGIE is providing a 30 term PPA that effectively extends the "guaranteed" life of the project. The 25 Year term PPA analysis includes the end of term buy-out cost and post PPA operations and maintenance costs</p> <p>ARC assumes a 3% utility escalation rate while ENGIE uses 5%. Higher utility escalation rates increase the savings basis of the analysis. ARCs practice is to assume a conservative rate to maintain a conservative analysis. We strongly recommend any decisions be based on a the conservative escalation rate.</p> <p>Both analyses assume interconnection under NEM 2.0 and use the utility proposed grandfathering terms for 8 years of the project life. ARC and ENGIE discussed the utility proposals and confirmed both analyses are using the current best available data for the analysis.</p> <p>Both analyses assume a rate switch to the most beneficial rate available after the addition of solar. Each analysis is also based on proposed rates that will go into effect in 2018, not current rates which are more favorable to solar projects.</p> <p>ENGIE's proposal includes "Measurement and Verification" as a cost in their pro-forma. This refers to what is typically called a Performance Guarantee, where energy production is guaranteed by a solar vendor. Performance Guarantees have come down significantly in price over the last several years and are often included in the purchase of the system. These costs would be bundled into the electricity rate in the case of a PPA.</p> <p>ENGIE includes incentives in their pro-forma, which are from the SGIP program (though which incentive step is unclear) for energy storage. Securing these incentive will be central to the energy storage project's financial viability.</p> <p>ARC limits demand savings from solar to 10% of the peak solar output. This is a conservative assumption to hedge for mismatches in facility operation peaks and solar production peaks. In addition to utility escalation, this is a main factor in the differences between the ARC analysis and ENGIE analysis and is likely driving the remaining differences between the two when escalation rates are removed.</p>



ENGIE Proposal PPA Pricing

25 Year PPA Agreement[1][3]

30 Year PPA Agreement[2][3]

Facility	Capacity (kW)	Annual Generation (kWh)	Capacity (kW)	Annual Generation (kWh)	25 Year PPA Agreement [1][3] (\$/kWh)	30 Year PPA Agreement [2][3] (\$/kWh)	25 Year PPA Agreement [1][3] (\$/kWh)	30 Year PPA Agreement [2][3] (\$/kWh)
Civic Center East	2,088	3,304,094	250 kW/ 500 kWh		\$0.1259	\$0.1362	\$299,126	\$239,935
Government Plaza	1,159	1,918,494	None		\$0.1315	NA	\$166,575	\$133,894
Akers Professional Center	1,123	1,797,648	500 kW/ 1,000 kWh		\$0.1280	\$0.1512	\$155,277	\$129,784
Bob Wiley Detention Facility	2,072	4,226,233	None		\$0.0867	NA	\$217,267	\$384,755
Civic Center West	396	645,890	None		\$0.1318	NA	\$71,346	\$46,759
Juvenile Detention Facility	1,256	2,645,397	250 kW/ 500 kWh		\$0.0920	\$0.0948	\$149,191	\$238,266
South County Detention Facility	1,308	2,706,983	None		\$0.0917	NA	\$150,882	\$230,872

[1] 25 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 2-16-18.pdf"

[2] 30 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 3-25-18.pdf"

[3] All PPA Prices are fixed for the term of the PPA with a 0% escalation rate



Solar Project Only, 3% Utility Escalation

25 Year PPA Agreement[2]

30 Year PPA Agreement[4]

Year	25 Year PPA Agreement[2]	30 Year PPA Agreement[4]
1	\$3,123,826	\$3,123,826
2	\$3,217,540	\$3,217,540
3	\$3,314,067	\$3,314,067
4	\$3,413,489	\$3,413,489
5	\$3,515,893	\$3,515,893
6	\$3,621,370	\$3,621,370
7	\$3,730,011	\$3,730,011
8	\$3,841,912	\$3,841,912
9[5]	\$3,957,169	\$3,957,169
10	\$4,075,884	\$4,075,884
11	\$4,198,160	\$4,198,160
12	\$4,324,105	\$4,324,105
13	\$4,453,828	\$4,453,828
14	\$4,587,443	\$4,587,443
15	\$4,725,067	\$4,725,067
16	\$4,866,819	\$4,866,819
17	\$5,012,823	\$5,012,823
18	\$5,163,208	\$5,163,208
19	\$5,318,104	\$5,318,104
20	\$5,477,647	\$5,477,647
21	\$5,641,977	\$5,641,977
22	\$5,811,236	\$5,811,236
23	\$5,985,573	\$5,985,573
24	\$6,165,140	\$6,165,140
25	\$6,350,094	\$6,350,094
26	\$6,540,597	\$6,540,597
27	\$6,736,815	\$6,736,815
28	\$6,938,920	\$6,938,920
29	\$7,147,087	\$7,147,087
30	\$7,361,500	\$7,361,500
Total	\$148,617,305	\$148,617,305

[1] Gross benefit includes utility bill savings the solar project only calculated on a site by site basis

[2] 25 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 2-16-18.pdf"

[3] The 25 Year PPA analysis includes the end of term buyout cost and post term operations and maintenance cost for project years 26-30

[4] 30 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 3-25-18.pdf"

[5] Installation of projects is assumed to be in 2019 limiting TOU grandfathering to 8 years.



Solar+Storage Project, 3% Utility Escalation

25 Year PPA Agreement[2]

30 Year PPA Agreement[4]

1	25,119,385	\$3,133,826	17,244,743	\$701,382	\$2,422,443	\$1,924,661	\$0	\$0	\$497,782	\$497,782	\$1,871,518	\$550,925	\$550,925
2	25,119,385	\$3,217,540	17,158,519	\$1,011,122	\$2,206,419	\$1,915,038	\$0	\$0	\$291,381	\$789,163	\$1,962,161	\$344,258	\$895,184
3	25,119,385	\$3,314,067	17,072,727	\$1,055,735	\$2,258,331	\$1,905,463	\$0	\$0	\$352,869	\$1,142,032	\$1,852,850	\$405,482	\$1,300,665
4	25,119,385	\$3,413,489	16,987,363	\$1,101,943	\$2,311,546	\$1,895,935	\$0	\$0	\$415,611	\$1,557,643	\$1,843,586	\$467,960	\$1,768,626
5	25,119,385	\$3,515,893	16,902,426	\$1,233,131	\$2,232,762	\$1,886,456	\$0	\$0	\$346,306	\$1,903,949	\$1,834,368	\$398,394	\$2,167,020
6	25,119,385	\$3,621,370	16,817,914	\$1,332,691	\$2,288,679	\$1,877,023	\$0	\$0	\$411,656	\$2,315,605	\$1,825,196	\$463,483	\$2,630,503
7	25,119,385	\$3,730,011	16,733,824	\$1,384,012	\$2,345,999	\$1,867,638	\$0	\$0	\$478,361	\$2,793,966	\$1,816,070	\$529,929	\$3,160,432
8	25,119,385	\$3,841,912	16,650,155	\$1,437,155	\$2,404,756	\$1,858,300	\$0	\$0	\$546,456	\$3,340,422	\$1,806,989	\$597,767	\$3,758,199
9[5]	25,119,385	\$3,957,169	16,566,904	\$2,320,716	\$1,636,452	\$1,849,009	\$0	\$0	\$212,556	\$3,127,866	\$1,797,955	\$161,502	\$3,596,697
10	25,119,385	\$4,075,884	16,484,070	\$2,398,665	\$1,677,219	\$1,839,763	\$0	\$0	\$162,545	\$2,965,321	\$1,788,965	\$111,746	\$3,484,951
11	25,119,385	\$4,198,160	16,401,650	\$2,479,159	\$1,729,001	\$1,830,565	\$0	\$0	\$111,564	\$2,853,758	\$1,780,020	\$61,039	\$3,423,932
12	25,119,385	\$4,324,105	16,319,641	\$2,562,281	\$1,761,825	\$1,821,412	\$0	\$0	\$59,587	\$2,794,171	\$1,771,120	\$9,295	\$3,414,637
13	25,119,385	\$4,453,828	16,238,043	\$2,648,113	\$1,805,716	\$1,812,305	\$0	\$0	\$6,539	\$2,767,582	\$1,762,264	\$43,452	\$3,458,089
14	25,119,385	\$4,587,443	16,156,853	\$2,736,742	\$1,850,701	\$1,803,243	\$0	\$0	\$47,458	\$2,835,039	\$1,753,453	\$97,248	\$3,555,337
15	25,119,385	\$4,725,067	16,076,069	\$2,828,259	\$1,896,807	\$1,794,227	\$0	\$0	\$102,680	\$2,937,620	\$1,744,686	\$152,122	\$3,707,459
16	25,119,385	\$4,866,819	15,995,688	\$2,922,755	\$1,944,063	\$1,785,256	\$0	\$0	\$158,807	\$3,096,427	\$1,735,962	\$208,101	\$3,915,559
17	25,119,385	\$5,012,823	15,915,710	\$3,020,327	\$1,992,496	\$1,775,330	\$0	\$0	\$216,167	\$3,312,594	\$1,727,282	\$265,214	\$4,180,773
18	25,119,385	\$5,163,208	15,836,131	\$3,121,071	\$2,042,137	\$1,767,448	\$0	\$0	\$274,689	\$3,587,283	\$1,718,646	\$323,491	\$4,504,265
19	25,119,385	\$5,318,104	15,756,951	\$3,225,089	\$2,093,015	\$1,758,611	\$0	\$0	\$334,405	\$3,921,688	\$1,710,053	\$382,963	\$4,887,227
20	25,119,385	\$5,477,647	15,678,166	\$3,332,485	\$2,145,162	\$1,749,818	\$0	\$0	\$395,344	\$4,317,032	\$1,701,302	\$443,659	\$5,330,897
21	25,119,385	\$5,641,977	15,599,775	\$3,714,285	\$1,927,691	\$1,741,069	\$0	\$0	\$186,633	\$4,503,655	\$1,692,995	\$234,696	\$5,565,583
22	23,119,385	\$5,811,236	15,521,776	\$3,836,893	\$1,974,343	\$1,732,363	\$0	\$0	\$241,979	\$4,745,634	\$1,684,530	\$289,813	\$5,895,386
23	25,119,385	\$5,985,573	15,444,167	\$3,963,458	\$2,022,115	\$1,723,701	\$0	\$0	\$298,414	\$5,044,048	\$1,676,107	\$346,008	\$6,201,404
24	25,119,385	\$6,165,140	15,366,947	\$4,094,103	\$2,071,037	\$1,715,083	\$0	\$0	\$355,954	\$5,400,002	\$1,667,727	\$403,310	\$6,604,714
25	25,119,385	\$6,350,094	15,290,112	\$4,228,961	\$2,121,134	\$1,706,507	\$1,209,664	\$0	\$-795,038	\$4,604,964	\$1,659,388	\$461,746	\$7,066,459
26	25,119,385	\$6,540,597	15,213,561	\$4,368,162	\$2,172,435	\$0	\$0	\$263,499	\$1,908,936	\$6,513,900	\$1,651,091	\$521,344	\$7,587,803
27	25,119,385	\$6,736,815	15,137,593	\$4,511,847	\$2,224,968	\$0	\$0	\$271,404	\$1,953,565	\$8,467,465	\$1,642,836	\$582,133	\$8,169,936
28	25,119,385	\$6,938,920	15,061,905	\$4,660,156	\$2,278,764	\$0	\$0	\$279,546	\$1,999,218	\$10,466,682	\$1,634,622	\$644,142	\$8,814,078
29	25,119,385	\$7,147,087	14,986,595	\$4,813,236	\$2,333,851	\$0	\$0	\$287,932	\$2,045,919	\$12,512,601	\$1,626,448	\$707,403	\$9,521,481
30	25,119,385	\$7,361,500	14,911,662	\$4,971,238	\$2,390,262	\$0	\$0	\$296,570	\$2,093,691	\$14,606,293	\$1,618,316	\$771,945	\$10,293,426
Total	753,581,550	\$18,617,305	481,527,742	\$86,065,174	\$62,552,131	\$45,337,223	\$1,209,664	\$1,398,952	\$14,606,293	\$52,258,705	\$10,293,426		

[1] Gross benefit includes utility bill savings from the solar and storage projects calculated on a site by site basis as well as SGP incentives from the storage project

[2] 25 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 2-16-18.pdf"

[3] The 25 Year PPA analysis includes the end of term buyout cost and post term operations and maintenance cost for project years 26-30

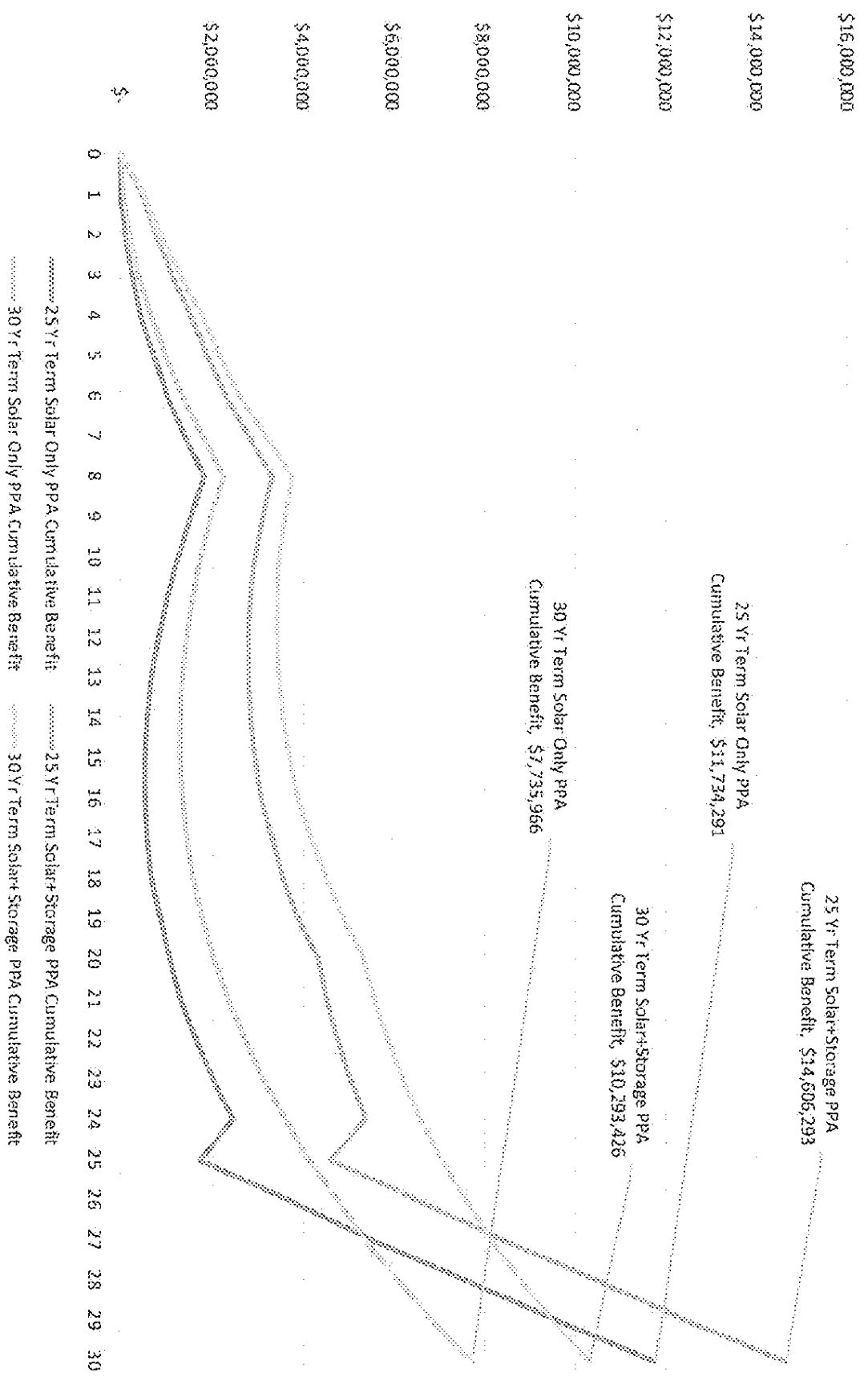
[4] 30 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 3-25-18.pdf"

[5] Installation of projects is assumed to be in 2019 limiting TOU grandfathering to 8 years.



