Recommendations for Zero Carbon Resiliency
Phase 1

County of Monterey

Monterey County Jail
Sheriff's Office
County Administration Offices

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March 12th 2021

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1. Executive Summary

This document contains recommendations for the implementation of a strategic renewable energy, energy efficiency, and energy storage program for the County of Monterey (**County**). The recommendations are presented by Mynt Systems, Inc. (**Mynt**) after 12 months of coordination and development efforts with the County which included an integrated energy assessment (**Assessment**) of three County-owned sites. The recommendations will have direct and immediate effect on both the County's greenhouse gas (GHG) emissions goals as presented in their 2013 Municipal Climate Action Plan (MCAP) as well as the County's operational budget.

The objective of our Assessment was to determine the feasibility of, and optimal strategy for, implementing a Zero Carbon Resiliency Project at the Monterey County Jail to serve as a Pilot for the additional decarbonization projects that would be necessary to achieve the County's MCAP goals. Being the County's second most energy intensive facility, as well as an older part of the County's critical infrastructure in need of revitalization, the Jail was chosen as a prime candidate for this Pilot project.

After carefully considering the key findings of our comprehensive Assessment, Mynt is recommending that the County utilize an Energy Services Agreement (**ESA**) structure to implement a multi-phased energy upgrade project at all 3 County sites. The first phase of which is a Solar Photovoltaic powered Microgrid and LED lighting retrofit, at the Monterey County Jail (**County Jail**) and adjacent Sheriff's Office, as well as at the County Administration Building (**County Office**) - the County's third largest energy consumer. The ESA will provide the County with a lower predetermined rate of electricity, immediate utility savings, averaging over $391,000 annually, and require no capital commitment, allowing for an expeditious approval process under the public procurement guidelines defined in California Code 4217.

Mynt will operate and maintain the systems at no cost to the County and guarantee the system's performance while providing clean energy and carbon free resiliency for all 3 facilities. Under this ESA the County will retain ownership of all Renewable Energy Certificates generated by the system officially establishing the County's commitment to combating climate change. As the cost of electricity continues to climb, the County's savings will grow, ultimately saving the County an estimated $11 Million over the next 30 years.

Subsequent phases will include a HVAC system and controls overhaul, electrification of existing natural gas powered infrastructure, and the addition of Cogeneration. This first phase will be an inspiring model for the County, the state of California and the world at large, proving that critical public infrastructure can be sustainable, resilient and economically viable.

Key Findings

The County of Monterey (County) contracted with Mynt Systems, Inc. (Mynt) in April 2020 to consult on a strategic program of renewable energy project developments at County-owned properties. The first step of the work was a Feasibility Review (reported by this memorandum), during which candidate sites for solar photovoltaic (PV) systems and energy storage systems (ESS) size capacities were conceptualized, and financial outcomes were estimated. Mynt initiated the Feasibility Review by meeting with County staff in Fall 2020 to assess scope, constraints, and goals of the project. Mynt obtained energy usage data and site information for County-owned properties and in November 2020 and January 2021 performed on-site surveys of site conditions and electrical infrastructure. County staff assisted Mynt by providing information about facilities (drawings, guided site tours, and secure access), historical energy usages from PG&E, permission to access additional PG&E data, and advice on site constraints.

Mynt analyzed the information and data, reviewed potential energy reduction and savings opportunities, preferences, and constraints with County staff; and estimated expected financial results across a 25- to 30-year time horizon and for alternative financing scenarios.

Mynt's integrated energy assessment identified three County sites as primary candidates for the Phase 1 energy project. The sites were selected based on their high energy usage relative to all other County sites: **1410 Natividad (County Jail), 1414 Natividad (Sheriff's Office), and 1441 Schilling (County Office)**.

It is recommended that a 'Phase 1' implementation of solar photovoltaics, battery storage, and LED lighting is implemented across the three candidate sites under a Master Energy Services Agreement. This Phase 1 implementation has been determined to be the most immediately impactful strategy to reduce the County's carbon footprint, improve critical infrastructure resiliency and will utilize time-sensitive State and Federal incentive programs and financing vehicles that will produce positive financial performance throughout the lifecycle of the project.

The recommended energy conservation measures (ECMs) will reduce the County's annual electricity consumption by 4,145 MWh annually and provide an average $390,000 in annual net benefit. This massive contribution of clean energy to the local grid would provide the equivalent annual offset of approximately 700 metric tons (MT) of greenhouse gas (CO_2) emissions from conventional utility power sources.

1. **The County's approach to financing and valuation of capital versus annual operating expenses are critical determinants for the financial outcomes of its energy projects.** Mynt has identified multiple financing options for the County that would allow them to execute the recommendations in Phase 1 at no capital expense while obtaining all of the aforementioned energy savings and environmental benefits and also achieving a substantial net annual utility cost savings.
    - A cash purchase yields the greatest savings for the County's operating budget - up to $943k per year (net average over the typical useful life of the LED, battery, and PV systems) - but it requires a large up-front capital investment.
    - Engaging a power purchase agreement (PPA) provider and/or financing projects with low-interest loans (such as loans available from the California Energy Commission at

1%) are also viable approaches to financing projects at some of Monterey's candidate sites. Monterey may also consider taking a blended approach by establishing a PPA for a selection of larger-capacity sites, while taking other approaches to develop mid-size or small-capacity PV projects.

- For the financing of LED lighting project scopes, Mynt recommends that the County utilize PG&E's 'On-Bill Financing' program, which provides 0%-interest loans for energy-efficiency projects of up to $1 million per site.

2. **Historical Usage -** An analysis of historical energy usage found that the (3) candidate sites currently consume a collective 6,892 MWh of electricity each year, accruing an annual energy cost of approximately $1.2 million.The 3 sites are ranked #2, #3 and #6 in terms of the County's largest electrical consumers.

3. **Economies of Scale** - The complexity of the County Jail project on a standalone basis makes for very tight economics. This is mainly due to the high security nature of the site, 24/7 operations, the medium voltage electrical infrastructure, and the use of carports instead of rooftop or simple ground mounted solar. Add in a battery based backup system for uber-critical loads and we have a challenging proposition.

   In light of that, Mynt is recommending that the County achieve some economies of scale by incorporating the Sheriff's Office and County Offices into a comprehensive and unified project to be delivered together. By combining the 3 sites we can create a better outcome for the County - more savings, more GHG reductions, more resiliency, and more impact.

   Increasing the total size of the project helps by reducing the portion of "fixed" costs relative to the total project budget. This includes the cost of the transaction itself which has a material impact. It also impacts procurement and mobilization costs. We are also boosting the overall economic performance by adding 2 sites with more cost efficient solar installations and 2 high ROI energy efficiency scopes.

   The Sheriff's Office is physically adjacent to the County Jail with a new roof to be installed per the County's Capital Improvement plan, which makes for an ideal rooftop solar installation. Ballasted racking systems with no penetrations are among the most cost efficient methods for installing solar. There is also a significant opportunity to reduce the existing facility's energy consumption through an LED lighting retrofit throughout. ECMs like LED lighting create more savings on a dollar for dollar basis than solar PV, so by combining together we can achieve greater overall cost efficiency.

   The proposed solar installation at the County Offices are similarly cost efficient, with a fairly new roof and wide open unobstructed space for an extremely efficient and cost effective layout. Like the Sheriff's Office, the County Offices also have an excellent LED lighting opportunity, which again, adds to the overall project economics.

   By aggregating higher performing projects and increasing the total project size we are able to provide the County with a compelling package that not only accomplishes the objectives set out in the PSA, but also expands the impact of this first project and creates a model for the County to replicate in the realization of its ambitious Climate Action goals.

4. **SGIP Energy Storage System (ESS) Incentive -** One of the challenges to achieving zero carbon resiliency at a large critical facility with heavy energy use is the sheer size and cost of the battery capacity necessary to ensure that the critical loads are all sufficiently backed up. In order to alleviate some of that pressure and encourage the adoption of battery based resiliency, California utilities created a specific ESS-carve-out with their incentive program, known as the Self Generation Incentive Program (SGIP - See section 7 below) which provides a significant subsidy for the installation of ESS.

   In the spring of 2020, the SGIP program opened up another level of incentive targeted at subsidizing ESS installations for critical facilities in California “Equity” zones. The County jail is located in one of these Equity zones. In an attempt to seize on this opportunity to significantly improve the economic viability of a zero carbon microgrid, Mynt worked with the County to apply for this special Equity budget incentive at both the County Jail and the County Office in May of 2020. The projects unfortunately were placed on the waiting list and will remain there until projects that were awarded the incentive ahead of them either cancel their reservation or ultimately do not reach the project proof of milestones required by the utilities to hold their place in the queue.

   While the additional Equity incentive would have been very helpful in subsidizing the project, the SGIP incentive for general market resiliency is still an excellent rebate. Mynt will work with the County to secure the general market incentive. Mynt has since redesigned the systems, optimizing for a balance of available incentives, utility savings and back up power at both facilities.

   As stated above, the ability to reach full resiliency is limited by the high capital costs of capacity, a large portion of which cannot be quantifiably monetized on a regular basis, thus our recommended system size will provide a more limited amount of backup/resilience than projected in the feasibility stage. In the ESS Sizing and Methodologies section below we go into more detail as to how we ultimately designed the system to still provide resiliency and savings while maintaining the overall project performance and financeability.

5. **GHG Emissions Reduction -** The County can make a significant environmental impact through the energy usage reduction and addition of clean energy to the grid resulting from the execution of the Phase 1 recommendations within this report. Assuming that the electricity supplied by the solar arrays at the 3 candidate sites do not result in GHG emissions and would offset an equal amount of conventionally produced electricity that would have been supplied by GHG-emitting sources, the GHG reductions are considered to be equal to the amount of emissions that would have been emitted by the conventionally produced electricity. GHG emissions reduction estimates can be seen below in Table 3.

   Questions have surfaced about the true impact of solar generation on carbon reduction goals when 3CE is supplying the County with power which is 100% carbon-free. As a response to that, there is something known in the renewable development world as ‘Additionality’ which is a term that describes renewable energy generation that is truly new – i.e. additional. For example, entities responsible for financially supporting new, expanding, or developing renewable generation sources, as opposed to buying into what is already available or planned, can claim additionality. These projects have a material impact on displacing global emissions by reducing conventional fossil sources of generation on the grid.

It should also be noted that there is a less easily quantified benefit to installing local solar generation, but the impact is actually quite significant in terms of the overall sustainability of utility infrastructure and equitable access to clean energy. 3CE's energy mix is 100% carbon free, but the majority of that physical electricity is generated in remote sites far outside of the County's community. By contributing to the local grid's clean energy mix, the County is in fact delivering an outsized impact to the local clean energy economy. This project will be among the largest solar PV and energy storage projects in 3CE territory, and thus a material step towards 3CE's promise of locally generated clean energy.

6. **Table 1 and Table 2 provide an overall summary of the financial expectations for each of the County's candidate sites and for a variety of potential approaches to financing.** Potential approaches to financing include cash purchase, Hybrid PPA, and low-interest loan finance (e.g., 17-year loan at 2%). The following financial estimates are included:
    - Up-front initial investments (Project Costs)
    - Average net annual savings on operating expenses
    - Cumulative lifecycle cash flow
    - Cumulative lifecycle net present values (NPV) at a 2.5% discount rate
    - Savings, returns, and NPV are calculated relative to the expected future cost of utility power

Table 1. Summary of financial expectations for various approaches to financing.

Candidate Sites	Project Costs	Solar & Battery System Sizes	LED Lighting (y/n)	*Average Net Annual Savings on Operating Expenses (over lifespan)		
				Cash Purchase	Hybrid PPA**	Loan Finance
County Jail	$5,622,243	1,285.9 kW / 2,145.6 kWh	No	$390,059	$121,963	$158,053
County Sheriff's Office	$1,074,445	372.7 kWh / 0 kWh	Yes	$129,136	$72,479	$85,165
County Office	$4,332,679	1,010.7 kW / 2,536.8 kWh	Yes	$423,975	$196,947	$239,729
Total Phase 1	**$11,029,367**	**2,669.3 kW / 4,682.4 kWh**		**$943,170**	**$391,389**	**$482,947**

Includes installation cost, consultant, legal and admin fees.
*Includes SGIP battery rebate
**30-yr PPA Term

Table 2. Summary of financial expectations: (a) cumulative lifecycle nominal returns, and (b) cumulative lifecycle net present values (NPV) at 2.5% discount rate.

Candidate Sites	Cumulative Lifecycle Cash Flow			Estimated Lifecycle NPV at 2.5% Discount Rate		
	Cash Purchase	Hybrid PPA	Loan Finance	Cash Purchase	Hybrid PPA	Loan Finance
County Jail	$4,129,237	$3,658,902	$3,951,334	$1,655,048	$2,107,922	$2,393,473
County Sheriff's Office	$2,153,951	$2,174,357	$2,129,124	$1,228,000	$1,421,744	$1,608,000
County Office	$6,309,224	$5,908,419	$3,623,496	$3,380,000	$3,606,539	$4,046,000
Total Phase 1	**$12,592,411**	**$11,741,678**	**$9,703,953**	**$6,263,048**	**$7,136,204**	**$8,047,473**

Table 3. Greenhouse Gas Reductions, based on emission factor in Table A-1

Candidate Sites	kWh Saved Annual*	GHG Reduction Annual (MT CO2)**
County Jail	1,804,214	305
County Sheriff's Office	658,782	111
County Office	1,682,161	284
Total	**4,145,157**	**700**

**includes solar production, reduction from LED lighting, and losses from battery storage*
***based on PG&E's 2018 reported emission factor of 206 lbs CO2/MWh*

Additional Conclusions and Observations

- **Heating Ventilation & Air Conditioning (HVAC) Assessment -** Mynt Systems has conducted a thorough exploration and assessment of the heating, ventilation, and air conditioning in the Sheriff's Office and County Jail as well as the County Offices. The objective of these assessments was to identify opportunities for improvements to energy consumption, utility costs, inhabitant comfort, and decarbonization through potential electrification. A special focus was placed on the intention for the exploration of the potential for conversion to 100% electric equipment.

  - After much diligence, three primary findings were made: A) most first-tier energy efficiency measures have been made, B) all second-tier efficiency measures are within the contractual management of other organizations maintaining operational control through proprietary software and systems, C) electrification of the mechanical systems would be infeasible due to the magnitude of the electrical load and infrastructure requirements.

    - The first-tier measures that were considered are items such as variable frequency drive motors, economizers, and variable air volume sensors and controls. Most of these measures have been appropriately and broadly implemented by the incumbent mechanical service contractors.

    - Second-tier measures that would normally be considered and specified such as control system optimization and end-of-life replacement, have been deemed infeasible based on the proprietary hardware and software that cannot be re-programmed by anyone but the incumbent contractor. Typically recommendations, protocols and tuning would be made to these systems but nothing can be recommended without access and systems “ownership”.

