Coronado Unified School District

Coronado Unified School District:

Solar PV & Battery Energy Storage Feasibility Assessment

December 30, 2019

PREPARED BY:

TerraVerde ENERGY

PREFACE

In October 2019, TerraVerde Energy (TerraVerde) was retained by Coronado Unified School (District) to perform a District-wide feasibility assessment to identify and evaluate possible solar photovoltaic (PV) system(s) and battery energy storage system(s) implementation(s).

The premise for the feasibility analysis is the District's desire to:

- Identify potential solar PV and battery energy storage projects that represent a good fit for the District's facilities.
- Understand the projected financial benefits of reducing the District's electricity consumption/demand and billing under San Diego Gas and Electric's (SDG&E's) current TOU rate tariffs.
- Evaluate investment in renewable energy generation and storage using either solar energy Power Purchase Agreement (PPA), or cash purchase (District financed) financing options.

We appreciate the opportunity to provide the District with this initial feasibility assessment findings report for solar PV and battery energy storage projects and look forward to assisting the District in any further guidance and/or project development.

CONTENTS

1 EXECUTIVE SUMMARY

This report describes TerraVerde's feasibility assessment process and the results of the analysis and is organized as shown in the Table of Contents. It includes an evaluation of consumption (kWh), demand (kW) and billing profiles for Coronado Unified School District's portfolio of SDG&E meters, an evaluation of site conditions and physical constraints at each site, an evaluation of several different solar PV system sizing scenarios based on energy consumption offset and site space constraints, and the economic viability of the various solar PV and battery energy storage scenarios. The analysis considered differing interconnection strategies including individual NEM 2.0 projects and a single RES-BCT project (a hypothetical project to demonstrate the potential economic benefits of utilizing the RES-BCT tariff as an alternate strategy to use of the NEM 2.0 tariff). Battery energy storage was evaluated in conjunction with the solar PV assessment, and was considered for integration with solar PV projects (and as a standalone option without solar PV) where potential financial benefits could be identified.

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2 GLOSSARY OF TERMS & ACRONYMS

AC	Alternating Current
AES	Advanced Energy Storage
BESS	Battery Energy Storage System
CA	California
CAISO	California Independent System Operator
CCA	Community Choice Aggregator
CEC	California Energy Commission
CO_2	Carbon dioxide
CSP	Curtailment Service Provider
CPUC	California Public Utilities Commission
DC	Direct Current
DER	Distributed Energy Resource
DR	Demand Response
EOY	End of Year
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
GHG	Greenhouse Gas
GRC	General Rate Case
IOU	Investor Owned Utility(ies)
IRR	Internal Rate of Return
IRS	Internal Revenue Service
ITC	Investment Tax Credit
kW	Kilowatt
kWh	Kilowatt-hour
LSE	Load Serving Entity
MACRS	Modified Accelerated Cost-Recovery System
MW	Megawatt
MWh	Megawatt-hour
NEM	Net Energy Metering
NEMA	National Electrical Manufacturers Association
NPV	Net Present Value
O&M	Operations and Maintenance
PG&E	Pacific Gas and Electric
PPA	Power Purchase Agreement
PV	Photovoltaic
RA	Resource Adequacy
REC	Renewable Energy Certificate
RES-BCT	Renewable Energy Self-Generation Bill Credit Transfer
RFP	Request for Proposals
RPS	Renewable Portfolio Standard
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric
SGIP	Self-Generation Incentive Program
SOP	Super-Off-Peak
TOU	Time of Use
TVE	TerraVerde Energy, LLC
VPP	Virtual Power Plant
W	Watt

3 POLICY AND TARIFF BACKGROUND

Due to the proliferation of behind-the-meter solar PV systems in California over the past ten years, the State's net energy metering program (NEM) cap was reached, which has triggered a transition from the original net metering program tariff, known as NEM 1.0, to a new "successor" NEM tariff known as NEM 2.0. SDG&E and PG&E reached their NEM 1.0 program capacity caps in 2016 while SCE reached their program capacity cap on July 1, 2017 (the CPUC's end date for the NEM 1.0 program).

The primary differences between the original NEM 1.0 tariff and the new NEM 2.0 tariff is the removal of caps on solar PV system size, and a decrease in potential cost savings due to the removal of credits for utility bill components known as non-bypassable charges. While the new NEM 2.0 tariff does not provide the same level of retail credit value as the NEM 1.0 tariff, the fact that the 1MW CEC-AC system size cap limitation is no longer in place means solar PV systems can be sized for optimum offset of energy consumption and maximum energy cost savings potential.

The NEM tariff also includes a special condition option known as Net Energy Metering Aggregation (NEM-A). NEM-A allows a SDG&E customer with multiple meters on the same property, or on adjacent or contiguous properties, to use the generation from a solar PV system interconnected behind one meter to provide NEM benefits for the other (aggregated) meters through a Utility accounting process.

When space constraints or other site logistical factors limit solar PV system size, the Renewable Energy Self-Generation Bill Credit Transfer tariff (RES-BCT) may be a viable alternative solution. RES-BCT is an "export energy" tariff that allows public agencies to install a grid-connected renewable energy generation system of up to 5MWac on property owned or leased by the agency, and receive monetary bill credits for designated SDG&E accounts (credits are allocated to the applicable monthly SDG&E bills) for the energy generated by the system and exported to the grid. The bill credits can be applied to one or more (up to 50) SDG&E accounts/meters (known as "benefitting accounts"), and their value is determined by the energy generation portion of the TOU rate schedule at the site where the renewable energy generation system is installed. The RES-BCT tariff requires that the generating account and all benefitting accounts be on a bundled service with SDG&E (i.e.: both generation and distribution charges are paid directly to SDG&E). Meaning, these accounts/meters cannot be enrolled with a Community Choice Aggregator or other alternative electricity service provider for any portion of the utility bill.

4 FACILITY ASSESSMENT AND ENERGY USE PROFILE

4.1 SDG&E ACCOUNTS AND CONSUMPTION PROFILE ASSESSMENT

ELECTRICITY CONSUMPTION (KWH)

SDG&E provides energy distribution services and supply of electricity to each of the District's facilities. There is a total of nine (9) electric utility meters located across eight (8) different sites. The following table provides information about the electric accounts associated with the District operations, including rates, service addresses and total consumption over the past year.

TABLE 1: ELECTRIC ACCOUNT OVERVIEW AND CONSUMPTION

Site Name	Meter Number	SAID	Rate Structure	Site Address	Nov 2018-Oct 2019 Annual Consumption	Nov 2018-Oct 2019 Annual SDG&E Costs
Crown Preschool	6574168	73178087428	TOU-M	199 6TH ST CORONADO CA 92118	100,995	$27,736.36
Aquatics Complex	6574171	28158617826	AL-TOU	818 6TH ST CORONADO CA 92118	397,456	$88,776.52
Silver Strand Elementary School	6686772	19070907072	AL-TOU	1350 LEYTE RD CORONADO CA 92118	181,798	$45,970.12
Village Elementary School	6574169	73168716705	AL-TOU	600 6TH ST CORONADO CA 92118	306,966	$73,512.45
Coronado Middle School	6574659	94880793020	AL-TOU	550 F AVE CORONADO CA 92118	405,024	$101,526.31
Coronado High School	6574170	28154369588	AL-TOU	650 D AVE CORONADO CA 92118	1,019,608	$244,923.24
Coronado High School	6688020	88849789632	TOU-M	650 D AVE CORONADO CA 92118	195,754	$73,573.77
District Offices	6574214	8563448421	AL-TOU	201 6TH ST CORONADO CA 92118	88,352	$22,504.29
Palm Academy	6307718	90567086340	AL-TOU	555 D AVE CORONADO CA 92118	13,490	$5,684.96
				Totals	**2,709,443**	**$684,208.02**

Electricity consumption is measured by metering the usage of kilowatt-hours (kWh) of electricity and is updated in SDG&E's meter reading system every 15 minutes (known as an interval). Over the 12-month period (Nov 2018 to Oct 2019) used in the analysis, the District consumed 2,709,443 kWh of electricity across the District's entire portfolio of SDG&E accounts. Total expenditures for electricity during this period was $684,208.02.

Understanding electricity consumption and utility billing requires knowledge of the TOU rate structures for the various SDG&E accounts. The District accounts are enrolled on a variety of rate structures which are shown in Table 1. Rate structure selection for each account is dependent on the consumption and load profile of the applicable meter. Table 2 below provides a summary of the various TOU rate structures assigned to the District's SDG&E accounts and the limits on demand (kW) and consumption (kWh) that dictate which rate structures the accounts are enrolled in. Each TOU rate structure consists of a set of four standard charges; (a) monthly service fees determined by the total demand in a given month and the service voltage; (b) time-of-use energy charges per kWh of consumption; (c) non-coincident demand charges which are a fixed rate applied to the highest kW of demand recorded in a given month; (d) time-of-use demand charges which use a rate that varies depending on the time of the day and season and are applied to the highest recorded demand during summer on-peak and winter TOU periods.

TABLE 2: ELECTRIC ACCOUNT RATE DETAILS

Rate Structure	Peak Monthly Demand Limit	Consumption Limits	Additional Considerations
AL-TOU	0-500kW >500kW >12MW	N/A	For customers with demand greater than 20kW for three consecutive months. The rate cost components increase in the various peak demand brackets and depending on service voltage.
TOU-M	40kW	N/A	For customers with demand not exceeding 40kW for any three consecutive months.

SDG&E recently completed a General Rate Case (GRC) filing with the CPUC, wherein it proposed several rate schedule changes and implemented a CPUC decision allowing California investor owned utilities (IOUs) to adjust their definitions of TOU peak periods. The CPUC decision (January 2017) allowed SDG&E to change its definition of the summer on-peak period from 12 noon-6 pm to 4-9 pm. The GRC filing was approved by the CPUC and the District is currently enrolled in the new TOU rate schedules for its nine SDG&E accounts.

ELECTRICITY LOAD (KW)

Electric load profile is expressed as "demand" or "load" and is measured by metering kilowatts (KW) through 15-minute intervals. The demand profile for the District's SDG&E meters show relatively small changes in KW month over month for most of the accounts. Table 3 below, shows the demand values for the various electric accounts.

TABLE 3: ELECTRIC ACCOUNT DEMAND (KW) VALUES

Site Name	SAID	Meter Number	Rate	Lowest Monthly KW between Nov 2018 and Oct 2019 (kW)	Highest Monthly KW between Nov 2018 and Oct 2019 (kW)	Demand Charges on Current Rate? (yes/no)
Crown Preschool	73178087428	6574168	TOU-M	21	36	YES
Aquatics Complex	28158617826	6574171	AL-TOU	80	89	YES
Silver Strand Elementary School	19070907072	6686772	AL-TOU	30	49	YES
Village Elementary School	73168716705	6574169	AL-TOU	58	86	YES
Coronado Middle School	94880793020	6574659	AL-TOU	86	115	YES
Coronado High School	28154369588	6574170	AL-TOU	181	293	YES
Coronado High School	88849789632	6688020	TOU-M	101	124	YES
District Offices	8563448421	6574214	AL-TOU	14	21	YES
Palm Academy	90567086340	6307718	AL-TOU	3	6	YES

As shown above demand distribution throughout the year is relatively even across most of the District's accounts, with the highest peak demand and greatest high/low spread occurring at Coronado High School meter #6574170.

4.2 FACILITY INFORMATION AND SITE ASSESSMENT

Coronado Unified School District maintains operations at eight (8) sites as shown in Figure 1 below (yellow pins).

FIGURE 1: GOOGLE EARTH MAP OF DISTRICT OPERATIONS

TerraVerde used several different resources to evaluate the District's facilities for siting solar PV arrays: Aerial reviews using GoogleEarth, information gathered during the site visits, and a location-based production analysis application known as Helioscope.

When reviewing for solar PV array placement, sites with available open land that can support ground-mount solar PV systems are typically the preferred installation method. This is primarily due to the lower costs associated with ground-mount solar PV systems as compared to solar PV shade structures, assuming the property is capable of being developed for solar PV arrays. Ground-mount solar PV systems consist of either fixed-tilt or single-axis tracking configurations. Fixed-tilt arrays are static systems with no moving parts that are typically installed in a south to southwest facing orientation. They are suitable for sloped topographies and depending on module efficiencies, can be configured for greater capacities than single-axis trackers in the same footprint. In addition, fixed-tilt systems can be utilized for complex site shapes and boundaries due to the greater flexibility in configuration versus single-axis trackers. The main benefit of single-axis tracking systems is increased production; up to 25% greater output than fixed-tilt systems of equal capacity, mainly because single-axis trackers follow the sun from east to west throughout the day. For this reason, single-axis tracking systems are typically installed in array "blocks" oriented to align with optimum east to west tracking.

When evaluating school sites, TerraVerde also considers solar shade structures for parking lots and playground areas (and, when land area for ground-mount arrays is limited or not available). Although solar PV shade structures are more expensive to build than ground-mount arrays, they provide the additional benefit of shade.

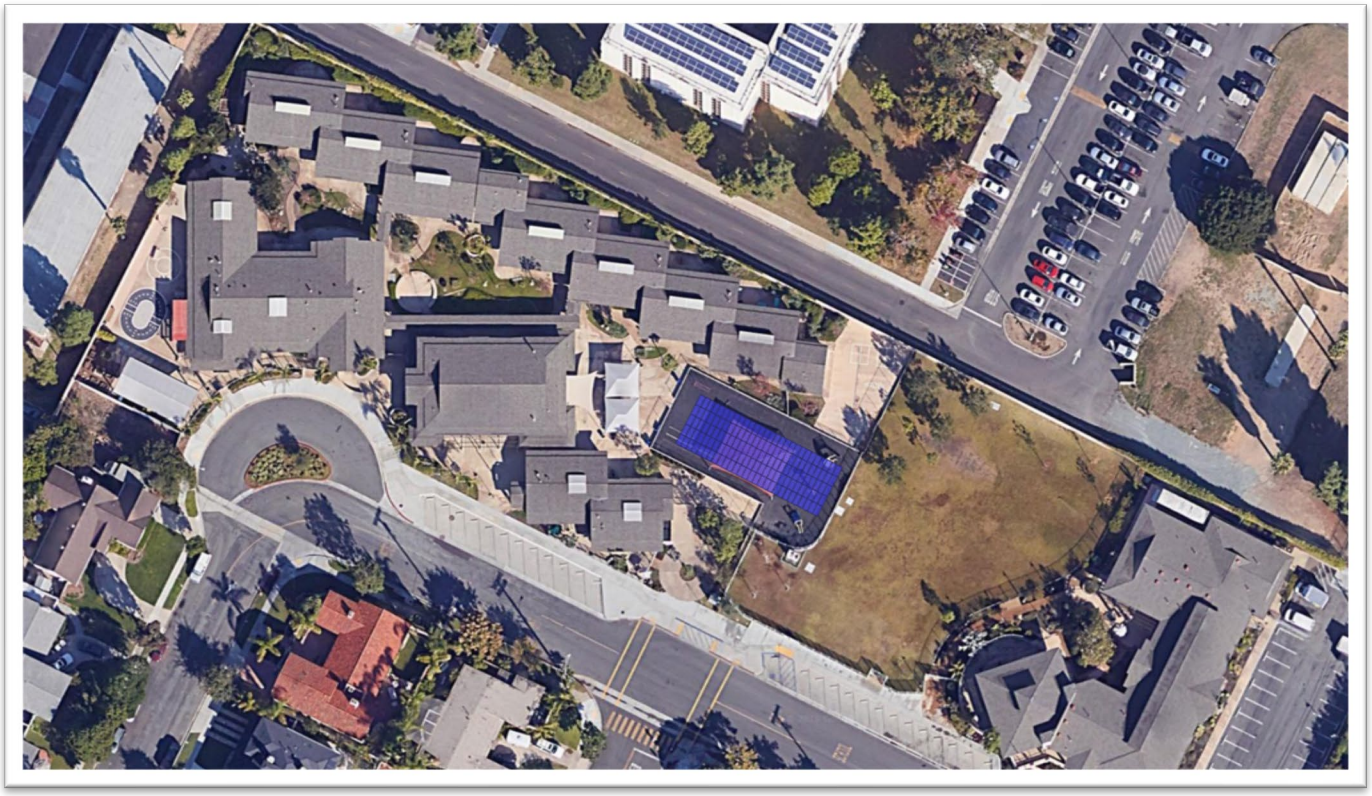
Rooftops are also evaluated (typically when ground-mount arrays and shade canopy structures are not feasible), but can be problematic due to undesirable slope orientation, complex ridge lines, large quantities of roof-top equipment and utility lines, structural loading issues, and roofing warrantee concerns. Large, unobstructed, pitched rooftops oriented in a south to south-west direction and large, unobstructed, flat rooftops provide for the most cost-effective installation, and allow for solar PV modules to be oriented in a direction that provides optimal energy production and related financial benefits. Ideally, roof warranties and solar module warranties are aligned (20-25 years) to minimize the potential need to remove the solar PV system during its lifetime to replace the roofing, resulting in additional costs and lost energy production. Additionally, a structural review of the building is required to ensure the building can support the added wind loads and additional weight from the solar PV system and associated live loads from foot traffic during installation and maintenance. Please see section 5.1 for additional information about solar PV technologies.