3% Escalation Cumulative Savings Comparison

3% Escalation Cumulative Project Savings



Solar Project Only, 5% Utility Escalation

25 Year PPA Agreement[2]

30 Year PPA Agreement[4]

1	25,119,385	\$3,246,317	17,244,743	\$1,294,771	\$1,951,545	\$1,841,516	\$0	\$0	\$110,029	\$110,029	\$1,790,113	\$161,433	\$461,433
2	25,119,385	\$3,408,633	17,158,519	\$1,370,166	\$2,038,467	\$1,832,309	\$0	\$0	\$206,158	\$316,187	\$1,781,162	\$257,304	\$418,737
3	25,119,385	\$3,579,065	17,072,727	\$1,449,808	\$2,129,257	\$1,823,147	\$0	\$0	\$306,110	\$622,297	\$1,772,256	\$357,000	\$775,738
4	25,119,385	\$3,758,018	16,987,363	\$1,533,930	\$2,224,088	\$1,814,031	\$0	\$0	\$410,057	\$1,032,354	\$1,763,395	\$460,693	\$1,236,431
5	25,119,385	\$3,945,919	16,902,426	\$1,622,778	\$2,323,141	\$1,804,961	\$0	\$0	\$518,179	\$1,550,533	\$1,754,578	\$568,562	\$1,804,993
6	25,119,385	\$4,143,215	16,817,914	\$1,716,613	\$2,426,602	\$1,795,937	\$0	\$0	\$630,665	\$2,181,198	\$1,745,805	\$680,797	\$2,485,790
7	25,119,385	\$4,350,375	16,733,824	\$1,815,707	\$2,534,668	\$1,786,957	\$0	\$0	\$747,711	\$2,928,910	\$1,737,076	\$797,592	\$3,283,381
8	25,119,385	\$4,567,894	16,650,155	\$1,920,350	\$2,647,544	\$1,778,022	\$0	\$0	\$869,522	\$3,798,432	\$1,728,391	\$919,153	\$4,202,534
9[5]	25,119,385	\$4,796,289	16,566,904	\$3,035,072	\$1,761,217	\$1,769,132	\$0	\$0	\$7,915	\$3,790,517	\$1,719,749	\$41,468	\$4,244,002
10	25,119,385	\$5,036,103	16,484,070	\$3,197,157	\$1,838,946	\$1,760,286	\$0	\$0	\$78,660	\$3,869,177	\$1,711,150	\$127,796	\$4,371,799
11	25,119,385	\$5,287,908	16,401,650	\$3,367,809	\$1,920,100	\$1,751,485	\$0	\$0	\$168,615	\$4,037,792	\$1,702,594	\$217,565	\$4,599,304
12	25,119,385	\$5,552,304	16,319,641	\$3,547,476	\$2,004,828	\$1,742,727	\$0	\$0	\$262,101	\$4,299,893	\$1,694,081	\$310,747	\$4,900,051
13	25,119,385	\$5,829,919	16,238,043	\$3,736,631	\$2,093,288	\$1,734,014	\$0	\$0	\$359,274	\$4,659,167	\$1,685,611	\$407,677	\$5,307,728
14	25,119,385	\$6,121,415	16,156,853	\$3,935,771	\$2,185,644	\$1,725,344	\$0	\$0	\$460,300	\$5,119,467	\$1,677,183	\$508,461	\$5,816,189
15	25,119,385	\$6,427,486	16,076,069	\$4,145,419	\$2,282,067	\$1,716,717	\$0	\$0	\$565,350	\$5,684,817	\$1,668,797	\$613,270	\$6,429,458
16	25,119,385	\$6,748,860	15,995,688	\$4,366,125	\$2,382,735	\$1,708,133	\$0	\$0	\$674,602	\$6,359,419	\$1,660,453	\$722,282	\$7,151,741
17	25,119,385	\$7,086,303	15,915,710	\$4,598,467	\$2,487,836	\$1,699,593	\$0	\$0	\$788,243	\$7,147,662	\$1,652,151	\$835,685	\$7,987,426
18	25,119,385	\$7,440,618	15,836,131	\$4,843,055	\$2,597,564	\$1,691,095	\$0	\$0	\$906,469	\$8,054,131	\$1,643,890	\$953,673	\$8,941,099
19	25,119,385	\$7,812,649	15,756,951	\$5,100,528	\$2,712,121	\$1,682,639	\$0	\$0	\$1,029,482	\$9,083,613	\$1,635,671	\$1,076,451	\$10,017,550
20	25,119,385	\$8,203,282	15,678,166	\$5,371,560	\$2,831,721	\$1,674,226	\$0	\$0	\$1,157,495	\$10,241,108	\$1,627,492	\$1,204,229	\$11,221,779
21	25,119,385	\$8,613,446	15,599,775	\$5,656,861	\$2,956,585	\$1,665,855	\$0	\$0	\$1,290,730	\$11,531,838	\$1,619,355	\$1,337,230	\$12,559,003
22	25,119,385	\$9,044,118	15,521,776	\$5,957,174	\$3,086,944	\$1,657,526	\$0	\$0	\$1,429,418	\$12,961,257	\$1,611,258	\$1,475,686	\$14,034,695
23	25,119,385	\$9,496,324	15,444,167	\$6,273,285	\$3,223,039	\$1,649,238	\$0	\$0	\$1,573,801	\$14,535,057	\$1,603,202	\$1,619,837	\$15,654,532
24	25,119,385	\$9,971,140	15,366,947	\$6,606,019	\$3,365,121	\$1,640,992	\$0	\$0	\$1,724,129	\$16,259,487	\$1,595,186	\$1,769,936	\$17,424,467
25	25,119,385	\$10,469,697	15,290,112	\$6,956,242	\$3,513,455	\$1,632,787	\$1,209,664	\$0	\$671,004	\$16,930,191	\$1,587,210	\$1,926,245	\$19,350,712
26	25,119,385	\$10,993,182	15,213,661	\$7,324,868	\$3,668,314	\$0	\$0	\$263,499	\$3,404,815	\$20,335,005	\$1,579,274	\$2,089,040	\$21,439,752
27	25,119,385	\$11,542,841	15,137,593	\$7,712,857	\$3,829,984	\$0	\$0	\$271,404	\$3,558,580	\$23,893,585	\$1,571,377	\$2,258,606	\$23,698,359
28	25,119,385	\$12,119,983	15,061,905	\$8,121,219	\$3,998,764	\$0	\$0	\$279,546	\$3,719,218	\$27,612,803	\$1,563,521	\$2,435,244	\$26,133,602
29	25,119,385	\$12,725,982	14,986,595	\$8,551,035	\$4,174,967	\$0	\$0	\$287,932	\$3,887,035	\$31,499,838	\$1,555,793	\$2,619,264	\$28,752,867
30	25,119,385	\$13,362,281	14,911,662	\$9,003,363	\$4,358,918	\$0	\$0	\$296,570	\$4,062,348	\$35,562,186	\$1,547,924	\$2,810,994	\$31,563,860
Total		753,581,550	\$215,681,566	481,527,742	\$134,132,096	\$81,549,471	\$43,378,669	\$1,209,664	\$1,398,952	\$35,562,186	\$49,985,610	\$31,563,860	

[1] Gross benefit includes utility bill savings the solar project only calculated on a site by site basis

[2] 25 Year PPA pricing is taken from the ENGIE Proposal: Document "Tulare County PPA Options by Site 2-16-18.pdf"

[3] The 25 Year PPA analysis includes the end of term buyout cost and post term operations and maintenance cost for project years 26-30

[4] 30 Year PPA pricing is taken from the ENGIE Proposal: Document "Tulare County PPA Options by Site 3-25-18.pdf"

[5] Installation of projects is assumed to be in 2019 limiting TOU grandfathering to 8 years.



Solar+Storage Project, 5% Utility Escalation

25 Year PPA Agreement[2]

30 Year PPA Agreement[4]

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
1	25,119,385	\$3,246,317	17,244,743	\$744,771	\$2,501,546	\$1,924,661	\$0	\$0	\$576,885	\$576,885	\$1,871,518	\$630,028	\$630,028										
2	25,119,385	\$3,408,633	17,158,519	\$1,079,333	\$2,329,300	\$1,915,038	\$0	\$0	\$414,262	\$991,147	\$1,862,161	\$467,139	\$1,097,167										
3	25,119,385	\$3,579,065	17,072,727	\$1,151,100	\$2,427,965	\$1,905,463	\$0	\$0	\$522,502	\$1,513,649	\$1,852,850	\$575,115	\$1,672,282										
4	25,119,385	\$3,758,018	16,987,363	\$1,226,953	\$2,531,065	\$1,895,935	\$0	\$0	\$635,130	\$2,148,778	\$1,843,586	\$687,479	\$2,359,761										
5	25,119,385	\$3,945,919	16,902,426	\$1,440,452	\$2,505,467	\$1,886,456	\$0	\$0	\$619,011	\$2,767,789	\$1,834,368	\$671,099	\$3,030,860										
6	25,119,385	\$4,143,215	16,817,914	\$1,525,171	\$2,616,044	\$1,877,023	\$0	\$0	\$741,021	\$3,508,810	\$1,825,196	\$792,848	\$3,823,798										
7	25,119,385	\$4,350,375	16,733,824	\$1,614,693	\$2,735,682	\$1,867,638	\$0	\$0	\$868,044	\$4,376,854	\$1,816,070	\$919,613	\$4,743,321										
8	25,119,385	\$4,567,894	16,650,155	\$1,709,285	\$2,858,609	\$1,858,306	\$0	\$0	\$1,000,309	\$5,377,164	\$1,806,989	\$1,051,620	\$5,794,941										
9[5]	25,119,385	\$4,796,289	16,566,904	\$2,813,454	\$1,982,835	\$1,849,009	\$0	\$0	\$1,133,827	\$6,510,990	\$1,797,955	\$184,881	\$5,979,821										
10	25,119,385	\$5,036,103	16,484,070	\$2,964,458	\$2,071,646	\$1,839,763	\$0	\$0	\$231,882	\$5,742,872	\$1,789,965	\$282,681	\$6,262,502										
11	25,119,385	\$5,287,908	16,401,650	\$3,123,474	\$2,164,434	\$1,830,565	\$0	\$0	\$333,869	\$6,076,742	\$1,780,020	\$384,414	\$6,646,916										
12	25,119,385	\$5,552,304	16,319,641	\$3,290,925	\$2,261,379	\$1,821,412	\$0	\$0	\$439,967	\$6,516,709	\$1,771,120	\$490,259	\$7,137,176										
13	25,119,385	\$5,829,919	16,238,043	\$3,467,252	\$2,362,667	\$1,812,305	\$0	\$0	\$550,362	\$7,067,071	\$1,762,264	\$600,402	\$7,737,578										
14	25,119,385	\$6,121,415	16,156,853	\$3,652,924	\$2,468,491	\$1,803,243	\$0	\$0	\$665,248	\$7,732,319	\$1,753,453	\$715,038	\$8,452,617										
15	25,119,385	\$6,427,486	16,076,069	\$3,848,429	\$2,579,057	\$1,794,227	\$0	\$0	\$784,830	\$8,517,149	\$1,744,686	\$834,371	\$9,286,987										
16	25,119,385	\$6,748,860	15,995,688	\$4,054,286	\$2,694,574	\$1,785,256	\$0	\$0	\$909,319	\$9,426,467	\$1,735,962	\$958,612	\$10,245,600										
17	25,119,385	\$7,086,303	15,915,710	\$4,271,036	\$2,815,267	\$1,776,330	\$0	\$0	\$1,038,938	\$10,465,405	\$1,727,282	\$1,087,985	\$11,333,584										
18	25,119,385	\$7,440,618	15,836,131	\$4,499,252	\$2,941,366	\$1,767,448	\$0	\$0	\$1,173,918	\$11,639,323	\$1,718,646	\$1,222,720	\$12,556,305										
19	25,119,385	\$7,812,649	15,756,951	\$4,739,535	\$3,073,114	\$1,758,614	\$0	\$0	\$1,314,503	\$12,959,827	\$1,710,053	\$1,363,061	\$13,919,366										
20	25,119,385	\$8,203,282	15,678,166	\$4,992,518	\$3,210,764	\$1,749,818	\$0	\$0	\$1,460,946	\$14,414,773	\$1,701,502	\$1,509,261	\$15,428,628										
21	25,119,385	\$8,613,446	15,599,775	\$5,266,861	\$2,966,585	\$1,741,069	\$0	\$0	\$1,215,517	\$15,630,289	\$1,692,995	\$1,263,590	\$16,692,218										
22	25,119,385	\$9,044,118	15,521,776	\$5,957,174	\$3,086,944	\$1,732,363	\$0	\$0	\$1,354,581	\$16,984,870	\$1,684,530	\$1,402,414	\$18,094,632										
23	25,119,385	\$9,496,324	15,444,167	\$6,273,285	\$3,223,039	\$1,723,701	\$0	\$0	\$1,499,337	\$18,484,207	\$1,676,107	\$1,546,931	\$19,641,563										
24	25,119,385	\$9,971,140	15,366,947	\$6,606,019	\$3,365,121	\$1,715,083	\$0	\$0	\$1,650,038	\$20,134,246	\$1,667,727	\$1,697,395	\$21,338,958										
25	25,119,385	\$10,469,697	15,290,112	\$6,956,242	\$3,513,455	\$1,706,507	\$0	\$0	\$597,283	\$20,731,529	\$1,659,388	\$1,854,067	\$23,193,024										
26	25,119,385	\$10,993,182	15,213,661	\$7,324,868	\$3,668,314	\$0	\$0	\$263,499	\$3,404,815	\$24,136,344	\$1,651,091	\$2,017,222	\$25,210,247										
27	25,119,385	\$11,542,841	15,137,593	\$7,712,857	\$3,829,984	\$0	\$0	\$271,404	\$3,358,580	\$27,694,923	\$1,642,836	\$2,187,148	\$27,397,395										
28	25,119,385	\$12,119,983	15,061,905	\$8,121,219	\$3,998,764	\$0	\$0	\$279,546	\$3,719,218	\$31,414,142	\$1,634,622	\$2,364,143	\$29,761,537										
29	25,119,385	\$12,725,982	14,986,595	\$8,551,015	\$4,174,967	\$0	\$0	\$287,932	\$3,887,035	\$35,301,176	\$1,626,448	\$2,548,519	\$32,310,056										
30	25,119,385	\$13,362,281	14,911,662	\$9,003,363	\$4,358,918	\$0	\$0	\$295,570	\$4,062,348	\$39,363,524	\$1,618,316	\$2,740,602	\$35,050,658										
Total	753,581,550	\$215,881,566	481,527,742	\$128,372,203	\$87,309,363	\$45,337,223	\$1,209,564	\$1,398,952	\$39,363,524	\$52,258,705	\$35,050,658												