    - Global system electrification was deeply considered but yet deemed infeasible once the grid requirements and facilities overhaul were considered. The size of the boiler and mechanical systems in each of these properties is of an industrial scale and to redesign, engineer, and replace with an electric system would require a near gut-renovation of these buildings, which are inhabited by county staff and “clients”. Secondarily, when calculating the new electrical load with the translation of BTU’s (British Thermal Units; a measurement of heat-energy) into watts and then kilowatt-hours, the result was in the millions of kWh’s. Further research of grid capacity revealed that a full grid upgrade, possibly back to the substation, would also be in the tens of millions of dollars, also becoming economically infeasible.

  - Recommendations:

    - With all of the current conditions and potential scenarios considered, it is Mynt System’s recommendation that any potential mechanical upgrades be bundled into a longer-view strategy of employing energy co-generation (Cogen) that will offset both the electrical consumption while simultaneously optimizing the BTU consumption. Cogen, or sometimes referred to as combined-heat-and-power is a site-positioned mini power station that generates both heat and electricity through the consumption, utilization, and optimization of natural gas. This is usually accomplished through mini turbines that operate as electrical generators with a heat byproduct that can be utilized to economize the boiler hot water system.

- The intention for a future zero-carbon status may be achievable through the procurement of decarbonized natural gas supplied by the local community choice energy aggregator, 3CE. The decarbonized gas program has yet to be deployed but is currently under development and may be accessible as soon as 2022. The utilization of this program would radically improve the cost savings, overall energy consumption, and carbon footprint of the three facilities under consideration of this report. Lastly, by pushing this strategy forward it would allow a deeper analysis of the potential for collaborative efforts with the incumbent mechanical service providers for the further optimization of the systems under management.

- **Net Energy Metering 3.0 -** In addition to the general sense of urgency around taking significant action to prevent the acceleration of climate change, there are additional factors which should be noted that impact the County's decision to expedite the implementation of this project. One of these factors is the coming change to California utilities' Net Energy Metering laws.

  There is a more detailed explanation of Net Energy Metering (NEM) below in Section 5 - Utility Tariff Analysis, but it is important to recognize the potential negative implications of the updated NEM 3.0 rules in terms of the critical path items that the County must take into consideration.

  The IOUs and CPUC are already engaged in the proceedings around NEM 3.0 as the successor tariff to NEM 2.0, with a given conclusion date no later than December 31 2021. Most of the public solar advocacy organizations, SEIA, CALSSA, CCSE, as well as relevant industry analysts and research groups believe there will be a final decision made by late fall of 2021 at which point the timing of new rules and thresholds for grandfathering would also be set in place.

  There is a general consensus that NEM 3.0 will not be as favorable as the existing NEM 2.0 for solar PV. In all likelihood there will be higher fixed utility service charges for customers with solar installations as well as additional reduction in the "value" of the NEM credits for surplus energy generated on site. The overall impact on the total value of solar could be dramatic, and in some cases fatal to a project's viability.

  The PG&E NEM-Interconnection review process for a project of this scale and complexity can take 6-9 months before PG&E will present an Interconnection Agreement (IA) that the County could execute. Given the potential for a significant negative impact on the project economics in the NEM 3.0 scenario, we are recommending that the County submit this project into the PG&E NEM-Interconnection queue in the near term, ideally by the end of April 2021. Once the IA is executed the County would be "grandfathered" into the current NEM 2.0 tariff, locking in the economic performance outlined in this report.

- **Lithium-Ion Battery Supply Shortage -** The Battery Energy Storage System (BESS) technology landscape is rapidly changing and filled with products in various stages of development, track record, reliability as well as solutions targeting a broad range of applications. Currently, Li-ion battery technology, the same technology being utilized in power tools, computers, cell phones, and electric vehicles, is the most widely deployed in

BESS projects at all scales from residential to commercial to industrial.

Li-ion batteries are trusted, reliable, safe and have a long track record with vast amounts of operational and experiential data available to analyze. As of today, hundreds of MWs of Li-ion battery based systems have been installed in California, the results of which are both quantifiable and qualifiable.

The economic impact of these systems is clear when installed alongside Solar PV. The ability of Li-ion to charge and discharge rapidly enables the batteries to be very effective at “shaving” peak demand spikes as well as shifting the solar generation to periods of the day when energy is more expensive.

Li-ion battery systems are also excellent at responding to power outages, by rapidly and seamlessly transitioning a facility from grid power to onsite “self supply”. By storing solar generated energy and keeping a certain amount of capacity on standby, while discharging the balance when it’s most valuable, Li-ion battery back up systems provide a zero carbon solution with competitive long term economics relative to standard diesel generators.

Given all of the above, Mynt is recommending that the County choose to utilize Li-ion battery technology as the core storage component of the Microgrid. Our system design is based on a Tesla Li-ion MegaPack, considered by most to be the industry leading BESS product with an installed and operational base that dwarfs all other manufacturer’s.

In early 2021, due to a confluence of factors impacting global supply chain and manufacturing, Covid-19, massive demand spike in Electric Vehicles, delayed new capacity, caused a sudden and unprecedented international shortage in Li-ion batteries. By late January developers were given an ultimatum - secure Li-ion batteries by mid February for fall 2021 delivery or expect to wait until spring-summer 2022.

Working with our network of manufacturers and distributors, Mynt was able to secure the large Li-ion batteries for the 2 County facilities and ensure that these projects could be constructed in 2021. As explained above, ensuring this project’s success and achieving the optimal outcomes for the County as outlined in this report, will be contingent upon meeting a relatively accelerated timeline.

- **Looking Ahead - Expanded Community Microgrid** - There have been some discussions around a future expansion of the County Jail Microgrid to include the neighboring County Hospital, Natividad Medical Center (NMC), thereby achieving some even greater economies of scale and creating a landmark Critical Infrastructure project to serve the greater County community. Mynt has taken steps to engineer the proposed Microgrid and build in the necessary infrastructure, such that a future expansion would be feasible with minimal disruption and reduced cost.

  By laying the groundwork for this expanded system with this first phase, the County will gain the experience of working through the Microgrid development process as well as a greater understanding of the public-private financing structures most commonly utilized in capitalizing these projects. These are complex projects which require a coordinated effort on the part of multiple stakeholders - the experience gained by having an operational system at one of your facilities will be invaluable in the context of the scalability and replicability of this model.

  There are currently a number of proposed regulatory changes as well as legislation moving through the approval process, which will have a significant impact on the manner in which these larger community scale Microgrids are developed. Today the idea of a community scale Microgrid is a possibility, but in the next few years it will become a reality.

As these new rules take shape, the County will be planning and strategizing while continuing to save money which could potentially be redirected towards this next phase. Phase 1 will prove that there is a viable and valuable model. It can serve as a launching pad for realizing the County's vision of a more sustainable, more resilient, and more equitable community.

2. Overview of the Methodology

Steps of Mynt's Feasibility Review process are summarized as follows.

Scope & Goals	Met and corresponded with County staff to assess the scope, constraints, and goals of the potential project.
Site Visit	Performed site visits to evaluate site conditions, collect information about the existing electrical infrastructure.
Data Collection	Obtained historical electricity consumption data from PG&E for the main services and obtained further information about the site facilities (drawings and specifications).
Conceptual Design	Created conceptual system designs and generated simulated solar PV production data using industry-standard solar design software, HelioScope. Iterated conceptual designs with County staff input.
Tariff Modeling	Performed tariff modeling using industry-standard software, Energy Tool Base, to optimize system sizing and cost offsets. Modeling included projected electricity consumption and simulated PV production for conceptual designs.
Financial Modeling	Performed financial and sensitivity analyses, including lifecycle cost analysis for various financing scenarios: (1) cash purchase, (2) Hybrid PPA with 0% escalator, (3) 3CE's UPS Fund Program, (3) PG&E's On-Bill 0% Interest Financing, (5) CollectiveSun's SPA Solar Discount Program for nonprofits, and (4) low- interest loan financed (e.g., 1% CEC loan program)

3. Financial Modeling Overview

Financial models are greatly influenced by the underlying assumptions and inputs. Most importantly, if utility rates increase (or decline) more than expected for any reason—such as regulatory changes or supply-versus-demand issues—then the apparent financial performance of the PV, energy storage, and energy-efficiency systems will be affected. The apparent performance is calculated relative to utility rates; and therefore, performance appears to improve when utility rates are higher than expected (and degrade when lower than expected). The economic calculus for renewable energy projects has grown more challenging over the past several years in California. As more solar PV projects have come on line, utilities have responded to growth in solar PV energy supply by adjusting utility rates and their Time-of-Use periods. In effect, the market value of solar energy has declined somewhat as the supply has grown—a trend that Mynt expects to continue especially with the changes to NEM as described above.

The integration of energy storage and energy efficiency works as a counter-balance to the downward trend of solar PV valuation and enables the integrated energy system to maximize the value of solar power. In general, Mynt takes a conservative yet objective approach to financial analyses for renewable energy projects. Pricing assumptions are based on market knowledge from similar projects, current industry trends, and utility escalation rates based on historical averages over the past thirty years. Mynt's financial modeling assumptions also account for risks associated with rate changes currently proposed by PG&E. **Table 4** summarizes the inputs and assumptions that Mynt employed to model the financial performance of the sustainable energy and energy efficiency systems under consideration.

The key project variables include the utility annual price escalator, costs of system installation or PPA pricing, and expected future changes in tariff rates and energy values. These variables are listed in **Table 4.**

Table 4. Summary of inputs and assumptions for financial modeling of PV systems performance.

Utility Information	
Annual Electric Consumption	6,924 MWh/year, referencing 2019-2020 PG&E data for three candidate sites
Annual Electric Costs	$1.1M-$1.2M/yr for three candidate sites (referencing 2019-2021 usage)
Solar, Battery, and LED lighting components	
Solar / Battery System Size	2,669.3 kW / 4,682.4 kWh
PV & Battery Components	Jinko 470W and Qcell 425W modules, Sungrow and SolarEdge inverters, 2hr & 4hr Stem Tesla batteries
Installation Type	Rooftop and Carport
Annual Energy Production and Electricity Offset	4.13 MWh/year, offsetting an average of 60% of annual electricity usage between the three candidate sites
PV System Lifetime	25-30 years
PV System Warranty	25-30 years
LED Light Upgrades	3,452 existing fluorescent light fixtures found at Sheriff's Office and County Offices to be replaced with Philips LED lighting with 50%+ energy reduction
LED Warranty	5 years / 70,000 hours

Financial Information	
Turnkey Project Cost	$11,029,367
PPA Price	$0.0568/kWh in Year 1 $0.200/kWh in Year 11
PPA Escalator	Years 1-10: Variable, designed to deliver 12% savings to County Years 11-30: 0%
PPA Term	30 years
3CE UPS Fund Terms	For hybrid PPA model, all ESS costs to be financed by 3CE UPS Fund and will be paid back at 1.87% over 10 years
PG&E On Bill Financing (OBF) Terms	OBF payments will be equivalent to the first year savings from LED lighting for a 10-year term. All lighting project costs covered by OBF.
Annual Utility Inflation Rate	3%
Solar Degradation Rate	0.5%
NPV Discount Rate	2.5%
Self-Generation Incentive Program (SGIP)	$1,248,310

4. Project Recommendations and Performance

Mynt has determined that the County possesses the space, site conditions and existing infrastructure for the installation of Phase 1 (solar PV, battery, LED lighting) as well as the potential for future electrification of gas powered mechanical equipment. The integration of these technologies will dramatically reduce energy consumption and provide significant utility savings and greenhouse gas reductions over the next three decades.

Current annual electrical power usages for the County candidate sites were determined by analyzing PG&E data and reports representing 2018 through 2021. As needed, small amounts of missing energy usage data were gap-filled or extrapolated. Proposed system sizes are based on estimates of annual electricity usage and site constraints. **Table 5** presents a summary of these elements of information. Future changes to energy consumption were not considered in this study but should be considered if the County has any major changes planned. **Attachment B** shows system details, including proposed layouts of the PV solar arrays.

Solar and Battery Systems

Mynt's team of engineers has performed site visits, assessed existing electrical infrastructure, and has analyzed utility usage patterns, resulting in the solar and battery system sizes presented in Table 5. These energy generation and storage systems will provide electricity offset to each candidate site during daylight hours, and carbon-free resiliency during shorter duration planned and unplanned power outages. Additionally, the battery systems will discharge their electrical capacity during peak grid usage hours, providing enhanced grid resiliency for the community and demand cost savings for the County. The proposed solar systems' placements utilize rooftop and parking lot availability, taking advantage of square footage that would otherwise be unutilized space. **Attachment B** illustrates the proposed solar array locations.

Table 5. Electric power usage

Candidate Sites	Annual Electrical Energy Usage (MWh/yr)	PV System Size (kW) / Battery Size (kWh)	% Energy Usage Offset (Year 1)
County Jail	3,472	1,285.9 kW / 2,145.6 kWh	52%
County Sheriff's Office	871	372.7 kWh / 0 kWh	76%
County Office	2,581	1,010.7 kW / 2,536.8 kWh	65%
Total	**6,924**	**2,669.3 kW / 4,682.4 kWh**	**60%**

Solar PV Sizing Methodologies

Part of the solar economic analysis entails looking at the optimal utility rate structure once the system is operational. PG&E has a Renewable tariff option, namely Option-R, which is advantageous for solar generators in that the On Peak energy rates ($/kWh), when solar is most efficient, are set higher than typical rates. This option also has a reduced Demand Charge ($/kW) to make up for the fact that solar itself being intermittent generation, cannot always be relied upon to offset every 15 minutes increment of demand throughout a given period.

Because the demand charge reduction is generated through the tariff schedule itself and not the system size, there is a point at which the addition of more solar generation does not increase the cost effectiveness. The system size does need to be at least 15% of the total load in order to be eligible for the Option-R, and because the OnPeak rates are so much higher, it is important to size the system large enough to generate kWh to offset most if not all of that OnPeak consumption.

As all 3 candidate sites are 'space-constrained' for solar power, meaning there is not enough available space to install a solar PV system that could offset 100% of the building loads, utilizing the Option-R tariff schedule will ensure that the County generates optimum electricity cost savings from the solar PV systems.

Mynt ordinarily recommends designing PV systems to offset no more than 95-100% of projected electricity usage - i.e., full offset with a slight margin of error favoring underproduction. Offsetting utility electricity usage at retail rates is far more financially beneficial than overproducing electricity for delivery to the grid at wholesale rates. Wholesale rates for solar customers who produce more than they consume are only $0.06135 per kWh (Monterey Bay Clean Power) or $0.02793 per kWh (PG&E). All 3 of the County's candidate sites currently use far more energy over the course of a year than the maximum size solar generator could produce in that same time period, and therefore we found no risk of potential overgeneration at any of these sites.