Based on SDG&E's current TOU peak period definitions (4pm to 9pm), the orientation of fixed (non-tracking) solar PV systems should be in a south to south-west direction to provide maximum production yield, and financial savings.

4.2.1 CROWN PRESCHOOL

At the Crown Preschool site rooftop and shade structures were evaluated. Due to the orientation of the buildings, most of the available pitched roof space faces in either an easterly or northerly direction, which minimizes optimal production and financial benefits. Based on our evaluation, a single shade structure of approximately 53kW DC covering the central playground area appears to be the best option (see Figure 2 below).

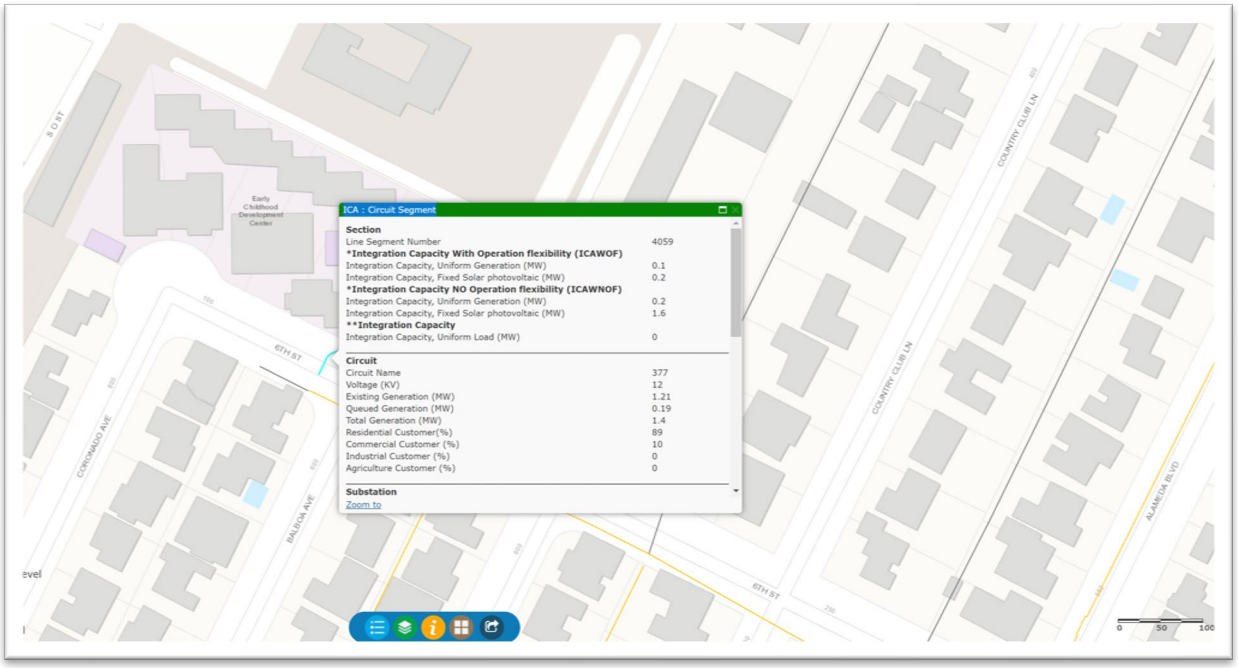
FIGURE 2: CROWN PRESCHOOL PROPOSED SOLAR PV LAYOUT



Although the District Office is immediately adjacent to Crown Preschool, the orientation of the parking lot and pitched roof sections of the District Office building are sub-optimal in supporting solar PV arrays, that would ideally be large enough to offset energy consumption for the Crown Preschool and the District Office through a NEM-A arrangement.

The recommended point of interconnection (POI) is the existing SDG&E service panel at Crown Preschool which has adequate capacity to support the proposed 53kW solar PV system. The existing SDG&E Service includes a 150KVA transformer stepping down from 12kV to 208Y/120V (served by SDG&E circuit 377). There are some capacity limitations on this circuit. Although, based on the proposed 53kW DC system size, the SDG&E circuit capacity (shown as 100 kW AC) appears sufficient to support the interconnection (see Figure 3 below). In addition, the capacity of the existing SDG&E transformer (150kVA) can support the interconnection, and Crown Preschool's existing electrical switchboard is rated at 208/120V, 800A, which is also adequate to support the NEM 2.0 interconnection. However, the physical condition and internal configuration (bus bar) of the switchboard should be inspected by a licensed electrician to confirm this assumption.

FIGURE 3: CROWN PRESCHOOL INTERCONNECTION TO SDG&E 12KV DISTRIBUTION CIRCUIT #377



4.2.2 VILLAGE ELEMENTARY

A combination of rooftop solar PV modules and shade structures were evaluated to provide maximum solar PV array capacity at the Village Elementary School. The combined system size using the largest south-west facing pitched rooftop as well as a single playground shade structure (that would also provide shade to a portion of the play area) is approximately 168kW DC, as shown in Figure 4 below. Note, as mentioned in Section 4.2, any considerations for roof mounted solar PV modules will require a comprehensive roofing system and structural review by an architect and/or structural engineering firm to confirm the building and roof structure's fitness to support the additional loads. In addition, the existing roof age and warranty terms should be reviewed to discern the viability of adding solar PV mounting structures.

FIGURE 4: VILLAGE ELEMENTARY POTENTIAL SOLAR PV ARRAY LOCATION

The recommended POI for the proposed solar PV system is the existing SDG&E service panel. Unfortunately, the existing SDG&E transformer did not display a capacity rating label, but based on the existing main switchboard rating appears to be sized adequately to support a NEM interconnection for the 168kW PV system (although a final decision by a SDG&E interconnection planner would be needed during the interconnection application process). Any costs associated with potential transformer upgrades would also be determined by SDG&E and would be included in the project's financials. The site is served by SDG&E's 12kV circuit, #374. Available circuit capacity (shown as 2 MW AC in Figure 5 below) is capable of supporting the proposed 168 kW DC PV system size, and the existing switchboard is rated at 208Y/120V, 2000A, which is sufficient to support a NEM interconnection using a line-side bus tap.

FIGURE 5: VILLAGE ELEMENTARY INTERCONNECTION TO SDG&E 12KV DISTRIBUTION CIRCUIT #374

600 6TH ST CORONADO CA 92118

Section	
Line Segment Number	1933
***Integration Capacity With Operation flexibility (ICAWOF)**	
Integration Capacity, Uniform Generation (MW)	1.7
Integration Capacity, Fixed Solar photovoltaic (MW)	2
***Integration Capacity NO Operation flexibility (ICAWNOF)**	
Integration Capacity, Uniform Generation (MW)	1.7
Integration Capacity, Fixed Solar photovoltaic (MW)	2
****Integration Capacity**	
Integration Capacity, Uniform Load (MW)	0
Circuit	
Circuit Name	374
Voltage (KV)	12
Existing Generation (MW)	1.52
Queued Generation (MW)	0.01
Total Generation (MW)	1.53
Residential Customer(%)	92
Commercial Customer (%)	8
Industrial Customer (%)	0
Agriculture Customer (%)	0

Notes:

*Generation ICA assumes short circuit duty characteristics of inverter-based technology. Values presented on map reflect with operational flexibility (ICAWOF).Uniform Generation reflects the lowest hour value for the year. PV Generation reflects the available value of generation at 12 noon. For hour by hour values download the complete data set on the link provided.**Uniform Load reflects the lowest hour value for the year.

4.2.3 SILVER STRAND ELEMENTARY

Shade structures appear to be the best option for the Silver Strand Elementary School, mainly due to undesirable roof slopes and roof area constraints. There are several locations where shade structures could be placed at this site; however, the District indicated a preference for the playground areas on the west side of the school if shade canopy structures were a viable alternative. Based on the school's consumption profile and the availability of playground area (square footage), an optimal solar PV system size of 100 kW DC can be achieved for the site using two south-west facing playground canopy structures (see Figure 6 below).

The recommended point of interconnection (POI) for the proposed 100 kW NEM system is the existing SDG&E service at the Silver Strand ES main switchboard. The existing SDG&E service includes a 75KVA transformer stepping down from 12kV to 208Y/120V (served by the SDG&E circuit 376). As Figure 7 below shows, the SDG&E circuit capacity of 700 kW AC is sufficient to support the proposed NEM interconnection. In addition, Silver Strand's existing electrical switchboard (rated at 208/120V, 800A), is capable of supporting the interconnection of the 100 kW behind-the-meter system, although the physical condition and internal configuration of the switchboard should be inspected by a licensed electrician to confirm these assumptions.

FIGURE 6: SILVER STRAND ES POTENTIAL SOLAR PV ARRAY LOCATION (OPTION 1)

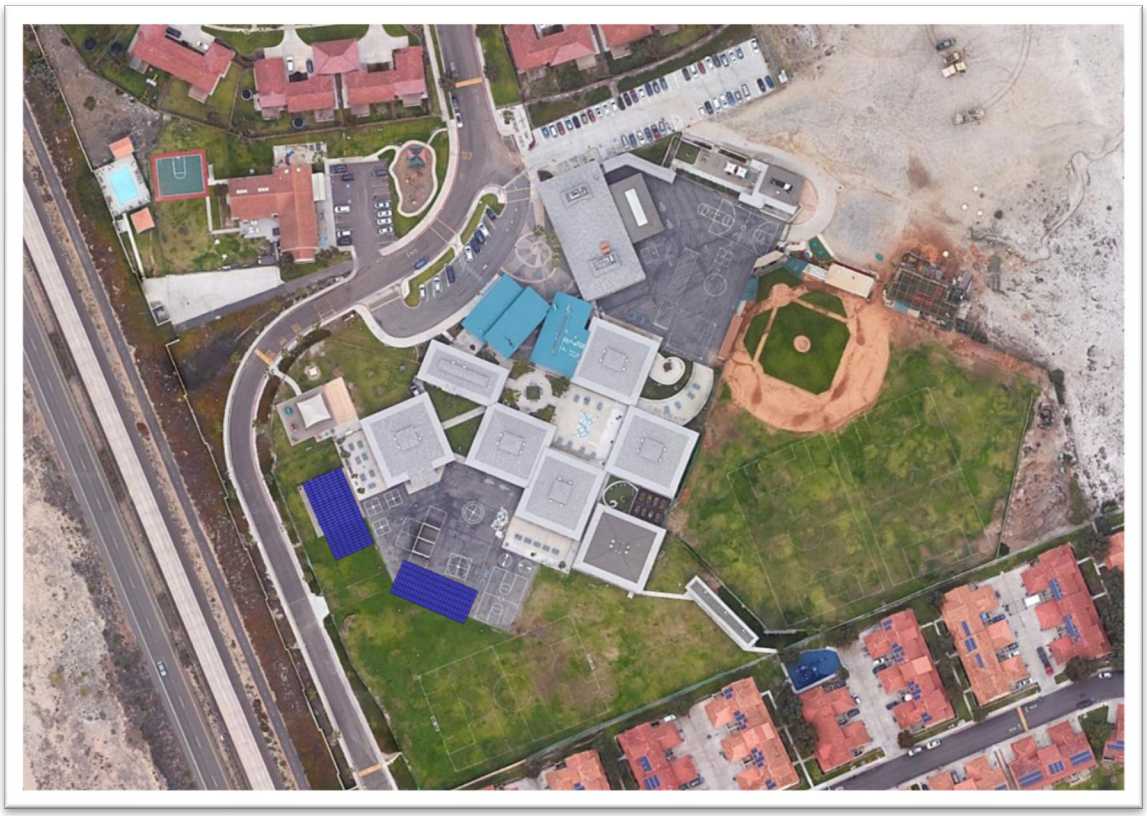
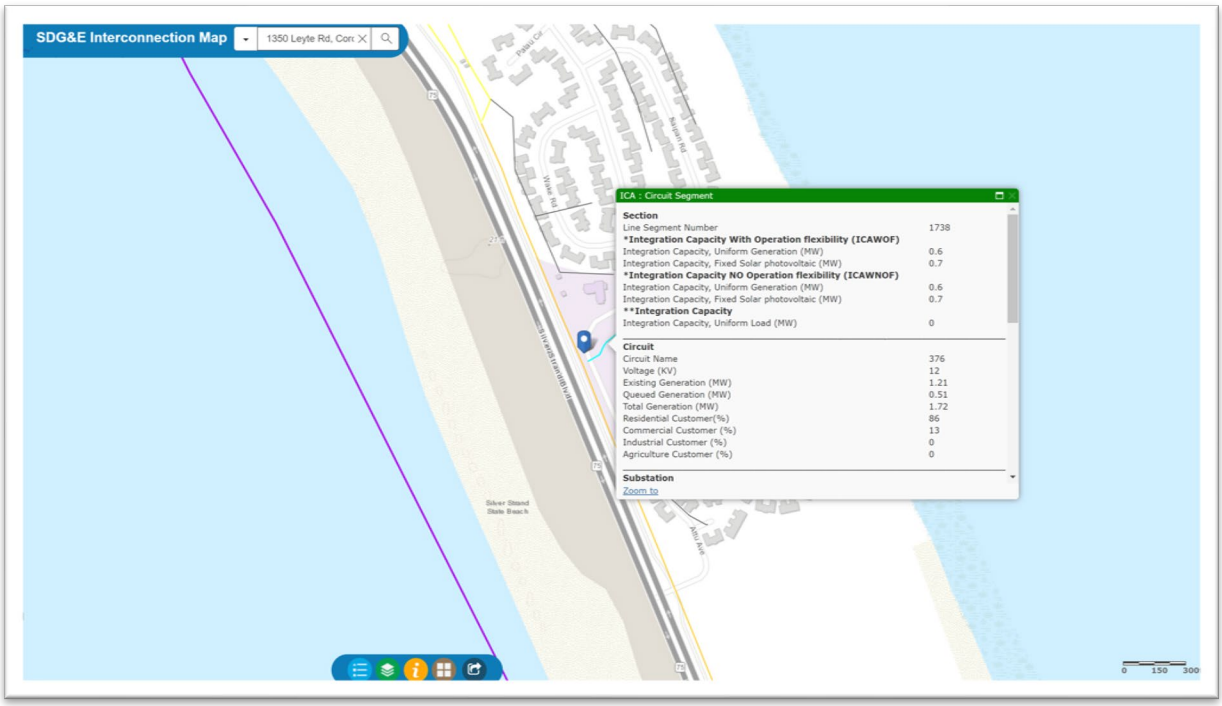


FIGURE 7: SILVER STRAND ES INTERCONNECTION TO SDG&E 12KV DISTRIBUTION CIRCUIT #376



4.2.4 CORONADO HIGH SCHOOL

Coronado High School presents several challenges to siting a solar PV array large enough to provide a meaningful consumption offset to the school's two SDG&E meters, which is approximately 1.4M kWh per year. There are no large parking lot areas at Coronado HS, which is the typical focus for solar project development at high school campuses. In addition, Coronado HS has numerous roof angles with undesirable orientations and shading. After evaluating rooftops and potential shade canopy structure locations, it appears the use of a couple south-west facing pitched roof segments, and one of the flat roofs and a pair of shade structures in the central quad area adjacent to the auditorium will support a NEM project size of 196 kW DC.

FIGURE 8: CORONADO HS POTENTIAL SOLAR PV ARRAY LOCATION

The recommended POI for the Coronado HS solar PV system is the existing SDG&E service panel. The existing SDG&E service includes a 500KVA transformer stepping down from 12kV to 477Y/277V (served by the SDG&E circuit #374). There are some capacity limitations on this circuit (see Figure 10 below), however, based on the proposed 196 kW DC system size, the SDG&E circuit (shown as 700 kW AC) is sufficient to support the NEM interconnection. The existing Coronado HS switchboard rating is 480Y/277V, 2500A, which is also capable of supporting the interconnection of the proposed 196 kW PV system.

FIGURE 9: CORONADO HIGH SCHOOL INTERCONNECTION TO SDG&E 12KV DISTRIBUTION CIRCUIT #374

650 D AVE, CORONADO CA 92118

Section	
Line Segment Number	3919
***Integration Capacity With Operation flexibility (ICAWOF)**	
Integration Capacity, Uniform Generation (MW)	0.6
Integration Capacity, Fixed Solar photovoltaic (MW)	0.7
***Integration Capacity NO Operation flexibility (ICAWNOF)**	
Integration Capacity, Uniform Generation (MW)	0.6
Integration Capacity, Fixed Solar photovoltaic (MW)	0.7
****Integration Capacity**	
Integration Capacity, Uniform Load (MW)	0
Circuit	
Circuit Name	374
Voltage (KV)	12
Existing Generation (MW)	1.52
Queued Generation (MW)	0.01
Total Generation (MW)	1.53
Residential Customer(%)	92
Commercial Customer (%)	8
Industrial Customer (%)	0
Agriculture Customer (%)	0

Notes:

*Generation ICA assumes short circuit duty characteristics of inverter-based technology. Values presented on map reflect with operational flexibility (ICAWOF).Uniform Generation reflects the lowest hour value for the year. PV Generation reflects the available value of generation at 12 noon. For hour by hour values download the complete data set on the link provided.**Uniform Load reflects the lowest hour value for the year.