[1] Gross benefit includes utility bill savings from the solar and storage projects calculated on a site by site basis as well as GIP Incentives from the storage project

[2] 25 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 2-16-18.pdf"

[3] The 25 Year PPA analysis includes the end of term buyout cost and post term operations and maintenance cost for project years 26-30

[4] 30 Year PPA pricing is taken from the ENGIE Proposal Document "Tulare County PPA Options by Site 3-25-18.pdf"

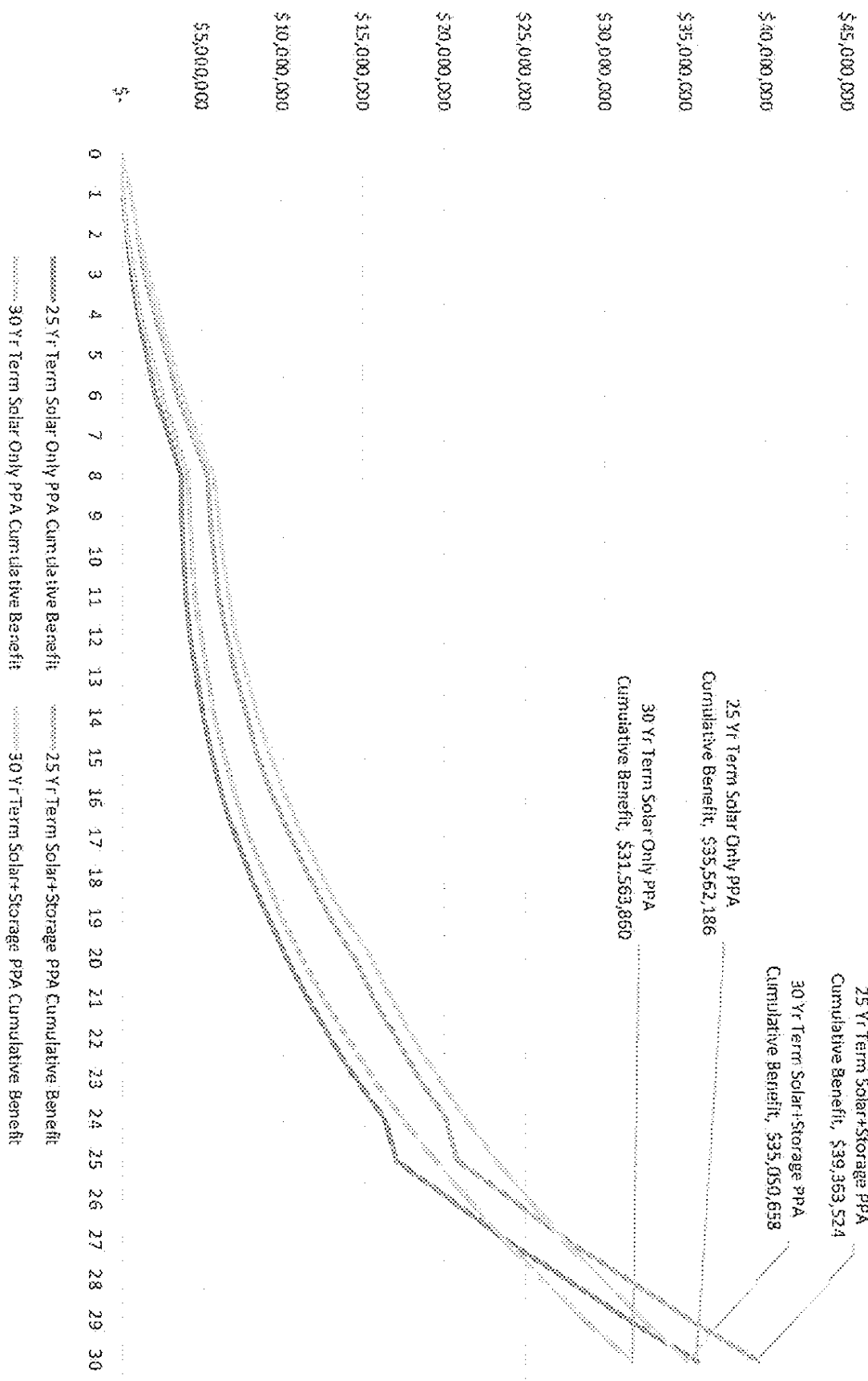
[5] Installation of projects is assumed to be in 2019 finishing TOU grandfathering to 8 years.



DEMILED CASE TITOW - APC ANALYSIS REPORT
 SOLAR+STORAGE PROJECT - 5% UTILITY ESCALATION

5% Escalation Cumulative Savings Comparison

5% Escalation Cumulative Project Savings



3% Utility Escalation

	Solar Only Project				Solar+Storage Project					
	2023	2024	2025	2026	2023	2024	2025	2026		
Civic Center East	\$9,027,698	\$10,338,001	-\$1,310,303	\$11,292,724	-\$2,265,023	\$10,235,397	\$11,139,662	-\$904,325	\$12,224,558	-\$1,988,211
Government Plaza	\$7,033,855	\$6,237,897	\$795,958	\$6,846,298	\$187,557	\$7,033,855	\$6,237,897	\$795,958	\$6,846,298	\$187,557
Akers Professional Center	\$5,989,984	\$5,705,260	\$284,724	\$6,249,406	-\$259,422	\$6,405,261	\$5,687,671	\$1,717,590	\$7,383,836	\$1,021,425
Bob Willey Detention Facility	\$10,314,924	\$9,233,263	\$1,081,661	\$9,948,229	\$366,695	\$10,314,924	\$9,233,263	\$1,081,661	\$9,948,229	\$366,695
Civic Center West	\$2,194,177	\$2,123,381	\$70,795	\$2,310,321	-\$116,144	\$2,194,177	\$2,123,381	\$70,795	\$2,310,321	-\$116,144
Juvenile Detention Facility	\$14,225,781	\$6,120,426	\$8,105,355	\$6,603,786	\$7,621,994	\$15,433,419	\$6,294,907	\$9,138,512	\$6,810,616	\$8,622,803
South County Detention Facility	\$8,935,157	\$6,229,056	\$2,706,101	\$6,734,848	\$2,200,310	\$8,935,157	\$6,229,056	\$2,706,101	\$6,734,848	\$2,200,310
Total	\$57,721,576	\$45,987,285	\$11,734,291	\$49,985,610	\$7,735,966	\$52,552,131	\$47,945,839	\$14,606,293	\$52,258,705	\$10,293,426

5% Utility Escalation

	Solar Only Project				Solar+Storage Project					
	2023	2024	2025	2026	2023	2024	2025	2026		
Civic Center East	\$12,809,604	\$10,338,001	\$2,471,603	\$11,292,724	\$1,516,880	\$14,249,577	\$11,139,662	\$3,109,915	\$12,224,558	\$2,025,019
Government Plaza	\$9,780,453	\$6,237,897	\$3,542,556	\$6,846,298	\$2,934,156	\$9,780,453	\$6,237,897	\$3,542,556	\$6,846,298	\$2,934,156
Akers Professional Center	\$8,522,574	\$5,705,260	\$2,817,314	\$6,249,406	\$2,273,169	\$11,402,520	\$6,687,671	\$4,714,849	\$7,383,836	\$4,018,684
Bob Willey Detention Facility	\$14,483,883	\$9,233,263	\$5,250,619	\$9,948,229	\$4,535,654	\$14,483,883	\$9,233,263	\$5,250,619	\$9,948,229	\$4,535,654
Civic Center West	\$3,033,349	\$2,123,381	\$909,968	\$2,310,321	\$723,029	\$3,033,349	\$2,123,381	\$909,968	\$2,310,321	\$723,029
Juvenile Detention Facility	\$20,091,084	\$6,120,426	\$13,970,658	\$6,603,786	\$13,487,298	\$21,531,057	\$6,294,907	\$15,236,150	\$6,810,616	\$14,720,441
South County Detention Facility	\$12,828,523	\$6,229,056	\$6,599,467	\$6,734,848	\$5,093,676	\$12,828,523	\$6,229,056	\$6,599,467	\$6,734,848	\$6,093,676
Total	\$81,549,471	\$45,987,285	\$35,562,186	\$49,985,610	\$21,563,860	\$87,309,383	\$47,945,839	\$39,363,524	\$52,258,705	\$35,050,638



Summary of Results and Next Steps

Results Summary

- The 25 Year PPA pricing yields the best highest cumulative net benefit over the 30 Year analysis period for each project scope (e.g. solar project only and solar+storage project).
- The 30 Year PPA has higher annual and cumulative benefit unit 25th year of as compared to the 25 Year PPA.
- The 30 Year PPA offers better security for the final five years of the project life cycle because ENGIE will still be under contract with their payment dependent on system performance.
- There are opportunities for early buy-out of the system in both PPA's which may allow the County to purchase the system at a depreciated cost once ENGIE and its financier capture their investor tax credits.

ARC's recommended next steps for the County are:

- Determine if the projects in their current form are what the County would like to pursue.
- Negotiate a contract that reflects the County's Council red-line comments.
- Propose that ENGIE prepare a set of technical specification that would typically be included in a solar project contract or agreement. This will help clarify what the County will and will not get at each site. ARC has several starting points for this and can aid in its development and review.



County of Tulare

April 5, 2018

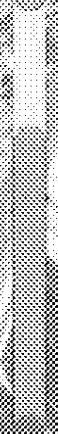
ASHLEY M. PFE

Senior Manager

JEFF MOULDER, P.E.

Lead Project Manager

ANGIIC





Agenda



- Introduction to ENGIE Services U.S.
- Program Scope
- Financial Overview
- Program Benefits
- Roadmap



ENGIE SOLUTIONS

(Formerly Openka Energy Services)

ENGIE SOLUTIONS IS A LEADING PROVIDER OF ENERGY AND ENVIRONMENTAL SERVICES WITH OVER 150,000 EMPLOYEES WORLDWIDE. ENGIE SOLUTIONS IS A LEADING PROVIDER OF ENERGY AND ENVIRONMENTAL SERVICES WITH OVER 150,000 EMPLOYEES WORLDWIDE.