Energy Storage System (ESS) - Resiliency Sizing Methodologies

Mynt's team of engineers has analyzed the length of time solar and batteries could provide backup power before requiring the use of the standby generators. The Microgrid controller will integrate the Standby generators along with the Solar PV and Batteries, to provide full interoperability both while connected to grid power and when in "island" mode during a utility shutdown or grid failure event. The transfer of power between the solar, batteries and generator will be automatic and seamless. In fact, the switchover timing will be in seconds, as compared to the 3-5 minute transfer times of standard diesel generators.

Our resiliency analysis, (see Tables 6 & 7 below) assumes recent energy use patterns (Feb 1 2020-Jan 31 2021 for County Jail and May 5 2019 - May 4 2020 for County Office Building) remain the same, there is no manual or control-based reduction of load during an outage, and that the batteries are fully charged at the beginning of a utility outage. Fully charged batteries at the beginning of an outage is likely for a planned outage, such as a PSPS event, but if an unplanned outage should occur, standby generators may be needed sooner. A major benefit of batteries supplementing standby generators in resiliency applications is that instead of needing to run constantly during an outage, standby generators will only be run to top up the batteries, resulting in much lower runtime. Conserving energy during an outage will extend these durations. The duration of solar and battery-only backup durations is summarized below.

This same resiliency analysis is illustrated more graphically in the subsequent scatter plots in Figures 1-4. Here we are comparing the net energy consumption (usage minus solar generation) in the above time periods throughout the year, accounting for round-trip energy storage efficiencies and other operating characteristics of the system. The set of scatter plots indicates when various duration power outages (1-hour, 2hour, 4 hour, etc.) would be covered without requiring use of a standby generator. Points below the green line would be covered, and points above the line would require a standby generator. Due to the size of the load relative to the available solar capacity, daytime outages are generally covered, while overnight outages will typically require some generator use until solar is available again the next day.

County Jail Battery System

Table 6. Battery backup resiliency rate by outage duration (hours) for the County Jail

Duration	1hr	2hr	4 hr	8 hr	12 hr	16 hr	20 hr	1-day	2-day	4-day	7-day
Avg Net Consumption	214.8 kWh	429.6 kWh	859.1 kWh	1,718 kWh	2,577 kWh	3,437 kWh	4,296 kWh	5,155 kWh	10,310 kWh	20,619 kWh	36,083 kWh
Max. Net Consumption	595.2 kWh	1,154.4 kWh	2,158.8 kWh	4,128 kWh	5,915 kWh	7,632 kWh	9,242 kWh	10,296 kWh	19,706 kWh	38,676 kWh	61,800 kWh
Intervals Covered	100.0%	100.0%	99.4%	41.7%	32.9%	26.2%	16.1%	1.8%	0.3%	0.0%	0.0%

Figure 1. Battery resiliency for 4-hour outage duration over 1 year timeframe

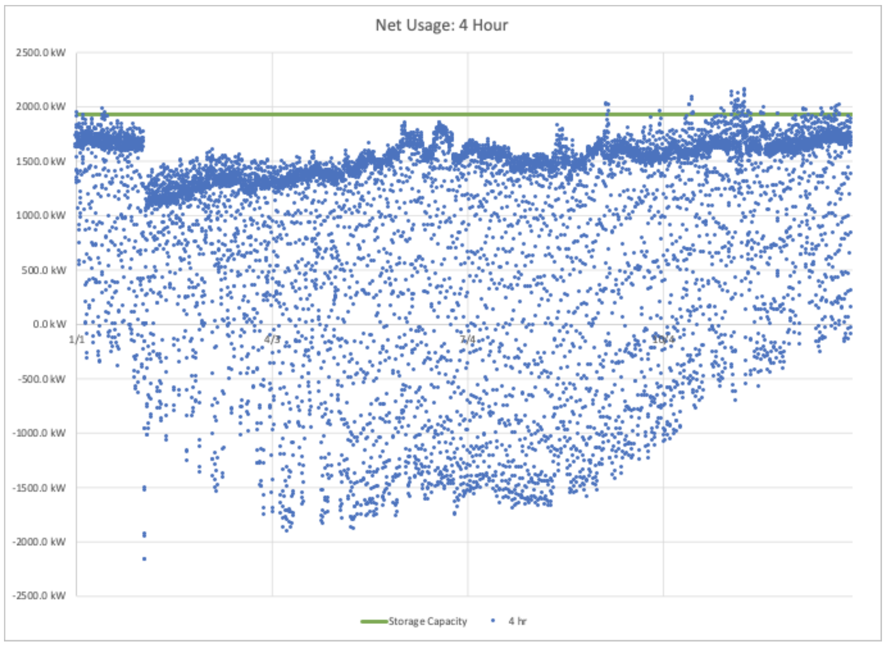
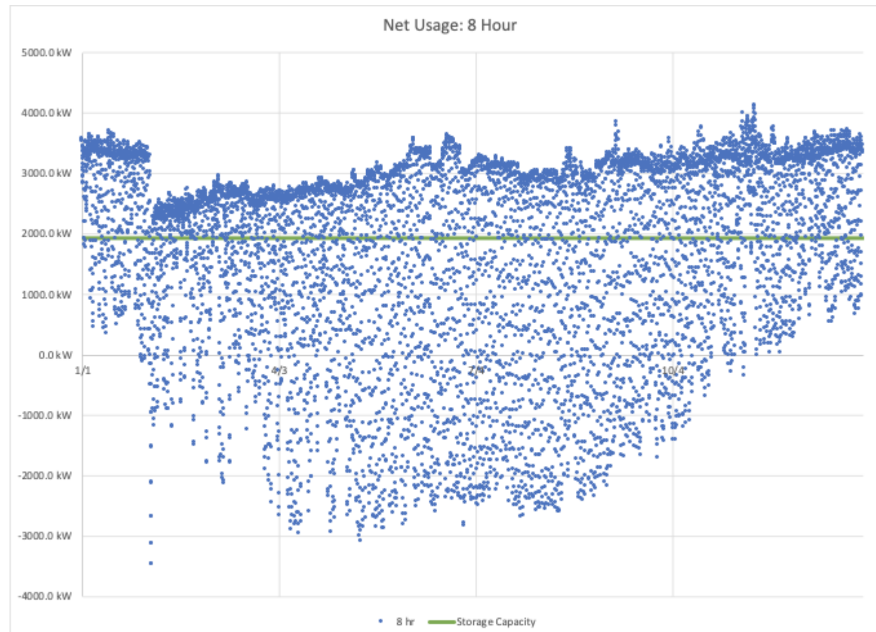


Figure 2. Battery resiliency for 8-hour outage duration over 1 year timeframe



County Office Battery System

Table 7. Battery backup resiliency rate by outage duration (hours) for the County Office

Duration	1hr	2hr	4 hr	8 hr	12 hr	16 hr	20 hr	1-day	2-day	4-day	7-day
Avg Net Consumption	147.8 kWh	295.5 kWh	591.1 kWh	1,182 kWh	1,773 kWh	2,364 kWh	2,955 kWh	3,546 kWh	7,093 kWh	14,186 kWh	24,825 kWh
Max Net Consumption	555.7 kWh	1,070.5 kWh	2,094.0 kWh	3,956 kWh	5,116 kWh	6,118 kWh	6,442 kWh	8,390 kWh	14,090 kWh	24,972 kWh	40,896 kWh
Intervals Covered	100.0%	100.0%	100.0%	89.6%	54.5%	43.2%	33.2%	24.5%	8.0%	1.8%	0.0%

Figure 3. Battery resiliency for 4-hour outage duration over 1 year timeframe

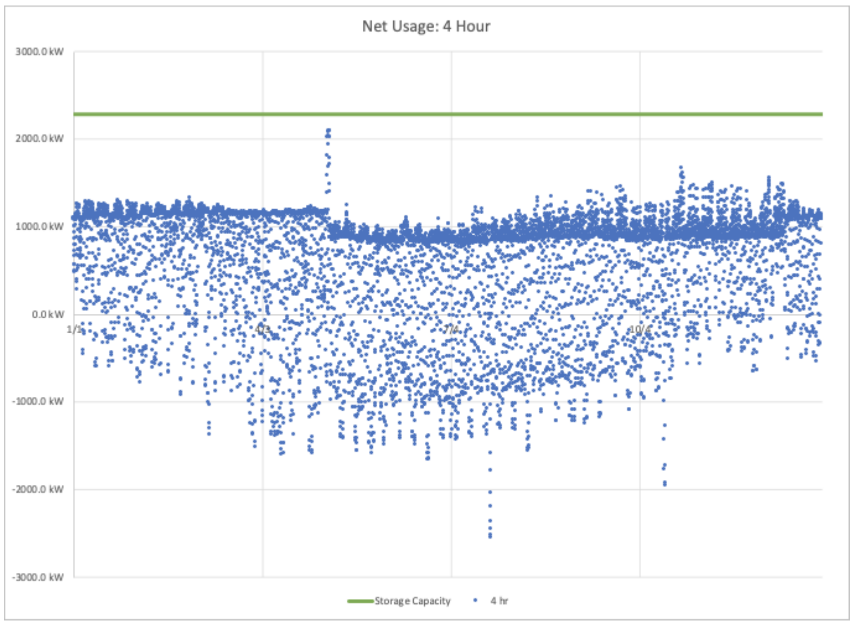
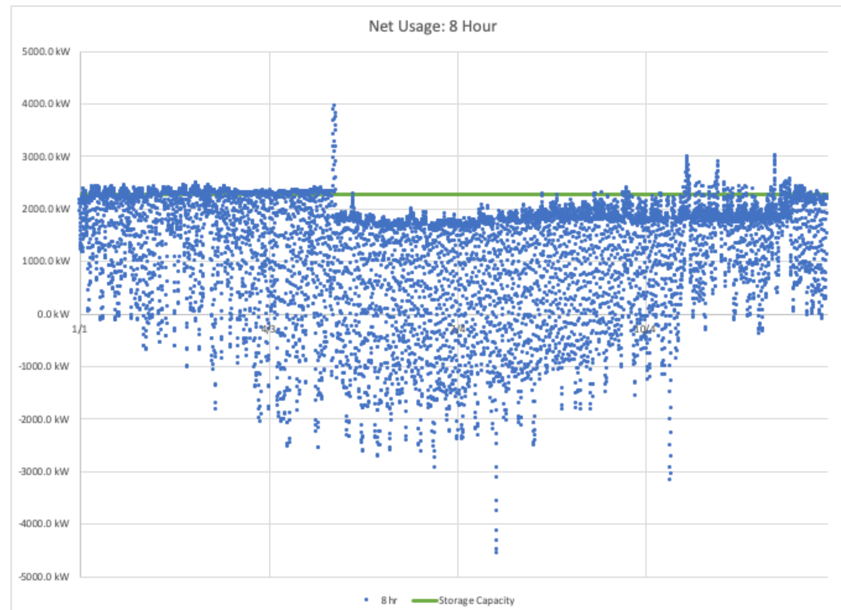


Figure 2. Battery resiliency for 8-hour outage duration over 1 year timeframe



Energy Storage System - Peak Shaving and Load Shifting

To understand the core value proposition for energy storage, it is essential to first understand the elements of most organizations' utility costs: energy charges and demand charges.

Energy charges, the part of the bill that most people are familiar with, are the costs charged in kilowatt hours (kWh) for the amount of electricity used over the course of the billing cycle. Demand charges, on the other hand, are determined by the amount of energy used, in kilowatts, over a short period of time (typically a 15- minute interval) during which the highest amount of energy was consumed.

Due to factors such as inexpensive natural gas and widespread adoption of renewables, the cost of producing energy in the middle of the day, has actually declined or stayed flat in recent years. As a result, energy costs have largely trended down or stayed flat, while the cost of delivering that energy has increased, due to aging infrastructure and capacity constraints. Energy providers must therefore increase demand rates to make up for lost revenue and cover fixed costs.

In California, a state that has some of the highest demand rates in the country, the kWh-energy charges for most customers plateaued, while demand rates increased by an average of 75%. Traditional energy efficiency methods reduce the energy portion of the bill, but do not directly address demand charges. With demand costs rising each year, demand management has never been more critical for achieving both immediate cost savings and protection from future cost risk.

Facility managers need to consider ways to curb peak demand usage to avoid massive exposure to rising demand costs. Historically, most demand reduction solutions available have caused operational disruptions or require manual effort. Since most facilities have little operational flexibility or staff resources to implement demand management strategies, demand charges have largely gone unchecked. In a critical infrastructure facility like the County Jail, where 24/7 operation is essential to the safety and security of the inhabitants, reducing peak loads and demand charges has traditionally been a complicated, time- intensive, and error-prone process.

Intelligent energy storage is a unique demand management tool that runs automatically in the background without impacting operations or requiring staff oversight. Software-powered storage takes a building's historic and current energy usage, rate tariff, and local weather forecasts to learn, and then predict the facility's energy patterns, lowering energy demand at the precise moments when peaks occur.

The result is automated bill savings typically totaling around 25% of demand charges. To ensure savings, intelligent energy storage systems learn and react to energy use to catch all cost-incurring peaks each month. In Figure 5 and 6, the grey and blue shading represent the before and after demand profiles of the energy storage system deployed to lower grid consumption during a peak.

Figure 7 below is another graphical representation of how solar and energy storage work synergistically to both shave peak demand and "shift" solar generation from less valuable off-peak TOU to more valuable On-peak TOU later in the afternoon.