4.2.4 AN ALTERNATIVE OPTION TO THE FOUR NEM SOLAR PV PROJECTS: RES-BCT

The RES-BCT project option is presented as a hypothetical alternative to the four NEM solar PV projects described above to make the District aware of an opportunity capable of generating greater annual (and 25yr cumulative) net savings and improved ROI than the four NEM projects (either with or without battery energy storage systems included). For the purpose of demonstrating how this "export tariff" option would work, the Silver Strand ES site was selected because it has the greatest quantity of open land area (to potentially support a ground-mount solar PV system). See Figure 10 below.

The RES-BCT is an export energy tariff that allows public agencies to install a renewable energy generation system on property owned or leased by the agency and receive monthly monetary bill credits that are allocated to the Agency's designated utility accounts. In the District's case, bill credits would be allocated to the District's monthly SDG&E bills (for all meters selected to be included in the allocation portfolio). The energy generated by the solar PV system flows directly to the grid, and a "production meter" keeps track of the gross production, which SDG&E uses to convert to bill credits and allocate to the "benefitting accounts". The value of the bill credits is determined by the energy generation portion of the TOU rate schedule at the site where the renewable energy generation system is installed.

In practice, if the District owned or leased approximately three to four acres of open land to support a 1MW ground-mount solar PV project, a RES-BCT project is projected to have greater net savings than the four proposed NEM projects combined (with or without the inclusion of battery energy storage). This is because the majority of the District's campuses have space constraints and PV array siting constraints that prevent achieving the optimum level of electricity consumption and billing

offset from a NEM project at each of the District's eight sites. Thus, the RES-BCT tariff would allow the District to offset a greater amount of monthly billing across all of the District's SDG&E accounts/meters than can be achieved with the NEM projects with limited capacity.

Based on TerraVerde's review of the potential available space (hypothetical), consideration for anticipated costs for SDG&E upgrades to infrastructure associated with interconnecting a RES-BCT project to SDG&E's distribution grid at the Silver Strand ES site, and the associated financial analysis which includes the applicable meter offset allocations, a solar PV system size of 1,100kW DC would provide optimal financial savings (based on the 2018/2019 electricity consumption for each of the District's nine meters – see Table 1).

SDG&E's RES-BCT program is currently oversubscribed based on submitted interconnection applications, but any attrition due to projects not reaching Permission to Operate (PTO) or an expansion of the program could provide an opportunity for the District to explore this option.

FIGURE 10: SILVER STRAND ES RES-BCT PROJECT OPTION SOLAR PV ARRAY LOCATION (OPTION 2)

5 FINANICAL ANALYSIS

5.1 SOLAR PHOTOVOLTAIC SYSTEMS

This section explores the different ownership and financing options available for the solar PV installations, including direct ownership and third-party ownership.

FIGURE 11: SAMPLE SOLAR INSTALLATION[1]

5.1(a): Solar PV Ownership and Financing

Direct Ownership: Under the direct ownership scenario, the solar PV system is purchased with available cash, or is financed using different loan structures. There are several options that can be used individually or collectively to achieve full project funding under a direct ownership scenario.

a) ***Cash*** **-** PV systems can be purchased outright when the facility owner/operator has the capital available in reserves or other liquid assets. For tax-paying entities with tax liabilities, this procurement path allows the use of the Federal Investment Tax Credit (ITC), which can offset up to 30% of the gross capital cost of the project in the form of a direct tax credit in the tax year the system(s) is completed and commissioned. Purchasing a solar PV system using cash can have the additional benefits: i) allows for a faster and more streamlined installation process that sidesteps the potentially time-consuming third-party financing approval process; and ii) provides for improved project economics by avoiding loan costs and interest expenses associated with debt servicing. It is also important to consider operating costs when comparing project financing options. In particular, projects purchased through direct procurement options require the system owner perform all necessary operation maintenance and equipment replacement for the PV system over the anticipated EUL of the system (25 years or more). Operations, maintenance and warranty support can be self-performed, or a third-party asset management firm can be contracted to perform these services.

b) ***Loans*** - For facility owners/operators interested in owning a solar PV system, but lacking the upfront capital for the purchase, a loan can provide the necessary funding. Loans can be obtained from a preferred lender, or alternatively many solar PV system vendors have approved lending partners that are familiar with financing solar PV projects.

c) California Energy Commission Low Interest Loan Program - The CEC's Energy Conservation Assistance Act (ECAA) program provides 1% interest loans to cities, counties, special districts, public colleges and universities, public care institutions and public hospitals. Loans are for energy efficiency and renewable energy projects. The maximum loan amount is $3 million. Loan applications are accepted on a first-come, first-served basis for projects with proven energy savings. Projects must be technically and economically feasible, with proven energy or demand cost savings or both to be eligible. Terms and Conditions:

- 1% interest rate loans for energy projects can fund 100 percent of the project cost within a 17-year (maximum) simple payback. The loan must be repaid from energy savings (including principal and interest) within a maximum of 20 years.
- The loan term cannot exceed the useful life of loan-funded equipment.

[1] Image from: iStock

- Loans are made on a reimbursement basis.
- Only approved project-related costs with invoices dated within the executed term of the loan are eligible to be reimbursed from loan funds.
- 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.
- A promissory note and a loan agreement between the applicant and the Energy Commission are all that are required to secure the loan.
- The repayment schedule is based on the estimated annual energy cost savings from the project (or aggregated projects), using energy costs and operating schedules at the time of loan approval. Loans will be amortized on the estimated annual energy cost savings achieved by the loan-funded project. Applicants will be billed twice a year, in June and December, after the projects are completed.

Contact the Energy Commission before applying to check current funding availability. The program opportunity notice for the 1% loan program is PON 17-401.

Third-Party Ownership: Under a third-party ownership scenario, an outside entity (typically a private sector tax paying entity that can benefit from the Investment Tax Credit) finances and owns the solar PV asset(s), thus requiring little or no up-front capital cost paid by the public agency. Most third-party financing strategies also provide an optional path to direct ownership over the term of the contract.

a) ***Power Purchase Agreements (PPA)*** - Under a PPA contract, the customer enters into an agreement with a private company who finances, installs, owns, operates and maintains the PV system for a set contract term (typically 20, 25, or 30 years). The customer agrees to purchase all of the energy generated by the system for a negotiated price per kWh (PPA rate). Typically, the PPA rate is lower than the utility cost per kWh of electricity (referred to as the avoided cost, or what the energy would otherwise cost to purchase from SDG&E in the absence of the solar PV system). PPA rates can be either fixed (0% annual escalation) for the term of the agreement or can use annual escalators to keep the PPA rate artificially lower in the early years of the agreement. Historically, the cost of purchasing energy from SDG&E has escalated over time; thus, a PPA rate with a 0% escalator provides a hedge against the anticipation of rising energy prices.

   A performance guarantee aligned with the term of the PPA is typically included to ensure that if the solar PV project does not perform as expected potentially reducing the expected savings to the public agency (the PV system host), a payment will be made by the third-party owner to compensate for a portion of the lost savings based on the shortfall in production on an annual basis.

   For public agencies (and non-profit entities) who do not possess tax-liability or sufficient tax-appetite to monetize the available tax credits, a PPA financing strategy allows the third-party financier/system owner to monetize the tax incentives, and pass a portion of the savings benefit to the host customer in the form of a lower PPA rate(s). All PPA contracts should include certain buyout provisions that allow the host customer to purchase the PV system at a depreciated value ("fair market" value) after the financiers have consumed the tax benefits (typically at the end of the sixth year of operation, or at other pre-defined periods of the PPA contract term. Exercising a buyout option during the PPA can provide added savings potential, however the added cost of maintenance, warranty support, insurance, and other owner-related costs (along with the cost of capital or financing) should be closely evaluated when considering taking over ownership.

At the end of the term of the PPA, the customer has the option to purchase the system at fair market value, renew the PPA for additional years (typically 5 years), or have the system removed.

b) ***Leases*** **-** Equipment leasing is a common method for facility owners/operators to finance certain hard assets associated with the PV system. Similar to the PPA there is a monthly payment to the equipment owner, but unlike a PPA the monthly payment is tied to the system installation cost versus the operation of the system over time. Typically, the lease payment is offset by the savings on the customer's electricity bills. At the end of the lease agreement (typically 15-20 years), the customer has the option to purchase the system, renew the lease, or have the system removed.

c) ***Municipal Leases*** **-** Given the availability and value of federal tax credits (ITC and MACRS depreciation), municipal tax-exempt leases (TEML) are the predominant lease-to-own structures for public agencies. Under a tax-exempt municipal lease, a private company constructs and leases the solar PV facility to the customer. The lessor retains ownership and all tax benefits, and the lessee has use of the facility for the term of the lease. At the end of the lease ownership transfers to the lessee. Lease payments are fixed independent of the performance of the system, so the lessee bears the risk of system underperformance. The primary benefits of this arrangement are that the customer (lessee) does not need to finance the project and owns the asset at the end of the lease term for a nominal value. However, as opposed to a PPA, the customer must pay the lease payments independent of PV system performance.

5.1(b): Solar Incentives

Investment Tax Credit: Federal incentives for solar PV systems are provided in the form of investment tax credits, known as the Solar Investment Tax Credit (ITC). The ITC provides a 30% tax credit based on the capital value of the installed solar PV investment. Not all project costs are eligible for ITC considerations, however Internal Revenue Services (IRS) rules allow for some level of interpretation, and each company makes an independent assessment of what costs are considered eligible based on the final project requirements, inclusions, and investor risk profile. The ITC is currently set to decrease from its current 30% value at the end of 2019 to 26% starting January 1, 2020. The ITC will continue to step down in value to 22% in 2021 and then will remain at 10% indefinitely after 2021 for commercial projects. Starting construction for a solar PV project before the designated date of change in ITC value will maintain eligibility for the relevant ITC level (i.e. to achieve the full 30% credit, construction must be started prior to the end of 2019).

In addition to the ITC, the IRS allows for accelerated depreciation of solar assets through the Modified Accelerated Cost-Recovery System (MACRS). The MACRS allows for a class life of five years for solar PV systems, meaning the solar PV asset may be fully depreciated in only five years. The combination of the ITC and accelerated depreciation can offset up to 35% of the system's capital cost.

Renewable Energy Credits (RECs): RECs are the environmental attributes associated with the production of electricity from a renewable resource. One REC represents the environmental attributes associated with 1.0 MWh of electricity generated by a qualified and registered renewable energy source. A REC generated from an onsite solar PV can be sold into a REC trading market either "bundled" with its underlying energy or "unbundled" as a separate commodity from the energy itself. Once unbundled, the energy associated with the unbundled RECs may no longer be claimed as renewable or "green" energy. RECs can be traded in the Voluntary Market, which includes RECs purchased by private and public entities in fulfillment of sustainability goals. An example would be a corporation reducing their carbon footprint by purchasing RECs to offset nonrenewable energy supplied to their facilities by local energy retailers. Currently, the value of RECs from Distributed Generation projects in California is approximately $3.00 to $4.00 per REC. Due to the relatively low value, especially for smaller projects, the administrative costs of registering, certifying, and taking RECs to market can be cost prohibitive in California.

5.1.1 SOLAR PHOTOVOLTAIC SYSTEM FINANCIAL RESULTS

TerraVerde's financial analysis begins with a comprehensive data collection process and operations profile analysis and concludes with a financial projection of project economics using proprietary rate tariff and financial modeling programs. The analysis was completed for two different financing strategies: a solar energy PPA, and a cash-purchase for each system scenario considered, which included solar PV + battery energy storage and solar only scenarios.

Solar PV system costs and PPA rates used in the analysis are estimated "market" rates informed by known recent proposals and completed solar energy projects of similar size, scope, financing, and customer profile. Solar PV system costs and PPA rates are influenced by many factors, including: project size (kW), scope complexity, equipment & installation costs, number of sites (if project is a portfolio of separate sites), system(s) configuration, location, ITC eligibility & availability, other incentives availability and value (SGIP for example), project schedule, project risk (primarily site conditions), interconnection scope/cost, technology type, contract terms (unique or non-standard requirements), O&M and monitoring requirements, performance guarantee terms, and bonding and insurance requirements. Solar PPA rates are influenced by additional factors including the use of PPA rate annual escalators, the credit rating of the energy off-taker (customer), prevailing interest rates, the internal rate of return (IRR) required by the investors/financiers, and buyout options.

The electricity consumption and billing analysis for each meter requires at least one complete year of operational billing and usage data to be used as a baseline for defining future consumption, and as an input for modeling a projection of financial savings over time. This data was provided by SDG&E in the form of 15-minute interval data files and paper (pdf) bills. The collection process for electricity usage data consists of a District-authorized process that utilizes UtilityAPI, a software service that collects and processes utility data so that it can be easily used for modeling and analysis. While the bulk of the data is typically accessed through the UtilityAPI platform, missing or corrupted data can be obtained directly from SDG&E. Billing data summarizes the metered energy, max demand values, and the corresponding charges that the District incurs during each billing period. Paper bills contain information that help to confirm each meter's rate schedule, connection level (service voltage), and demand response program participation.

Interval data is comprised of metered demand values at 15-minute intervals and shows the shape and load profile of a specific operation/facility (meter/site). Using the interval data and information extracted from the paper bills, along with most current rate information (SDG&E tariff periods and costs), it is possible to reconstruct monthly bills to establish an accurate basis for comparing expected energy and demand reductions associated with proposed solar PV systems.

Verification of the accuracy of data used to create the baseline billing (electricity costs) assumptions is critical to determining an accurate avoided cost calculation and energy cost savings estimate. To ensure that billing assumptions and tariff related variables are correct for each meter prior to modeling project cash flows and net savings, 12 months of billing for each proposed meter is recalculated by calendarizing the 15-minute interval data and applying the applicable (historic) rate schedules. If a large variance between the actual SDG&E bills and the recalculated bills is observed, the inputs are re-evaluated for missing data, or missing or incorrect rate components. Observed factors that can affect the calculated baseline billing assumptions include: Voltage levels, demand response programs, standby charges, and exported energy production. This iterative process of systematically reducing the total variance between actual and recalculated historical billing provides confirmation that the inputs are correct and accurate, which results in accurate avoided cost calculations and projected savings values.

The cost savings attributed to solar energy production is based on the calculated avoided cost which describes the cost of electricity provided by the Utility and that is replaced by the credits generated by the proposed PV. The value is measured in $/kwh and derived by dividing bill savings attributable to solar energy generation by total solar energy production.

Calculated bill savings are the difference between the projected (or actual) billing prior to the installation of the solar PV systems, and the projected (or actual) billing after the PV systems are operating for a 12-month period.

Based on the results of the site audit (physical site constraints) and an investigation of the consumption and billing profiles for all of the District's SDG&E accounts (potential for financial benefit), a detailed financial analysis was completed for the sites determined to have both available land for solar PV systems (see Section 4 for additional information) and potential for financial savings that would justify the cost of a solar PV system. In some cases, where there was insufficient area (rooftops, parking lots, available playgrounds) to support a solar PV system size that would provide the optimal financial savings, a financial analysis was completed using the space-constrained solar PV system size (NEM projects), and another using the solar PV system size that would provide the optimal financial savings based on the results of the financial modeling (hypothetical RES-BCT project). Please see Section 6 and Section 7 for the assumptions used in the financial analysis.

TABLE 4: PROPOSED SOLAR PV SYSTEM DETAILS

SITE NAME	METER #	ANNUAL CONSUMPTION (KWH)	SYSTEM SIZE (KW DC)	SOLAR PV PRODUCTION (KWH[2])	PERCENT OFFSET OF EXISTING CONSUMPTION
NEM 2.0 INTERCONNECTION METER					
CROWN PRESCHOOL	6574168	101,258	53	78,018	77%
NEM 2.0 INTERCONNECTION METER					
VILLAGE ES	6574169	307,196	175	257,606	84%
NEM 2.0 INTERCONNECTION METER					
SILVER STRAND ES	6686772	180,873	100	147,203	81%
NEM 2.0 INTERCONNECTION METER					
CORONADO HS	6574170	1,015,426	197	289,254	28%
RES-BCT INTERCONNECTION METER (1,100 KW)					
HYPOTHETICAL RES-BCT PROJECT	NEW SERVICE	2,708,349	1,100	1,719,656	63%
RES-BCT PROJECT BENEFITTING ACCOUNTS/METERS (1,100 KW)					
ALL METERS IN TABLE 1					

The annual gross savings projections for each solar project scenario is based on the calculated avoided cost of energy associated with implementing the proposed solar PV projects. The Year 1 solar savings and energy displacement (offset) details are shown in the Table 5 below.

[2] Production data was calculated using PV Watts, https://pvwatts.nrel.gov/pvwatts.php

TABLE 5: PROJECTED FIRST YEAR SOLAR ENERGY USAGE AND GROSS SAVING (WITHOUT BATTERIES)

	Rate Schedule	Est. Solar PV Production (kWh)	Est. Solar PV Size (KW DC)	Solar PV Offset (%)	Yr 1 Gross Savings from Solar PV ($)	Yr 1 Gross Solar PV Savings ($/kWh)
NEM 2.0 (4 sites combined)	DG-R	772,081	525	48%	$135,566	$0.1756
RES-BCT (1,100 kW)	DG-R	1,719,656	1,100	63%	$222,551	$0.1294

The cumulative net savings associated with each financing scenario are shown in Table 6 below.