40+ years

Experience as an Accredited Energy Service Provider

\$300MM

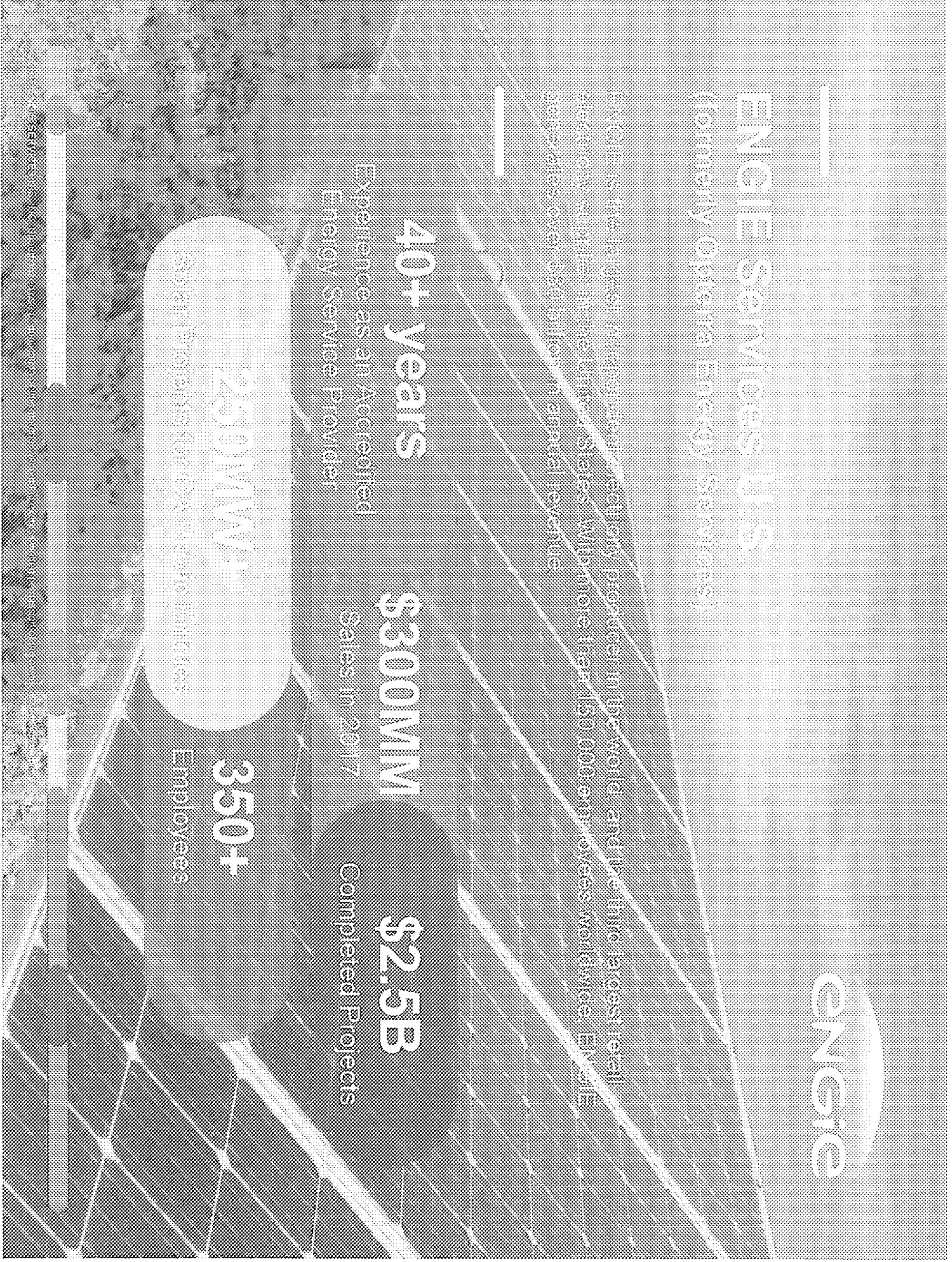
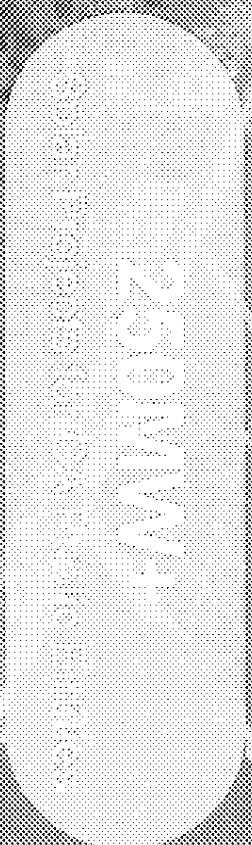
Sales in 2017

\$2.5B

Completed Projects

350+

Employees





Recent County Energy Savings Projects

- County of Alameda – Santa Rita Jail Phase 1 \$1.3 million
- County of Alameda – Santa Rita Jail Phase 2 \$6.1 million
- County of Alameda – Santa Rita Jail Phase 3 \$0.8 million
- County of Alameda – Santa Rita Jail Phase 4 \$11.7 million
- County of Kings Phase 1 \$3.0 million
- County of Kings Phase 2 \$8.4 million
- County of Kings Phase 3 \$4.1 million
- County of Madera Phase 1 \$10.0 million
- County of Madera Phase 2 \$6.5 million
- County of Merced \$11.8 million
- County of Riverside \$54.6 million
- County of Sacramento \$5.2 million
- County of Sutter \$10.5 million
- County of Tulare \$7.2 million
- County of Yuba Phase 1 \$9.9 million
- County of Yuba Phase 2 \$5.2 million

Alameda County



PROGRAM HIGHLIGHTS

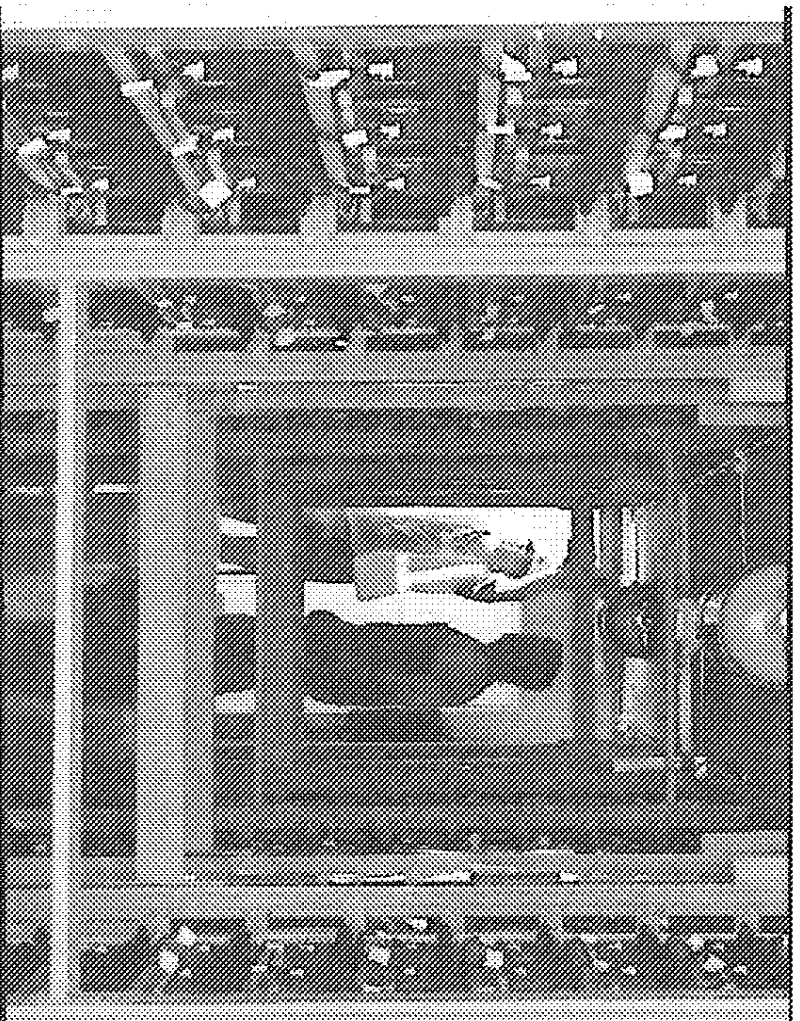
County's largest Consortium for Electric Reliability Technology Solutions (CERTS)-based microgrid with renewable generation and large scale energy storage

Prevents disturbance through automatic detection and remote monitoring capabilities
Enables potential for PV, fuel cell, and storage markets

TECHNICAL SCOPE

- Installed 1.2-MW rooftop solar PV system
- 1-MW fuel cell power plant with heat recovery for facility hot water and space heating
- Five 2.3-kW wind turbines
- Two 1.2-MW emergency backup diesel generators
- 2-MW advanced energy storage system
- 12-kV sub-cycle static disconnect switch
- "Islanding" capability
- Electric power export and import capability
- CERTS smart grid control logic

Designed and constructed by ENGIE Services, this first-of-its-kind Smart Grid project at Santa Rita Jail established Alameda County as a leader in sustainability.



Kings County



PROGRAM HIGHLIGHTS

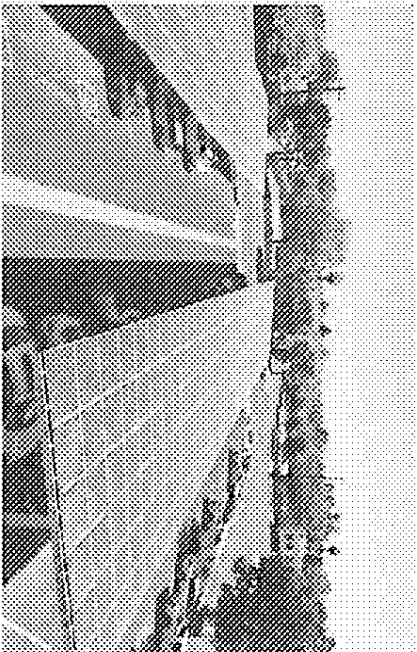


- * \$9.7 million net savings over the lifetime of the three phases
- * Advances County's fiscal and environmental goals
- * Leverages multiple advanced technologies
- * Improves parking area lighting and daytime shade for vehicles

PROJECT SCOPE



- * Installed Solar PV parking canopies at two sites
- * Built energy-efficient central cooling and heating plants
- * Thermal energy storage system
- * Interior and exterior lighting retrofits
- * Energy-efficient HVAC replacements
- * Energy management system upgrades
- * Roof replacement at four buildings
- * 600 kW cogeneration system



FUNDING STRUCTURE



- * Project total: \$16 million
- * Three phases of work
- * Paid through savings program

Madera County



PROGRAM HIGHLIGHTS

Expected to deliver \$15MM in savings over the life of the project

Reduces impact of utility rate hikes by cutting electricity bills almost by nearly 50% for graded facilities

Utilizes savings to replace 40-year old mechanical systems at library

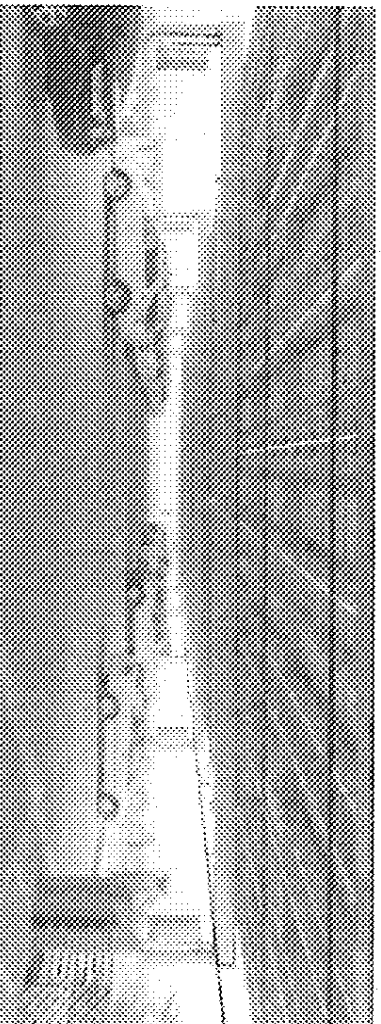
Avoids 2,230 metric tons of carbon emissions per year, equivalent to annual emissions from 403 cars

"As a result of our partnership with OpTerra, the County has improved comfort in public facilities, reduced the impact of utility rate increases, cut our electricity bills by half, and made critical investments in infrastructure to propel the County into a more sustainable, environmentally sound future."

Rick Farinelli, Chairman of the Board, Madera County

TECHNICAL SCOPE

- * Solar PV systems provide 1.6 MW of clean, sustainable energy annually
 - Installed 1.4 MW ground mount solar structure at Jail Complex, serving five sites
 - Installed 250 kW parking shade solar structure at Government Center
- * New HVAC system for Madera County Library
- * Upgraded building energy management systems



Merced County



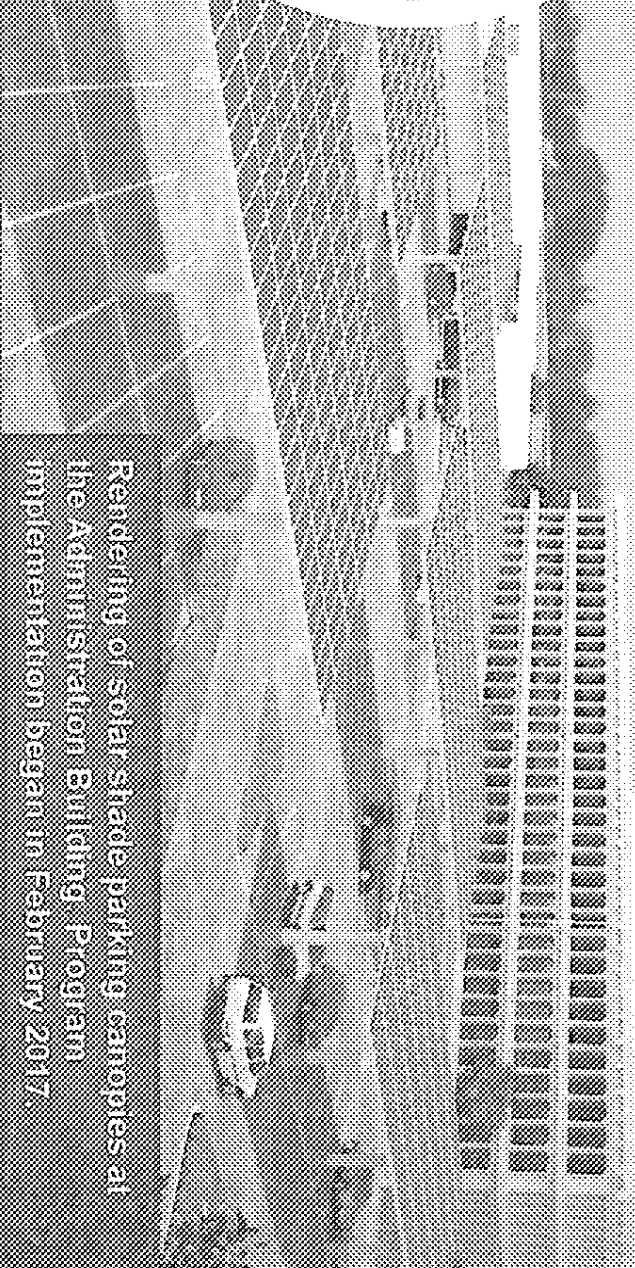
PROJECT HIGHLIGHTS

Expected to reduce County electricity spending by over 50%

Expected to capture more than \$110,000 in incentives in the first year of the program

Expected to reduce carbon emissions equivalent to removing 750 cars from highways annually

- \$19MM** in net savings over the program life
- 1.58 MW of solar at two sites
- LED retrofits of 2,823 County-owned streetlights
- Install outdoor LED lighting retrofits at nine sites
- HVAC upgrades at six sites
- Plumbing efficiency upgrades/controls at two sites



Rendering of solar shade parking canopies at the Administration Building. Program implementation began in February 2017.