Figure 5. County Jail power peak demand profile for one day in the month of July pre-project install

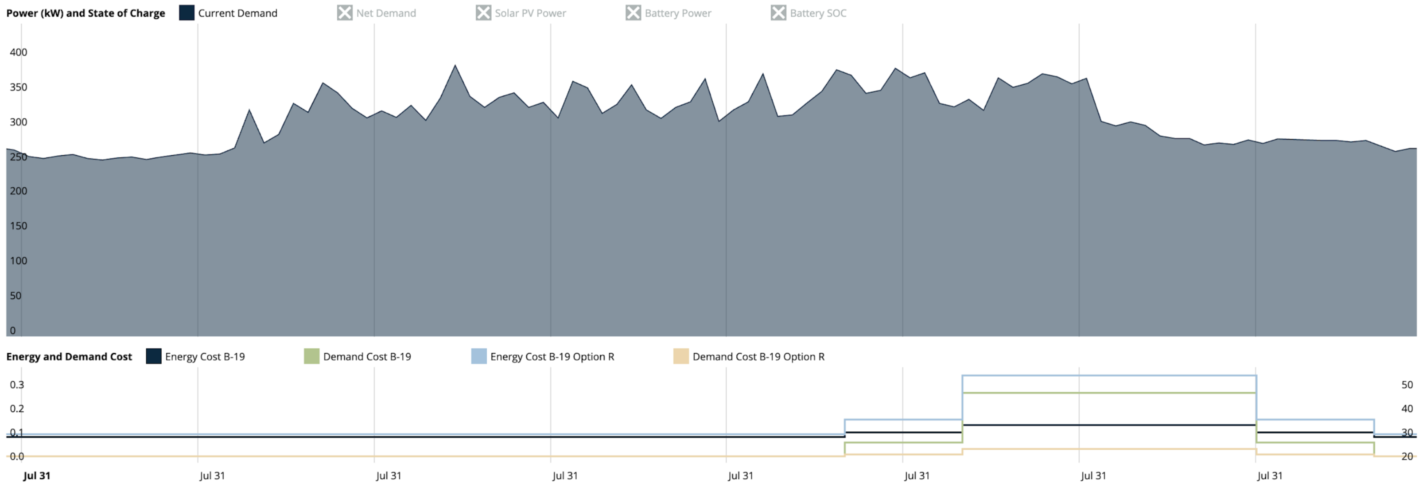


Figure 6. County Jail power peak demand profile for one day in the month of July post-project install

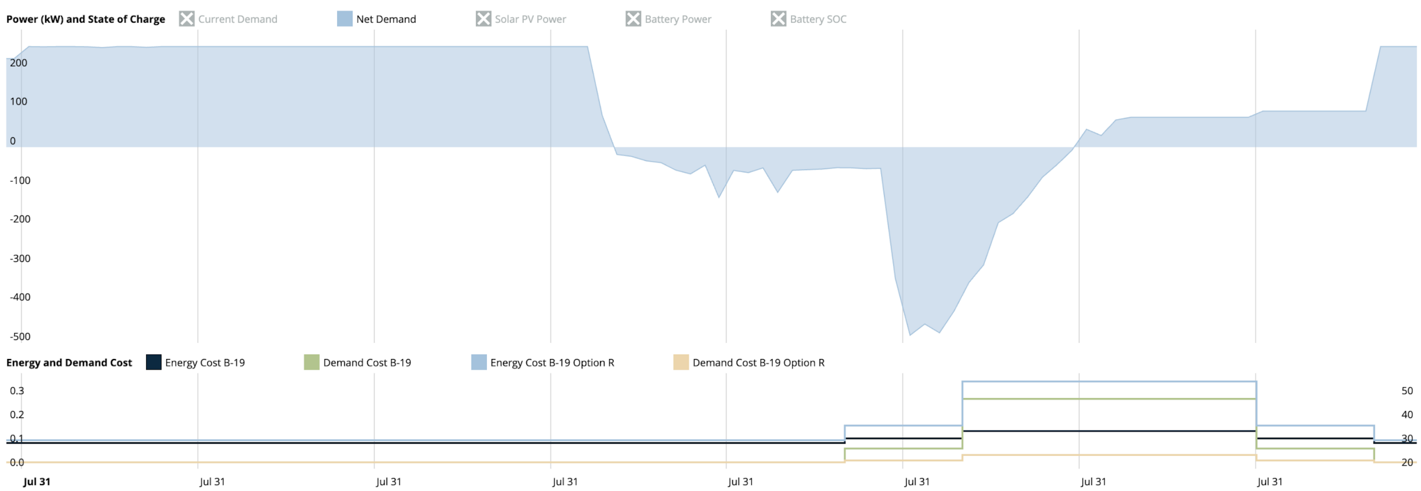
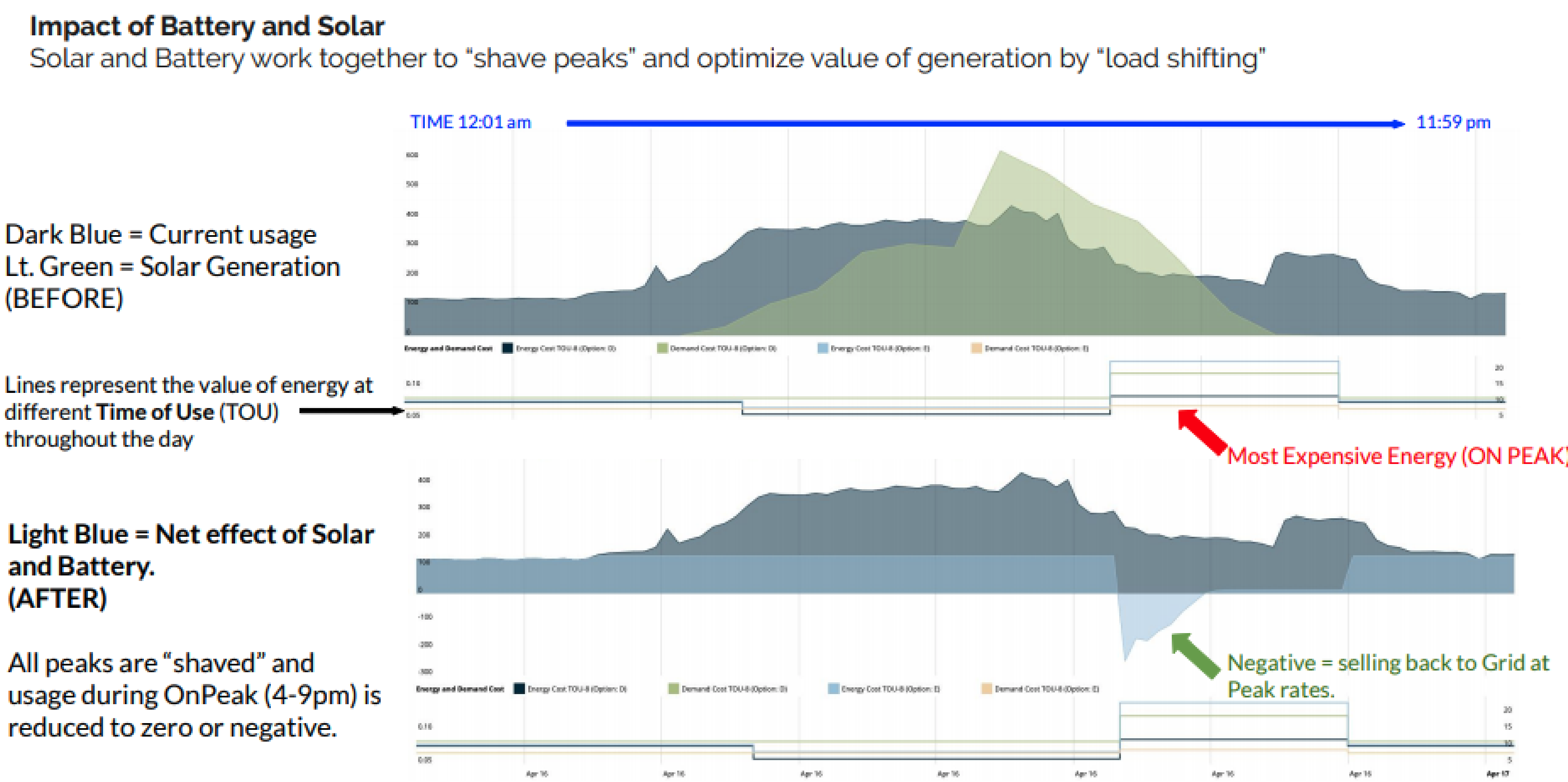


Figure 7. Solar and battery system impact on power demand profile



Microgrid Controls

Factors such as increasing occurrences of natural disasters, the ongoing threat of cyber attacks and growing awareness of inadequate, outdated or failing grid infrastructure all compel future development in technology to provide power continuity. Traditional standby generation is no longer adequate. Microgrids provide a platform to keep the power on and operate critical assets over long periods of time while isolated from a damaged or failed grid. Microgrids can generally better manage distributed power generation by providing optimal control, dynamic stability and balancing the demand and generation on a small but critical scale.

Two of the greatest benefits of microgrid technology are increased reliability and power quality to large critical loads like detention centers and hospital districts. In concert with onsite generation and artificial intelligence based software, microgrid technology enhances reliability by sourcing alternative power in addition to transmission and distribution systems.

Peak loads can be reduced through microgrids, while lowering demand charges associated with peak energy costs providing an economic structure to install microgrids. Microgrid software and controls are continuously optimizing the balance of economic value, carbon footprint and resiliency utilizing the onsite generation, from the Solar PV and potential Cogeneration in the future, the energy storage and any onsite backup power generators.

Microgrids can also be successfully leveraged to either defer capital investments in the grid or enable participation in new ancillary services. Increasingly, microgrids are further leveraged to effectively accelerate the adoption of distributed renewable energy sources that are intermittent, which reduces global dependence on fossil fuels while lowering climate-damaging carbon emissions.

LED Upgrades

LED lighting produces light approximately 90% more efficiently than incandescent lighting and 50% more efficiently than fluorescent lighting. Additionally, LEDs emit less heat and last 2 to 3 times longer than the antiquated alternatives. Two out of three of the County's candidate sites (the County Office and the Sheriff's Office) have had little or no LED upgrades and are still operating with 15-20 year old, primarily fluorescent, lighting fixtures. The County Jail recently underwent a significant LED lighting upgrade and was not included in the Phase 1 lighting design.

For the two County sites identified as candidates for LED lighting, electricity consumption reduction and utility cost savings were calculated by first establishing an inventory of existing lighting fixtures through a site walk, County-provided electrical and reflected ceiling plans, and referencing existing lighting audits performed by AMBAG (Association of Monterey Bay Area Governments). Annual hours of operation for each fixture were assumed, creating a baseline annual lighting load. The annual lighting load was then compared to the total building load to ensure that the percentage of total building usage from lighting fell in line with expectations for buildings within the appropriate use type and climate zone. Savings and project costs were determined by applying an LED replacement for each lighting fixture in the lighting inventory. The resulting savings and project costs can be seen in table 8.

It is highly recommended that the County utilize PG&E's 'On-Bill Financing' (OBF) program to finance the LED lighting portion of the project. This financing program offers municipalities loans of up to $4 million dollars per site at 0% interest for up to 10-year terms. The program is meant to be cost-neutral, meaning that the monthly payments back to PG&E are equal to the monthly savings that the project generates. Mynt has spoken to the County's PG&E representative who would handle the loan application and confirmed viability.

Table 8. Summary of inputs and assumptions for financial modeling of LED lighting performance.

	County Offices	Sheriff Office
Annual Total Electric Consumption	2,581,410 kWh	870,838 kWh
Annual Total Electric Consumption from Lighting	476,010 kWh	213,158 kWh
Number of existing fluorescent T8 lighting fixtures to be replaced with LED	2,383	1,159
Efficacy of LED	144 lumens/watt	144 lumens/watt
Annual Operation Hours	2,229	2,229
Annual Energy Savings	311,950 kWh	127,895 kWh
Blended Energy Rate	$0.178/kWh	$0.186/kWh
Annual Cost Savings	$55,857	$23,818
LED Warranty	5 years / 70,000 hours	5 years / 70,000 hours

5. Utility Tariff Analysis

PG&E utility tariffs were reviewed for each candidate site's main electric meter. Tariffs were then analyzed together with energy usage patterns using industry-standard software, Energy Tool Base. Current utility tariffs, expected post-PV and battery installation tariffs, and expected annual electric utility cost offsets are shown in **Table 9**.

Table 9. Summary of tariff analyses

Candidate Sites	Current Utility Tariff	Expected Utility Tariff Post-PV Installation	Expected Gross Annual Cost Offset Post-Tariff Switch (%)
County Jail	E-19 Option P	B-19 Option R	64.9%
County Sheriff's Office	E-19 Option S	B-19 Option R	67.7%
County Office	E-19 Option S	B-19 Option R	80.1%

PG&E B-19 Option R Rate

Beginning in March 2021, all of PG&E's commercial customers will be moved to new time-of-use rate plans with later peak hours (named 'B' rate tariff plans). The new on-peak hours, when rates will be higher, will be 4-9 p.m. every day of the year. In addition, these new rate plans will only have partial-peak periods during summer months (2-4 p.m. and 9-11 p.m. every day, June through September), and a super off-peak period, when prices will be lowest, during spring months (9 a.m. – 2 p.m. every day, March through May).

Further, PG&E offers a "solar friendly" utility rate for customers that have completed solar installations. PG&E was mandated to offer these rates to incentivize their customers to install renewable generation. While this may seem counterintuitive, it is very expensive for PG&E to supply peak demand power, and on site solar generation does mitigate demand on the grid because it generates at maximum levels during the summer peak periods.

Option R, for Renewables, is structured such that the summer demand rates are lower and the summer peak energy generation rates are more valuable when the solar is generating (see Figures 5&6 for visual reference). E19 -R (Renewables) eliminates the "maximum peak demand summer" and "maximum part-peak demand summer" charges.

The energy economics (savings) presented within this report considered the impact of PG&E rate switches to B-19-R, as mentioned above. All 3 sites were previously on PG&E's E-19 rate, with the Jail being the only site to preliminarily switch to B-19 prior to the March 2021 mandatory switch. The final energy models and energy savings economics include the consumption offset and demand reduction through solar production and peak shaving, and the rate switch to B-19-R.

See below for an excerpt from the PG&E 2021 B-19 Tariff books where you can see the differences between the standard and Option-R rates.

PG&E B-19/B-19 Option R Tariff

	B-19		B-19 Option R	
Total Customer Charge Rates				
Customer Charge Mandatory B-19 ($ per meter per day)	$42.06396	(I)	$42.06396	(I)
Customer Charge with SmartMeter™ ($ per meter per day)	$5.47664	(I)	$5.47664	(I)
Total Demand Rates ($ per kW)				
Maximum Peak Demand Summer	$23.40	(I)	$2.80	(I)
Maximum Part-Peak Demand Summer	$4.98	(I)	$0.80	(I)
Maximum Demand Summer	$18.45	(I)	$18.45	(I)
Maximum Peak Demand Winter	$1.25	(I)	$0.00	
Maximum Demand Winter	$18.45	(I)	$18.45	(I)
Total Energy Rates ($ per kWh)				
Peak Summer	$0.13897	(R)	$0.34171	(I)
Part-Peak Summer	$0.11736	(R)	$0.16696	(I)
Off-Peak Summer	$0.09857	(R)	$0.10992	(I)
Peak Winter	$0.12726	(R)	$0.13914	(R)
Off-Peak Winter	$0.09870	(R)	$0.10149	(R)
Super Off-Peak Winter	$0.05806	(R)	$0.06567	(R)

A representative analysis of the energy modeling of the County Jail site can be seen in the tables below.