TABLE 6: PROJECTED FIRST YEAR NET SAVINGS, AND LIFETIME (25 YR) NET SAVINGS

	Rate Schedule	Est. Project Cost ($) or PPA Rate ($/kWh)	Est. Yr 1 Gross Cost Savings	Est. Yr 1 Solar PV Expenses	Est. Yr 1 Net Benefits (Solar PV)	Cumulative Net Savings (Yr 25)
NEM 2.0 PPA	DG-R	$0.1990	$135,566	$161,365*	($25,798)	$781,958
NEM 2.0 CASH PURCHASE	DG-R	$1,944,012	$135,566	$21,859	$113,707**	$1,778,639
RES-BCT (1,100 kW) PPA	DG-R	$0.1100	$222,551	$313,487*	$24,791	$2,969,450
RES-BCT (1,100 kW) CASH PURCHASE	DG-R	$1,897,633	$222,551	$809,426	$178,865**	$3,903,220

*Includes PPA payments and Asset Management Service fees.
**Does not include capital cost (design/build) for solar PV system.

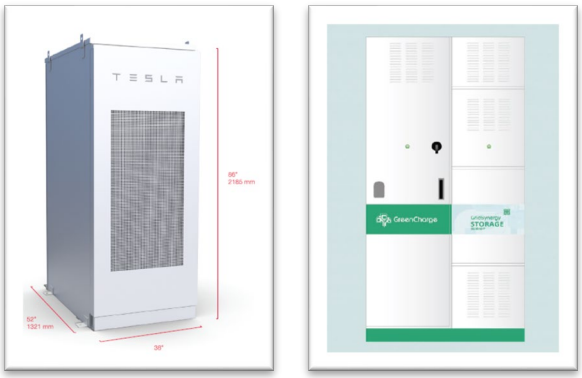
For a detailed breakdown of the analysis please reference the Exhibits section below.

5.2 BATTERY ENERGY STORAGE SYSTEMS

The primary financial benefits from BESS projects are electric demand reduction and peak shaving. For energy usage profiles that have significant jumps in demand over a billing period, a battery can be used to provide an alternative source of power that ensures that the peak amount of power drawn by an individual operation/meter from SDG&E never exceeds a set threshold, thereby allowing the customer to remain on a more cost-effective rate structure, and/or to reduce demand charge costs. Battery storage systems can also provide several other benefits including energy arbitrage and resiliency.

Battery energy storage systems were evaluated for all eight of the District's sites/operations. The meters that exhibited the potential for demand charge savings were included in the analysis. Similar to solar PV systems, there are different ownership and financing options available for BESS projects, including direct ownership and third-party ownership.

FIGURE 12: EXAMPLES OF BATTERY STORAGE EQUIPMENT



5.2(a): BESS Ownership and Financing

Direct Ownership: Under a direct ownership scenario, the customer finances and owns the BESS asset(s). There are several options that can be used individually or collectively to achieve full project funding for direct ownership.

a) ***Cash*** - BESS can be purchased outright when the facility owner/operator possesses available capital. The cash purchase of a BESS project can have additional benefits: i) More timely and streamlined installation process that sidesteps potentially time-consuming third-party financing approval processes; and ii) greater savings potential by avoiding third-party financing expenses and interest costs. It is important to also consider estimated operations and maintenance costs when comparing project financing options. In a cash purchase scenario, the facility owner/operator is responsible for the scope and cost of system operation, maintenance, warranty support and equipment replacement over the anticipated EUL of the system (typically 10 years).
b) ***Loans*** - For facility owners/operators who do not possess upfront capital, a loan can provide the necessary funds to allow for a direct purchase. Loans can be obtained directly from a preferred lender or alternatively many BESS vendors also have approved lending partners that are familiar with BESS projects.

Third Party Ownership:

Much like a solar energy PPA, the third-party ownership model for battery systems provides direct demand cost savings to the customer without capital investment or operation and maintenance responsibilities. In this scenario all applicable SGIP incentives are retained by the third-party owner, who uses the incentives to help offset the cost of installation and on-going maintenance. In addition to SGIP incentives, the system owner may receive revenues by requiring the customer to pay for a portion of the kW demand reduction based on a $/kW rate determined at the time of contract signing, or through an arrangement where the monthly utility demand cost savings are shared ("split") between the customer and the system owner. The customer's monthly demand savings payments made to the system owner is analogous to the monthly PPA payments for electricity procured through a solar energy PPA.

In addition, projects that combine solar PV and BESS together (with a single third-party Owner/Provider) allow the Owner/Provider to receive ITC benefits for the battery system in addition to the solar PV project. IRS rules allow the ITC to be claimed for BESS when the batteries are charged directly by the solar PV system. This combined system approach reduces the overall cost of the battery system, which in turn provides increased savings from the project.

5.2(b): BESS Incentives

Self-Generation Incentive Program (SGIP)[3] - The CPUC offers an incentive program that provides funding to support existing, new, and emerging distributed energy resources (DERs) installed on the customer's side of the utility meter. Qualifying technologies include wind turbines, waste heat to power technologies, pressure reduction turbines, internal combustion engines, microturbines, gas turbines, fuel cells, and advanced energy storage systems (including batteries). There are 5 "Steps" that categorize the funding levels for certain DER types and sizes, and the different budgets that apply to various types of customers. The rebate is administered through the local utility company, in this case, SDG&E.

The SGIP can offset 30-40% of energy storage project costs under the Large-Scale Storage budget, depending on a number of factors: current incentive step level, eligibility for equity budget adders, consideration for taking the ITC benefit, duration of the battery's discharge period (2hr, 4h, etc.), overall battery capacity. Currently, SDG&E's SGIP allocation is in step 3 for the Large-Scale Storage budget, and there is approximately $15M in funding remaining in step 3 as of December 11, 2019. Step 3 incentive levels start at $0.35/Whr and are adjusted downward with consideration for the factors mentioned above.

A recent decision by the CPUC puts in place restrictions on SGIP funding to ensure battery energy storage systems that receive SGIP funds do not increase GHG emissions.

The CPUC also approved a new Equity Resiliency Budget in September 2019 which provides an incentive up to $1.00/Whr and is supported by a budget of $100M. The equity resiliency budget incentives are available to non-residential customers if their operations are located in a Tier 2 or Tier 3 high fire threat zones (HFTZ) as defined by the CPUC, and either serve or are located in low income or disadvantaged communities. None of the District sites are located in a HFTZ, or in a DAC/low income community.

5.2.1 BATTERY ENERGY STORAGE SYSTEM FINANCIAL RESULTS

Although a BESS may not pencil as a standalone project, when paired with an onsite solar PV system, it can further reduce demand and provide savings value that is not available to a stand-alone battery energy storage system. Integrating energy storage systems with solar PV systems provides a holistic approach to renewable energy generation and financial savings. A solar PV system by itself provides per-kWh utility bill savings and some peak demand reduction but is subject to intermittency based on weather conditions and therefore plays an unreliable role in ensuring that demand charges can be effectively managed. In cases where the customer has high demand charges, solar PV and energy storage can be controlled together to provide the optimal overall bill and peak demand savings through charge/discharge management software capable of making decisions that allow for optimized financial savings based on the actual operating profile on a real time basis. This includes the ability to decide when to charge the battery system with energy provided by the solar PV system, ensuring that the battery is always charged and available for use to make up for a period of low production from the PV system. Batteries charged by solar PV also have the potential of providing "energy arbitrage", i.e., charging the batteries from the solar PV during low bill credit periods and exporting energy from the batteries during high bill credit periods. In addition, a combined solar PV and energy storage system can be configured to have the added benefit of providing an alternative source of power and resiliency in times when the grid is either unreliable or not available.

Under current policy and utility tariffs, it is necessary to install either a net generation output meter (NGOM) or a non-export relay when adding an energy storage system to a PV system. An NGOM is a meter required by the utility to ensure that only renewable energy generation systems receive net metering credits under current rules (i.e.: to ensure only the solar PV system receives export credits and not the energy storage system). A non-export relay functions to prevents the energy storage system from discharging energy when the load at the utility meter is zero or negative (i.e.: the relay ensures batteries

[3] http://www.cpuc.ca.gov/sgip/

don't discharge at a time when the discharge would result in exporting energy to the grid). Should the District decide to pursue battery energy storage systems, we suggest the installation of NGOMs to provide the option for the facilities to participate in future energy storage net energy metering programs. Energy storage NEM will allow facilities to receive export credits from the Utility for energy exported to the grid by energy storage systems that are charged solely from on-site (co-located) solar PV systems. If the District were to pursue a solar + battery energy storage system, TerraVerde suggests submitting the interconnection application to the utility assuming that the battery system will export through energy storage NEM to allow for flexibility in the function of the battery energy storage system. Under these circumstances the site electrical infrastructure (transformer, switchboard, etc.) capacity would need to be reassessed based on the total solar PV + battery system size.

Table 7 and Table 8 outline the potential benefits from installing a BESS project as a stand-alone measure and combined with a solar PV system respectively.

TABLE 7: BESS SIZING, DISPLACEMENT AND YEAR 1 SAVINGS

SITE NAME	SCENARIO	METER #	EST. BESS REDUCTION (KW)	EST. BESS SIZE (KWH)	BESS KW DISPLACEMENT (%)	YR 1 GROSS SAVINGS FROM BESS ($)	YR 1 GROSS BESS SAVINGS ($/KW)
AQUATICS CENTER	STAND-ALONE	6574171	232	60	24	$10,723	$46.12
CORONADO HS STADIUM	STAND-ALONE	6688020	457	120	36	$20,550	$44.99
CORONADO HS	WITH PV	6574170	1,292	120	38	$23,217	$17.97
VILLAGE ES	WITH PV	6574169	467	60	47	$12,116	$25.92

TABLE 8: STAND-ALONE BESS PROJECTED FIRST YEAR SAVINGS, LIFETIME SAVINGS

DER	Rate Schedule	Est. Measure Cost ($)	Est. Yr 1 Gross Cost Savings	Est. Yr 1 BESS Expenses	Est. Yr 1 Net Benefits BESS	Cumulative Net Savings (Yr 10)
Install 180kWh BESS (Cash Purchase)	AL-TOU	$211,500	$31,272	$1,663	$29,609*	$182,907

*: Does not include capital cost of the BESS project.

TABLE 9: SOLAR PV + BESS PROJECTED FIRST YEAR UTILITY USAGE AND COST IMPACTS

DER	Rate Schedule	Est. Measure Cost ($) / PPA Rate ($/kWh)	Est. Yr 1 Gross Cost Savings	Est. Yr 1 Solar PV + BESS Expenses	Est. Yr 1 Net Benefits (Solar PV + BESS)	Cumulative Net Savings (Yr 25)
Install 180kWH BESS + Solar PV (PPA)	DG-R	$0.1990 PPA + 45% Shared Savings BESS	$170,899	$178,065*	($7,165)	$1,415,296
Install 180kWh BESS + Solar PV (Cash Purchase)	DG-R	$2,155,512	$170,899	$23,522	$147,377**	$2,543,187

*Includes PPA payments, Shared Savings payments, and Asset Management Services fees.
**Does not include capital cost of solar PV systems and BESS.

5.3 VIRTUAL POWER PLANT & DEMAND RESPONSE REVENUE OPPORTUNITIES

Virtual Power Plants (VPPs) are networks of local energy storage devices that may be centrally controlled by a Load Serving Entity (LSE) to dispatch power as an alternative to purchasing power in wholesale electricity markets. VPPs can also dispatch excess power to sell into the wholesale markets at times when wholesale prices are high. In addition, VPPs can store excess generation as an alternative to selling into wholesale markets when prices are low. When paired with renewable generation, VPPs can dispatch clean energy in real-time as an alternative to the dirtier power dispatched through a wholesale auction process. VPPs are being deployed across California to generate additional revenue to owners of behind-the-meter battery energy storage systems. By participating in wholesale energy markets, BESS owners have the opportunity to shift load when demand for energy is high (i.e.: during peak hours) and thereby receive financial incentives from the independent grid operator for providing balance to the electric grid.

VPPs benefit Load Serving Entities (LSEs), such as SDG&E and CCAs, by providing ramping flexibility through frequency control (by ramping up and down power production and consumption on short notice, as needed), better management of high penetrations of renewable resources, and improved grid resilience. VPPs provide revenue opportunities for its participants by entering into contracts to provide spinning reserve and resource adequacy (RA) and participating in wholesale energy markets to balance energy procurement shortfalls for the participating LSE. VPPs benefit communities by reducing an LSE's need to purchase costly and hydrocarbon-based energy. Additionally, communities also benefit from reduced risk of blackouts as the VPP provides greater grid resilience.

An evolving source of added financial benefits associated with energy storage systems are utility level demand response programs offered through direct contracts with local LSEs and the CAISO. For example, in regions where existing LSE substations and distribution networks are experiencing high demand conditions and are deemed "unreliable" to support late afternoon/early evening demands for electricity, and/or are in locations where additional grid infrastructure is contemplated to resolve reliability concerns, energy storage systems may be contracted for use through an LSE demand response program. In practice, the LSE or grid operator issues a call for demand response services; the operator of the energy storage systems commits to provide a certain amount of kW to the grid and issues a control signal to the battery system to discharge at the appropriate time to meet the demand response commitment. In return for this service, the LSE or grid operator provides a $/kW payment for the energy discharged to the grid. In situations where the utility demand response program depletes the energy storage system capacity to a point where it must be re-charged to support on-going behind the meter services, any third-party agreements for the installation of BESS must have provisions to ensure protection of the Customer's guaranteed demand savings.

When coupled with behind the meter services such as demand shaving and peak load shaping, the additional revenue from participation as a VPP may significantly increase the overall project returns. There may also be future opportunities for additional VPP revenue from participation in LSE peak load shaping.

Although these additional revenue streams are currently available, they have not evolved to the point where there is certainty around the amount and timing of the additional revenue streams, and hence have not been considered in our financial analysis. A limited number of vendors in the industry currently consider these alternative revenue streams as reliable enough to justify the cost of a battery energy storage system under a third-party ownership model, although this is also rapidly changing. Given the current evolution of the market, the ideal way to find a partner that is willing to consider all potential revenue streams for a battery energy storage system is through a competitive solicitation process that clearly outlines the revenue streams to be considered by participants.

5.4 FINANCIAL ANALYSIS RESULTS SUMMARY

Below is a summary of the most financially viable scenarios for the NEM 2.0 projects and for the hypothetical 1,100 kW DC RES-BCT project. The District does not currently own the property adjacent to the Silver Strand ES that would be required to build a system of this size, so any considerations for purchasing and/or leasing the property (or other property residing within the District's territory) would need to be added to the financial analysis as applicable (land purchase or lease costs are not included in the current financial analysis) should the District decide to pursue this option. See Section 8 for the detailed pro forma analysis.

Year 1 Net Benefits for ***CASH PURCHASE*** of NEM 2.0 solar + battery energy storage project: **$147,377** (does not include the capital cost of the solar PV system and the BESS).
25yr Cumulative Net Savings for ***CASH PURCHASE*** of NEM 2.0 solar + battery energy storage project: **$2,543,187**
Payback of capital costs ($2,155,521) achieved at year 13.

Year 1 Net Benefits for ***CASH PURCHASE*** of RES-BCT solar project: **$178,865** (does not include the capital cost of the solar PV system).
25yr Cumulative Net Savings for ***CASH PURCHASE*** of RES-BCT solar project: **$3,903,220**
Payback of capital costs ($1,897,633) achieved at year 10.

Further site-specific due diligence would be required to confirm physical/technical feasibility, and to verify project cost assumptions.

6 CONCLUSION

Given that the solar + BESS market is evolving and there are a number of beneficial policy changes that will be implemented in 2020, the District may want to consider running an RFP process to obtain pricing for the options described in this report, including: (1) the NEM 2.0 solar PV systems with the inclusion of an optional BESS (with a specific request for inclusion of all potential revenue streams associated with BESS implementation); and (2) alternative pricing for a RES-BCT project that would be sized to offset all of the District's SDG&E meters (only relevant if the District currently controls property within its boundaries that is capable of being developed as a RES-BCT solar PV project, or if the District can form a JPA with another public agency that could provide a potential RES-BCT project site outside/within its boundary and shared by the District and its JPA partner).

An RFP process will provide the District the opportunity to verify the preliminary feasibility findings presented in this report. A typical RFP process takes approximately 4-5 months and includes: Development of the RFP documents, running the RFP process, proposal evaluations, interviews, vendor selection, contract negotiations, and Board approval of a PPA or EPC contract. If successful, the RFP process would be followed by a design/construction phase typically running six to ten months depending on factors that can influence project schedule such as CEQA, interconnection applications and study processes, permitting, and the construction timeline for any Distribution Utility identified upgrades that may be required by the project.