Riverside County



PROGRAM HIGHLIGHTS

- \$200MM in total energy savings
- Created 1,157 jobs over the lifetime of the program and 80% of local labor used
- Will offset 385,000 megatons of CO₂ the equivalent to removing more than 81,000 cars from the road for one year

TECHNICAL SCOPE (in progress)

- 12 MW of solar PV will be installed at eight sites

"By harnessing the sun's energy, we have been able to provide additional community benefits for our residents, our hardworking employees, and our taxpayers, even beyond the millions of dollars in guaranteed energy savings that this project is going to generate."

Jay Orr, County of Riverside CEO



Sacramento County



PROGRAM HIGHLIGHTS

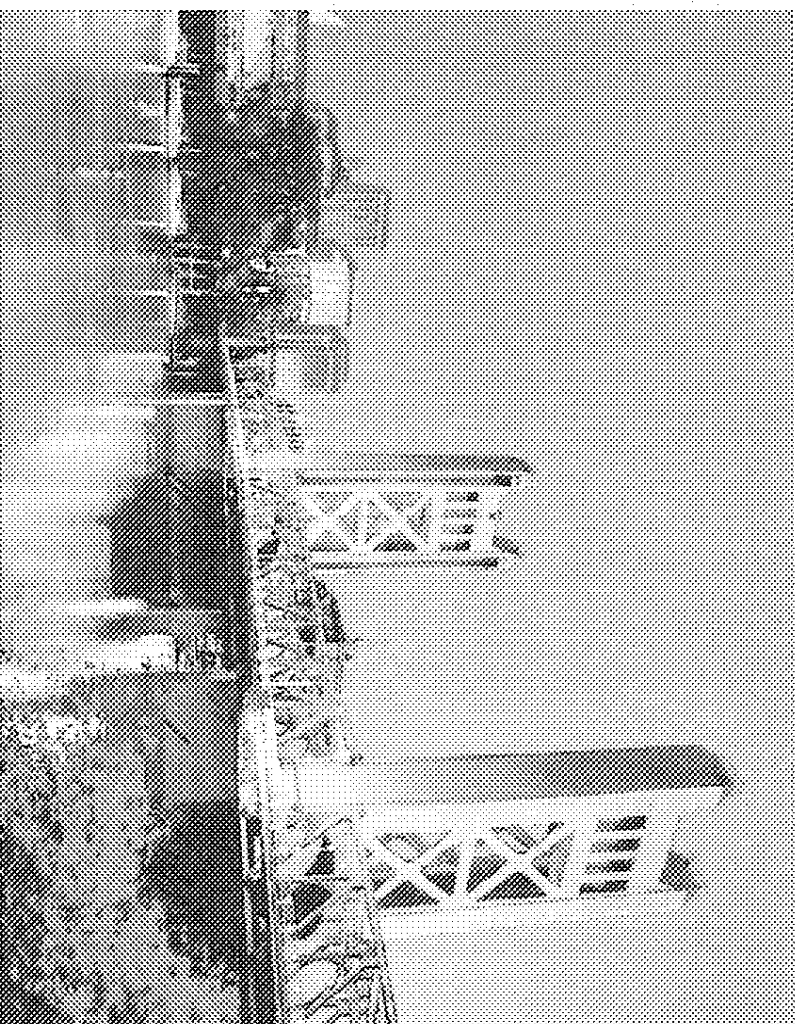
Will realize more than \$2.6MM in net savings after paying for all costs over a 20-year period

Reduced CO₂ emissions by 990 metric tons, the equivalent to removing 190 cars from roadways each year

Sacramento County leaders worked with ENGIE Services to modernize 11 buildings which had outdated and inefficient systems. The low financial burden of the project allowed the County to address the needed improvements quickly, without straining its budget.

TECHNICAL SCOPE

- * Interior lighting retrofits at two County facilities
- * Induction lighting retrofit at seven County facilities
- * Mental health facility mechanical system improvements including replacing HVAC units and a new water plant
- * New direct digital controls energy management systems at four County facilities



Sutter County



PROGRAM HIGHLIGHTS

Achieved nearly \$18.5MM in net savings
Installed solar power, LED lighting, efficient air conditioning and developed water conservation measures

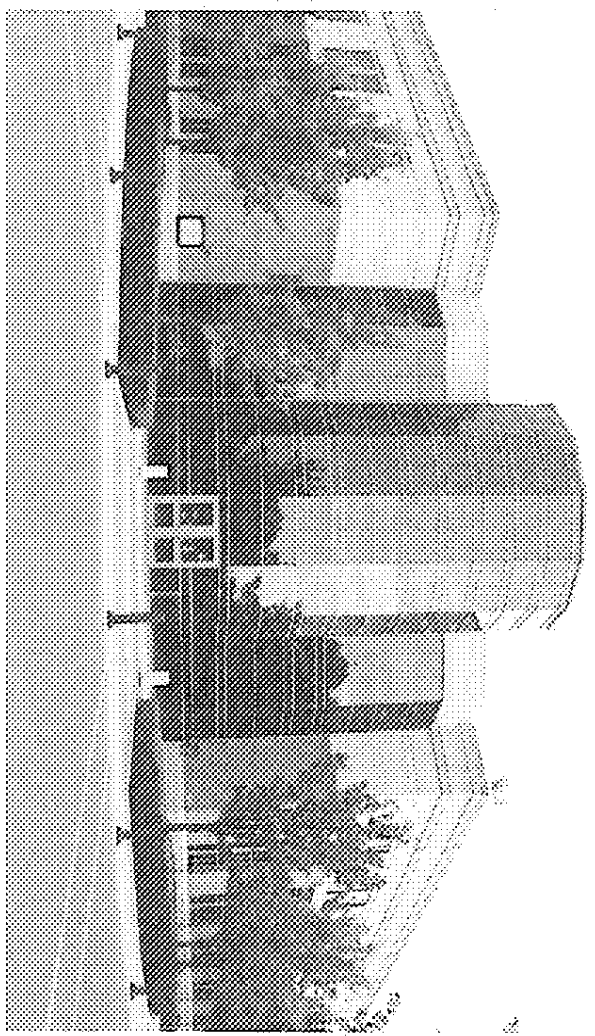
Decreased electric utility purchases by 75%
Reduced the County's carbon footprint – equivalent to taking 520 cars off the road every year

"This project will save us a considerable amount of energy and water, but more, it will save us money, now and into the future."

Stan Cleveland, Chairman,
Board of Supervisors

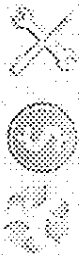
TECHNICAL SCOPE

- * Installed 1.46 MW solar power generating systems at ten sites
- * Upgraded interior/exterior LED lighting at 22 sites
- * New rooftop air conditioning units at 19 sites
- * Upgraded County-wide energy management system to improve facility controls
- * Water conservation measures at the County Jail



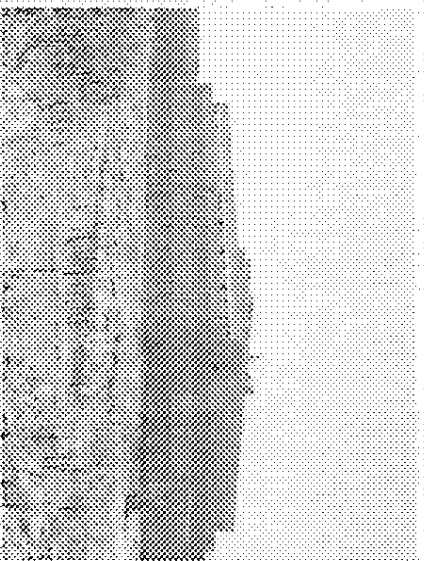
PROGRAM HIGHLIGHTS

- * Self funding
- * Guaranteed cost and savings
- * Turnkey project and construction management
- * Improved efficiency
- * Enhanced indoor environments
- * Efficient use of taxpayer dollars



PROJECT SCOPE

- * 750-kW natural gas-fired cogeneration unit
- * High-efficiency lighting systems
- * Bob Wiley Detention Facility ventilation upgrade
- * Pre-Trial Facility ventilation upgrade
- * Energy management system
- * Electrical metering consolidation
- * Equipment and controls at the waste water treatment plant



FUNDING STRUCTURE

- * Project total: \$7.2 million
- * \$600,000 in utility incentives
- * Paid through savings program



Yuba County



PROGRAM HIGHLIGHTS

Will achieve \$11.2MM in savings for the county's General Fund
Consists nearly 2,000 hours of greenhouse gases annually

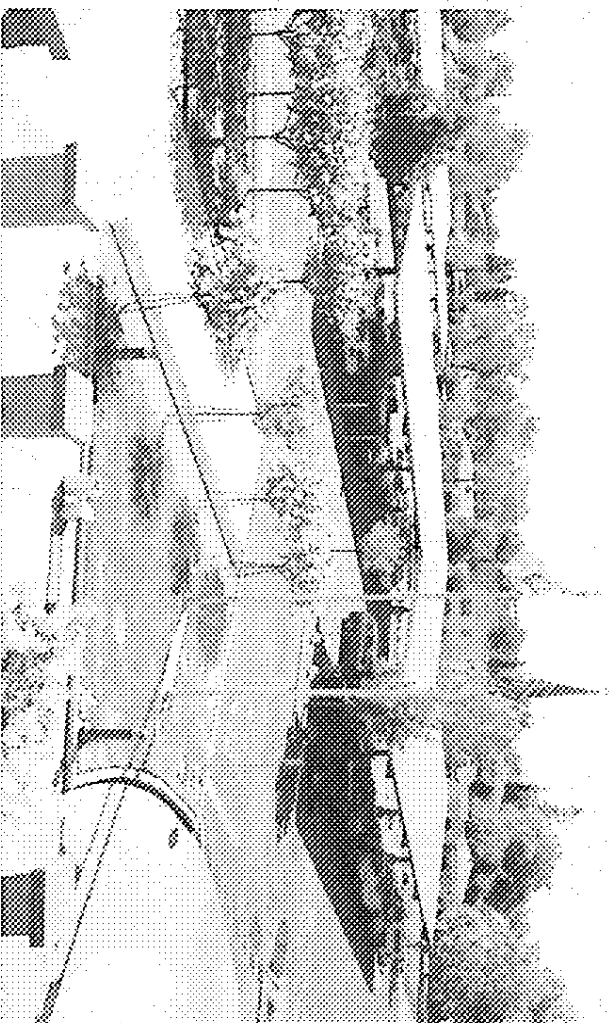
Will reduce the County's annual energy purchases by 50%

Yuba County was already dealing with the challenges of the economic downturn when it became necessary to confront long overdue repairs to some of our public buildings. We were able to partner with OpTerra Energy Services to install energy saving technology and leverage the future savings to immediately make much-needed repairs to our facilities."

Andy Vasquez, Chairman, Yuba County Board of Supervisors

TECHNICAL SCOPE

- Installed 1 MW PV solar systems at two sites
- Replaced outdated emergency generator
- Replaced HPS and MH lighting with induction lamp technology at ten County buildings
- Upgraded HVAC units at three sites
- Installed high-efficiency magnetic drive chiller
- Implemented water conservation measures
- Phase 2 included a 1.6 MW solar project at the Yuba County Airport used to avoid electricity cost countywide