Table 10. County Jail - Energy Consumption Modeling Based On Metered Interval Data

Bill Date Ranges			Energy Use (kWh)			Max Demand (kW)
Start Date	End Date	Season	On Peak	Part Peak	Off Peak	NC / Max
1/1/2019	2/1/2019	W	-	107,294	141,691	446
2/1/2019	3/1/2019	W	-	89,437	128,028	442
3/1/2019	4/1/2019	W	-	89,418	140,137	423
4/1/2019	5/1/2019	W	-	87,243	121,371	474
5/1/2019	6/1/2019	S	47,020	48,995	130,368	456
6/1/2019	7/1/2019	S	43,396	44,541	138,300	461
7/1/2019	8/1/2019	S	49,877	51,074	133,553	449
8/1/2019	9/1/2019	S	50,179	51,073	141,955	492
9/1/2019	10/1/2019	S	49,565	48,491	138,773	467
10/1/2019	11/1/2019	S	49,049	48,288	131,927	487
11/1/2019	12/1/2019	W	-	90,927	132,250	453
12/1/2019	1/1/2020	W	-	96,021	136,472	459
			289,086	**852,802**	**1,614,825**	

Table 11. County Jail - Energy Cost Modeling: E-19 Rate

Bill Date Ranges			Energy Use (kWh)	Charges				
Start Date	End Date	Season	Total	Other	NBC	Energy	Demand	Total
1/1/2019	2/1/2019	W	248,985	$768	$6,225	$21,219	$9,473	$37,684
2/1/2019	3/1/2019	W	217,465	$694	$5,437	$18,459	$9,388	$33,977
3/1/2019	4/1/2019	W	229,555	$768	$5,739	$19,399	$8,983	$34,889
4/1/2019	5/1/2019	W	208,614	$743	$5,215	$17,732	$10,068	$33,759
5/1/2019	6/1/2019	S	226,383	$768	$5,660	$21,115	$22,060	$49,603
6/1/2019	7/1/2019	S	226,237	$743	$5,656	$20,677	$22,397	$49,473
7/1/2019	8/1/2019	S	234,504	$768	$5,863	$21,976	$21,820	$50,426
8/1/2019	9/1/2019	S	243,207	$768	$6,080	$22,608	$23,760	$53,217
9/1/2019	10/1/2019	S	236,829	$743	$5,921	$22,032	$22,948	$51,644
10/1/2019	11/1/2019	S	229,265	$768	$5,732	$21,455	$23,431	$51,386
11/1/2019	12/1/2019	W	223,177	$743	$5,579	$18,929	$9,622	$34,873
12/1/2019	1/1/2020	W	232,493	$768	$5,812	$19,741	$9,749	$36,071
			2,756,714	**$9,043**	**$68,918**	**$245,343**	**$193,699**	**$517,003**

Table 12. County Jail - Energy Cost Modeling: B-19-R Rate

Bill Date Ranges			Energy Use (kWh)	Charges				
Start Date	End Date	Season	Total	Other	NBC	Energy	Demand	Total
1/1/2019	2/1/2019	W1	248,985	$855	$6,225	$22,129	$10,883	$40,091
2/1/2019	3/1/2019	W1	217,465	$772	$5,437	$19,321	$10,761	$36,291
3/1/2019	4/1/2019	W2	229,555	$855	$5,739	$18,185	$10,285	$35,065
4/1/2019	5/1/2019	W2	208,614	$827	$5,215	$16,546	$11,450	$34,039
5/1/2019	6/1/2019	W2	226,383	$855	$5,660	$17,919	$11,020	$35,453
6/1/2019	7/1/2019	S	226,237	$827	$5,656	$21,729	$23,406	$51,618
7/1/2019	8/1/2019	S	234,504	$855	$5,863	$22,577	$23,119	$52,413
8/1/2019	9/1/2019	S	243,207	$855	$6,080	$23,424	$24,949	$55,308
9/1/2019	10/1/2019	S	236,829	$827	$5,921	$22,815	$24,654	$54,216
10/1/2019	11/1/2019	W1	229,265	$855	$5,732	$20,332	$11,805	$38,723
11/1/2019	12/1/2019	W1	223,177	$827	$5,579	$19,796	$11,025	$37,228
12/1/2019	1/1/2020	W1	232,493	$855	$5,812	$20,607	$11,145	$38,418
			2,756,714	**$10,066**	**$68,918**	**$245,379**	**$184,500**	**$508,863**

Table 13. County Jail - Energy Cost Modeling: B-19 Rate after Solar & Battery

Bill Date Ranges			Energy Use (kWh)	Charges				
Start Date	End Date	Season	Total	Other	NBC	Energy	Demand	Total
1/1/2019	2/1/2019	W1	171,419	$855	$4,286	$14,631	$7,580	$27,352
2/1/2019	3/1/2019	W1	138,795	$772	$3,489	$11,893	$7,258	$23,412
3/1/2019	4/1/2019	W2	125,851	$855	$3,426	$9,116	$6,846	$20,242
4/1/2019	5/1/2019	W2	57,106	$827	$2,238	$3,590	$5,438	$12,093
5/1/2019	6/1/2019	W2	36,643	$855	$2,108	$1,986	$5,649	$10,598
6/1/2019	7/1/2019	S	15,853	$827	$1,885	-$488	$8,035	$10,260
7/1/2019	8/1/2019	S	25,212	$855	$2,016	$463	$8,385	$11,719
8/1/2019	9/1/2019	S	45,730	$855	$2,383	$2,311	$9,018	$14,567
9/1/2019	10/1/2019	S	75,857	$827	$2,661	$5,365	$9,471	$18,324
10/1/2019	11/1/2019	W1	99,207	$855	$2,683	$8,253	$6,831	$18,621
11/1/2019	12/1/2019	W1	136,063	$827	$3,414	$11,537	$6,947	$22,725
12/1/2019	1/1/2020	W1	156,991	$855	$3,925	$13,341	$6,908	$25,030
			1,084,727	**$10,066**	**$34,514**	**$81,996**	**$88,366**	**$214,942**

Table 14. County Jail - Energy Cost Modeling: B-19-R Rate after Solar & Battery

Bill Date Ranges			Energy Use (kWh)	Charges				
Start Date	End Date	Season	Total	Other	NBC	Energy	Demand	Total
1/1/2019	2/1/2019	W1	171,419	$855	$4,286	$15,528	$7,059	$27,728
2/1/2019	3/1/2019	W1	138,795	$772	$3,489	$12,636	$6,763	$23,660
3/1/2019	4/1/2019	W2	125,851	$855	$3,426	$9,879	$6,398	$20,558
4/1/2019	5/1/2019	W2	57,106	$827	$2,238	$3,810	$5,123	$11,998
5/1/2019	6/1/2019	W2	36,643	$855	$2,108	$1,998	$5,305	$10,266
6/1/2019	7/1/2019	S	15,853	$827	$1,885	-$6,466	$5,916	$2,162
7/1/2019	8/1/2019	S	25,212	$855	$2,016	-$4,752	$6,161	$4,281
8/1/2019	9/1/2019	S	45,730	$855	$2,383	-$2,159	$6,738	$7,817
9/1/2019	10/1/2019	S	75,857	$827	$2,661	$3,272	$7,017	$13,777
10/1/2019	11/1/2019	W1	99,207	$855	$2,683	$8,694	$6,421	$18,653
11/1/2019	12/1/2019	W1	136,063	$827	$3,414	$12,222	$6,467	$22,930
12/1/2019	1/1/2020	W1	156,991	$855	$3,925	$14,142	$6,444	$25,366
			1,084,727	**$10,066**	**$34,514**	**$68,804**	**$75,813**	**$189,197**

Net Energy Metering

One of the key concepts to understand with regards to how a solar installation is monetized is Net Energy Metering (NEM). NEM is the system in which solar energy that is generated on site is credited at near retail generation rates either by directly offsetting the facility's usage or by creating a retail "credit" on the PG&E account when the energy generated is in surplus of facility usage and is thus exported back to the grid, otherwise known as "spinning the meter backward".

Over the course of the year, PG&E (and now 3CE) will maintain a record of the consumption and exported production, resulting in an annual "True-Up" at which point the customer will be responsible for paying the balance for any of the consumption over and above the total accumulated generated NEM credits. In the case that there are more credits than required to offset the 12 months of consumption, the customer will be paid the predetermined Net Surplus Compensation (NSC) rate which is currently $.06620/kWh.

NEM credit value is determined by the applicable Time of Use (TOU) period when the energy is exported. Solar and Battery systems are designed to optimize Net Energy Metering in 2 ways:

1. Boosting the value of the NEM credits by exporting energy at the most valuable TOU period.
2. Offsetting consumption during the most expensive OnPeak TOU periods.

NEM legislation is not the same in all states, and California has been a National leader in NEM tariffs, providing utility customers with some of the most advantageous solar economics in the country. The California Public Utilities Commission has mandated that all customer's of the IOU's (PG&E, SCE and SDG&E) have access to the NEM program and that once a customer has executed a NEM agreement and interconnected to the grid under the NEM tariff, that customer will be grandfathered in for the next 20 years.

In 2016 Caifornia transitioned out of NEM 1.0 and into the current NEM 2.0 program. The main differences being that NEM customers would now be responsible for paying the Non-Bypassable Charge (NBC) which are small charges on each kilowatt-hour (kWh) of electricity consumed from the grid used to fund important programs such as low-income and energy efficiency programs. NBC's apply to only the generation that is exported to the grid and not absorbed by the facility. These NBC's amount to about $.02-$.03/kWh which in some cases can be significantly impactful on the total economics.

6. Financing Analysis

Mynt evaluated financing the County's PV, battery, and lighting upgrades through a cash purchase, a hybrid PPA, and a low-interest loan purchase. Results were tabulated previously in Table 1 and Table 2. **Figure 8** further illustrates the results.

While it does appear that the capital investment option, in terms of lifecycle cumulative net benefit, and the long term debt option, in terms of Net Present Value, provide higher total economic benefit, it's important to consider a number of other factors, some less quantifiable than others, as to why we are recommending the Hybrid PPA for the County.

Among these factors, the avoidance of using County capital and adding new long term debt, is of considerable importance. For one, the capital requirements of this project are over $11 million, which is a large sum that the County would have to set aside. Plus, in order to even make that type of capital commitment, if that amount of capital carve out was even viable, it would require a prohibitively long duration public procurement and budget approval process. In all likelihood, a decision around such a significant budgetary impact would likely take us into the Spring of 2022.

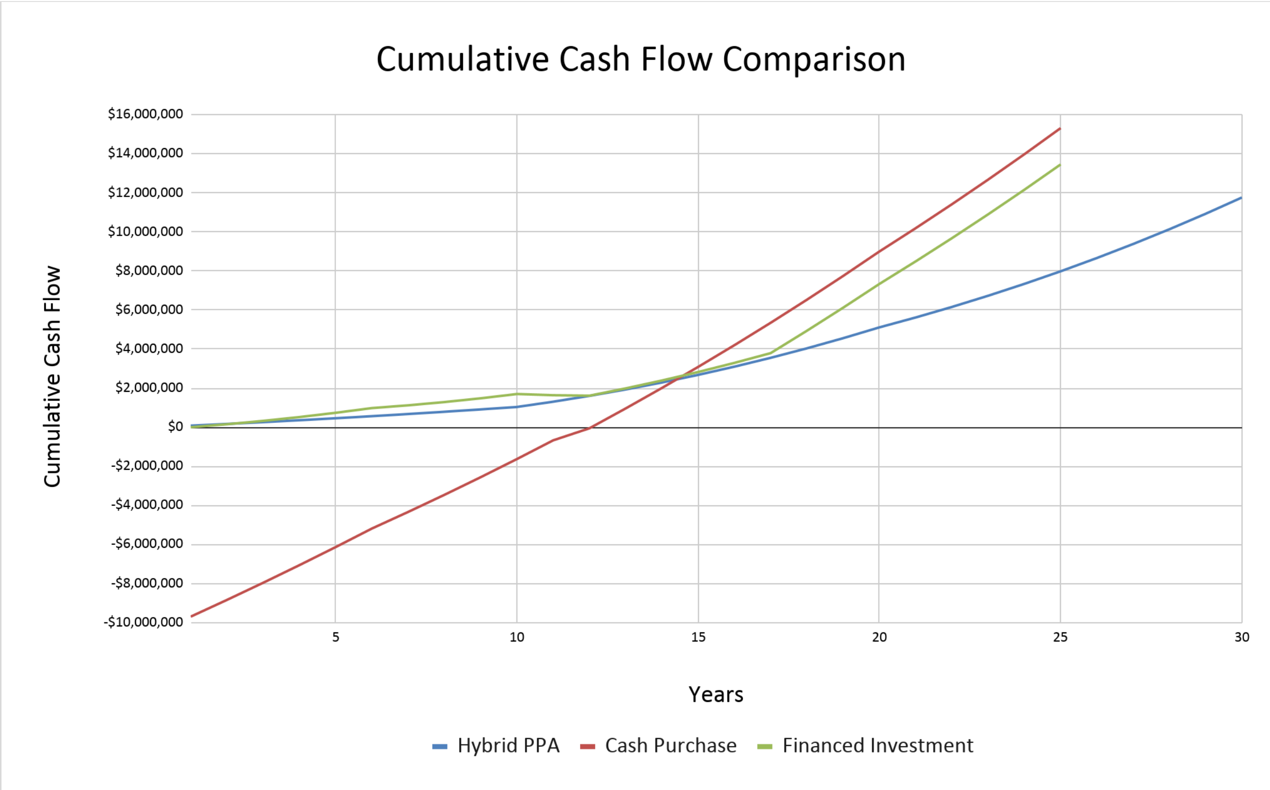
Long term debt, while in the context of replacing one form of operational expense, utility costs, with another lower cost expense, debt service, does seem to be a reasonable fiscal strategy, would also require a thorough and lengthy financial diligence process to determine the capacity for the County to manage more "on balance sheet" debt.

Mynt has been engaged with KNN to discuss debt financing alternatives. We are currently working with them on determining the County's capacity for bond financing as well as additional debt structures that could be attractive for the County. Bond financing can be an attractive long term solution for the County, but in most cases requires an economy of scale that this first phase does not quite reach. We will continue to work with KNN and we may ultimately find that there is an ideal combination of bond and debt financing that would work for the County as a long term strategy to capitalize a portfolio wide County decarbonization and resiliency project.

Both direct capital and debt would bring about delays to the project approval process that, given the time sensitive factors discussed above, could potentially diminish, if not eliminate the economic viability. Both forms of funding would also place the burden of "ownership" on the County. These systems are complex and require a sophisticated operations and maintenance provider to ensure that they perform at optimal levels for 30 years.

The recommended, Hybrid PPA option, is effectively a combination of 3 financing structures - PPA with a stepped rate, the 10 year 3CE Critical Resiliency Loan, and PG&E's On Bill Financing (OBF). With this combination of funding mechanisms we were able to craft a project that blends the best of all 3. We will use the 3CE loan and OBF to effectively "subsidize" the PPA and offer the County immediate savings.

Figure 8. Comparison of cumulative cash flow under different financing scenarios for 3 candidate sites.