7 ADDITIONAL CALCULATIONS, ASSUMPTIONS AND REFERENCES

7.1 ASSUMPTIONS & CALCULATIONS

7.1.A SOLAR PHOTOVOLTAIC SYSTEM ASSUMPTIONS

- System sizes: per modeling to obtain optimal financial benefit or limited to site constraints
- Solar Technology: High efficiency PV modules and inverters.
- Interconnection: Per SDG&E Rule 21, NEM 2.0 tariff or RES-BCT tariff
- Project cost estimates: current market data (recent similar projects)
- Consumption & billing analysis using 15-minute interval data
- SDG&E annual cost escalation rate: 3%
- PV system annual production degradation rate: 0.5% (industry standard default)
- Solar energy generation profile: per PVWatts hourly production model
- Assumed no array shading, i.e.: vegetation / trees / other obstacles removed where they would shade the arrays
  PPA rates assumptions:
    - Current market data for rates (recent similar projects)
    - Investor IRR requirements (internal Rate of Return) per market rates
    - Federal ITC of 26% + Accelerated Depreciation Schedule (based on start of construction before EOY 2020)
    - PPA term length (25yrs)
    - Performance Guarantee terms (95% of projected annual production on a weather adjusted basis)
    - Installation date (2020)
    - District's credit rating is assumed to be investment grade
    - O&M costs, Insurance costs, and extended warranty costs per industry standards (are the responsibility of the PPA provider and are incorporated into the PPA rate)
    - Project Development costs (ie: Consultants, Permitting, CEQA, Legal, Geotechnical, Interconnection are assumed to be the responsibility of the PPA provider and incorporated into the PPA rate)
    - PPA escalator of 0% (PPA escalators are typically used when/if the avoided cost is greater than the PPA rate in the 1st year)
    - REC ownership and value (revenue): RECs retained by the District, with potential sale value included in the savings proformas. The District can elect to sell the REC's for additional revenue or, alternatively, green brand.
    - Asset Management Services (AMS) cost: $0.01/kWh with a 3% annual escalation rate (oversight of PPA provider to ensure compliance with contract terms and performance guarantee agreement)

7.1.B BESS SYSTEM ASSUMPTIONS

- Current market data for battery costs (recent similar projects)
- Investor IRR requirements (internal Rate of Return) per market rates (the percentage of the savings that the battery provider would earn is based on an assumed IRR for the battery provider with the remainder of the utility bill savings going to the District)
- Contract term length of 10 years (could be up to 20yrs in some financing scenarios)
- Equipment replacement costs (at current market costs) are included in the solar + BESS scenario savings proformas, i.e.: 25yr time horizon for solar PV & BESS.

- Installation date (2020)
- District's credit rating (assumed to be investment grade)
- O&M costs, Insurance costs, and warranty costs per industry standards (Responsibility of Battery provider and incorporated into battery rates)

8 EXHIBITS

CASH FLOW SAVINGS PROFORMAS

Coronado USD

Pro Forma

NEM Solar PV Feasibility

Scenarios Included in this Pro Forma:

#1 - NEM 2.0: Solar Energy PPA
#2 - NEM 2.0: Solar Cash Purchase

Summary of Results

Financing Scenario	PPA Start Price	PPA Escalator	Net Benefit Year 1	Net Benefit Years 1-10	Years to Payback
#1 - NEM 2.0: Solar Energy PPA	$ 0.1990	0.00%	$ (27,398)	$ (51,350)	n/a
#2 - NEM 2.0: Solar Cash Purchase			$ (1,831,904)	$ (653,278)	n/a

Project Portfolio

Meter Name	Service Account ID	Meter Number	Connection Level	Rate (Current)	Rate (After Project)	Program	Customer Usage (kWh)	Max Demand (kW)
#1 - Coronado High School	28154369588	6574170	S	AL-TOU	DG-R	NEM	1,015,426	361
#2 - Village Elementary School	73168716705	6574169	S	AL-TOU	DG-R	NEM	307,196	94
#3 - Silver Strand Elementary School	19070907072	6686772	S	AL-TOU	DG-R	NEM	180,873	59
#4 - Crown Pre-School	73178087428	6574168	S	TOU-M	DG-R	NEM	101,258	38
Portfolio Totals							**1,604,752**	**551**

Savings

Meter Name	Service Account ID	Customer Usage (kWh)	Solar Production (kWh)	Solar Sizing	Solar Array Size (kW)	Solar Savings	Solar Savings ($/kWh)
#1 - Coronado High School	28154369588	1,015,426	289,254	28%	197	$ 50,169	$ 0.1734
#2 - Village Elementary School	73168716705	307,196	257,606	84%	175	$ 45,077	$ 0.1750
#3 - Silver Strand Elementary School	19070907072	180,873	147,203	81%	100	$ 24,616	$ 0.1672
#4 - Crown Pre-School	73178087428	101,258	78,018	77%	53	$ 15,704	$ 0.2013
Totals		**1,604,752**	**772,081**	**48%**	**525**	**$ 135,566**	**$ 0.1756**

Dashboard

Scenario: #1 - NEM 2.0: Solar Energy PPA

Technical Assumptions	
Total Solar Project Size	525 kW, DC
Annual Solar Yield	1,472 kWh/kW
Year-1 Solar Production	772,081 kWh
Annual Solar Degradation Factor	0.50%
Number of SDG&E Accounts	4

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1756 /kWh
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Pricing	
PPA Rate	$0.1990
PPA Annual Escalator	0.00%

Asset Management Services Assumptions	
Asset Management Services, Solar (PPA)	$0.0100 /kWh
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$4,621,660
Power Purchase Agreement (PPA) Payments	($3,619,232)
Asset Management Service (Solar & Storage)	($281,495)
Renewable Energy Certificates (RECs)	$61,024
Total Net Benefit	$781,958

Cash Flow

	Electricity		Utility Savings		Expenses			Cash Position				
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Savings from Solar	**Subtotal: Annual Gross Benefits**	PPA Payments	Asset Management Service (Solar)	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Renewable Energy Certificates (RECs)	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0
2021	772,081	$ 0.1756	$ 135,566	$ 135,566	$ (153,644)	$ (7,721)	$ (161,365)	$ (25,798)	$ (1,600)	$ (27,398)	$ (40,955)	1
2022	768,220	$ 0.1809	$ 138,935	$ 138,935	$ (152,876)	$ (7,952)	$ (160,828)	$ (21,893)	$ 2,716	$ (46,576)	$ (74,026)	2
2023	764,379	$ 0.1863	$ 142,388	$ 142,388	$ (152,111)	$ (8,191)	$ (160,302)	$ (17,915)	$ 2,729	$ (61,761)	$ (103,450)	3
2024	760,557	$ 0.1919	$ 145,926	$ 145,926	$ (151,351)	$ (8,437)	$ (159,788)	$ (13,861)	$ 2,743	$ (72,880)	$ (129,162)	4
2025	756,754	$ 0.1976	$ 149,552	$ 149,552	$ (150,594)	$ (8,690)	$ (159,284)	$ (9,732)	$ 2,756	$ (79,856)	$ (151,092)	5
2026	752,971	$ 0.2036	$ 153,269	$ 153,269	$ (149,841)	$ (8,951)	$ (158,792)	$ (5,523)	$ 1,170	$ (84,209)	$ (170,772)	6
2027	749,206	$ 0.2097	$ 157,078	$ 157,078	$ (149,092)	$ (9,219)	$ (158,311)	$ (1,233)	$ 2,784	$ (82,659)	$ (184,930)	7
2028	745,460	$ 0.2159	$ 160,981	$ 160,981	$ (148,347)	$ (9,496)	$ (157,842)	$ 3,139	$ 2,797	$ (76,723)	$ (195,092)	8
2029	741,733	$ 0.2224	$ 164,981	$ 164,981	$ (147,605)	$ (9,780)	$ (157,385)	$ 7,596	$ 2,811	$ (66,315)	$ (201,183)	9
2030	738,024	$ 0.2291	$ 169,081	$ 169,081	$ (146,867)	$ (10,074)	$ (156,941)	$ 12,140	$ 2,825	$ (51,350)	$ (203,126)	10
2031	734,334	$ 0.2360	$ 173,283	$ 173,283	$ (146,132)	$ (10,376)	$ (156,509)	$ 16,774	$ 1,239	$ (33,337)	$ (202,441)	11
2032	730,662	$ 0.2431	$ 177,589	$ 177,589	$ (145,402)	$ (10,687)	$ (156,089)	$ 21,500	$ 2,853	$ (8,984)	$ (195,847)	12
2033	727,009	$ 0.2503	$ 182,002	$ 182,002	$ (144,675)	$ (11,008)	$ (155,683)	$ 26,319	$ 2,867	$ 20,202	$ (184,861)	13
2034	723,374	$ 0.2579	$ 186,525	$ 186,525	$ (143,951)	$ (11,338)	$ (155,290)	$ 31,235	$ 2,881	$ 54,319	$ (169,397)	14
2035	719,757	$ 0.2656	$ 191,160	$ 191,160	$ (143,232)	$ (11,678)	$ (154,910)	$ 36,250	$ 2,896	$ 93,464	$ (149,367)	15
2036	716,158	$ 0.2736	$ 195,910	$ 195,910	$ (142,515)	$ (12,029)	$ (154,544)	$ 41,366	$ 1,310	$ 136,140	$ (126,282)	16
2037	712,577	$ 0.2818	$ 200,778	$ 200,778	$ (141,803)	$ (12,390)	$ (154,193)	$ 46,586	$ 2,924	$ 185,651	$ (96,850)	17
2038	709,014	$ 0.2902	$ 205,768	$ 205,768	$ (141,094)	$ (12,761)	$ (153,855)	$ 51,913	$ 2,939	$ 240,502	$ (62,575)	18
2039	705,469	$ 0.2989	$ 210,881	$ 210,881	$ (140,388)	$ (13,144)	$ (153,533)	$ 57,349	$ 2,953	$ 300,804	$ (23,361)	19
2040	701,942	$ 0.3079	$ 216,122	$ 216,122	$ (139,686)	$ (13,538)	$ (153,225)	$ 62,897	$ 2,968	$ 366,669	$ 20,891	20
2041	698,432	$ 0.3171	$ 221,492	$ 221,492	$ (138,988)	$ (13,945)	$ (152,933)	$ 68,559	$ 1,383	$ 436,611	$ 68,684	21
2042	694,940	$ 0.3266	$ 226,996	$ 226,996	$ (138,293)	$ (14,363)	$ (152,656)	$ 74,340	$ 2,998	$ 513,949	$ 123,322	22
2043	691,465	$ 0.3364	$ 232,637	$ 232,637	$ (137,602)	$ (14,794)	$ (152,395)	$ 80,242	$ 3,012	$ 597,203	$ 183,313	23
2044	688,008	$ 0.3465	$ 238,418	$ 238,418	$ (136,914)	$ (15,238)	$ (152,151)	$ 86,267	$ 3,027	$ 686,497	$ 248,765	24
2045	684,568	$ 0.3569	$ 244,343	$ 244,343	$ (136,229)	$ (15,695)	$ (151,924)	$ 92,419	$ 3,042	$ 781,958	$ 319,792	25
	18,187,094	**$ 0.2541**	**$ 4,621,660**	**$ 4,621,660**	**$ (3,619,232)**	**$ (281,495)**	**$ (3,900,727)**	**$ 720,934**	**$ 61,024**	**$ 781,958**	**$ 319,792**	

Dashboard

Scenario: #2 - NEM 2.0: Solar Cash Purchase

Technical Assumptions	
Total Solar Project Size	525 kW, DC
Annual Solar Yield	1,472 kWh/kW
Year-1 Solar Production	772,081 kWh
Solar System Cost	$3.71 /Wp
Annual Solar Degradation Factor	0.50%
Number of SDG&E Accounts	4

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1756 /kWh
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Asset Management Services Assumptions	
Asset Management Services, Solar (client-owned)	$0.0200 /kWh
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$4,621,660
Total Initial Project Cost	($1,944,012)
Other Expenses	($397,044)
Asset Management Service (Solar & Storage)	($562,990)
Renewable Energy Certificates (RECs)	$61,024
Total Net Benefit	$1,778,639

Cash Flow

	Electricity		Utility Savings				Cash Position						
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Savings from Solar	**Subtotal: Annual Gross Benefits**	Asset Management Service (Solar)	Other Expenses	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Renewable Energy Certificates (RECs)	Cash Contribution	Total Cash	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,944,012)	$ (1,944,012)	$ (1,944,012)	$ (1,944,012)	0
2021	772,081	$ 0.1756	$ 135,566	$ 135,566	$ (15,442)	$ (6,418)	$ (21,859)	$ 113,707	$ (1,600)	$ -	$ 112,107	$ (1,831,904)	$ (1,845,461)	1
2022	768,220	$ 0.1809	$ 138,935	$ 138,935	$ (15,905)	$ (6,575)	$ (22,480)	$ 116,456	$ 2,716	$ -	$ 119,171	$ (1,712,733)	$ (1,740,183)	2
2023	764,379	$ 0.1863	$ 142,388	$ 142,388	$ (16,382)	$ (6,736)	$ (23,118)	$ 119,270	$ 2,729	$ -	$ 121,999	$ (1,590,734)	$ (1,632,423)	3
2024	760,557	$ 0.1919	$ 145,926	$ 145,926	$ (16,873)	$ (6,901)	$ (23,774)	$ 122,152	$ 2,743	$ -	$ 124,894	$ (1,465,839)	$ (1,522,121)	4
2025	756,754	$ 0.1976	$ 149,552	$ 149,552	$ (17,380)	$ (7,070)	$ (24,450)	$ 125,103	$ 2,756	$ -	$ 127,859	$ (1,337,980)	$ (1,409,217)	5
2026	752,971	$ 0.2036	$ 153,269	$ 153,269	$ (17,901)	$ (7,243)	$ (25,144)	$ 128,125	$ 1,170	$ -	$ 129,294	$ (1,208,686)	$ (1,295,250)	6
2027	749,206	$ 0.2097	$ 157,078	$ 157,078	$ (18,438)	$ (7,421)	$ (25,859)	$ 131,219	$ 2,784	$ -	$ 134,002	$ (1,074,684)	$ (1,176,955)	7
2028	745,460	$ 0.2159	$ 160,981	$ 160,981	$ (18,991)	$ (7,602)	$ (26,594)	$ 134,387	$ 2,797	$ -	$ 137,184	$ (937,499)	$ (1,055,869)	8
2029	741,733	$ 0.2224	$ 164,981	$ 164,981	$ (19,561)	$ (7,789)	$ (27,350)	$ 137,631	$ 2,811	$ -	$ 140,443	$ (797,057)	$ (931,924)	9
2030	738,024	$ 0.2291	$ 169,081	$ 169,081	$ (20,148)	$ (7,980)	$ (28,128)	$ 140,954	$ 2,825	$ -	$ 143,779	$ (653,278)	$ (805,054)	10
2031	734,334	$ 0.2360	$ 173,283	$ 173,283	$ (20,752)	$ (8,175)	$ (28,928)	$ 144,355	$ 1,239	$ -	$ 145,594	$ (507,684)	$ (676,788)	11
2032	730,662	$ 0.2431	$ 177,589	$ 177,589	$ (21,375)	$ (8,376)	$ (29,751)	$ 147,838	$ 2,853	$ -	$ 150,691	$ (356,992)	$ (543,855)	12
2033	727,009	$ 0.2503	$ 182,002	$ 182,002	$ (22,016)	$ (8,581)	$ (30,597)	$ 151,405	$ 2,867	$ -	$ 154,272	$ (202,721)	$ (407,784)	13
2034	723,374	$ 0.2579	$ 186,525	$ 186,525	$ (22,677)	$ (8,792)	$ (31,468)	$ 155,057	$ 2,881	$ -	$ 157,938	$ (44,783)	$ (268,498)	14
2035	719,757	$ 0.2656	$ 191,160	$ 191,160	$ (23,357)	$ (9,007)	$ (32,364)	$ 158,796	$ 2,896	$ -	$ 161,691	$ 116,909	$ (125,923)	15
2036	716,158	$ 0.2736	$ 195,910	$ 195,910	$ (24,058)	$ (9,228)	$ (33,286)	$ 162,624	$ 1,310	$ -	$ 163,934	$ 280,843	$ 18,421	16
2037	712,577	$ 0.2818	$ 200,778	$ 200,778	$ (24,779)	$ (9,454)	$ (34,234)	$ 166,545	$ 2,924	$ -	$ 169,469	$ 450,312	$ 167,812	17
2038	709,014	$ 0.2902	$ 205,768	$ 205,768	$ (25,523)	$ (9,686)	$ (35,209)	$ 170,559	$ 2,939	$ -	$ 173,498	$ 623,810	$ 320,733	18
2039	705,469	$ 0.2989	$ 210,881	$ 210,881	$ (26,288)	$ (9,924)	$ (36,212)	$ 174,669	$ 2,953	$ -	$ 177,622	$ 801,433	$ 477,267	19
2040	701,942	$ 0.3079	$ 216,122	$ 216,122	$ (27,077)	$ (10,167)	$ (37,244)	$ 178,877	$ 2,968	$ -	$ 181,845	$ 983,278	$ 637,500	20
2041	698,432	$ 0.3171	$ 221,492	$ 221,492	$ (27,889)	$ (46,260)	$ (74,149)	$ 147,343	$ 1,383	$ -	$ 148,726	$ 1,132,003	$ 764,077	21
2042	694,940	$ 0.3266	$ 226,996	$ 226,996	$ (28,726)	$ (46,516)	$ (75,241)	$ 151,755	$ 2,998	$ -	$ 154,752	$ 1,286,756	$ 896,129	22
2043	691,465	$ 0.3364	$ 232,637	$ 232,637	$ (29,588)	$ (46,777)	$ (76,365)	$ 156,272	$ 3,012	$ -	$ 159,284	$ 1,446,040	$ 1,032,150	23
2044	688,008	$ 0.3465	$ 238,418	$ 238,418	$ (30,475)	$ (47,046)	$ (77,521)	$ 160,897	$ 3,027	$ -	$ 163,924	$ 1,609,964	$ 1,172,232	24
2045	684,568	$ 0.3569	$ 244,343	$ 244,343	$ (31,390)	$ (47,321)	$ (78,710)	$ 165,632	$ 3,042	$ -	$ 168,675	$ 1,778,639	$ 1,316,473	25
	18,187,094	**$ 0.2541**	**$ 4,621,660**	**$ 4,621,660**	**$ (562,990)**	**$ (397,044)**	**$ (960,034)**	**$ 3,661,626**	**$ 61,024**	**$ (1,944,012)**	**$ 1,778,639**	**$ 1,778,639**	**$ 1,316,473**	

Disclaimers and Assumptions

1) Projections of future savings are calculated based on patterns of previous electricity usage with billing data from November 2019, and assume that historical usage patterns hold at the same level over the life of the project.