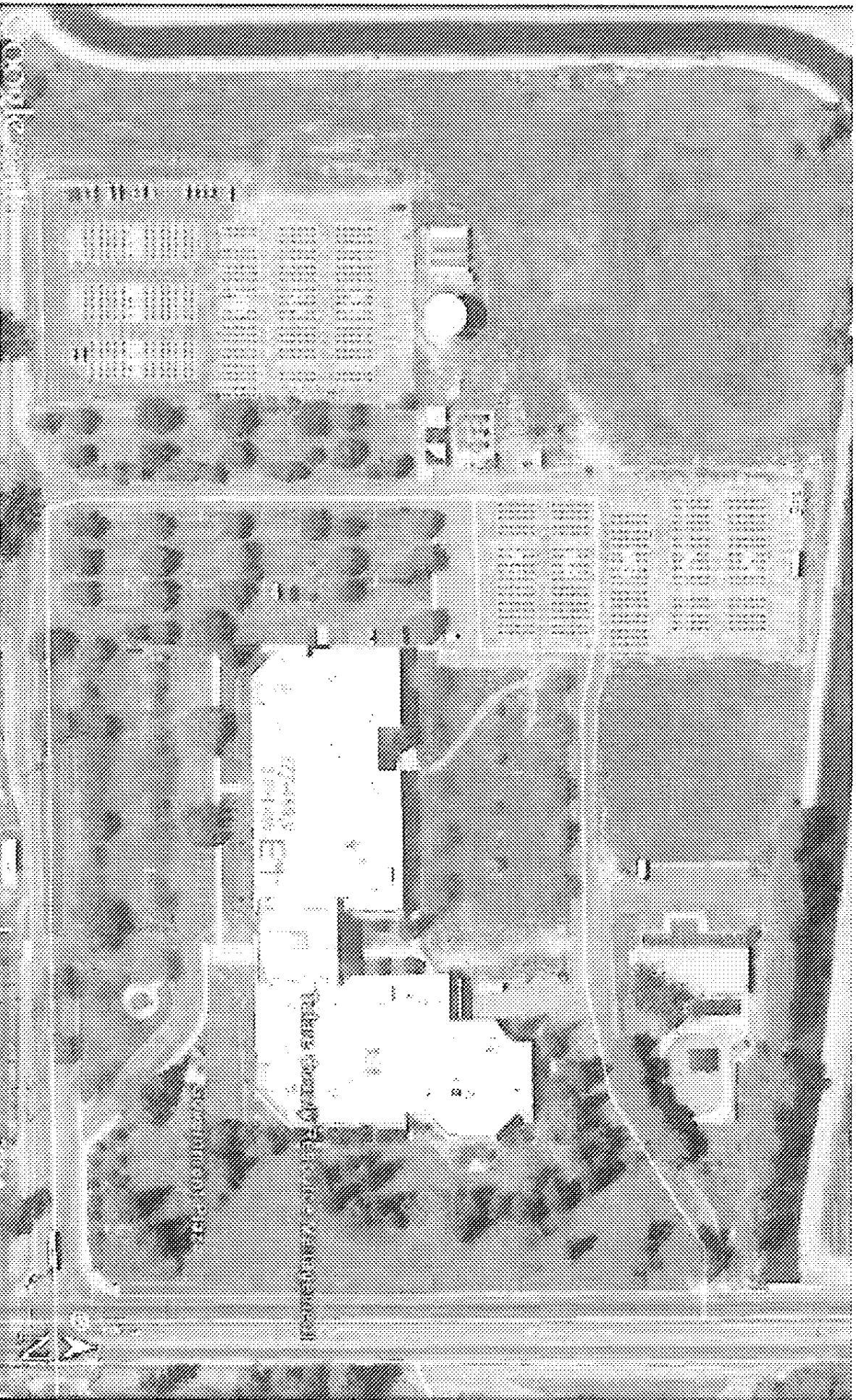


Solar & Energy Storage Project Scope of Work

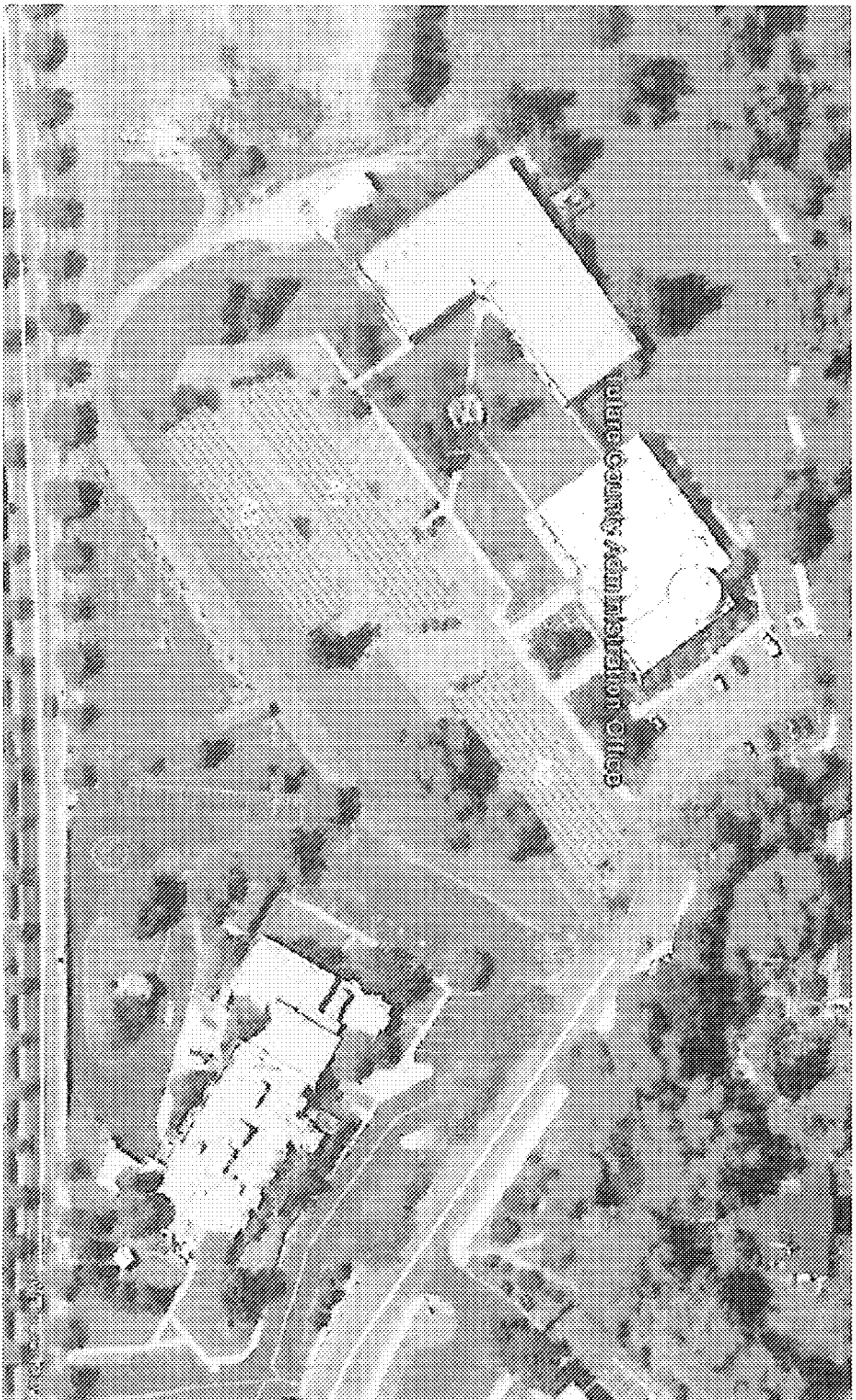


Facility	Solar PV kW	Energy Storage kW
Government Plaza	1,159.2	
Civic Center West	396.0	
Akers Professional Center	1,123.2	500
Bob Wiley Detention & Pre-Trial Facilities	2,072.0	
Juvenile Detention Facility & Boot Camp	1,256.0	250
Proposed South County Detention Facility	1,308.0	
Total	7,314.4	750

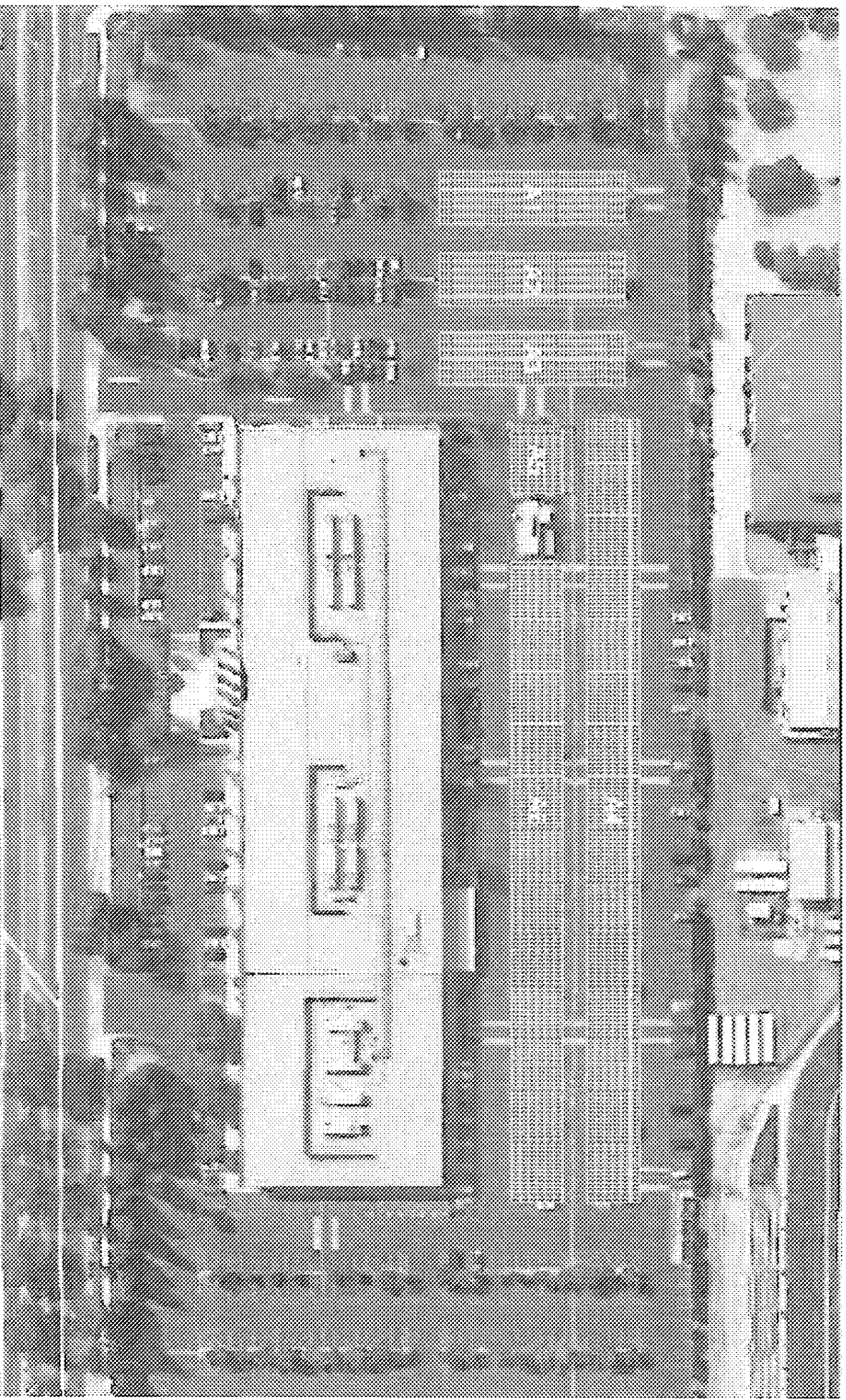
Government Plaza – 1,159 kW Shade Structure Solar Energy System