Ownership vs. Third Party Finance (PPA or Lease)

We have presented 3 main options for the funding of their proposed solar installation: Capital Investment, Long-Term Debt and a Power Purchase Agreement (PPA). There are some important differences in the 3 funding options discussed in more detail below, but the key points to be deliberated by the County deal with:

- Positive cash flow vs. cost of capital/opportunity cost
- Monetizing the Energy Investment Tax Credit (ITC - see Section D below)
- System maintenance/operator risk
- Overall investment metrics/return

Table 15. Project performance under different financing scenarios for 3 candidate sites

	Cash Purchase	h-PPA	Financed Investment
Upfront Capital	$11,029,367	$0	$0
Positive Cash Flow	Year 12	Immediate	Year 2
First Year PG&E Bill Offset	$784,392	$784,392	$784,392
Annual Financing Payment	$0	$700,076*	$681,732

Off Balance Sheet	No	Yes	No
Maintenance & Insurance	$97,836	$0	$97,836
First Year Cash Flow	-$2,132,187	$84,316	$5,487
10 year Net Benefit	-$1,467,095	$1,016,161	$1,516,015
Lifecycle Net Benefit	$12,549,877	$11,767,100	$11,853,613

**Annual Financing Payment under the h-PPA represents the combination of the PPA, the 3CE UPS loan and the PG&E OBF payment.*

In a PPA, a third party investor funds, owns and operates the system. In exchange for providing 100% of the capital for the County installation and taking all of the associated risk, the system owner/investor is paid back by capturing the Investment Tax Credit and selling the energy generated by the system to the County at a rate lower than PG&E for the 30 year PPA term. The PPA is "off-balance sheet", meaning it is not debt, and can effectively be viewed as a replacement for a portion of current utility/operational expenses.

The key advantages of the PPA are as follows:

- No upfront capital required
- Immediate Positive Cash Flow ($84,316 in year one)
- "Off-balance Sheet"
- Maintenance and Operation are the responsibility of the 3rd party owner. The owner is incentivized to keep the system generating since they are getting paid for the production.
- Warranty claims are all handled by the 3rd party owner
- Long term hedge against rising and volatile PG&E rates
- The County cannot monetize ITC and other tax benefits associated with renewable energy projects, the Investor passes through a portion of the benefit in the form of reduced energy payments

The key disadvantages of the PPA are as follows:

- 30 year obligation to purchase all of the energy generated at a predetermined rate
- Net Benefit is not as significant relative to cash
- Third party owns and controls a significant installation on the County's site
- A portion of the economic upside does flow towards the investor
- In the event of a property sale an existing PPA can present complications

There are two other important factors to consider with ownership of a solar energy asset.

First, the fact that the County will have full responsibility to maintain and insure the system. While the County would likely hire Mynt or another qualified party to manage and execute a long term operations and maintenance program, all of the associated costs will be incurred by the County. Operating and Maintaining a Microgrid is not a core competency of the County's facilities and engineering staff, and dealing with unforeseen issues could become a significant burden on the County's staff.

The second key factor is that the County will be taking a decent amount of cost risk on the project's construction. Due to the large size and nature of the interconnection at the County Jail's Medium Voltage Service, PG&E will have to review the engineering and will likely require certain mitigations and upgrades before operating the system. It is difficult to estimate what those costs will be before the application is submitted and reviewed by PG&E engineering.

Mynt has estimated those costs to be approximately $200,000 and we have accounted for this in our budget and economic pro forma. If the County chooses to go the PPA route, Mynt and the project investor will take the risk that the $200,000 is enough to cover the final PG&E costs. If the County chooses the cash route, and then PG&E costs do surpass those estimates, the County would be on the hook to cover the costs with capital reserves, and this could be a substantial sum.

The key advantages of making a Capital Investment are as follows:

- Higher economic benefit in terms of Net Present Value, long term savings
- Less risk of PPA rates potentially exceeding utility rates
- Returns that compete with or exceed most other investment options (S&P 500, Money markets, Bonds, Equity Funds, etc.)
- Control and flexibility with your own asset

The key disadvantages of making a Capital Investment are as follows:

- Requires tying up a significant amount of capital, approximately $11Million
- All maintenance and insurance is the responsibility of the Owner (County)
- Not being able to monetize the tax benefits effectively

PG&E Rate Escalation

Much of the long term value derived from installing solar, whether the County owns it outright or chooses to go with a PPA, comes from the fact that you are hedging against rapidly rising PG&E costs. Once you have installed solar on your premises you have essentially 'locked-in' your price for all of the energy generated by the system, since you no longer need to purchase that energy from the Utility. Over time as the price of PG&E's energy continues to rise, the true savings or "cost-avoidance" for increases.

Given the importance of the rate of escalation in understanding the long term performance metrics of your investment, the annual rate is a critical assumption. Most of the energy industry agrees that 5% is a historically accurate value to utilize in any long term economic projections. If we look back at actual PG&E rate data, the true annual average rate increase over the last 20 years is closer to 9% on the industrial scale. We understand the importance of accurate and tempered projections for the County's long term planning and fiscal governance so Mynt used a conservative 3% annual escalation rate in all of our economic models.

We have all seen the news that the utilities are now facing enormous pressure to take on some or all of the liability for the California wildfires and ongoing preventative maintenance efforts. This will undoubtedly lead to more frequent and more significant rate hikes as PG&E corporate shareholders will likely push the company to recoup these costs from all of the ratepayers. By some accounts, rates may double over the next 5 years, given the challenges that PG&E faces with aging infrastructure, increasing peak demand and the bankruptcy.

One important concept to recognize is that PG&E charges industrial/agricultural customers both for energy (kWh) and demand (kW). While some may point to the fact that energy (kWh) costs have not risen quite as fast, it is clear that demand (kW) rates have skyrocketed and this is often up to 40-50% of an industrial customer's total bill.

The Option_R rate discussed above does provide somewhat of a "turbocharge" to the utility rate hedge since it eliminates your summer peak demand charges completely. Since Option-R is only available to customers who install solar PV, it does add considerably to the ultimate return on investment.

Note: While 3CE does provide the County sites with the generation component of their electricity, and this would seemingly shield the County from having to deal with PG&E's liabilities, PG&E is still the County's electric service provider and their rate increases will continue to be impactful.

7. Incentive Programs

Incentive programs for energy-related projects of potential interest to the County include the 3CE UPS Fund Program, Energy Efficiency Financing Program, Self-Generation Incentive Program (SGIP), and PG&E's On-Bill Financing Program. Key details about these programs are provided as follows.

3CE UPS Fund Program	
Funding and Administrative Agencies	Central Coast Community Energy (3CE)
Eligible Entities	Public entity customers of 3CE
Qualifying Technologies	Eligible technologies include but are not limited to: simple backup fossil fuel generators (natural gas, diesel, etc), battery energy storage systems (BESS), solar PV, wind, and combinations of technologies that provide energy resiliency
Incentive Rates	The 3CE UPS Fund will finance the resiliency component of approved projects at 1.87% interest with a 10 year repayment term
Period of Availability	Open now; exists as a revolving loan fund

Energy Efficiency Financing Program	
Funding and Administrative Agencies	California Energy Commission (CEC) with funds from the Energy Conservation Assistance Act (ECAA) and bond proceeds from ECAA tax-exempt revenue bonds
Eligible Entities	Cities, **counties**, special districts, public colleges or universities (except community colleges), public care institutions/ public hospitals, University of California and, California State University are eligible for 1% interest-rate loans. (School districts are eligible for 0% interest-rate loans.)
Qualifying Technologies	Projects with proven energy and/or demand cost savings are eligible. Projects must be technically and economically feasible. Examples include lighting system upgrades, pumps and motors, streetlights and LED traffic signals, energy management systems and equipment controls, building insulation, **energy generation including renewable** and combined heat and power projects, heating, ventilation and air conditioning equipment, water and wastewater treatment equipment, load shifting projects, such as thermal energy storage.
Incentive rates	Loans can be drawn at **1% fixed interest to fund 100% of project costs** within a 17 year (maximum) simple payback. The **maximum loan amount is $3 million**, and there is no minimum loan amount. The loan must be repaid from energy savings (including principal and interest) within a maximum of 20 years; and loan term cannot exceed the useful life of loan-funded equipment. Partial funding can be provided for projects that exceed the simple payback. Simple payback is calculated by dividing the loan amount by the estimated first year energy cost savings.
Period of Availability	Open now; exists as a revolving loan fund.

Self-Generation Incentive Program (SGIP)	
Funding and Administrative Agencies	California Public Utilities Commission and PG&E
Eligible Entities	All utility customers
Qualifying Technologies	Renewable technologies, including **advanced energy storage (AES)**, wind turbines, waste heat to power, biogas, pressure reduction turbines, fuel cells (electric or combined heat and power). Other technologies, including internal combustion engines, microturbines, gas turbines (all combined heat and power technologies).
Incentive Rates	Step 3: $0.25/Wh for large-scale AES (>10kW) projects that are utilizing the ITC; negative adjusters for projects that are either (a) over 1 MW in scale or (b) over 2 hours in storage duration capacity. Projects above 3 MW or over 6 hours in storage duration are ineligible. Critical facility resiliency adder: $0.15/Wh
Period of Availability	From now (and since June 2017) until Step 3 funding is entirely allocated (projected in Spring 2021). Follow-on funding may be issued with a Step 4 of the program in PG&E territory, but incentive rates will be reduced.

PG&E On-Bill Financing	
Funding and Administrative Agencies	PG&E
Eligible Entities	All Businesses within PG&E’s territory
Qualifying Technologies	Lighting Heating, ventilation and air conditioning (HVAC) Boilers and water heating Refrigeration Food service equipment Business computing
Incentive Rates	Up to $4 million per premise Loan terms up to 120 months 0% Interest
Period of Availability	Open now; exists as a revolving loan fund.

8. Glossary

Canopy (or Shade Structure) – an open-air structure built with the purpose of creating shade beneath. A carport is an example of a canopy.

Consumption (or Usage) – usage of electric power (in the context of this Feasibility Review).

Central Coast Community Energy (3CE) – formerly named MBCP, provides electricity to customers in Monterey, San Benito, and Santa Cruz Counties following the Community Choice Energy model established by California Assembly Bill 117 (AB117). 3CE (MBCP) formed in March 2017 and began providing service to customers in March 2018.

Distribution System – low-voltage utility infrastructure that distributes electric power to end users or customers.

Distributed Generation – energy or electricity generation at or near the site where it will be consume

Escalate – apply a percentage factor to account for change in monetary value over time (due to inflation, for example). Related terms: *Escalation*, *Escalator*

Grid – electric utility infrastructure, comprising the *Distribution System* and the *Transmission System*.

Ground-Mount PV System – solar photovoltaic system supported on structures that are erected directly on the ground for the sole purpose of producing energy (i.e., no secondary purposes, as would be the case with solar PV canopy systems that produce shade).

Helioscope(TM) – subscription-based online application developed and maintained by Folsom Labs (San Francisco, CA) that facilitates design of solar PV systems

HVAC – heating, ventilation, and air conditioning system

Insolation – the amount or intensity of solar radiation reaching a horizontal surface.

Interconnection – the process of connecting a distributed generation asset (such as a solar PV system) to the grid.

Inverter – a device that converts electricity from direct current (DC) to alternating current (AC). A *String Inverter* is designed to manage high-voltage DC inputs and allows arrays of PV panels to be connected in series (rather than in parallel).

Kilowatt (kW) – one thousand watts, where *Watt* is a standard unit of measure of electric power.

Kilowatt at Peak Production (kWp) – a standard unit of measure describing the size of a solar PV system.

Kilowatt-hour (kWh) – a standard measure of electric power consumption equivalent to using one thousand watts for one hour.

Multivariable Analysis – an analysis involving multiple independent variables.

Net Energy Metering – a electricity billing plan that credits customers with solar PV systems for the full retail value of the electricity generated by their PV systems.

Nominal Value – the face value of an asset at the time that it was created or established, rather than current market value, such that the effects over time of inflation/deflation, interest, or discount are neglected.

Non-bypassable Charges - charges to all utility customers whether or not they receive electricity from the utility itself or from another supplier, such as MBCP.

Net Present Value (NPV) - the current market value of an asset that accounts for the effects over time from inflation/deflation, interest, or discount.

Power Purchase Agreement (PPA) – a contractual agreement between an electricity-generating party and a purchaser of electricity

Roof System or Roof-Mount System – solar photovoltaic system constructed on the roof of a building, such as a home or commercial building.

Shade structure – see *Canopy*.

Soiling – the process by which residues, dust, and other debris accumulate over time on solar PV panels due to their exposure to the environment. Routine cleaning maintenance counteracts the degradation of performance that occurs due to soiling.

Solar Photovoltaic (PV) – describes a system that converts sunlight directly into electricity. (Contrast with a *solar thermal* system, which converts sunlight to thermal energy that can be used directly or can be used to power an electric power generating system.)

Standard Deviation – a statistical measure that describes the range of variation in a data set.

String Inverter – see *Inverter.*

Zero Net Energy (ZNE) – describes a building or structure where the annual energy consumption is roughly equal to the amount of energy generated on-site from renewable sources (e.g., wind power, solar power, hydropower, etc.).