2) Projections are subject to tariff eligibility over the life of the installation. This analysis uses SDG&E rates published June 2019.

3) This analysis assumes the electrical service will not require significant upgrades.

4) Projections are based on interconnection of all sites under NEM 2.0 tariff. Remaining capacity under NEM 2.0 is subject to availability.

5) Net Operating Benefit does not include repayment of any client capital that may be invested.

6) NEM projects are grandfathered for 20 years. Savings shown beyond year 20 are subject to change based on future NEM structure.

7) Other Expenses includes O&M, Performance Guarantee O&M, Insurance (solar and storage), inverter replacement and battery replacement.

8) Under the PPA Scenario, 'Net Benefits (Solar)' refers to the annual gross savings from solar, less annual solar PPA payments, plus annual solar AMS costs.

9) Conservative Cumulative Cash Position assumes the solar and storage produce only 90% of the projection production.

10) Management Services include: system performance monitoring, preventive maintenance, warranty enforcement, and detailed energy & financial reporting.

Coronado USD

Pro Forma

NEM Solar PV Feasibility

Scenarios Included in this Pro Forma:

#1 - NEM 2.0: Solar Energy and Battery System PPA
#2 - NEM 2.0: Solar Cash Purchase and Battery Cash Purchase

Summary of Results

Financing Scenario	PPA Start Price	PPA Escalator	Net Benefit Year 1	Net Benefit Years 1-10	Years to Payback
#1 - NEM 2.0: Solar Energy and Battery System PPA	$ 0.1990	0.00%	$ (8,765)	$ 157,046	n/a
#2 - NEM 2.0: Solar Cash Purchase and Battery Cash Purchase			$ (1,971,935)	$ (567,226)	n/a

Project Portfolio

Meter Name	Service Account ID	Meter Number	Connection Level	Rate (Current)	Rate (After Project)	Program	Customer Usage (kWh)	Max Demand (kW)
#1 - Coronado High School	28154369588	6574170	S	AL-TOU	DG-R	NEM + AES	1,015,426	361
#2 - Village Elementary School	73168716705	6574169	S	AL-TOU	DG-R	NEM + AES	307,196	94
#3 - Silver Strand Elementary School	19070907072	6686772	S	AL-TOU	DG-R	NEM	180,873	59
#4 - Crown Pre-School	73178087428	6574168	S	TOU-M	DG-R	NEM	101,258	38
Portfolio Totals							**1,604,752**	**551**

Savings

Meter Name	Service Account ID	Customer Usage (kWh)	Solar Production (kWh)	Solar Sizing	Solar Array Size (kW)	Solar Savings	Solar Savings ($/kWh)	Cumulative Demand (kW)	Demand Reduction (kW)	Battery Sizing	Battery Size (kWh)	Battery Savings	Battery Savings ($/kW)
#1 - Coronado High School	28154369588	1,015,426	289,254	28%	197	$ 50,169	$ 0.1734	3,426	1,292	38%	120	$ 23,217	$ 17.97
#2 - Village Elementary School	73168716705	307,196	257,606	84%	175	$ 45,077	$ 0.1750	1,002	467	47%	60	$ 12,116	$ 25.92
#3 - Silver Strand Elementary School	19070907072	180,873	147,203	81%	100	$ 24,616	$ 0.1672	601	-	-	-	$ -	$ -
#4 - Crown Pre-School	73178087428	101,258	78,018	77%	53	$ 15,704	$ 0.2013	405	-	-	-	$ -	$ -
Totals		**1,604,752**	**772,081**	**48%**	**525**	**$ 135,566**	**$ 0.1756**	**5,434**	**1,760**	**32%**	**180**	**$ 35,333**	**$ 20.08**

Dashboard

Scenario: #1 - NEM 2.0: Solar Energy and Battery System PPA

Technical Assumptions	
Total Solar Project Size	525 kW, DC
Annual Solar Yield	1,472 kWh/kW
Year-1 Solar Production	772,081 kWh
Annual Solar Degradation Factor	0.50%
Total Storage Project Size	180 kWh
Year-1 Demand Reduction	1,760 kW
Number of SDG&E Accounts	4

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1756 /kWh
Savings from Demand Reduction, yr-1	$20.08 /kW
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Pricing	
PPA Rate	$0.1990
PPA Annual Escalator	0.00%
Battery Savings to Provider	45%

Asset Management Services Assumptions	
Asset Management Services, Solar (PPA)	$0.0100 /kWh
Asset Management Services, Storage	$400 /battery
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$5,826,216
Power Purchase Agreement (PPA) Payments	($3,619,232)
Payments for Battery System Services	($542,050)
Asset Management Service (Solar & Storage)	($310,662)
Renewable Energy Certificates (RECs)	$61,024
Total Net Benefit	$1,415,296

Cash Flow

TerraVerde ENERGY

	Electricity				Utility Savings			Expenses				Cash Position						
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Annual Demand Reduction (kW)	Storage Savings per kW Reduced	Savings from Solar	Savings from Storage	**Subtotal: Annual Gross Benefits**	PPA Payments	Payments for Battery System Services	Asset Management Service (Solar & Storage)	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Net Benefits (Storage)	Net Benefits (Total)	Renewable Energy Certificates (RECs)	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0
2021	772,081	$ 0.1756	1,760	$ 20.08	$ 135,566	$ 35,333	$ 170,899	$ (153,644)	$ (15,900)	$ (8,521)	$ (178,065)	$ (25,798)	$ 18,633	$ (7,165)	$ (1,600)	$ (8,765)	$ (25,855)	1
2022	768,220	$ 0.1809	1,760	$ 20.58	$ 138,935	$ 36,211	$ 175,146	$ (152,876)	$ (16,295)	$ (8,776)	$ (177,947)	$ (21,893)	$ 19,092	$ (2,801)	$ 2,716	$ (8,851)	$ (43,455)	2
2023	764,379	$ 0.1863	1,760	$ 21.09	$ 142,388	$ 37,111	$ 179,499	$ (152,111)	$ (16,700)	$ (9,040)	$ (177,851)	$ (17,915)	$ 19,562	$ 1,648	$ 2,729	$ (4,474)	$ (57,028)	3
2024	760,557	$ 0.1919	1,760	$ 21.61	$ 145,926	$ 38,033	$ 183,959	$ (151,351)	$ (17,115)	$ (9,311)	$ (177,777)	$ (13,861)	$ 20,044	$ 6,183	$ 2,743	$ 4,451	$ (66,499)	4
2025	756,754	$ 0.1976	1,760	$ 22.15	$ 149,552	$ 38,978	$ 188,531	$ (150,594)	$ (17,540)	$ (9,590)	$ (177,725)	$ (9,732)	$ 20,538	$ 10,806	$ 2,756	$ 18,014	$ (71,790)	5
2026	752,971	$ 0.2036	1,760	$ 22.70	$ 153,269	$ 39,947	$ 193,216	$ (149,841)	$ (17,976)	$ (9,878)	$ (177,695)	$ (5,523)	$ 21,043	$ 15,520	$ 1,170	$ 34,704	$ (74,421)	6
2027	749,206	$ 0.2097	1,760	$ 23.27	$ 157,078	$ 40,940	$ 198,017	$ (149,092)	$ (18,423)	$ (10,174)	$ (177,689)	$ (1,233)	$ 21,561	$ 20,328	$ 2,784	$ 57,815	$ (71,111)	7
2028	745,460	$ 0.2159	1,760	$ 23.84	$ 160,981	$ 41,957	$ 202,938	$ (148,347)	$ (18,881)	$ (10,480)	$ (177,707)	$ 3,139	$ 22,092	$ 25,231	$ 2,797	$ 85,844	$ (63,377)	8
2029	741,733	$ 0.2224	1,760	$ 24.44	$ 164,981	$ 43,000	$ 207,981	$ (147,605)	$ (19,350)	$ (10,794)	$ (177,748)	$ 7,596	$ 22,636	$ 30,232	$ 2,811	$ 118,887	$ (51,131)	9
2030	738,024	$ 0.2291	1,760	$ 25.04	$ 169,081	$ 44,068	$ 213,149	$ (146,867)	$ (19,831)	$ (11,118)	$ (177,815)	$ 12,140	$ 23,194	$ 35,334	$ 2,825	$ 157,046	$ (34,287)	10
2031	734,334	$ 0.2360	1,760	$ 25.67	$ 173,283	$ 45,163	$ 218,446	$ (146,132)	$ (20,323)	$ (11,451)	$ (177,907)	$ 16,774	$ 23,765	$ 40,539	$ 1,239	$ 198,824	$ (14,354)	11
2032	730,662	$ 0.2431	1,760	$ 26.30	$ 177,589	$ 46,285	$ 223,874	$ (145,402)	$ (20,828)	$ (11,795)	$ (178,025)	$ 21,500	$ 24,350	$ 45,849	$ 2,853	$ 247,527	$ 11,961	12
2033	727,009	$ 0.2503	1,760	$ 26.96	$ 182,002	$ 47,436	$ 229,437	$ (144,675)	$ (21,346)	$ (12,149)	$ (178,169)	$ 26,319	$ 24,949	$ 51,268	$ 2,867	$ 301,662	$ 43,153	13
2034	723,374	$ 0.2579	1,760	$ 27.63	$ 186,525	$ 48,614	$ 235,139	$ (143,951)	$ (21,876)	$ (12,513)	$ (178,341)	$ 31,235	$ 25,563	$ 56,798	$ 2,881	$ 361,341	$ 79,318	14
2035	719,757	$ 0.2656	1,760	$ 28.31	$ 191,160	$ 49,822	$ 240,982	$ (143,232)	$ (22,420)	$ (12,888)	$ (178,540)	$ 36,250	$ 26,192	$ 62,442	$ 2,896	$ 426,679	$ 120,558	15
2036	716,158	$ 0.2736	1,760	$ 29.02	$ 195,910	$ 51,061	$ 246,971	$ (142,515)	$ (22,977)	$ (13,275)	$ (178,768)	$ 41,366	$ 26,837	$ 68,203	$ 1,310	$ 496,192	$ 165,374	16
2037	712,577	$ 0.2818	1,760	$ 29.74	$ 200,778	$ 52,329	$ 253,108	$ (141,803)	$ (23,548)	$ (13,673)	$ (179,025)	$ 46,586	$ 27,497	$ 74,083	$ 2,924	$ 573,200	$ 217,071	17
2038	709,014	$ 0.2902	1,760	$ 30.48	$ 205,768	$ 53,630	$ 259,398	$ (141,094)	$ (24,133)	$ (14,084)	$ (179,311)	$ 51,913	$ 28,174	$ 80,087	$ 2,939	$ 656,225	$ 274,156	18
2039	705,469	$ 0.2989	1,760	$ 31.23	$ 210,881	$ 54,963	$ 265,844	$ (140,388)	$ (24,733)	$ (14,506)	$ (179,628)	$ 57,349	$ 28,867	$ 86,216	$ 2,953	$ 745,395	$ 336,742	19
2040	701,942	$ 0.3079	1,760	$ 32.01	$ 216,122	$ 56,328	$ 272,450	$ (139,686)	$ (25,348)	$ (14,941)	$ (179,975)	$ 62,897	$ 29,578	$ 92,474	$ 2,968	$ 840,837	$ 404,939	20
2041	698,432	$ 0.3171	1,760	$ 32.81	$ 221,492	$ 57,728	$ 279,220	$ (138,988)	$ (25,978)	$ (15,390)	$ (180,355)	$ 68,559	$ 30,306	$ 98,865	$ 1,383	$ 941,085	$ 477,265	21
2042	694,940	$ 0.3266	1,760	$ 33.62	$ 226,996	$ 59,163	$ 286,159	$ (138,293)	$ (26,623)	$ (15,851)	$ (180,767)	$ 74,340	$ 31,051	$ 105,391	$ 2,998	$ 1,049,474	$ 557,038	22
2043	691,465	$ 0.3364	1,760	$ 34.46	$ 232,637	$ 60,633	$ 293,270	$ (137,602)	$ (27,285)	$ (16,327)	$ (181,213)	$ 80,242	$ 31,815	$ 112,057	$ 3,012	$ 1,164,543	$ 642,780	23
2044	688,008	$ 0.3465	1,760	$ 35.31	$ 238,418	$ 62,140	$ 300,558	$ (136,914)	$ (27,963)	$ (16,817)	$ (181,693)	$ 86,267	$ 32,598	$ 118,865	$ 3,027	$ 1,286,435	$ 734,616	24
2045	684,568	$ 0.3569	1,760	$ 36.19	$ 244,343	$ 63,684	$ 308,026	$ (136,229)	$ (28,658)	$ (17,321)	$ (182,208)	$ 92,419	$ 33,400	$ 125,819	$ 3,042	$ 1,415,296	$ 832,674	25
	18,187,094	**$ 0.2541**	**43,992**	**$ 27.38**	**$ 4,621,660**	**$ 1,204,556**	**$ 5,826,216**	**$ (3,619,232)**	**$ (542,050)**	**$ (310,662)**	**$ (4,471,944)**	**$ 720,934**	**$ 633,338**	**$ 1,354,272**	**$ 61,024**	**$ 1,415,296**	**$ 832,674**	

Dashboard

Scenario: #2 - NEM 2.0: Solar Cash Purchase and Battery Cash Purchase

Technical Assumptions	
Total Solar Project Size	525 kW, DC
Annual Solar Yield	1,472 kWh/kW
Year-1 Solar Production	772,081 kWh
Solar System Cost	$3.71 /Wp
Annual Solar Degradation Factor	0.50%
Total Storage Project Size	180 kWh
Year-1 Demand Reduction	1,760 kW
Storage System Cost	$1,175 /kWh
Number of SDG&E Accounts	4

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1756 /kWh
Savings from Demand Reduction, yr-1	$20.08 /kW
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Asset Management Services Assumptions	
Asset Management Services, Solar (client-owned)	$0.0200 /kWh
Asset Management Services, Storage (client-owned)	$500 /battery
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$5,826,216
Total Initial Project Cost	($2,155,512)
Other Expenses	($652,092)
Asset Management Service (Solar & Storage)	($599,449)
Renewable Energy Certificates (RECs)	$61,024
Incentive	$63,000
Total Net Benefit	$2,543,187