Civic Center West – 396 kW Shade Structure Solar Energy System

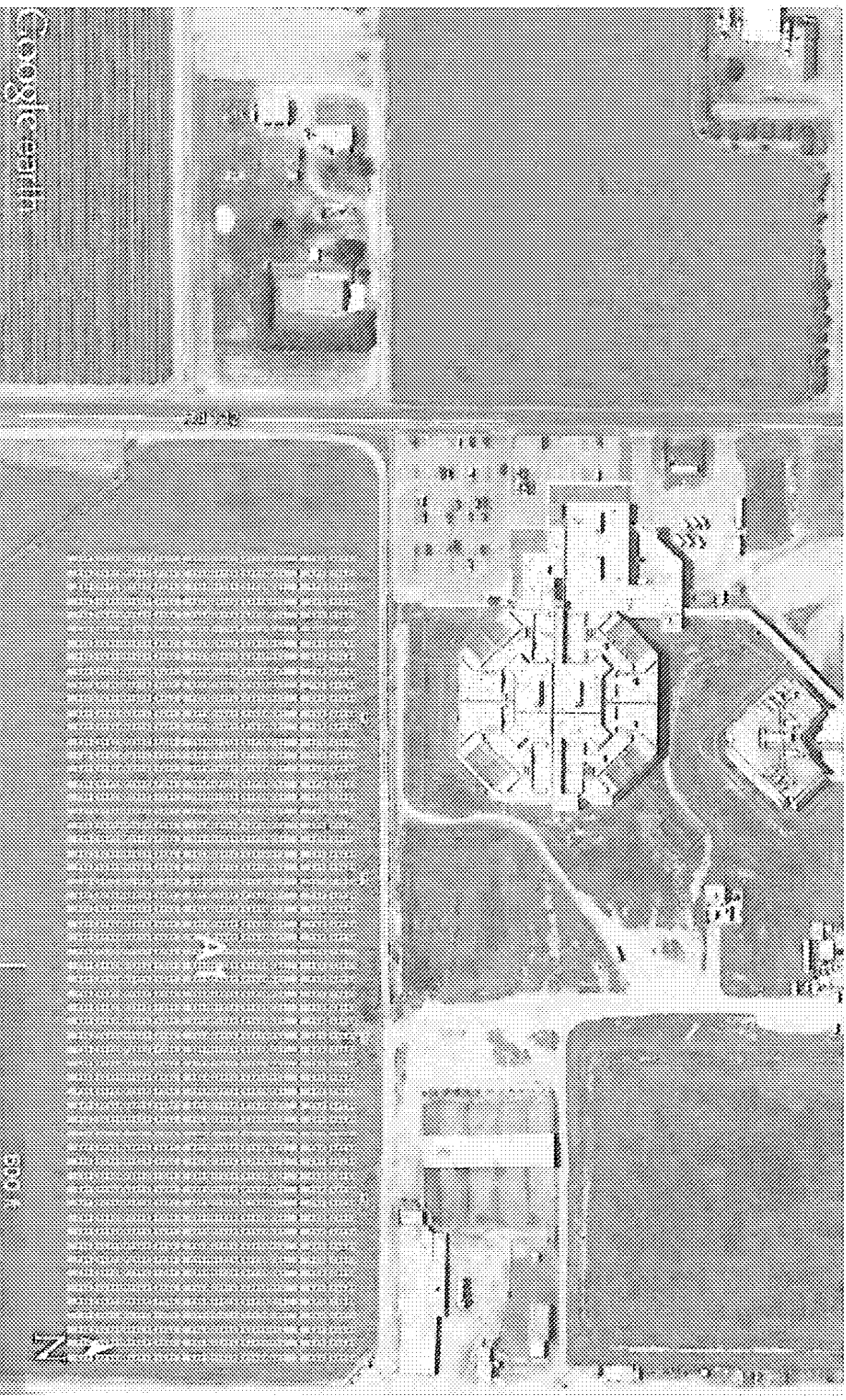


Akers Professional Center - 1,123 kW Shade Structure Solar Energy System

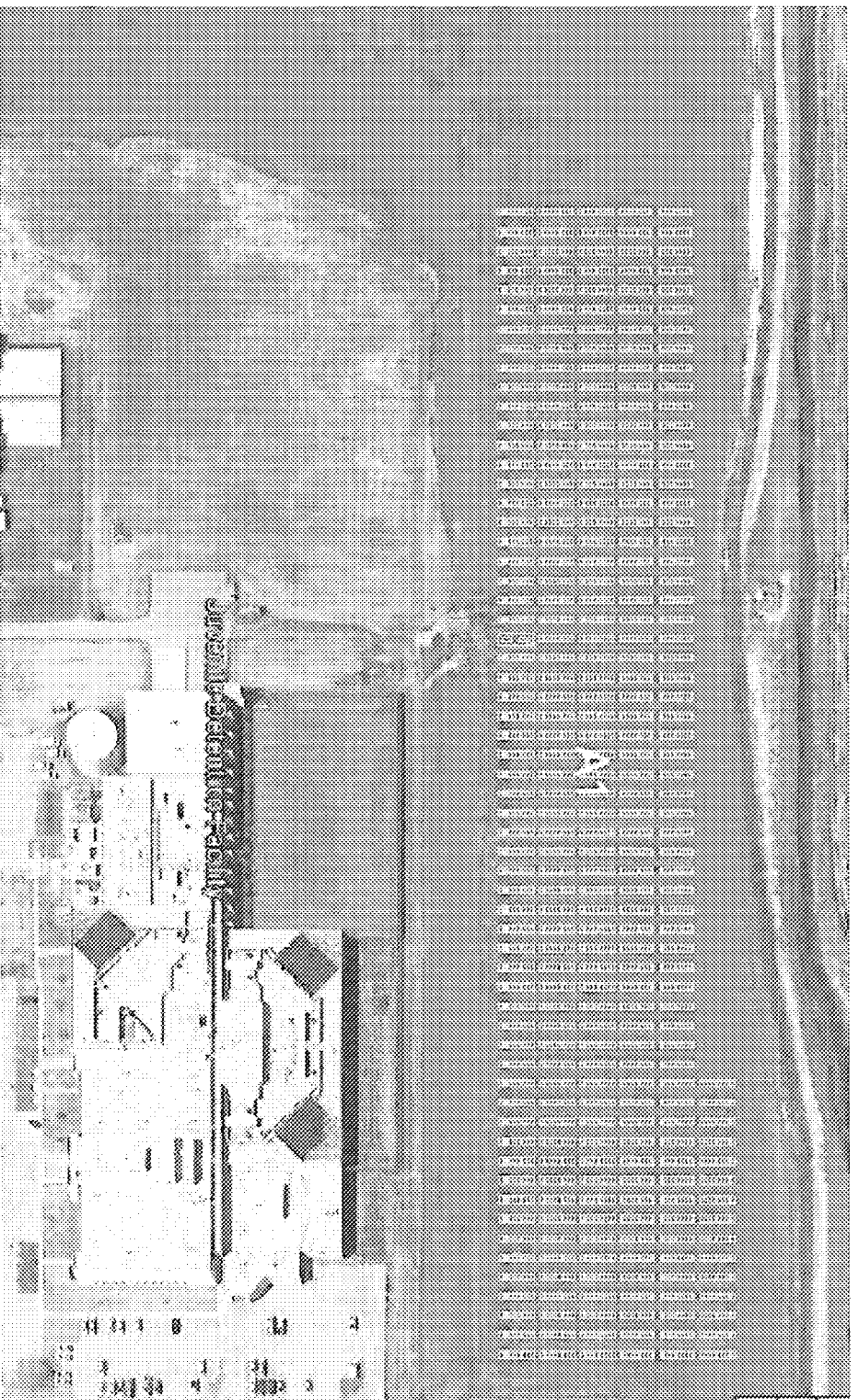




Bob Wiley Detention & Pre-Trial Facilities – 2,072 kW Groundmount Tracking Solar Energy System



Juvenile Detention Facility & Boot Camp -- 1,256 kW Groundmount Tracking Solar Energy System



Proposed South County Detention Facility – 1,308 kW Groundmount Tracking Solar Energy System

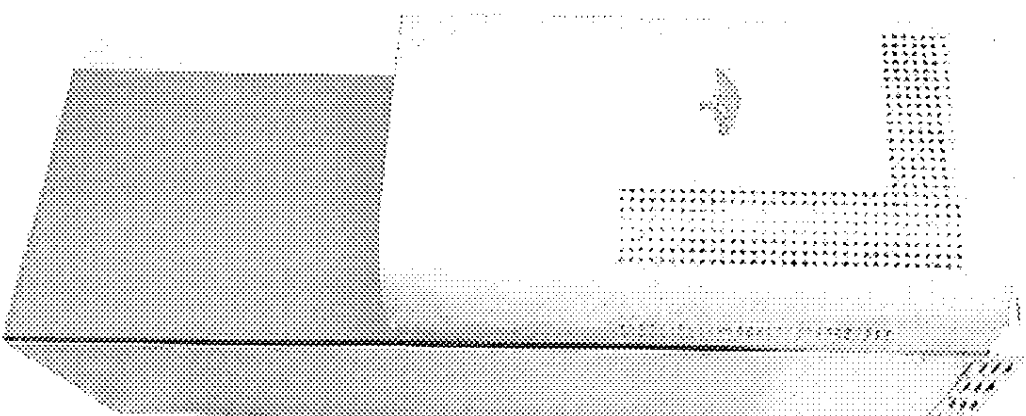
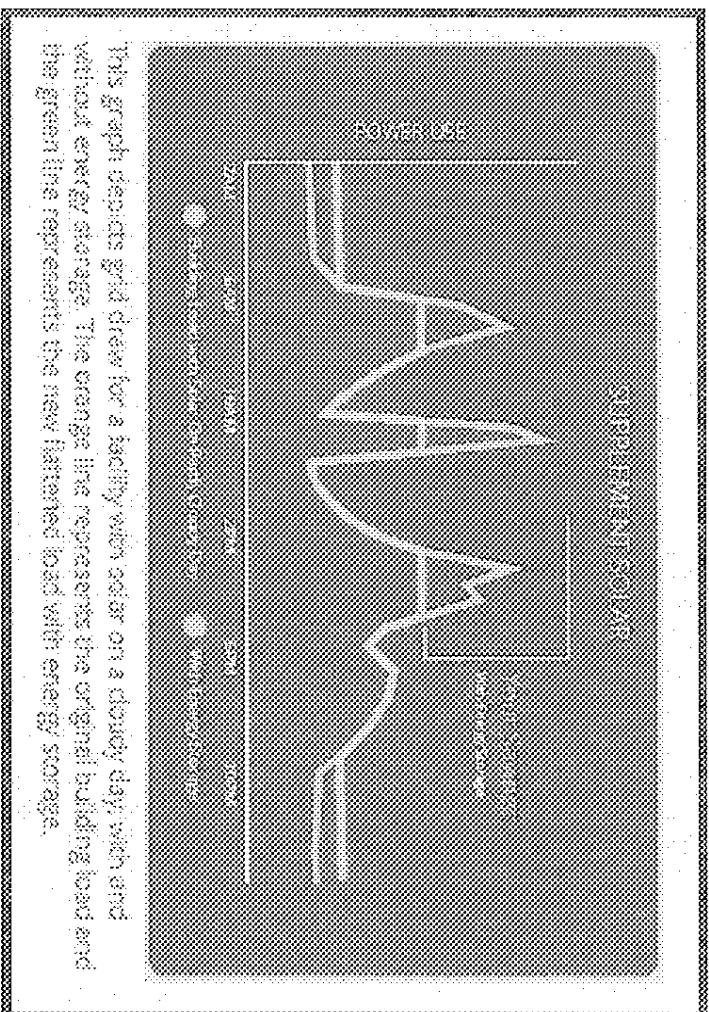


Energy Storage Systems



Benefits include:

- Cost savings from reduced demand charges
- Secured solar investment with improved performance
- Avoid unfavorable tariff rates and bills
- 20-year warranty



Energy Storage Systems



- Install 250 kW/500 kWh energy storage systems for the following facilities:
 - Juvenile Detention Facility & Boot Camp
- Install 500 kW/1,000 kWh energy storage systems for the following facilities:
 - Akers Professional Center

Project Financial Analysis – 5% Electricity Escalation

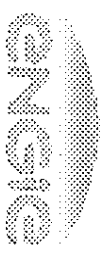
Solar System Size (kW)		Power Purchase Agreement (PPA) Term		Annual Escalation of PPA Electricity Price		Annual Escalation of O&M Cost		Annual Solar Panel Degradation		Projected Electricity Generation - kWh		Avoided Electricity Cost/kWh		Total Project Savings		PPA Price		Annual PPA Cost		Estimated System Buyout Price		Solar Maintenance Cost		Total Project Costs		Net Savings		
7.3144		25		0.00%		3.00%		0.50%																				
Year 1	13,940,872	\$0.1397	\$1,891,641	\$0.1058	\$1,474,944	\$0	\$0	\$0	\$1,474,944	\$0	\$0	\$0	\$0	\$1,467,570	\$509,325	\$1,467,570	\$0	\$1,460,232	\$605,762	\$0	\$1,452,931	\$706,181	\$0	\$1,445,666	\$810,764	\$0	\$1,438,438	\$919,700
Year 2	13,871,158	\$0.1425	\$1,976,895	\$0.1058	\$1,467,570	\$0	\$0	\$0	\$1,467,570	\$0	\$0	\$0	\$0	\$1,460,232	\$605,762	\$0	\$0	\$1,452,931	\$706,181	\$0	\$1,445,666	\$810,764	\$0	\$1,438,438	\$919,700	\$0	\$1,431,245	\$1,033,188
Year 3	13,801,812	\$0.1497	\$2,065,994	\$0.1058	\$1,460,232	\$0	\$0	\$0	\$1,460,232	\$0	\$0	\$0	\$0	\$1,381,897	\$1,355,807	\$0	\$0	\$1,374,987	\$1,466,403	\$0	\$1,368,113	\$1,622,448	\$0	\$1,361,272	\$1,764,296	\$0	\$1,354,466	\$1,912,210
Year 4	13,732,803	\$0.1572	\$2,159,112	\$0.1058	\$1,452,931	\$0	\$0	\$0	\$1,452,931	\$0	\$0	\$0	\$0	\$1,307,764	\$1,807,209	\$0	\$0	\$1,307,764	\$1,807,209	\$0	\$1,307,764	\$1,807,209	\$0	\$1,307,764	\$1,807,209	\$0	\$1,307,764	\$1,807,209
Year 5	13,664,139	\$0.1651	\$2,256,430	\$0.1058	\$1,445,666	\$0	\$0	\$0	\$1,445,666	\$0	\$0	\$0	\$0	\$1,230,719	\$1,710,807	\$0	\$0	\$1,230,719	\$1,710,807	\$0	\$1,230,719	\$1,710,807	\$0	\$1,230,719	\$1,710,807	\$0	\$1,230,719	\$1,710,807
Year 6	13,595,818	\$0.1734	\$2,358,138	\$0.1058	\$1,438,438	\$0	\$0	\$0	\$1,438,438	\$0	\$0	\$0	\$0	\$1,151,436	\$1,616,563	\$0	\$0	\$1,151,436	\$1,616,563	\$0	\$1,151,436	\$1,616,563	\$0	\$1,151,436	\$1,616,563	\$0	\$1,151,436	\$1,616,563
Year 7	13,527,839	\$0.1822	\$2,464,434	\$0.1058	\$1,431,245	\$0	\$0	\$0	\$1,431,245	\$0	\$0	\$0	\$0	\$1,072,032	\$1,522,318	\$0	\$0	\$1,072,032	\$1,522,318	\$0	\$1,072,032	\$1,522,318	\$0	\$1,072,032	\$1,522,318	\$0	\$1,072,032	\$1,522,318
Year 8	13,460,200	\$0.1913	\$2,575,525	\$0.1058	\$1,424,089	\$0	\$0	\$0	\$1,424,089	\$0	\$0	\$0	\$0	\$1,000,000	\$1,430,000	\$0	\$0	\$1,000,000	\$1,430,000	\$0	\$1,000,000	\$1,430,000	\$0	\$1,000,000	\$1,430,000	\$0	\$1,000,000	\$1,430,000
Year 9	13,392,899	\$0.1639	\$2,195,532	\$0.1058	\$1,416,969	\$0	\$0	\$0	\$1,416,969	\$0	\$0	\$0	\$0	\$935,350	\$1,336,619	\$0	\$0	\$935,350	\$1,336,619	\$0	\$935,350	\$1,336,619	\$0	\$935,350	\$1,336,619	\$0	\$935,350	\$1,336,619
Year 10	13,325,934	\$0.1722	\$2,294,620	\$0.1058	\$1,409,884	\$0	\$0	\$0	\$1,409,884	\$0	\$0	\$0	\$0	\$864,736	\$1,250,152	\$0	\$0	\$864,736	\$1,250,152	\$0	\$864,736	\$1,250,152	\$0	\$864,736	\$1,250,152	\$0	\$864,736	\$1,250,152
Year 11	13,259,305	\$0.1809	\$2,393,184	\$0.1058	\$1,402,834	\$0	\$0	\$0	\$1,402,834	\$0	\$0	\$0	\$0	\$794,687	\$1,165,141	\$0	\$0	\$794,687	\$1,165,141	\$0	\$794,687	\$1,165,141	\$0	\$794,687	\$1,165,141	\$0	\$794,687	\$1,165,141
Year 12	13,193,008	\$0.1900	\$2,506,427	\$0.1058	\$1,395,820	\$0	\$0	\$0	\$1,395,820	\$0	\$0	\$0	\$0	\$724,638	\$1,079,509	\$0	\$0	\$724,638	\$1,079,509	\$0	\$724,638	\$1,079,509	\$0	\$724,638	\$1,079,509	\$0	\$724,638	\$1,079,509
Year 13	13,127,043	\$0.1996	\$2,619,560	\$0.1058	\$1,388,841	\$0	\$0	\$0	\$1,388,841	\$0	\$0	\$0	\$0	\$654,589	\$994,378	\$0	\$0	\$654,589	\$994,378	\$0	\$654,589	\$994,378	\$0	\$654,589	\$994,378	\$0	\$654,589	\$994,378
Year 14	13,061,408	\$0.2096	\$2,737,804	\$0.1058	\$1,381,897	\$0	\$0	\$0	\$1,381,897	\$0	\$0	\$0	\$0	\$584,539	\$908,847	\$0	\$0	\$584,539	\$908,847	\$0	\$584,539	\$908,847	\$0	\$584,539	\$908,847	\$0	\$584,539	\$908,847
Year 15	12,996,101	\$0.2202	\$2,861,390	\$0.1056	\$1,374,987	\$0	\$0	\$0	\$1,374,987	\$0	\$0	\$0	\$0	\$514,489	\$823,316	\$0	\$0	\$514,489	\$823,316	\$0	\$514,489	\$823,316	\$0	\$514,489	\$823,316	\$0	\$514,489	\$823,316
Year 16	12,931,120	\$0.2313	\$2,990,561	\$0.1056	\$1,368,113	\$0	\$0	\$0	\$1,368,113	\$0	\$0	\$0	\$0	\$444,440	\$737,785	\$0	\$0	\$444,440	\$737,785	\$0	\$444,440	\$737,785	\$0	\$444,440	\$737,785	\$0	\$444,440	\$737,785
Year 17	12,866,465	\$0.2429	\$3,125,568	\$0.1058	\$1,361,272	\$0	\$0	\$0	\$1,361,272	\$0	\$0	\$0	\$0	\$374,391	\$652,254	\$0	\$0	\$374,391	\$652,254	\$0	\$374,391	\$652,254	\$0	\$374,391	\$652,254	\$0	\$374,391	\$652,254
Year 18	12,802,132	\$0.2552	\$3,266,675	\$0.1058	\$1,354,466	\$0	\$0	\$0	\$1,354,466	\$0	\$0	\$0	\$0	\$304,341	\$566,723	\$0	\$0	\$304,341	\$566,723	\$0	\$304,341	\$566,723	\$0	\$304,341	\$566,723	\$0	\$304,341	\$566,723
Year 19	12,738,122	\$0.2680	\$3,414,159	\$0.1058	\$1,347,693	\$0	\$0	\$0	\$1,347,693	\$0	\$0	\$0	\$0	\$234,291	\$481,192	\$0	\$0	\$234,291	\$481,192	\$0	\$234,291	\$481,192	\$0	\$234,291	\$481,192	\$0	\$234,291	\$481,192
Year 20	12,674,431	\$0.2815	\$3,568,308	\$0.1058	\$1,340,955	\$0	\$0	\$0	\$1,340,955	\$0	\$0	\$0	\$0	\$164,241	\$395,661	\$0	\$0	\$164,241	\$395,661	\$0	\$164,241	\$395,661	\$0	\$164,241	\$395,661	\$0	\$164,241	\$395,661
Year 21	12,611,059	\$0.2730	\$3,442,726	\$0.1059	\$1,334,250	\$0	\$0	\$0	\$1,334,250	\$0	\$0	\$0	\$0	\$94,191	\$310,130	\$0	\$0	\$94,191	\$310,130	\$0	\$94,191	\$310,130	\$0	\$94,191	\$310,130	\$0	\$94,191	\$310,130
Year 22	12,548,004	\$0.2665	\$3,598,798	\$0.1058	\$1,327,579	\$0	\$0	\$0	\$1,327,579	\$0	\$0	\$0	\$0	\$24,141	\$224,599	\$0	\$0	\$24,141	\$224,599	\$0	\$24,141	\$224,599	\$0	\$24,141	\$224,599	\$0	\$24,141	\$224,599
Year 23	12,485,264	\$0.3010	\$3,757,744	\$0.1058	\$1,320,941	\$0	\$0	\$0	\$1,320,941	\$0	\$0	\$0	\$0	\$154,091	\$138,508	\$0	\$0	\$154,091	\$138,508	\$0	\$154,091	\$138,508	\$0	\$154,091	\$138,508	\$0	\$154,091	\$138,508
Year 24	12,422,837	\$0.3160	\$3,925,903	\$0.1058	\$1,314,336	\$0	\$0	\$0	\$1,314,336	\$0	\$0	\$0	\$0	\$84,041	\$52,967	\$0	\$0	\$84,041	\$52,967	\$0	\$84,041	\$52,967	\$0	\$84,041	\$52,967	\$0	\$84,041	\$52,967
Year 25	12,360,723	\$0.3318	\$4,101,587	\$0.1056	\$1,307,764	\$910,538	\$0	\$0	\$1,307,764	\$910,538	\$0	\$0	\$0	\$14,000	\$0	\$0	\$0	\$14,000	\$0	\$0	\$14,000	\$0	\$0	\$0	\$14,000	\$0	\$0	\$0
Year 26	12,298,919	\$0.3484	\$4,285,133	\$0.0000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Year 27	12,237,425	\$0.3658	\$4,476,893	\$0.0000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Year 28	12,176,238	\$0.3841	\$4,677,234	\$0.0000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Year 29	12,115,357	\$0.4033	\$4,886,540	\$0.0000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Year 30	12,054,780	\$0.4235	\$5,105,213	\$0.0000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Totals	389,273,220		\$93,582,714		\$34,743,715	\$910,538	\$1,164,330	\$36,918,583	\$57,164,131																			