Attachment A

Life Cycle Financial Models

Table 16. Hybrid PPA Cash Flow for all 3 candidate sites

Year	Project Investment	Avoided Utility Costs	Avoided Cost ($/kWh)	HPPA Rate	Solar Production	Solar Energy Payments	UPS Fund Loan Payments	OBF Payments	O&M and OPEX	Net Annual Savings	Cumulative Cash Flow
1	$0	$784,392	$0.202	$0.057	3,876,433	($220,336)	($412,571)	($67,169)	$0	$84,316	$84,316
2		$804,243	$0.209	$0.061	3,857,051	($236,052)	($412,571)	($67,169)	$0	$88,451	$172,767
3		$824,587	$0.215	$0.066	3,837,765	($252,180)	($412,571)	($67,169)	$0	$92,668	$265,436
4		$845,438	$0.221	$0.070	3,818,576	($268,713)	($412,571)	($67,169)	$0	$96,985	$362,421
5		$866,806	$0.228	$0.075	3,799,484	($285,607)	($412,571)	($67,169)	$0	$101,460	$463,880
6		$888,704	$0.235	$0.080	3,780,487	($302,968)	($412,571)	($67,169)	$0	$105,996	$569,877
7		$911,146	$0.242	$0.085	3,761,584	($320,750)	($412,571)	($67,169)	$0	$110,656	$680,533
8		$934,144	$0.250	$0.091	3,742,776	($338,983)	($412,571)	($67,169)	$0	$115,421	$795,954
9		$957,712	$0.257	$0.096	3,724,062	($357,659)	($412,571)	($67,169)	$0	$120,313	$916,268
10		$981,862	$0.265	$0.102	3,705,441	($376,806)	($412,571)	($67,169)	$0	$125,316	$1,041,584
11		$1,006,611	$0.273	$0.200	3,686,915	($737,383)			$0	$269,228	$1,310,812
12		$1,031,972	$0.281	$0.200	3,668,480	($733,696)			$0	$298,276	$1,609,088
13		$1,057,959	$0.290	$0.200	3,650,137	($730,027)			$0	$327,931	$1,937,019
14		$1,084,587	$0.299	$0.200	3,631,887	($726,377)			$0	$358,210	$2,295,229
15		$1,111,873	$0.308	$0.200	3,613,728	($722,746)			$0	$389,127	$2,684,355
16		$1,139,831	$0.317	$0.200	3,595,659	($719,132)			$0	$420,699	$3,105,055
17		$1,168,477	$0.327	$0.200	3,577,681	($715,536)			$0	$452,941	$3,557,996
18		$1,197,830	$0.336	$0.200	3,559,792	($711,958)			$0	$485,871	$4,043,867
19		$1,227,904	$0.347	$0.200	3,541,993	($708,399)			$0	$519,506	$4,563,373
20		$1,258,718	$0.357	$0.200	3,524,283	($704,857)			$0	$553,861	$5,117,234
21		$1,207,400	$0.344	$0.200	3,506,662	($701,332)			$0	$506,068	$5,623,302
22		$1,237,258	$0.355	$0.200	3,489,129	($697,826)			$0	$539,432	$6,162,735
23		$1,267,837	$0.365	$0.200	3,471,683	($694,337)			$0	$573,500	$6,736,235
24		$1,299,150	$0.376	$0.200	3,454,324	($690,865)			$0	$608,285	$7,344,520
25		$1,331,215	$0.387	$0.200	3,437,053	($687,411)			$0	$643,804	$7,988,324
26		$1,364,050	$0.399	$0.200	3,419,867	($683,973)			$0	$680,076	$8,668,400
27		$1,397,671	$0.411	$0.200	3,402,768	($680,554)			$0	$717,118	$9,385,518
28		$1,432,099	$0.423	$0.200	3,385,754	($677,151)			$0	$754,948	$10,140,466
29		$1,467,351	$0.436	$0.200	3,368,826	($673,765)			$0	$793,586	$10,934,052
30		$1,503,444	$0.449	$0.200	3,351,982	($670,396)			$0	$833,048	$11,767,100
TOTAL										**$11,767,100**	

*avoided cost includes 3% annual PG&E escalation

Attachment B

Site Details

For each site evaluated in this study, Attachment B includes a site detail packet:

1: Conceptual Design PV Layout

2: Proposed Battery Option

3: Annual Production Report for the site

County Jail

1410 Natividad Drive Salinas, CA

Solar and battery system

Target PV system – 1,285.9 kW

Target Battery system – 1,072.8 kW / 2,145.6 kWh

System Components

- (2,736) Jinko 470 W modules
- (17) Sungrow SG60XC inverters
- (1) Stem Tesla Megapack battery

Project Details

- Tilt angle: 7º
- Azimuth angle: 202º
- Module attachment type: Structural steel, Dual-cantilevered carports with 10' min clearance
- 12kV Interconnection

County Jail

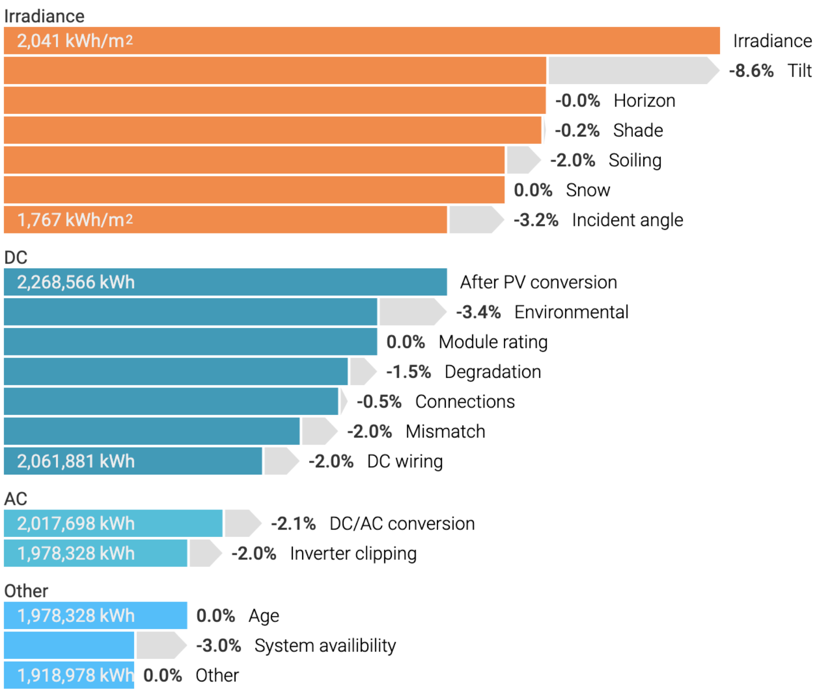
1410 Natividad Drive Salinas, CA

Table 17. County Jail solar system performance

Candidate Site	Annual Production (kWh)	GHG Reduction Annual (MT CO2)**
County Jail	1,896,732	320

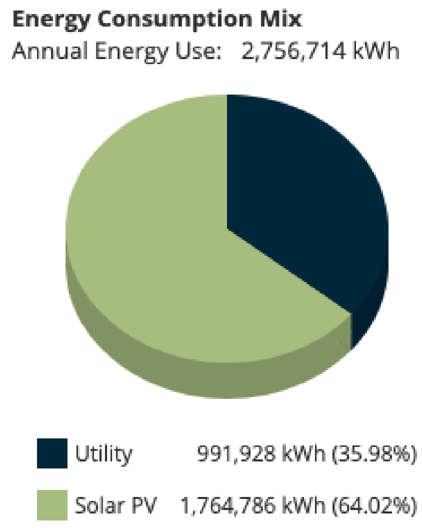
***based on PG&E's 2018 reported emission factor of 206 lbs CO2/MWh*

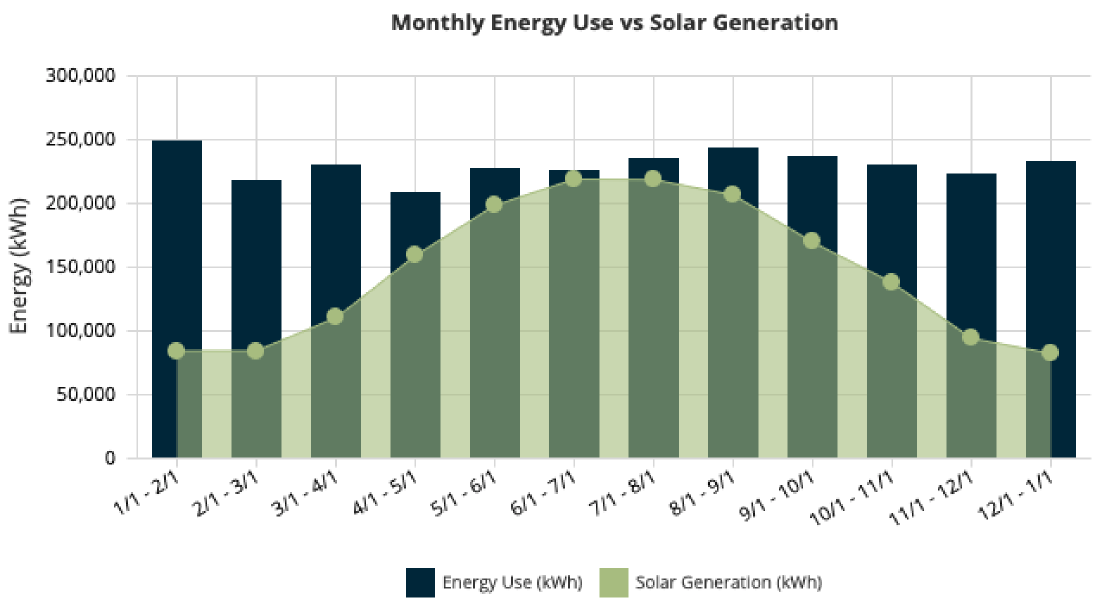
SYSTEM LOSSES



County Jail

1410 Natividad Drive Salinas, CA





County Sheriff's Office

1414 Natividad Drive Salinas, CA

Solar system

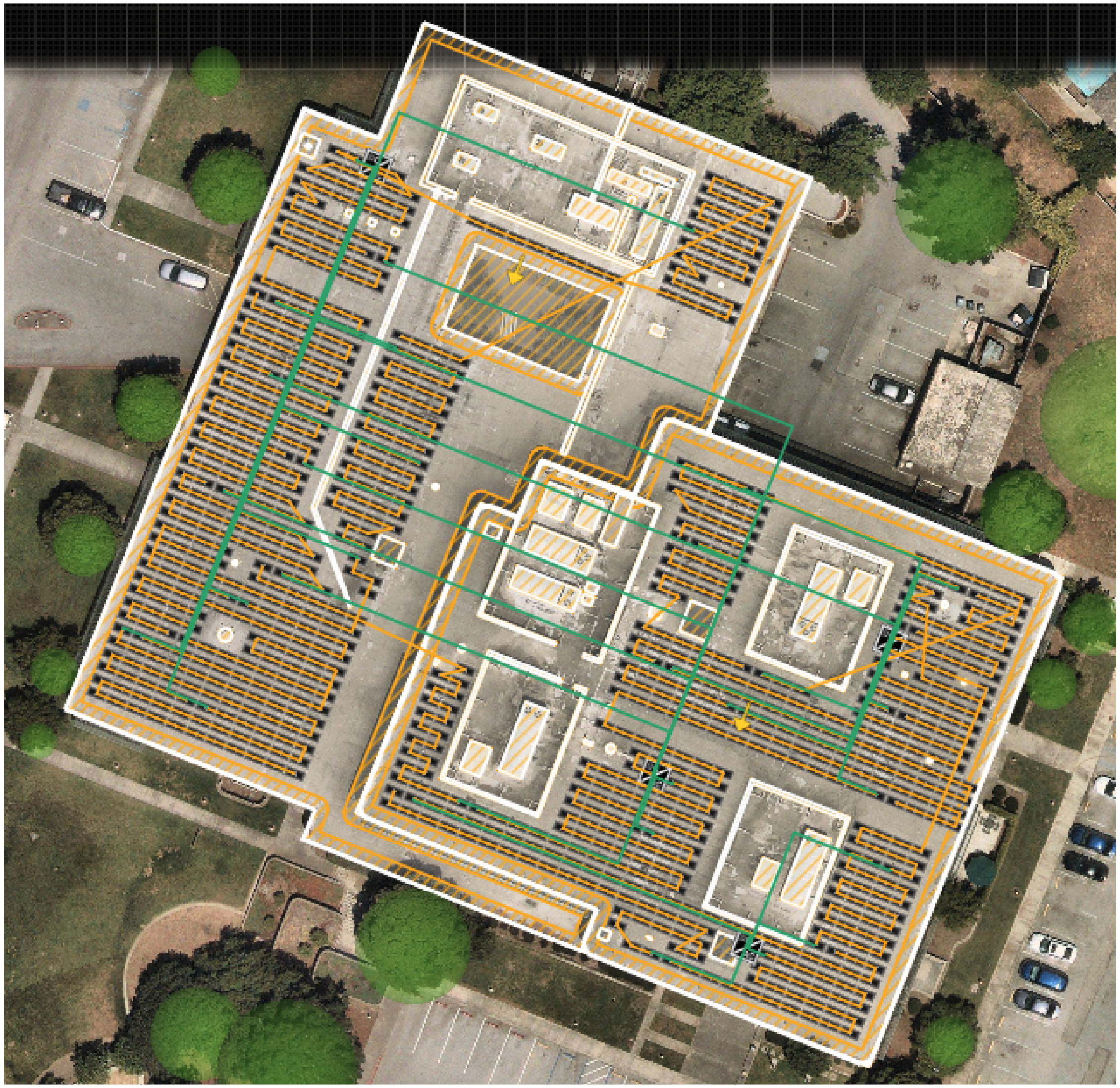
Target PV system – 372.7 kW

System Components

- (793) Jinko 470 W modules
- (3) SolarEdge 100 kW inverters
- (1) SolarEdge 66.6 kW inverter

Project Details

- Tilt angle: 10º
- Azimuth angle: 202º
- Module attachment type: Ballasted racking
- 480v Interconnection at MSB



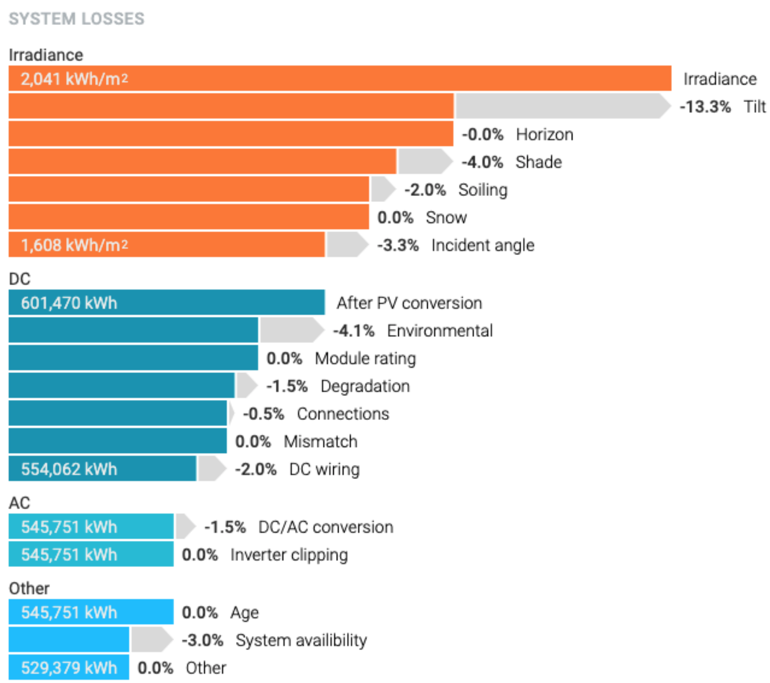
County Sheriff’s Office

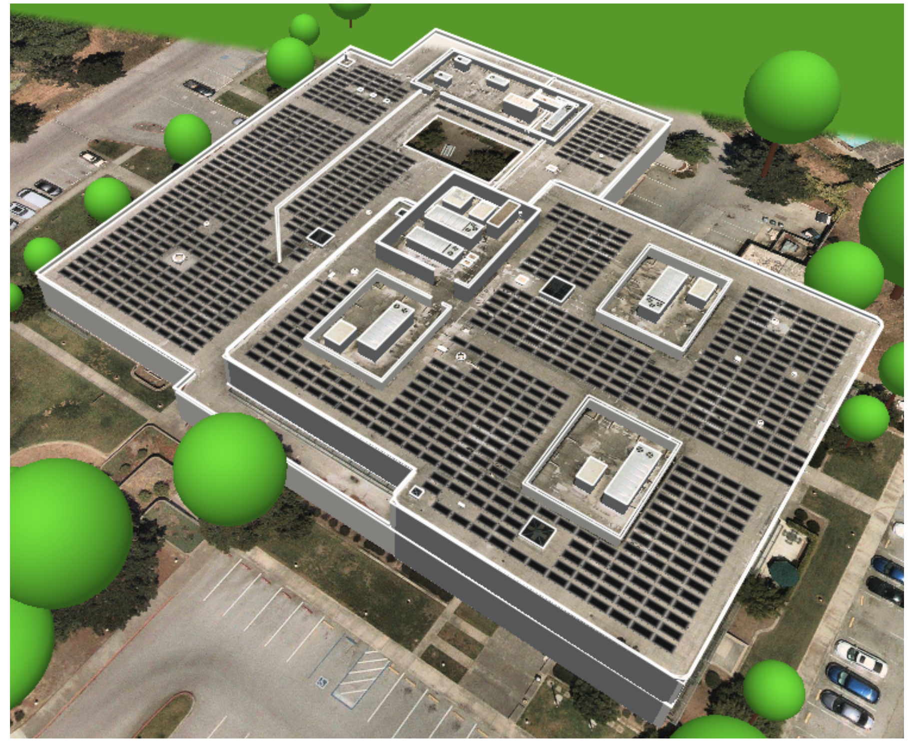
1414 Natividad Drive Salinas, CA

Table 18. County Sheriff’s Office solar system performance

Candidate Site	Annual Production (kWh)	GHG Reduction Annual (MT CO2)
County Sheriff's Office	530,887	90