Cash Flow

TerraVerde ENERGY

	Electricity				Utility Savings					Cash Position								
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Annual Demand Reduction (kW)	Storage Savings per kW Reduced	Savings from Solar	Savings from Storage	**Subtotal: Annual Gross Benefits**	Management Service (Solar & Storage)	Other Expenses	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Net Benefits (Storage + Resiliency)	Net Benefits (Total)	Renewable Energy Certificates (RECs)	Incentive/SGIP	Cash Contribution	Total Cash	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,155,512)	$ (2,155,512)	$ (2,155,512)	$ (2,155,512)	0
2021	772,081	$ 0.1756	1,760	$ 20.08	$ 135,566	$ 35,333	$ 170,899	$ (16,442)	$ (7,081)	$ (23,522)	$ 113,707	$ 33,670	$ 147,377	$ (1,600)	$ 37,800	$ -	$ 183,577	$ (1,971,935)	$ (1,989,025)	1
2022	768,220	$ 0.1809	1,760	$ 20.58	$ 138,935	$ 36,211	$ 175,146	$ (16,935)	$ (7,251)	$ (24,186)	$ 116,456	$ 34,505	$ 150,961	$ 2,716	$ 6,300	$ -	$ 159,976	$ (1,811,958)	$ (1,846,563)	2
2023	764,379	$ 0.1863	1,760	$ 21.09	$ 142,388	$ 37,111	$ 179,499	$ (17,443)	$ (7,425)	$ (24,868)	$ 119,270	$ 35,361	$ 154,631	$ 2,729	$ 6,300	$ -	$ 163,660	$ (1,648,299)	$ (1,700,853)	3
2024	760,557	$ 0.1919	1,760	$ 21.61	$ 145,926	$ 38,033	$ 183,959	$ (17,966)	$ (7,603)	$ (25,570)	$ 122,152	$ 36,238	$ 158,390	$ 2,743	$ 6,300	$ -	$ 167,432	$ (1,480,866)	$ (1,551,817)	4
2025	756,754	$ 0.1976	1,760	$ 22.15	$ 149,552	$ 38,978	$ 188,531	$ (18,505)	$ (7,786)	$ (26,291)	$ 125,103	$ 37,137	$ 162,239	$ 2,756	$ 6,300	$ -	$ 171,296	$ (1,309,571)	$ (1,399,374)	5
2026	752,971	$ 0.2036	1,760	$ 22.70	$ 153,269	$ 39,947	$ 193,216	$ (19,060)	$ (7,973)	$ (27,034)	$ 128,125	$ 38,057	$ 166,182	$ 1,170	$ -	$ -	$ 167,352	$ (1,142,219)	$ (1,251,344)	6
2027	749,206	$ 0.2097	1,760	$ 23.27	$ 157,078	$ 40,940	$ 198,017	$ (19,632)	$ (8,165)	$ (27,797)	$ 131,219	$ 39,001	$ 170,220	$ 2,784	$ -	$ -	$ 173,004	$ (969,215)	$ (1,098,142)	7
2028	745,460	$ 0.2159	1,760	$ 23.84	$ 160,981	$ 41,957	$ 202,938	$ (20,221)	$ (8,361)	$ (28,582)	$ 134,387	$ 39,968	$ 174,355	$ 2,797	$ -	$ -	$ 177,153	$ (792,062)	$ (941,283)	8
2029	741,733	$ 0.2224	1,760	$ 24.44	$ 164,981	$ 43,000	$ 207,981	$ (20,828)	$ (8,562)	$ (29,390)	$ 137,631	$ 40,959	$ 178,591	$ 2,811	$ -	$ -	$ 181,402	$ (610,660)	$ (780,679)	9
2030	738,024	$ 0.2291	1,760	$ 25.04	$ 169,081	$ 44,068	$ 213,149	$ (21,453)	$ (151,087)	$ (172,540)	$ 140,954	$ (100,344)	$ 40,609	$ 2,825	$ -	$ -	$ 43,434	$ (567,226)	$ (758,560)	10
2031	734,334	$ 0.2360	1,760	$ 25.67	$ 173,283	$ 45,163	$ 218,446	$ (22,096)	$ (8,979)	$ (31,075)	$ 144,355	$ 43,015	$ 187,371	$ 1,239	$ -	$ -	$ 188,610	$ (378,617)	$ (591,795)	11
2032	730,662	$ 0.2431	1,760	$ 26.30	$ 177,589	$ 46,285	$ 223,874	$ (22,759)	$ (9,195)	$ (31,954)	$ 147,838	$ 44,082	$ 191,920	$ 2,853	$ -	$ -	$ 194,773	$ (183,843)	$ (419,409)	12
2033	727,009	$ 0.2503	1,760	$ 26.96	$ 182,002	$ 47,436	$ 229,437	$ (23,442)	$ (9,416)	$ (32,858)	$ 151,405	$ 45,175	$ 196,579	$ 2,867	$ -	$ -	$ 199,447	$ 15,603	$ (242,906)	13
2034	723,374	$ 0.2579	1,760	$ 27.63	$ 186,525	$ 48,614	$ 235,139	$ (24,145)	$ (9,643)	$ (33,788)	$ 155,057	$ 46,294	$ 201,351	$ 2,881	$ -	$ -	$ 204,232	$ 219,835	$ (62,188)	14
2035	719,757	$ 0.2656	1,760	$ 28.31	$ 191,160	$ 49,822	$ 240,982	$ (24,869)	$ (9,875)	$ (34,745)	$ 158,796	$ 47,442	$ 206,238	$ 2,896	$ -	$ -	$ 209,133	$ 428,969	$ 122,847	15
2036	716,158	$ 0.2736	1,760	$ 29.02	$ 195,910	$ 51,061	$ 246,971	$ (25,615)	$ (10,113)	$ (35,728)	$ 162,624	$ 48,618	$ 211,242	$ 1,310	$ -	$ -	$ 212,552	$ 641,521	$ 310,703	16
2037	712,577	$ 0.2818	1,760	$ 29.74	$ 200,778	$ 52,329	$ 253,108	$ (26,384)	$ (10,357)	$ (36,740)	$ 166,545	$ 49,823	$ 216,367	$ 2,924	$ -	$ -	$ 219,292	$ 860,813	$ 504,684	17
2038	709,014	$ 0.2902	1,760	$ 30.48	$ 205,768	$ 53,630	$ 259,398	$ (27,175)	$ (10,606)	$ (37,781)	$ 170,559	$ 51,057	$ 221,616	$ 2,939	$ -	$ -	$ 224,555	$ 1,085,368	$ 703,299	18
2039	705,469	$ 0.2989	1,760	$ 31.23	$ 210,881	$ 54,963	$ 265,844	$ (27,991)	$ (10,861)	$ (38,852)	$ 174,669	$ 52,323	$ 226,991	$ 2,953	$ -	$ -	$ 229,945	$ 1,315,313	$ 906,659	19
2040	701,942	$ 0.3079	1,760	$ 32.01	$ 216,122	$ 56,328	$ 272,450	$ (28,830)	$ (102,767)	$ (131,597)	$ 178,877	$ (38,024)	$ 140,853	$ 2,968	$ -	$ -	$ 143,821	$ 1,459,134	$ 1,023,235	20
2041	698,432	$ 0.3171	1,760	$ 32.81	$ 221,492	$ 57,728	$ 279,220	$ (29,695)	$ (47,234)	$ (76,930)	$ 147,343	$ 54,948	$ 202,291	$ 1,383	$ -	$ -	$ 203,673	$ 1,662,807	$ 1,198,987	21
2042	694,940	$ 0.3266	1,760	$ 33.62	$ 226,996	$ 59,163	$ 286,159	$ (30,586)	$ (47,509)	$ (78,095)	$ 151,755	$ 56,309	$ 208,064	$ 2,998	$ -	$ -	$ 211,061	$ 1,873,868	$ 1,381,432	22
2043	691,465	$ 0.3364	1,760	$ 34.46	$ 232,637	$ 60,633	$ 293,270	$ (31,504)	$ (47,790)	$ (79,294)	$ 156,272	$ 57,704	$ 213,976	$ 3,012	$ -	$ -	$ 216,988	$ 2,090,856	$ 1,569,093	23
2044	688,008	$ 0.3465	1,760	$ 35.31	$ 238,418	$ 62,140	$ 300,558	$ (32,449)	$ (48,078)	$ (80,527)	$ 160,897	$ 59,134	$ 220,030	$ 3,027	$ -	$ -	$ 223,058	$ 2,313,914	$ 1,762,095	24
2045	684,568	$ 0.3569	1,760	$ 36.19	$ 244,343	$ 63,684	$ 308,026	$ (33,422)	$ (48,373)	$ (81,796)	$ 165,632	$ 60,598	$ 226,231	$ 3,042	$ -	$ -	$ 229,273	$ 2,543,187	$ 1,960,566	25
	18,187,094	**$ 0.2541**	**43,992**	**$ 27.38**	**$ 4,621,660**	**$ 1,204,556**	**$ 5,826,216**	**$ (599,449)**	**$ (652,092)**	**$ (1,251,541)**	**$ 3,661,626**	**$ 913,048**	**$ 4,574,675**	**$ 61,024**	**$ 63,000**	**$ (2,155,512)**	**$ 2,543,187**	**$ 2,543,187**	**$ 1,960,566**	

Disclaimers and Assumptions

1) Projections of future savings are calculated based on patterns of previous electricity usage with billing data from November 2019, and assume that historical usage patterns hold at the same level over the life of the project.

2) Projections are subject to tariff eligibility over the life of the installation. This analysis uses SDG&E rates published June 2019.

3) This analysis assumes the electrical service will not require significant upgrades.

4) Projections are based on interconnection of all sites under NEM 2.0 tariff. Remaining capacity under NEM 2.0 is subject to availability.

5) Net Operating Benefit does not include repayment of any client capital that may be invested.

6) NEM projects are grandfathered for 20 years. Savings shown beyond year 20 are subject to change based on future NEM structure.

7) This analysis assumes SDG&E SGIP step 3, and a value of $0.35/Wh.

8) Other Expenses includes O&M, Performance Guarantee O&M, Insurance (solar and storage), inverter replacement and battery replacement.

9) Under the PPA Scenario, 'Net Benefits (Solar)' refers to the annual gross savings from solar, less annual solar PPA payments, plus annual solar AMS costs.

10) Under the PPA Scenario , 'Net Benefits (Storage)' refers to the annual savings from storage, less annual payments for battery system services, plus annual AMS costs.

11) Conservative Cumulative Cash Position assumes the solar and storage produce only 90% of the projection production.

12) Management Services include: system performance monitoring, preventive maintenance, warranty enforcement, and detailed energy & financial reporting.

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Coronado USD

Coronado Unified School District

Pro Forma

Stand-Alone Battery Feasibility

Scenarios Included in this Pro Forma:

#1 - Battery Cash Purchase

Summary of Results

Financing Scenario	Net Benefit Year 1	Net Benefit Years 1-10	Years to Payback
#1 - Battery Cash Purchase	$ 13,273	$ 148,380	n/a

Project Portfolio

Meter Name	Service Account ID	Meter Number	Connection Level	Rate (Current)	Rate (After Project)	Program	Customer Usage (kWh)	Max Demand (kW)
#1 - Coronado High School	88849789632	6688020	S	AL-TOU	AL-TOU	AES	200,176	124
#2 - Aquatics Center	28158617826	6574171	S	AL-TOU	AL-TOU	AES	393,964	89
Portfolio Totals							**594,141**	**212**

Savings

Meter Name	Service Account ID	Cumulative Demand (kW)	Demand Reduction (kW)	Battery Sizing	Battery Size (kWh)	Battery Savings	Battery Savings ($/kW)
#1 - Coronado High School	88849789632	1,266	457	36%	120	$ 20,550	$ 44.99
#2 - Aquatics Center	28158617826	968	232	24%	60	$ 10,723	$ 46.12
Totals		**2,234**	**689**	**31%**	**180**	**$ 31,272**	**$ 45.37**

Dashboard

Scenario: #1 - Battery Cash Purchase

Technical Assumptions	
Annual Solar Degradation Factor	0.50%
Total Storage Project Size	180 kWh
Year-1 Demand Reduction	689 kW
Number of SDG&E Accounts	2

Avoided Cost & Revenue Sources	
Savings from Demand Reduction, yr-1	$45.37 /kW
Estimated Utility Energy Cost Escalator	3.00%

Asset Management Services Assumptions	
Asset Management Services, Storage (client-owned)	$500 /battery
Asset Management Services Escalator	3.00%

Total Net Benefit (10 years)	
Gross Project Benefit	$350,114
Total Initial Project Cost	($211,500)
Other Expenses	($7,242)
Asset Management Service	($11,464)
Incentive	$63,000
Total Net Benefit	$182,907

Cash Flow

	Electricity		Utility Savings				Cash Position						
Year	Annual Demand Reduction (kW)	Storage Savings per kW Reduced	Savings from Storage	**Subtotal: Annual Gross Benefits**	Asset Management Service (Storage)	Other Expenses	**Subtotal: Annual Operating Expenses**	Net Benefits (Storage)	Incentive/SGIP	Cash Contribution	Total Cash	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (211,500)	$ (211,500)	$ (211,500)	$ (211,500)	0
2021	689	$ 45.37	$ 31,272	$ 31,272	$ (1,000)	$ (663)	$ (1,663)	$ 29,609	$ 37,800	$ -	$ 67,409	$ (144,091)	$ (147,218)	1
2022	689	$ 46.50	$ 32,049	$ 32,049	$ (1,030)	$ (676)	$ (1,706)	$ 30,343	$ 6,300	$ -	$ 36,643	$ (107,448)	$ (113,780)	2
2023	689	$ 47.66	$ 32,846	$ 32,846	$ (1,061)	$ (689)	$ (1,750)	$ 31,096	$ 6,300	$ -	$ 37,396	$ (70,052)	$ (79,669)	3
2024	689	$ 48.84	$ 33,662	$ 33,662	$ (1,093)	$ (703)	$ (1,795)	$ 31,867	$ 6,300	$ -	$ 38,167	$ (31,886)	$ (44,869)	4
2025	689	$ 50.06	$ 34,498	$ 34,498	$ (1,126)	$ (716)	$ (1,842)	$ 32,657	$ 6,300	$ -	$ 38,957	$ 7,071	$ (9,362)	5
2026	689	$ 51.30	$ 35,356	$ 35,356	$ (1,159)	$ (730)	$ (1,889)	$ 33,466	$ -	$ -	$ 33,466	$ 40,538	$ 20,569	6
2027	689	$ 52.57	$ 36,234	$ 36,234	$ (1,194)	$ (744)	$ (1,938)	$ 34,296	$ -	$ -	$ 34,296	$ 74,834	$ 51,242	7
2028	689	$ 53.88	$ 37,135	$ 37,135	$ (1,230)	$ (759)	$ (1,989)	$ 35,146	$ -	$ -	$ 35,146	$ 109,980	$ 82,675	8
2029	689	$ 55.22	$ 38,058	$ 38,058	$ (1,267)	$ (773)	$ (2,040)	$ 36,017	$ -	$ -	$ 36,017	$ 145,997	$ 114,886	9
2030	689	$ 56.59	$ 39,003	$ 39,003	$ (1,305)	$ (788)	$ (2,093)	$ 36,910	$ -	$ -	$ 36,910	$ 182,907	$ 147,896	10
	6,892	**$ 50.80**	**$ 350,114**	**$ 350,114**	**$ (11,464)**	**$ (7,242)**	**$ (18,706)**	**$ 331,407**	**$ 63,000**	**$ (211,500)**	**$ 182,907**	**$ 182,907**	**$ 147,896**	

Disclaimers and Assumptions

1) Projections of future savings are calculated based on patterns of previous electricity usage with billing data from November 2019, and assume that historical usage patterns hold at the same level over the life of the project.

2) Projections are subject to tariff eligibility over the life of the installation. This analysis uses SDG&E rates published June 2019.

3) Net Operating Benefit does not include repayment of any client capital that may be invested.

4) This analysis assumes SDG&E SGIP step 3, and a value of $0.35/Wh.

5) Conservative Cumulative Cash Position assumes the solar and storage produce only 90% of the projection production.

6) Other Expenses includes Performance Guarantee O&M, and Insurance.

7) Management Services include: system performance monitoring, preventive maintenance, warranty enforcement, and detailed energy & financial reporting

Coronado USD

Pro Forma

RES-BCT Feasibility

Scenarios Included in this Pro Forma:

#1 - RES-BCT: Solar Power Purchase Agreement
#2 - RES-BCT: Solar Cash Purchase

Summary of Results

Financing Scenario	PPA Start Price	PPA Escalator	Net Benefit Year 1	Net Benefit Years 1-10	Net Benefit Years 1-25	Years to Payback
#1 - RES-BCT: Solar Power Purchase Agreement	$ 0.1100	0.00%	$ 24,391	$ 598,144	$ 2,969,450	n/a
#2 - RES-BCT: Solar Cash Purchase			$ (1,719,168)	$ 151,366	$ 3,903,220	n/a

Project Portfolio

Meter Name	Service Account ID	Meter Number	Connection Level	Rate (Current)	Rate (After Project)	Program	Customer Usage (kWh)	Max Demand (kW)
#1 - New Meter Drop	12345678900	1234567	S	DG-R	DG-R	RES-BCT	-	-
#2 - Crown Pre-School 199 (RES-BCT with #1)	73178087428	6574168	S	TOU-M	TOU-M	RES-BCT	101,258	38
#3 - Silver Strand Elementary School (RES-BCT with #1)	19070907072	6686772	S	AL-TOU	AL-TOU	RES-BCT	180,873	59
#4 - Village Elementary School (RES-BCT with #1)	73168716705	6574169	S	AL-TOU	AL-TOU	RES-BCT	307,196	94
#5 - Coronado Middle School (RES-BCT with #1)	94880793020	6574659	S	AL-TOU	AL-TOU	RES-BCT	407,286	135
#6 - Coronado High School (RES-BCT with #1)	28154369588	6574170	S	AL-TOU	AL-TOU	RES-BCT	1,015,426	361
#7 - Crown Pre-School 201 (RES-BCT with #1)	8563448421	6574214	S	AL-TOU	AL-TOU	RES-BCT	88,786	25
#8 - Aquatics Center (RES-BCT with #1)	28158617826	6574171	S	AL-TOU	AL-TOU	RES-BCT	393,964	89
#9 - Coronado High School (RES-BCT with #1)	88849789632	6688020	S	AL-TOU	AL-TOU	RES-BCT	200,176	124
#10 - Palm Academy (RES-BCT with #1)	90567086340	6307718	S	AL-TOU	AL-TOU	RES-BCT	13,384	5
Portfolio Totals							**2,708,349**	**929**