Project Financial Analysis – 3% Electricity Escalation



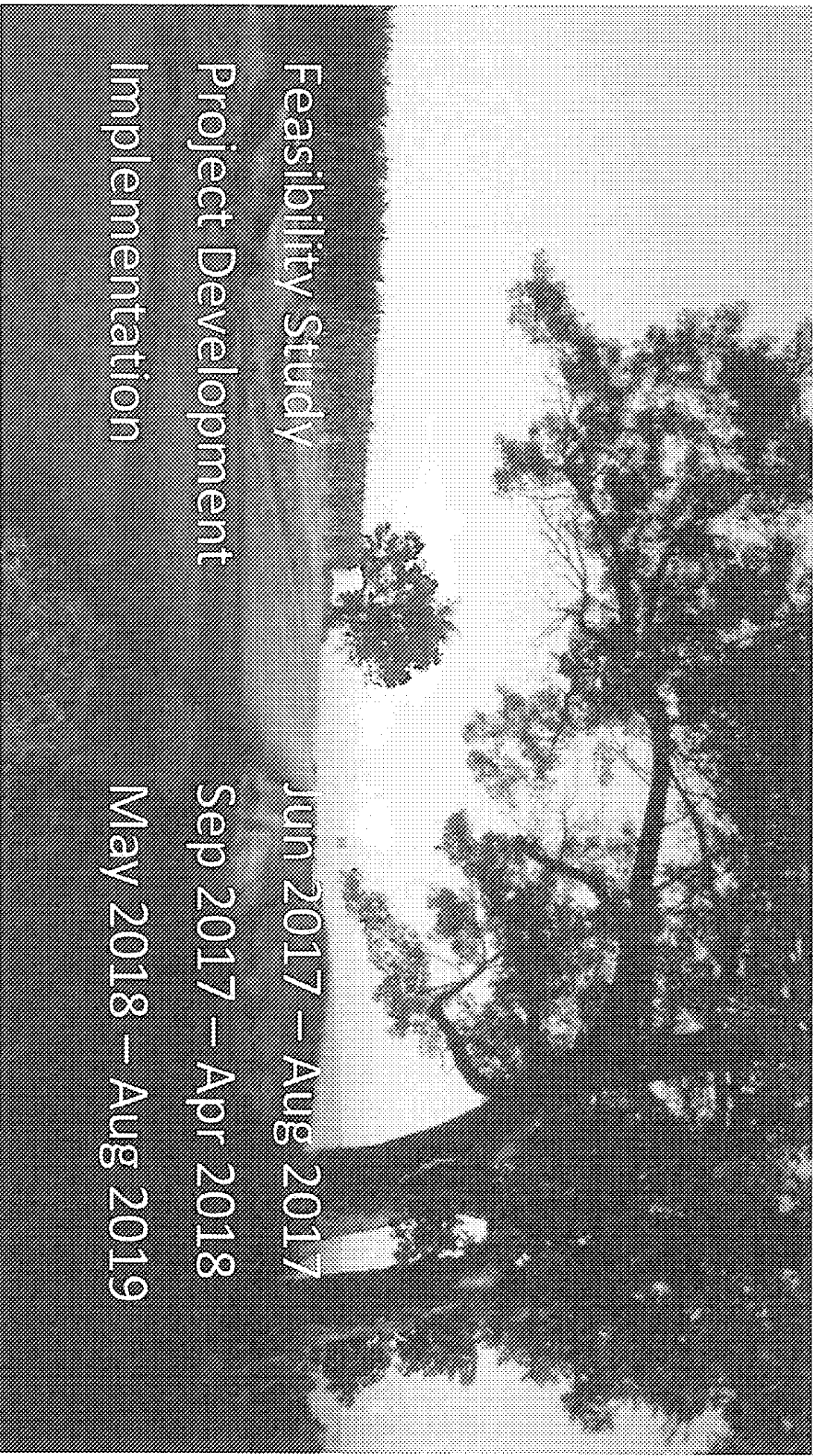
Solar System Size (kW)		Power Purchase Agreement (PPA) Term		Annual Escalation of PPA Electricity Price		Annual Escalation of Electricity Price		Annual Escalation of O&M Cost		Annual Solar Panel Degradation		Estimated System Buyout Price		Solar Maintenance Cost		Total Project Costs		Net Savings	
Year	Projected Electricity Generation - kWh	Avoided Electricity Cost/kWh	Total Project Savings	PPA Price	Annual PPA Cost	Estimated System Buyout Price	Solar Maintenance Cost	Total Project Costs	Net Savings	Year	Projected Electricity Generation - kWh	Avoided Electricity Cost/kWh	Total Project Savings	PPA Price	Annual PPA Cost	Estimated System Buyout Price	Solar Maintenance Cost	Total Project Costs	Net Savings
Year 1	13,940,872	\$0.1357	\$1,891,641	\$0.1058	\$1,474,944	\$0	\$0	\$1,474,944	\$416,697										
Year 2	13,871,168	\$0.1398	\$1,939,240	\$0.1058	\$1,467,570	\$0	\$0	\$1,467,570	\$471,670										
Year 3	13,801,812	\$0.1440	\$1,988,039	\$0.1058	\$1,460,232	\$0	\$0	\$1,460,232	\$527,807										
Year 4	13,732,803	\$0.1484	\$2,036,069	\$0.1058	\$1,452,931	\$0	\$0	\$1,452,931	\$585,138										
Year 5	13,664,139	\$0.1529	\$2,089,361	\$0.1058	\$1,445,666	\$0	\$0	\$1,445,666	\$643,695										
Year 6	13,595,818	\$0.1575	\$2,141,947	\$0.1058	\$1,438,438	\$0	\$0	\$1,438,438	\$703,510										
Year 7	13,527,839	\$0.1623	\$2,195,860	\$0.1058	\$1,431,245	\$0	\$0	\$1,431,245	\$764,615										
Year 8	13,460,200	\$0.1672	\$2,251,134	\$0.1058	\$1,424,089	\$0	\$0	\$1,424,089	\$827,044										
Year 9	13,392,899	\$0.1706	\$1,882,449	\$0.1058	\$1,416,969	\$0	\$0	\$1,416,969	\$865,480										
Year 10	13,325,934	\$0.1748	\$1,925,932	\$0.1058	\$1,409,884	\$0	\$0	\$1,409,884	\$520,049										
Year 11	13,259,306	\$0.1792	\$1,978,617	\$0.1058	\$1,402,834	\$0	\$0	\$1,402,834	\$575,783										
Year 12	13,193,008	\$0.1538	\$2,028,534	\$0.1058	\$1,395,820	\$0	\$0	\$1,395,820	\$632,714										
Year 13	13,127,043	\$0.1584	\$2,079,713	\$0.1058	\$1,388,841	\$0	\$0	\$1,388,841	\$690,872										
Year 14	13,061,408	\$0.1632	\$2,132,187	\$0.1058	\$1,381,897	\$0	\$0	\$1,381,897	\$750,290										
Year 15	12,996,101	\$0.1682	\$2,185,989	\$0.1058	\$1,374,987	\$0	\$0	\$1,374,987	\$811,002										
Year 16	12,931,120	\$0.1733	\$2,241,153	\$0.1058	\$1,368,113	\$0	\$0	\$1,368,113	\$873,041										
Year 17	12,866,465	\$0.1786	\$2,297,713	\$0.1058	\$1,361,272	\$0	\$0	\$1,361,272	\$936,441										
Year 18	12,802,132	\$0.1840	\$2,355,704	\$0.1058	\$1,354,466	\$0	\$0	\$1,354,466	\$1,001,238										
Year 19	12,738,122	\$0.1896	\$2,415,163	\$0.1058	\$1,347,693	\$0	\$0	\$1,347,693	\$1,067,470										
Year 20	12,674,431	\$0.1954	\$2,476,127	\$0.1058	\$1,340,955	\$0	\$0	\$1,340,955	\$1,135,172										
Year 21	12,611,059	\$0.1658	\$2,343,478	\$0.1058	\$1,334,250	\$0	\$0	\$1,334,250	\$1,009,228										
Year 22	12,548,004	\$0.1914	\$2,401,714	\$0.1058	\$1,327,579	\$0	\$0	\$1,327,579	\$1,074,135										
Year 23	12,485,264	\$0.1971	\$2,461,396	\$0.1058	\$1,320,941	\$0	\$0	\$1,320,941	\$1,140,455										
Year 24	12,422,837	\$0.2031	\$2,522,562	\$0.1058	\$1,314,336	\$0	\$0	\$1,314,336	\$1,208,226										
Year 25	12,360,723	\$0.2092	\$2,585,246	\$0.1058	\$1,307,764	\$910,538	\$0	\$2,218,302	\$366,945										
Year 26	12,298,919	\$0.2154	\$2,649,491	\$0.0000	\$0	\$0	\$219,307	\$2,19,307	\$2,430,184										
Year 27	12,237,425	\$0.2219	\$2,715,331	\$0.0000	\$0	\$0	\$225,896	\$225,896	\$2,489,445										
Year 28	12,176,238	\$0.2285	\$2,782,607	\$0.0000	\$0	\$0	\$232,663	\$232,663	\$2,550,144										
Year 29	12,115,357	\$0.2354	\$2,851,960	\$0.0000	\$0	\$0	\$239,643	\$239,643	\$2,612,317										
Year 30	12,054,780	\$0.2425	\$2,922,831	\$0.0000	\$0	\$0	\$246,832	\$246,832	\$2,675,999										
Totals	389,273,220		\$68,775,389		\$34,743,715	\$910,538	\$1,164,330	\$36,818,593	\$31,956,806										

Program Benefits



- Create \$57 million savings over project life after paying for all costs
- Lock-in an electricity price of 9.46 cents/kWh for the next 30 years
- ENGIE Services guarantees 90% of the energy savings
- Avoid approx. 70% of the electricity spend at these facilities
- Provide shade to cars
- Solar projects maintained by ENGIE Services
- Hedge against rising energy costs
- Stimulate local economy and provide local jobs
- Establish County as a renewable energy leader
- Substantial environmental benefits equivalent to removing 2,222 cars off the road annually

Roadmap

The background of the page is a black and white, halftone-style photograph. It depicts a large, leafy tree in the foreground on the right side, with a road or path leading into the distance towards the left. The overall tone is professional and natural.

Feasibility Study Jun 2017 – Aug 2017
Project Development Sep 2017 – Apr 2018
Implementation May 2018 – Aug 2019