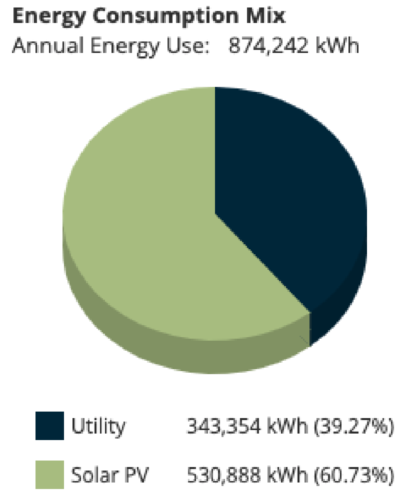
***based on PG&E’s 2018 reported emission factor of 206 lbs CO2/MWh*

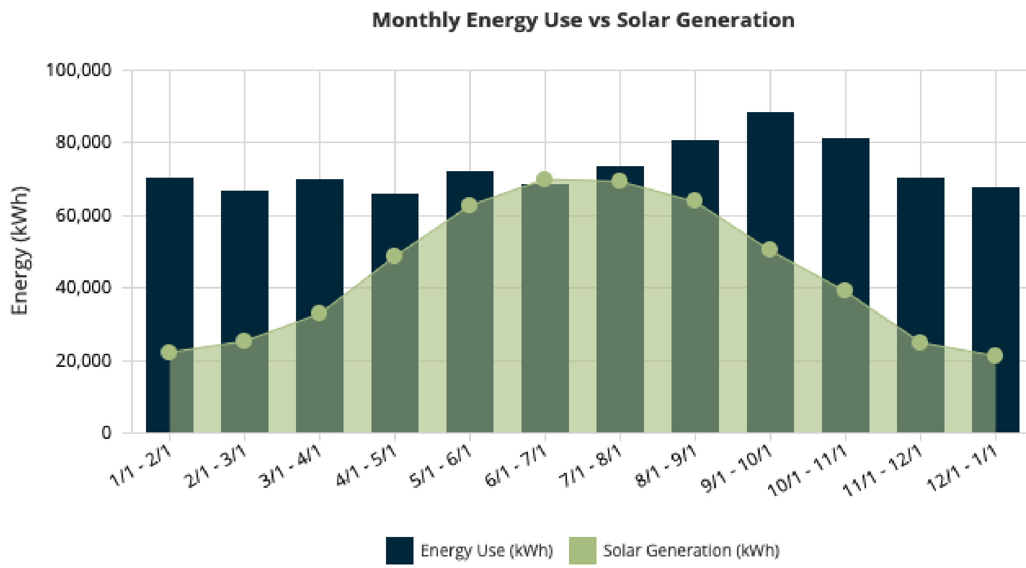




County Sheriff's Office

1414 Natividad Drive Salinas, CA





County Office

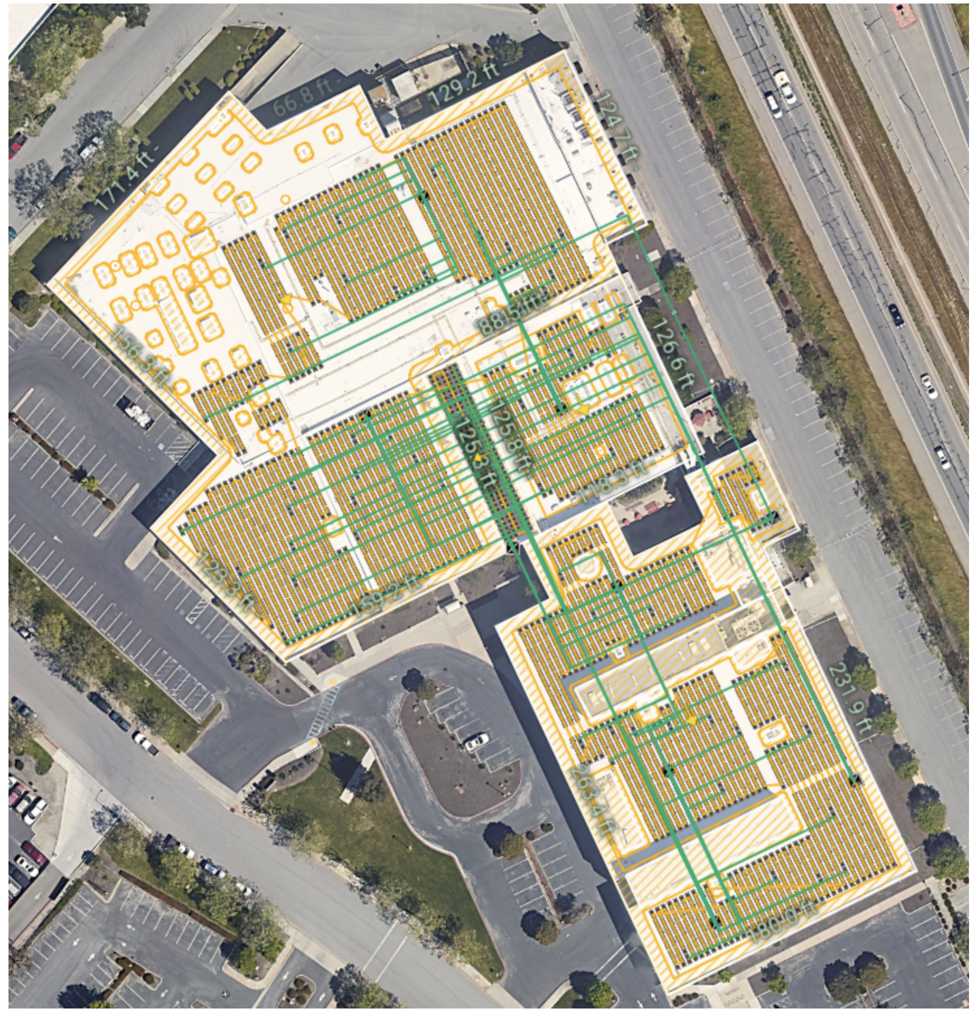
1441 Schilling Place Salinas, CA

Solar and battery system

Target PV system – 1,010.7 kW
Target Battery system – 634.2 kW / 2,536.8 kWh

System Components
- (2,378) QCell 425 W modules
- (8) SolarEdge 100 kW inverters
- (1) Stem Tesla Megapack battery

Project Details
- Tilt angle: 10º
- Azimuth angle: 243º
- Module attachment type: ballasted racking
- 480v Interconnection at MSB



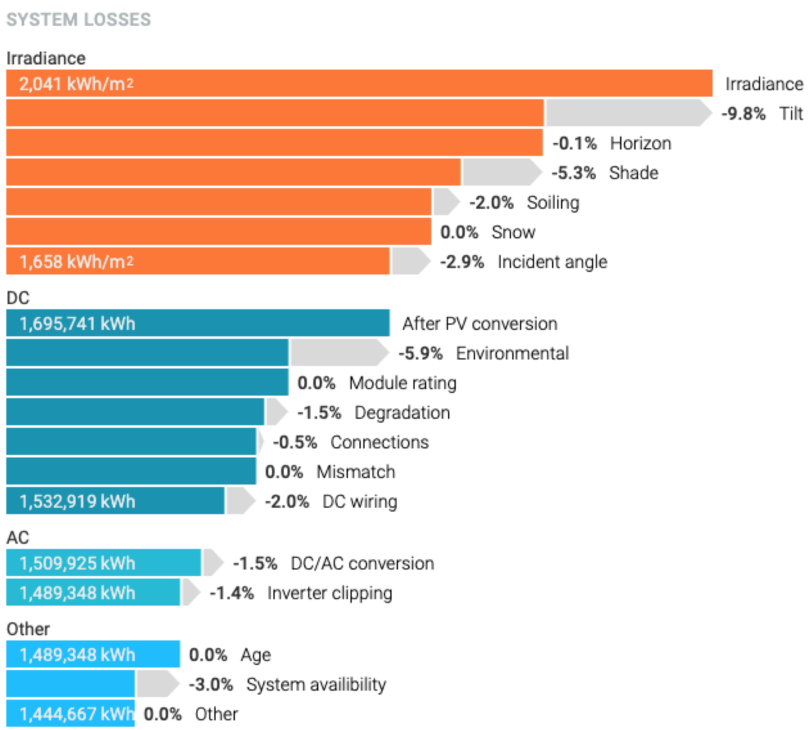
County Office

1441 Schilling Place Salinas, CA

Table 19. County Office solar system performance

Candidate Site	Annual Production (kWh)	GHG Reduction Annual (MT CO2)
County Office	1,428,048	241

***based on PG&E's 2018 reported emission factor of 206 lbs CO2/MWh*

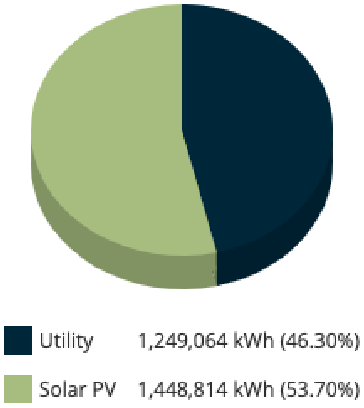


County Office

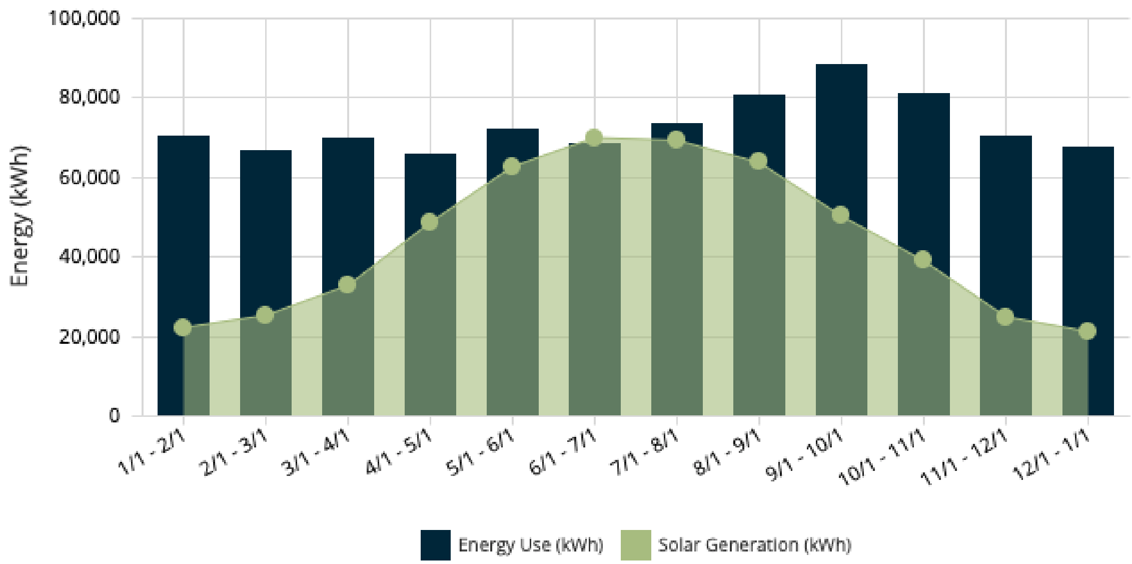
1441 Schilling Place Salinas, CA

Energy Consumption Mix

Annual Energy Use: 2,697,878 kWh



Monthly Energy Use vs Solar Generation



Attachment C

Project Schedule

Preliminary Project Schedule

Task Name	Start	Finish
Program Services Agreement (PSA)	05/12/20	11/09/20
Draft PSA	05/12/20	09/23/20
County Approval	09/24/20	11/09/20
County Gathers Required Information (all sites)	11/10/20	01/22/21
Assessment	11/10/20	03/24/21
Conduct Phase 1 Assessment (Shilling and Natividad)	11/10/20	02/26/21
Develop Recommendations	03/01/21	03/24/21
Negotiate Energy Services Contract (ESC)	10/12/20	04/01/21
Execute ESC	04/01/21	04/01/21
Project Order Natividad and Schilling - Phase 1	04/02/21	04/29/21
Project Order - Phase 2	09/16/21	09/16/21
Execution	04/30/21	02/25/22
Natividad	04/30/21	01/07/22
NTP	04/30/21	04/30/21
Engineering/PGE IC-NEM App	05/03/21	05/28/21
Permit Approval	05/31/21	07/09/21
PGE Eng Approval	05/31/21	07/30/21
Procurment	07/12/21	11/12/21
Mobilization	08/16/21	08/16/21
Construction	08/30/21	12/03/21
Substantial Completion	12/03/21	12/03/21
Utility Inspection, Commissioning	12/13/21	01/07/22
PTO/COD	01/07/22	01/07/22
Schilling	04/30/21	02/25/22
NTP	04/30/21	04/30/21
Engineering/PGE IC-NEM App	05/03/21	05/28/21
Permit Approval	05/31/21	07/09/21
PGE Eng Approval	05/31/21	07/09/21
Procurment	07/12/21	11/12/21
Mobilization	11/15/21	11/15/21
Construction	11/15/21	01/28/22
Substantial Completion	01/28/22	01/28/22
Utility Inspection,Commissioning	01/31/22	02/25/22
PTO/COD	02/25/22	02/25/22