Savings

Meter Name	Service Account ID	Customer Usage (kWh)	Solar Production (kWh)	Solar Sizing	Solar Array Size (kW)	Solar Savings	Solar Savings ($/kWh)
#1 - New Meter Drop	12345678900	-	1,719,656	63%	1,100	$ (2,596)	$ 0.1294
#2 - Crown Pre-School 199 (RES-BCT with #1)	73178087428	101,258		-		$ 8,211	
#3 - Silver Strand Elementary School (RES-BCT with #1)	19070907072	180,873		-		$ 15,401	
#4 - Village Elementary School (RES-BCT with #1)	73168716705	307,196		-		$ 25,213	
#5 - Coronado Middle School (RES-BCT with #1)	94880793020	407,286		-		$ 33,286	
#6 - Coronado High School (RES-BCT with #1)	28154369588	1,015,426		-		$ 85,266	
#7 - Crown Pre-School 201 (RES-BCT with #1)	8563448421	88,786		-		$ 7,475	
#8 - Aquatics Center (RES-BCT with #1)	28158617826	393,964		-		$ 32,335	
#9 - Coronado High School (RES-BCT with #1)	88849789632	200,176		-		$ 16,902	
#10 - Palm Academy (RES-BCT with #1)	90567086340	13,384		-		$ 1,057	
Totals		**2,708,349**	**1,719,656**	**63%**	**1,100**	**$ 222,551**	**$ 0.1294**

Dashboard

Scenario: #1 - RES-BCT: Solar Power Purchase Agreement

Technical Assumptions	
Total Solar Project Size	1.10 MW, DC
Annual Solar Yield	1,563 kWh/kW
Year-1 Solar Production	1,719,656 kWh
Annual Solar Degradation Factor	0.50%
Number of SDG&E Accounts	10

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1294 /kWh
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Pricing	
PPA Rate	$0.1100
PPA Annual Escalator	0.00%

Asset Management Services Assumptions	
Asset Management Services, Solar (PPA)	$0.0050 /kWh
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$7,587,093
Power Purchase Agreement (PPA) Payments	($4,455,894)
Asset Management Service	($313,487)
Renewable Energy Certificates (RECs)	$151,738
Total Net Benefit	$2,969,450

Cash Flow

	Electricity		Utility Savings		Expenses			Cash Position					
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Savings from Solar	**Subtotal: Annual Gross Benefits**	PPA Payments	Asset Management Service (Solar)	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Renewable Energy Certificates (RECs)	Total Cash	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0
2021	1,719,656	$ 0.1294	$ 222,551	$ 222,551	$ (189,162)	$ (8,598)	$ (197,760)	$ 24,791	$ (400)	$ 24,391	$ 24,391	$ 2,136	1
2022	1,711,057	$ 0.1333	$ 228,081	$ 228,081	$ (188,216)	$ (8,856)	$ (197,073)	$ 31,009	$ 6,049	$ 37,057	$ 61,448	$ 16,385	2
2023	1,702,502	$ 0.1373	$ 233,749	$ 233,749	$ (187,275)	$ (9,122)	$ (196,397)	$ 37,352	$ 6,079	$ 43,431	$ 104,879	$ 36,441	3
2024	1,693,990	$ 0.1414	$ 239,558	$ 239,558	$ (186,339)	$ (9,396)	$ (195,734)	$ 43,823	$ 6,109	$ 49,932	$ 154,811	$ 62,417	4
2025	1,685,520	$ 0.1457	$ 245,511	$ 245,511	$ (185,407)	$ (9,677)	$ (195,085)	$ 50,426	$ 6,139	$ 56,565	$ 211,376	$ 94,431	5
2026	1,677,092	$ 0.1500	$ 251,612	$ 251,612	$ (184,480)	$ (9,968)	$ (194,448)	$ 57,164	$ 5,769	$ 62,933	$ 274,309	$ 132,203	6
2027	1,668,707	$ 0.1545	$ 257,864	$ 257,864	$ (183,558)	$ (10,267)	$ (193,825)	$ 64,040	$ 6,200	$ 70,240	$ 344,549	$ 176,656	7
2028	1,660,363	$ 0.1592	$ 264,272	$ 264,272	$ (182,640)	$ (10,575)	$ (193,215)	$ 71,058	$ 6,230	$ 77,288	$ 421,837	$ 227,517	8
2029	1,652,061	$ 0.1639	$ 270,840	$ 270,840	$ (181,727)	$ (10,892)	$ (192,619)	$ 78,221	$ 6,261	$ 84,482	$ 506,319	$ 284,915	9
2030	1,643,801	$ 0.1689	$ 277,570	$ 277,570	$ (180,818)	$ (11,219)	$ (192,037)	$ 85,533	$ 6,292	$ 91,825	$ 598,144	$ 348,983	10
2031	1,635,582	$ 0.1739	$ 284,467	$ 284,467	$ (179,914)	$ (11,555)	$ (191,469)	$ 92,998	$ 5,923	$ 98,922	$ 697,066	$ 419,458	11
2032	1,627,404	$ 0.1791	$ 291,537	$ 291,537	$ (179,014)	$ (11,902)	$ (190,916)	$ 100,620	$ 6,355	$ 106,975	$ 804,041	$ 497,279	12
2033	1,619,267	$ 0.1845	$ 298,781	$ 298,781	$ (178,119)	$ (12,259)	$ (190,378)	$ 108,403	$ 6,386	$ 114,789	$ 918,830	$ 582,190	13
2034	1,611,171	$ 0.1901	$ 306,206	$ 306,206	$ (177,229)	$ (12,627)	$ (189,856)	$ 116,350	$ 6,418	$ 122,768	$ 1,041,598	$ 674,338	14
2035	1,603,115	$ 0.1958	$ 313,815	$ 313,815	$ (176,343)	$ (13,006)	$ (189,348)	$ 124,467	$ 6,450	$ 130,916	$ 1,172,514	$ 773,873	15
2036	1,595,099	$ 0.2016	$ 321,613	$ 321,613	$ (175,461)	$ (13,396)	$ (188,857)	$ 132,757	$ 6,082	$ 138,838	$ 1,311,352	$ 880,549	16
2037	1,587,124	$ 0.2077	$ 329,606	$ 329,606	$ (174,584)	$ (13,798)	$ (188,381)	$ 141,224	$ 6,514	$ 147,738	$ 1,459,090	$ 995,327	17
2038	1,579,188	$ 0.2139	$ 337,796	$ 337,796	$ (173,711)	$ (14,212)	$ (187,922)	$ 149,874	$ 6,546	$ 156,420	$ 1,615,510	$ 1,117,967	18
2039	1,571,292	$ 0.2203	$ 346,190	$ 346,190	$ (172,842)	$ (14,638)	$ (187,480)	$ 158,710	$ 6,578	$ 165,289	$ 1,780,798	$ 1,248,636	19
2040	1,563,436	$ 0.2269	$ 354,793	$ 354,793	$ (171,978)	$ (15,077)	$ (187,055)	$ 167,738	$ 6,611	$ 174,349	$ 1,955,147	$ 1,387,506	20
2041	1,555,619	$ 0.2337	$ 363,610	$ 363,610	$ (171,118)	$ (15,529)	$ (186,647)	$ 176,962	$ 6,244	$ 183,206	$ 2,138,353	$ 1,534,351	21
2042	1,547,840	$ 0.2408	$ 372,646	$ 372,646	$ (170,262)	$ (15,995)	$ (186,258)	$ 186,388	$ 6,676	$ 193,064	$ 2,331,417	$ 1,690,151	22
2043	1,540,101	$ 0.2480	$ 381,906	$ 381,906	$ (169,411)	$ (16,475)	$ (185,886)	$ 196,020	$ 6,709	$ 202,729	$ 2,534,146	$ 1,854,689	23
2044	1,532,401	$ 0.2554	$ 391,396	$ 391,396	$ (168,564)	$ (16,969)	$ (185,534)	$ 205,863	$ 6,743	$ 212,605	$ 2,746,752	$ 2,028,155	24
2045	1,524,739	$ 0.2631	$ 401,122	$ 401,122	$ (167,721)	$ (17,479)	$ (185,200)	$ 215,923	$ 6,776	$ 222,699	$ 2,969,450	$ 2,210,741	25
	40,508,124	**$ 0.1873**	**$ 7,587,093**	**$ 7,587,093**	**$ (4,455,894)**	**$ (313,487)**	**$ (4,769,381)**	**$ 2,817,713**	**$ 151,738**	**$ 2,969,450**	**$ 2,969,450**	**$ 2,210,741**	

Dashboard

Scenario: #2 - RES-BCT: Solar Cash Purchase

Technical Assumptions	
Total Solar Project Size	1.10 MW, DC
Annual Solar Yield	1,563 kWh/kW
Year-1 Solar Production	1,719,656 kWh
Solar System Cost	$1.73 /Wp
Annual Solar Degradation Factor	0.50%
Number of SDG&E Accounts	10

Avoided Cost & Revenue Sources	
Savings from Solar Production, yr-1	$0.1294 /kWh
Estimated Utility Energy Cost Escalator	3.00%
Average 25-year REC Price	$0.0040 /kWh

Asset Management Services Assumptions	
Asset Management Services, Solar (client-owned)	$0.0180 /kWh
Asset Management Services Escalator	3.00%

Total Net Benefit (25 years)	
Gross Project Benefit	$7,587,093
Total Initial Project Cost	($1,897,633)
Other Expenses	($809,426)
Asset Management Service	($1,128,553)
Renewable Energy Certificates (RECs)	$151,738
Total Net Benefit	$3,903,220

Cash Flow

TerraVerde ENERGY

	Electricity		Utility Savings					Cash Position						
Year	Annual Solar Production (kWh)	Solar Savings per kWh Produced	Savings from Solar	**Subtotal: Annual Gross Benefits**	Asset Management Service (Solar)	Other Expenses	**Subtotal: Annual Operating Expenses**	Net Benefits (Solar)	Renewable Energy Certificates (RECs)	Cash Contribution	Total Cash	**Cumulative Cash Position**	**Conservative Cumulative Cash Position**	Term
2020	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,897,633)	$ (1,897,633)	$ (1,897,633)	$ (1,897,633)	0
2021	1,719,656	$ 0.1294	$ 222,551	$ 222,551	$ (30,954)	$ (12,733)	$ (43,686)	$ 178,865	$ (400)	$ -	$ 178,465	$ (1,719,168)	$ (1,741,423)	1
2022	1,711,057	$ 0.1333	$ 228,081	$ 228,081	$ (31,882)	$ (13,048)	$ (44,930)	$ 183,151	$ 6,049	$ -	$ 189,200	$ (1,529,968)	$ (1,575,032)	2
2023	1,702,502	$ 0.1373	$ 233,749	$ 233,749	$ (32,839)	$ (13,371)	$ (46,210)	$ 187,540	$ 6,079	$ -	$ 193,618	$ (1,336,350)	$ (1,404,788)	3
2024	1,693,990	$ 0.1414	$ 239,558	$ 239,558	$ (33,824)	$ (13,702)	$ (47,526)	$ 192,032	$ 6,109	$ -	$ 198,141	$ (1,138,209)	$ (1,230,603)	4
2025	1,685,520	$ 0.1457	$ 245,511	$ 245,511	$ (34,839)	$ (14,041)	$ (48,880)	$ 196,631	$ 6,139	$ -	$ 202,770	$ (935,439)	$ (1,052,384)	5
2026	1,677,092	$ 0.1500	$ 251,612	$ 251,612	$ (35,884)	$ (14,388)	$ (50,272)	$ 201,339	$ 5,769	$ -	$ 207,109	$ (728,330)	$ (870,437)	6
2027	1,668,707	$ 0.1545	$ 257,864	$ 257,864	$ (36,960)	$ (14,745)	$ (51,705)	$ 206,159	$ 6,200	$ -	$ 212,359	$ (515,971)	$ (683,864)	7
2028	1,660,363	$ 0.1592	$ 264,272	$ 264,272	$ (38,069)	$ (15,110)	$ (53,179)	$ 211,093	$ 6,230	$ -	$ 217,324	$ (298,647)	$ (492,967)	8
2029	1,652,061	$ 0.1639	$ 270,840	$ 270,840	$ (39,211)	$ (15,484)	$ (54,695)	$ 216,144	$ 6,261	$ -	$ 222,406	$ (76,242)	$ (297,646)	9
2030	1,643,801	$ 0.1689	$ 277,570	$ 277,570	$ (40,388)	$ (15,867)	$ (56,255)	$ 221,315	$ 6,292	$ -	$ 227,607	$ 151,366	$ (97,795)	10
2031	1,635,582	$ 0.1739	$ 284,467	$ 284,467	$ (41,599)	$ (16,260)	$ (57,859)	$ 226,608	$ 5,923	$ -	$ 232,532	$ 383,897	$ 106,289	11
2032	1,627,404	$ 0.1791	$ 291,537	$ 291,537	$ (42,847)	$ (16,663)	$ (59,510)	$ 232,026	$ 6,355	$ -	$ 238,381	$ 622,278	$ 315,517	12
2033	1,619,267	$ 0.1845	$ 298,781	$ 298,781	$ (44,133)	$ (17,075)	$ (61,208)	$ 237,573	$ 6,386	$ -	$ 243,959	$ 866,238	$ 529,598	13
2034	1,611,171	$ 0.1901	$ 306,206	$ 306,206	$ (45,457)	$ (17,498)	$ (62,955)	$ 243,251	$ 6,418	$ -	$ 249,669	$ 1,115,906	$ 748,646	14
2035	1,603,115	$ 0.1958	$ 313,815	$ 313,815	$ (46,820)	$ (17,932)	$ (64,752)	$ 249,063	$ 6,450	$ -	$ 255,513	$ 1,371,419	$ 972,778	15
2036	1,595,099	$ 0.2016	$ 321,613	$ 321,613	$ (48,225)	$ (18,376)	$ (66,601)	$ 255,013	$ 6,082	$ -	$ 261,094	$ 1,632,513	$ 1,201,710	16
2037	1,587,124	$ 0.2077	$ 329,606	$ 329,606	$ (49,672)	$ (18,831)	$ (68,503)	$ 261,103	$ 6,514	$ -	$ 267,616	$ 1,900,130	$ 1,436,366	17
2038	1,579,188	$ 0.2139	$ 337,796	$ 337,796	$ (51,162)	$ (19,297)	$ (70,459)	$ 267,337	$ 6,546	$ -	$ 273,883	$ 2,174,013	$ 1,676,470	18
2039	1,571,292	$ 0.2203	$ 346,190	$ 346,190	$ (52,697)	$ (19,775)	$ (72,472)	$ 273,718	$ 6,578	$ -	$ 280,297	$ 2,454,309	$ 1,922,147	19
2040	1,563,436	$ 0.2269	$ 354,793	$ 354,793	$ (54,278)	$ (20,265)	$ (74,543)	$ 280,250	$ 6,611	$ -	$ 286,861	$ 2,741,170	$ 2,173,529	20
2041	1,555,619	$ 0.2337	$ 363,610	$ 363,610	$ (55,906)	$ (95,938)	$ (151,844)	$ 211,765	$ 6,244	$ -	$ 218,009	$ 2,959,179	$ 2,355,177	21
2042	1,547,840	$ 0.2408	$ 372,646	$ 372,646	$ (57,583)	$ (96,453)	$ (154,036)	$ 218,609	$ 6,676	$ -	$ 225,286	$ 3,184,465	$ 2,543,198	22
2043	1,540,101	$ 0.2480	$ 381,906	$ 381,906	$ (59,311)	$ (96,980)	$ (156,291)	$ 225,615	$ 6,709	$ -	$ 232,324	$ 3,416,790	$ 2,737,332	23
2044	1,532,401	$ 0.2554	$ 391,396	$ 391,396	$ (61,090)	$ (97,520)	$ (158,610)	$ 232,786	$ 6,743	$ -	$ 239,528	$ 3,656,318	$ 2,937,721	24
2045	1,524,739	$ 0.2631	$ 401,122	$ 401,122	$ (62,923)	$ (98,074)	$ (160,997)	$ 240,125	$ 6,776	$ -	$ 246,902	$ 3,903,220	$ 3,144,510	25
	40,508,124	**$ 0.1873**	**$ 7,587,093**	**$ 7,587,093**	**$ (1,128,553)**	**$ (809,426)**	**$ (1,937,979)**	**$ 5,649,115**	**$ 151,738**	**$ (1,897,633)**	**$ 3,903,220**	**$ 3,903,220**	**$ 3,144,510**	

Disclaimers and Assumptions

1) Projections of future savings are calculated based on patterns of previous electricity usage with billing data from November 2019, and assume that historical usage patterns hold at the same level over the life of the project.

2) Projections are subject to tariff eligibility over the life of the installation. This analysis uses SDG&E rates published June 2019.

3) This analysis assumes the electrical service will not require significant upgrades.

4) Net Operating Benefit does not include repayment of any client capital that may be invested.

5) Other Expenses includes O&M, Insurance and inverter replacement.

6) Analysis assumes that the District will procure land suitable for the proposed solar PV system size. This analysis does not assume any costs for land.

7) Project configuration assumptions include: 1.1MWdc ground-mount, fixed-tilt system, on ~5 acres, undeveloped flat land without shading, and without challenging interconnection scope.

8) Under the PPA Scenario, 'Net Benefits (Solar)' refers to the annual gross savings from solar, less annual solar PPA payments, plus annual solar AMS costs.

9) Conservative Cumulative Cash Position assumes the solar and storage produce only 90% of the projection production.

10) Management Services include: system performance monitoring, preventive maintenance, warranty enforcement, and detailed energy & financial reporting